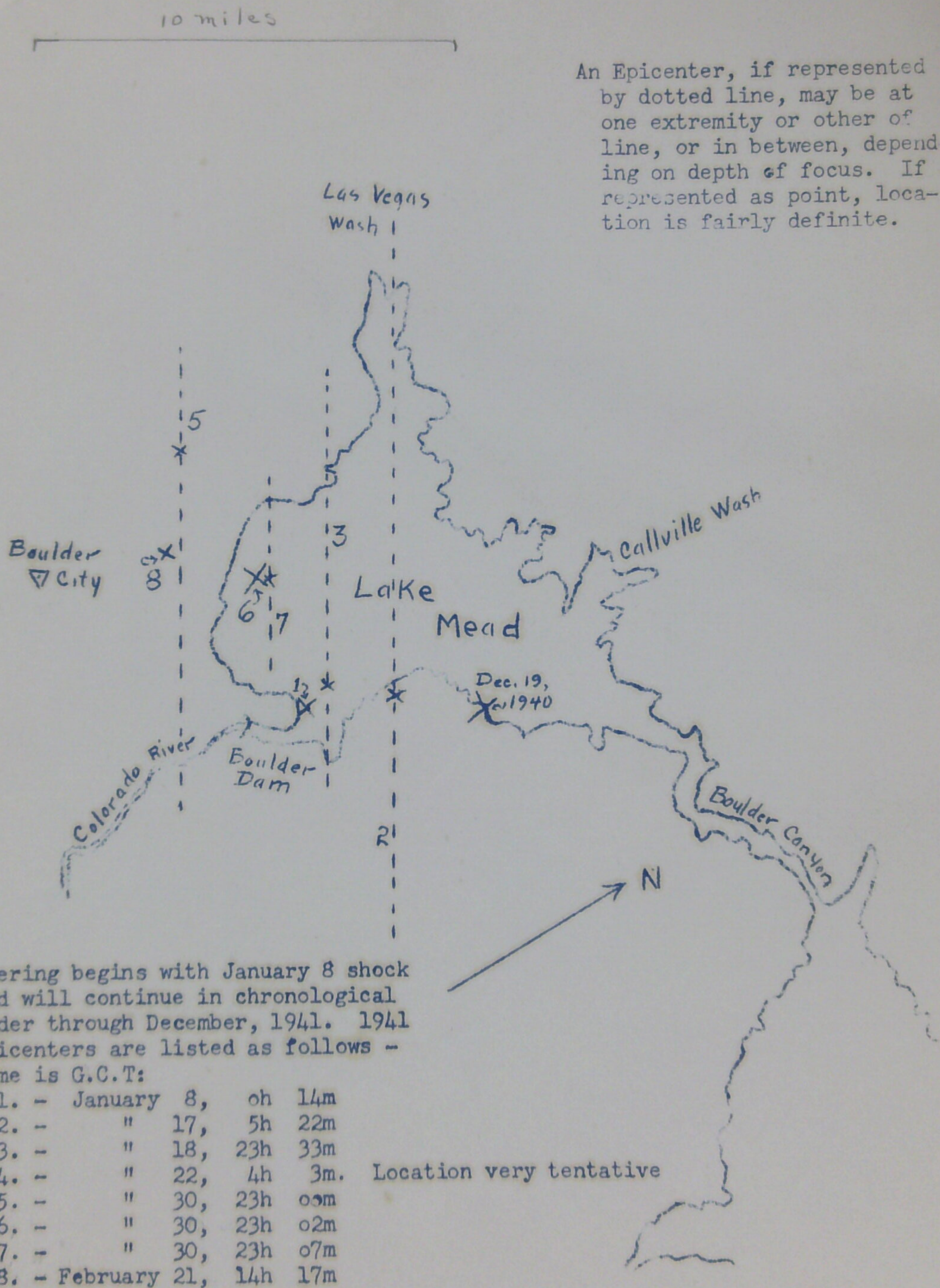


Tentative Epicenters
Lake Mead Area
December, 1940, January and February, 1941.

Lake Mead complete 1941
International
Seismological
Centre



Muddy Mountains

September 11

Tentative Epicenters
Lake Mead Area
September, October and November, 1940.

An Epicenter, if represented by
dotted line, may be at one ex-
tremity or other of line, or in
between, depending on depth of
focus. If represented as a point,
location is fairly definite.

