

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

TECHNICAL LETTER NUMBER 3  
TIMES AND LOCATIONS OF EXPLOSIONS

U. S. GEOLOGICAL SURVEY

1962 FIELD SEASON\*

by

John C. Roller\*\*

October 5, 1962

DENVER, COLORADO

This page intentionally left blank



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Technical Letter  
Crustal Studies-3  
October 5, 1962

Dr. Charles C. Bates  
Chief, VELA UNIFORM Branch  
Advanced Research Projects Agency  
Department of Defense  
Pentagon  
Washington 25, D. C.

Dear Dr. Bates:

Transmitted herewith are 10 copies of:

TECHNICAL LETTER NUMBER 3  
TIMES AND LOCATIONS OF EXPLOSIONS  
U. S. GEOLOGICAL SURVEY

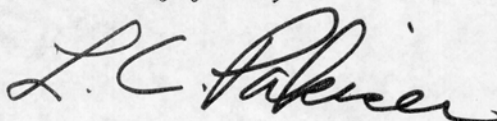
1962 FIELD SEASON\*

by

John C. Roller\*\*

October 5, 1962

Sincerely yours,



L. C. Pakiser, Chief  
Branch of Crustal Studies

\* Work performed under ARPA Order No. 193-62

\*\* U. S. Geological Survey, Denver, Colorado

This page intentionally left blank



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Technical Letter  
Crustal Studies-3  
October 5, 1962

TIMES AND LOCATIONS OF EXPLOSIONS  
U. S. GEOLOGICAL SURVEY  
1962 FIELD SEASON\*

by

John C. Roller\*\*

The U. S. Geological Survey detonated 86 large charges of chemical explosives in the western United States from 6 June to 9 August, 1962, in a study of crustal structure in the western United States.

This Technical Letter consists of two tables containing information about these explosions. Table I gives a brief geographical description of the shotpoints, and Table II gives the date, time, location, charge size, surface elevation, and some general information about the shots. In the Remarks column (Table II), the configuration and depth of most of the charges are given. This part of the table is not complete, as some of this information has not yet been compiled.

Three types of explosives were used in the program. These were: Nitramon WW, a carbo-nitrate blasting agent; Composition B, a mixture of RDX and TNT; and Tovex-Gel, a non-nitroglycerin blasting slurry.

The loading, firing, and surveying was done by United ElectroDynamics, Inc., of Pasadena, California. The timing was done by the U. S. Geological Survey.

\* Work performed under ARPA Order No. 193-62

\*\* U. S. Geological Survey, Denver, Colorado

Table I

## BRIEF GEOGRAPHICAL DESCRIPTION OF SHOTPOINTS

Shotpoint	Location
Barstow	Near Barstow, Calif.
Boise	In Lucky Peak Reservoir, Idaho.
Mountain City	Near Mountain City, Nev.
China	On China Lake Naval Ordnance Test Station, Calif.
Elko	Near Elko, Nev.
Eureka	Near Eureka, Nev.
Hiko	In Coal Valley, north of Hiko, Nev.
Kingman	Near Kingman, Ariz.
Lathrop	Near Lathrop Wells, Nev.
Lida	Near Lida Junction, Nev.
Ludlow	Near Ludlow, Calif.
Mead	In Lake Mead, Nev.
Mojave	Near Mojave, Calif.
Mono	In Mono Lake, near Lee Vining, Calif.
Navajo	Near Navajo Lake, east of Cedar City, Utah.
Independence	Near Independence, Calif., in Owens Valley.
Shasta	In Shasta Lake, near Redding, Calif.
Strike	In C. J. Strike Reservoir, near Bruneau, Idaho.

Table II  
Times and Locations of Explosions  
U. S. Geological Survey  
1962 Field Season

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Barstow 1	8-6-62	8:30:00:02	34 <sup>34</sup> 34°58.17'	117°04.23'	7,000	754.5	Drill Holes	
Barstow 2	8-7-62	7:00:00:03	---do----	---do-----	4,000	754.5	Drill Holes	
Barstow 3	8-8-62	6:59:59:94	---do----	---do-----	7,000	754.5	Drill Holes	
Boise 1	7-10-62	7:15:00:13	43°34.70'	115°58.95'	2,000	931.0	Water	2,000# Composition B in single charge in 130' of water.
ω Boise 2	7-10-62	14:30:00:13	---do----	---do-----	4,000	--do--	-do--	2 charges in 130' water, 75' apart.
Boise 3	7-11-62	10:00:00:10	---do----	---do-----	6,000	--do--	-do--	3 charges in 130' water, 75' apart.
Mountain City 1	7-5-62	7:59:59:97	24 41°50.16'	53.70 115°15.72'	8,000	1863.5	-do--	4,000# in each of 2 holes, 50' apart, 65' to top of charge.
Mountain City 2	7-6-62	7:30:00:02	---do----	---do-----	6,000	--do--	-do--	2 holes, 70' apart, with 3,000# in each, 80' deep.
Mountain City 3	7-7-62	6:59:59:95	---do----	---do-----	4,000	--do--	-do--	4,000# in 1 hole, top charge 70', bottom charge 142'.



Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Mountain City 4	7-9-62	12:30:00:19	41°50.16'	115°15.72'	6,000	1863.5	Water	
Mountain City 5	7-10-62	15:30:00:19	---do----	---do-----	4,000	--do--	-do--	
Mountain City 6	7-11-62	9:00:00:08	---do----	---do-----	8,000	--do--	-do--	2 holes, 5,000# and 3,000# of Tovex.
China 1	7-26-62	6:29:59:99	<i>35°47.00'</i> ---do----	<i>117°44.96'</i> ---do-----	4,000	677.0	Drill Holes	4,000# in 1 hole, 120' to top of charge.
China 2	7-27-62	6:30:00:01	---do----	---do-----	7,200	--do--	-do--	3,900# in hole, 120' deep and 3,300# in hole 105' deep, holes 50' apart.
China 3	8-4-62	7:00:00:05	---do----	---do-----	9,100	--do--	-do--	3 holes, 100' apart, 80' to top of charge.
Elko 1	7-5-62	9:00:00:11	40°46.23'	115°40.97'	6,000	1625.0	-do--	
Elko 2	7-6-62	8:00:00:07	---do----	---do-----	4,000	--do--	-do--	
Elko 3	7-7-62	7:30:00:23	---do----	---do-----	6,000	--do--	-do--	
Elko 4	7-23-62	13:30:00:10	---do----	---do-----	8,000	--do--	-do--	Single charge, 75' to top of charge.
Elko 5	7-24-62	7:40:00:10	---do----	---do-----	12,000	--do--	-do--	2 6-3/4" holes, 50' apart, 80' and 90' to top of charges.

Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Eureka 1	6-21-62	8:30:00:14	39°30.82'	115°39.00'	8,000	1806.0	Drill Holes	5 holes, 100' apart.
Eureka 2	6-22-62	8:30:00:01	---do----	---do-----	7,000	--do--	-do--	7,000# in 1 hole, 80' to top of charge.
Eureka 3	6-25-62	8:30:00:00	---do----	---do-----	6,000	--do--	-do--	2 holes, 100' apart, 50' to top of charge.
Eureka 4	6-26-62	9:00:00:32	---do----	---do-----	3,500	--do--	-do--	2 holes, 100' apart, 30' to top of charge.
Eureka 5	7-5-62	8:29:59:96	---do----	---do-----	3,500	--do--	-do--	1,750# in 2 holes, 100' apart and 65' to top of charge.
Eureka 6	7-6-62	9:30:00:09	---do----	---do-----	7,000	--do--	-do--	1,750# in 4 holes ea., 80' deep, 100' apart.
Eureka 7	7-7-62	8:00:00:10	---do----	---do-----	7,000	--do--	-do--	4 holes, one of the 1,000# charges didn't fire. Total shots fired 7,000#, 4,300# at 80', 1,000# at 65', 1,000# at 65', and 1,700# at 65'.
Eureka 10	7-12-62	17:15:00:00	---do----	---do-----	11,000	--do--	-do--	
Hiko 1	6-21-62	9:00:00:19	37°54.20'	115°13. <sup>80</sup> <del>90</del> '	4,000	<del>1538</del>	-do--	
Hiko 2	6-22-62	9:00:00:20	---do----	---do-----	3,000	--do--	-do--	

Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Hiko 3	6-25-62	9:00: (exact time unknown)	37°54.20'	115°13. <sup>80</sup> <del>90</del> '	4,000	<sup>1538</sup> <del>1806</del> .0	Drill Holes	
Kingman 1	6-23-62	7:30:00:12	35°19.36'	114°03.92'	6,000	1180.0	Drill Holes	
Kingman 2	6-23-62	13:15:00:07	---do----	---do-----	4,000	--do--	-do--	
Kingman 3	6-24-62	11:30:00:65	---do----	---do-----	6,000	--do--	-do--	
Kingman 4	7-22-62	6:59:59:99	---do----	---do-----	8,000	--do--	-do--	
o Lathrop 1	6-7-62	13:50:00:11	36°37.18'	116°13.76'	6,000	951.0	-do--	
Lathrop 2	6-12-62	9:00:00:09	---do----	---do-----	4,000	--do--	-do--	
Lathrop 3	6-14-62	13:34:59:96	---do----	---do-----	4,000	--do--	-do--	
Lida 1	6-7-62	12:29:59:85	37°20.96'	117°29.54'	2,000	<sup>1658</sup> <del>---</del>	-do--	
Lida 2	6-8-62	8:59:59:94	---do----	---do-----	3,020	--do--	-do--	
Lida 3	6-11-62	8:59:59:25	---do----	---do-----	4,040	--do--	-do--	
Ludlow 1	8-6-62	7:00:00:09	34°49.36'	116°11.02'	12,000	396.5	-do--	4,000# in each of 3 holes, 50' apart and 80' deep.
Ludlow 2	8-7-62	7:30:00:01	---do----	---do-----	7,000	--do--	-do--	



Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Ludlow 3	8-8-62	7:30:00:01	34°49.36'	116°11.02'	4,000	396.5	Drill Holes	2 holes, 20' apart, 2,000# each hole.
Ludlow 4	8-8-62	14:30:00:01	---do----	----do----	4,000	--do--	-do--	1 hole, 80' to top of charge.
Ludlow 5	8-9-62	7:15:00:01	---do----	----do----	8,000	--do--	-do--	Charge distributed in 4 holes.
Ludlow 6	8-9-62	19:30:00:00	---do----	----do----	12,000	--do--	-do--	3 holes, 50' apart, 50' to top of charge.
Mead 2	6-8-62	13:45:00:16	36°05.28'	114°47.96	6,000	369.0	Water	Depth 210'.
Mead 3	6-11-62	9:30:00:14	---do----	----do----	6,000	369.0	-do--	----Do----
Mead 4	6-12-62	9:30:00:17	---do----	----do----	4,000	--do--	-do--	----Do----
Mead 5	6-14-62	13:00:00:15	---do----	----do----	4,000	--do--	-do--	----Do----
Mead 6	6-19-62	12:40:00:08	---do----	----do----	2,000	--do--	-do--	Single charge at 210'.
Mead 7	6-20-62	9:35:00:14	---do----	----do----	2,000	--do--	-do--	----Do-----
Mead 8	6-21-62	9:30:00:09	---do----	----do----	4,100	--do--	-do--	2 charges, 2,050# each at 210'.
Mead 9	6-22-62	9:30:00:00	---do----	----do----	6,000	--do--	-do--	3 charges, 2,000# each at 210'.
Mead 10	6-25-62	9:30:00:10	---do----	----do----	6,000	--do--	-do--	----Do-----