10 miles

LAKE
MEAD

Boulder Canyon

Callville Wash

November 9

November 13

Swarm

September 25-27

October 21

Lus Vegas Wash

Boulder Dam

Colorado River

Boulder City

Lake Mead Seismological Stations

INSTRUMENTAL CONSTANTS - 1941.

BOULDER CITY, Nevada, Bureau of Reclamation,
Administration Building.

Tom C. Mead,
in charge.

Position: Lat. $35^{\circ} 58' 51''$ N., Long $114^{\circ} 50' 02''$ W.,
elevation 776 m. Underlying ground-fractured
Monzonite.

Instruments:

WOOD-ANDERSON torsion seismometer; E - W component. $M = 1.19$ g; $T_0 = 0.95$ sec., $\zeta = 9:1$, $V = 2220$. Photographic recording, 60 mm per minute. Time corrections obtained daily by radio. Impulse upward corresponds to eastward ground movement. Use beginning of time breaks.

OVERTON, Nevada, D. S. Carder in charge; Perry Convis, observer.

Position: Lat. $36^{\circ} 31' 52''$ N., Long. $114^{\circ} 26' 33''$ W., elevation 395 m. Underlying ground-terrace gravel overlying fine playa silt with gypsum cement.

Instruments:

NEUMANN-LABARRE vibration meters; E - W and N - S components; $T_0 = 0.65$ sec.; $\zeta = \text{ca } 6:1$; $V = \text{ca } 8000$. Photographic recording; 15mm. per minute, both components on same drum. Impulse upward corresponds to ground movements westward and southward. Time corrections obtained several times daily by radio and automatically impressed upon the record. Seismograph is disturbed at least twice daily by passing train at a distance of about 800 feet.

PIERCE FERRY, Arizona, D. S. Carder in charge; J. Minter, observer.

Position: Lat. $36^{\circ} 07' 15''$ N., Long. $114^{\circ} 00' 17''$ W., elevation 417m. Underlying ground-terrace gravel overlying fine playa silt with gypsum cement.

Instruments:

SURVEY VIBRATION METERS: E - W and N - S components; $T_0 = 1.5$ sec.; $\zeta = \text{ca } 6:1$; $V = \text{ca } 1000$. Photographic recordings; 30 mm per minute, both components on same drum. Impulse upward corresponds to northward and westward ground movement. This seismograph was installed November 21, 1940.

LAKE MEAD SEISMOLOGICAL STATIONS

Notation used in instrumental reports, 1941.

1. Wave groups or phases:

- P First preliminary tremors; longitudinal waves. Used when no differentiation is made as below.
- P_g Longitudinal waves. The path is entirely in the upper layer.
- P* Upper first preliminary tremor whose path lies along the top on the intermediate layer except for short distances in the surface layer.
- P_n Normal longitudinal waves that have passed below the continental layer.
- PP Normal longitudinal waves reflected once at the earth's surface.
- PPP Normal longitudinal waves reflected twice at the earth's surface.
- S Second preliminary tremors; transverse waves. Used when no differentiation is made, as below.
- S_g Transverse waves. The path is entirely in the upper layer.
- S* Upper second preliminary tremor whose path lies along the top of the intermediate layer except for short distances in the surface layer.
- S_n Normal transverse waves that have passed below the continental layer.
- SS Normal transverse waves reflected once at the earth's surface.
- SSS Normal transverse waves reflected twice at the earth's surface.
- G Surface shear waves in which the earth particles oscillate in the horizontal plane normal to the direction of propagation.
- L Long waves, unidentified, at the beginning of the surface phase or "main phase."
- M Waves of maximum amplitude in the main phase, generally referred to surface waves.
- m Waves having maximum trace amplitudes, when different from *is*, generally referred to local or near shocks.
- F Finis, end of vibration when longer than 0.1 min.

2. Nature of motion:

- i Impulsive and sharply defined beginning of a phase.
- e Poorly defined emergence of a phase.
- T Period of wave.

In the Lake Mead reports, trace amplitudes; ie, movement of trace on record from rest position, will be measured in millimeters.

3. Deduced Data:

Epicentral distances or distances to origin of disturbance.

Local- - - - -from 0 to 70 miles.

Near - - - - -from 70 to 600 miles.

Distant- - - - -from 600 to 3000 miles.

Teleseismic- - - -greater than 3000 miles.

Until further notice, distances of local shocks will be based on 4.8 miles per 1 second S - P interval. Distances of near shocks will be based on Gutenberg's 1931 travel time curves for Southern California.

4. CONSTANTS OF SEISMOGRAPH:

- T_0 Free or undamped period of the seismograph pendulum.
- V Static magnification.
- ζ Ratio of successive damped amplitudes.
- M Weight of seismograph inertia mass measured in grams.

LAKE MEAD SEISMOLOGICAL STATIONS

Instrumental Report - - - - - January 1941.

The stations at Boulder City, Overton, and Pierce Ferry operated on a routine schedule throughout the month. Tentative Epicenters were located in the Lake Mead Region as follows:

Jan. 8,	0h 14m G.C.T.	Near entrance to Black Canyon, - fairly well located.
Jan. 17,	5h 22m	At Fortification Hill or Las Vegas Wash or in between, depending on depth of focus.
Jan. 18,	23h 33m	Probably in Lake Mead near entrance to Black Canyon.
Jan. 22,		12 mi. from Boulder City, location indefinite.
Jan. 30,	22h 59m 44s	Probably in hills 5 or 6 miles north of Boulder City.
Jan. 30,	23h 01m 32s	In lake basin, a mile or so off Boulder City Boat landing.
Jan. 30,	23h 06m 47s	Probably same location as above.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows:

Jan. 6,	8h 32m G.C.T.	Momentary
Jan. 8,	0h 14m	A rumble and jar at power house central section and water masters office. Felt in Boulder City also.
Jan. 16,	5h 22m	Sharp vertical motion felt in control room and general cubicles.
Jan. 18,	23h 33m	Sharp shock felt in control room general cubicle and H-O unit accompanied by earth noise.
Jan. 20,	0h 03m	Felt in control room only.
Jan. 20,	15h 54m	Earth noise at Boulder City.
Jan. 22,	4h 03m	Momentary. Felt on 8th floor powerhouse only.
Jan. 24,	2h 09m	Light momentary tremor.
Jan. 30,	2h 26m	A momentary hard blow.
Jan. 30,	22h 59m 44s	Felt at Boulder Dam in control room only and in Boulder City as sudden jolt accompanied by earth noise.
Jan. 30,	23h 01m 33s	Earth noise reported at Boulder City.
Jan. 30,	23h 06m 47s	Earth noise reported at Boulder City and in control room, Boulder Dam.

PIERCE FERRY

3

[illegible]

7

Time used is GCT

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude E N Z
II		e	22 55 22.6	0.2	3.0
		F	Small local shock, 3.5 mi.		
II		IS	23 05 25	0.2	0.8
		IS	Very small local disturbance.		
II		e	4 22 15.6	0.5	0.4
		es?	24.3		
		F	Very small near shock, 185 mi.		
IIP		IS	17 37 17.0	1.7	1.0
		F	Small local, 20 mi. probably northward.		
			Record changed here.		
III		e	16 41 16.5	1.5	
		es?	51 55 7	18	
		e	17 11 42		
		F	Teleseism - Epicenter 3° S lat., 144° E Long; time at origin 16h 27.7m according to U.S.C. & G.S.		
IV		e	16 54 53.5	1.0	0.1
		es	55 50		
		F	Very small near shock, 320 mi.?		
V		e	23 33 06.3 ?		
		e	09.3	0.2	0.7
		IS	33.3		
		F	Very small local shock, 6 to 15 mi.		

1941 6

Time used is G.C.T.

No.	Date	Phase	Time h m s	Period T	Trace Amplitude E N Z
16		e F	5 16 55 18.4		
			Very small near shock.		
17		IP IS M F	5 21 41.5 43.9 45 22.3	0.2 0.2 0.3 4.1	0.3 1.5 4.1
			Small local shock, 12 ml. Reported felt at Boulder Dam, sharp up and down motion for two seconds, ca. Probable epicenter on shore of Lake Mead northwest of Fortification Hill.		
17		e ES F	6 27 40.5 42.9 27.9	0.3 0.3	0.3
			Very small local shock, 12 ml.		
17		e I LS F	8 38 06.9 08.4 09.2 38.4	0.1 0.2	0.3 2.0
			Small local shock, ca 4 mi.		
18		IP LS F	23 33 04.0 05.7 33.5	0.2 0.3	0.4 3.5
			Small local shock, 8.5 ml. Rumble and vibration at Boulder dam, probable location two ml. north of dam.		
19		LS F	3 18 19 18.4	0.2 0.8	
			Very small local disturbance.		
19		e LS F	21 39 51.8 53.4 40.0	0.2 0.1	0.2 2.4
			Very small local shock, 8 ml.		
17		e e F	5 21 50 56 57 22.2	blur 0.8	0.8
			S-P = 29 ml.? T.T.S. = 37 ml. May be 275 miles.		
16		e e F	5 15 59 16 40 21.7	2	0.1