# Times and Locations of Explosions---Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Mojave 1	8-6-62	8:15:00:15	35°03.02'	118°00.33'	4,200	786.5	Drill Holes	3 charges of 1,400# in 3 drill holes 50' apart at depths of 25', 34', & 45'.
Mojave 2	8-7-62	6:30:00:17	---do----	----do----	7,000	--do--	-do--	3 charges of 2,000# each in 3 holes 25' apart, 50', 70', & 80' deep.
Mojave 3	8-8-62	6:30:00:00	---do----	----do----	12,000	--do--	-do--	Charge distributed in 7 holes, top of charges approx. 45'.
∞ Mono 1A	6-6-62	12:00:00:05	37° <sup>9</sup> <del>50</del> .00'	119°07.60'	8,000	--do--	Water	Charge in 50' water.
Mono 1	6-7-62	12:00:00:14	---do----	----do----	2,000	1949.5	--do-	-----Do.-----
Mono 2	6-8-62	8:30:00:06	---do----	----do----	4,000	--do--	--do-	-----Do.-----
Mono 3	6-11-62	8:30:00:08	---do----	----do----	6,000	--do--	--do-	-----Do.-----
Mono 4	6-12-62	8:30:00:03	---do----	----do----	8,000	--do--	--do-	-----Do.-----
Mono 5	6-19-62	7:30:00:26	---do----	----do----	10,000	--do--	--do-	5 charges of Composi- tion B, 2,000# each in 50' water.
Mono 6	7-26-62	7:20:00:10	---do----	----do----	8,000	--do--	--do-	3 closely spaced charges in 50' water.

Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Mono 7	7-27-62	7:30:00:07	37°5 <sup>9</sup> 00'	119°07.60'	5,000	1949.5	Water	2 closely spaced charges in 50' water; Composition B.
Mono 8	7-31-62	7:29:59:98	---do----	----do----	2,500	--do--	-do--	1 charge in 50' water, Composition B.
Mono 9	8-1-62	7:30:00:04	---do----	----do----	5,000	--do--	-do--	2 charges of 2,500# Composition B, 15' apart in 50' water.
Mono 10	8-2-62	7:30:00:05	---do----	----do----	8,000	--do--	-do--	3 charges of Composition B, 40' apart in 50' water.
Mono 11	8-3-62	7:30:00:05	---do----	----do----	10,000	--do--	-do--	-----Do.-----
Mono 12	8-4-62	7:30:00:07	---do----	----do----	2,500	--do--	-do--	Single charge of Composition B, 50' deep.
Mono 13	8-5-62	6:29:59:98	---do----	----do----	10,000	--do--	-do--	2 charges of 5,000# each, 50' apart in 50' water.
Nava jo 1	7-19-62	7:15:00:02	37°32.53'	112°47.55'	6,000	2912.0	Drill Holes	
Nava jo 2	7-20-62	7:15:00:05	---do----	----do----	4,000	--do--	-do--	
Nava jo 3	7-21-62	8:30:00:06	---do----	----do----	10,000	--do--	-do--	



Times and Locations of Explosions--Continued

Shot No.	Date	Mountain Standard Time	Latitude	Longitude	Charge size	Surface Elevation in meters	Type Shot	Remarks
Independence 1	7-26-62	7:40:00:09	36°44.79'	118°15.72'	6,000	1655.0	Drill Holes	
Independence 2	7-27-62	6:59:59:90	---do----	----do----	4,000	--do--	-do--	
Independence 3	8-4-62	8:00:00:01	---do----	----do----	6,000	--do--	-do--	
Shasta 1	7-31-62	6:59:59:97	40°46.17'	122°13. <sup>9</sup> 2'	6,000	314.0	Water	Depth 125'.
Shasta 2	8-1-62	6:59:59:94	---do----	----do----	6,000	--do--	-do--	----Do.----
Shasta 3	8-2-62	6:59:59:98	---do----	----do----	6,000	--do--	-do--	----Do.----
Shasta 4	8-3-62	7:00:00:21	---do----	----do----	3,000	--do--	-do--	----Do.----
50 Strike 1	7-9-62	13:00:00:04	42°55.29'	115°53.70	2,500	<del>748.2</del> 748.2	-do--	Depth approx. 70'.
Strike 2	7-10-62	15:00:00:00	---do----	----do----	2,500	--do--	-do--	
Strike 3	7-11-62	11:30:00:11	---do----	----do----	5,000	--do--	-do--	