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z
20		1P 0 02 36.0 1S 38.5 F 03.1 Small local shock, 12.5 ml.	0.3 0.4 0.2	0.2			--						
20		e 13 59 25 e 14 00 22 F 14 02.3 Very small near shock.	1 1 0.1	0.1			e 14 01 22 F	02.2					
20		1P 15 53 35.8 1S 37.4 F 53.7 Small local shock, 8 ml. Rumble noted in Boulder City.	0.2 0.3 0.2	0.2			--						
20		e 19 00 33 eS 58 F 01.5 Very small near shock, 130 ml. northeast of Boulder City.	0.7 0.1	0.1			1P 19 00 27 1S 00 45 F 01.5 90 ml.	1.7 1.5					
21		e 13 01 17 e 10 17 F 32 Distant earthquake.	2 6				--						
22		eP 4 02 41.7 1P 42.2 1S 44.1 M 45 F 03.3 Small local shock, 12 ml. Felt at Boulder Dam; location indefinite as no known faults occur nearby.	0.2 0.2 0.2 0.2	0.3 2.0 3.6			eS 4 03 01 F 03.2 50 ml.?	0.4 0.4					
22		1S 8 41 27 Very small local disturbance.	0.5				--						

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z
22		e F	17 47 12 47.7				--
			Faint seismic waves				
23		e F	12 07 15 08.2				--
			Faint seismic waves				
23		eP IS F	16 07 11.0 13.1 07.5	0.3 0.3 0.3	0.15 1.5		--
			Very small local shocks, 10.5 ml.				
23		iP IS F	22 30 47.4 49.8 31.4	0.3 0.4 0.4	0.3 4.0		--
			Small local shock, 12 ml.				
24		e F	0 18 36 20.0				--
			Faint seismic waves.				
24		IS	2 08 31	0.2	0.8		--
			Very small local disturbance. Reported felt in Boulder City.				
24		IS F	4 20 24 20.5	0.2	1.1		--
			Very small local disturbance.				
24		e IS F	5 44 39.8 42.3 44.9	0.3 0.2			--
			Very small local shock, 13 ml.				
		e F	17 47 25 48.5				--
			12 07 26				--

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **January** 194**1** **9**
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
24	e 5	53	15		0.6				--								e 5	53	12					
	e		40		2												e 6	00	32					
	F 6	55.8															F 6	06						
	F 6	00	40		5																			
	F 01																							
	Distant earthquake, Pasadena records it.																							
24	1S 6	25	28		0.8				--								--							
	Very small local disturbance.																							
24	e 8	48	45.8						--								--							
	1S		48.4		0.3																			
	F	48.9																						
	Very small local shock, 12 mi.																							
24	e 10	04	23.5						--								--							
	1S		25.3		0.2																			
	F	04.5																						
	Very small local shock, 9 mi.																							
24	1S 18	12	51		0.2				--								--							
	F	13.0																						
	Very small local disturbance.																							
25	e 1	39	34.4						--								--							
	1S		36.9		0.2																			
	F	39.8																						
	Very small local shock, 12.5 mi.																							
25	e 2	20	48.						--								--							
	1S		49		0.2																			
	F	20.9																						
	Very small local shock, 5 mi.																							
25	e 23	46	34.8		0.8				e	23	46	45					e 23	46	40					
	F	51.4			0.2												e	47	56					
	Very small seismic waves recorded by Pasadena.																F	49.5						

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z
26		eP 4	37 18.3	0.3	0.4		
		e 15	21.2				
		es 42.8	37.3				
		F 38.4	42.8				
			Very small near shock, 95 mi. northeast of Boulder City.				
26		e 20	33 42	0.2	0.9		
		15	44.7				
		F 33.8					
			Very small local shock, 14 mi.				
27		1 6	02 49	0.3	0.6		
			Very small local disturbance.				
27		e 6	28 32	0.3	0.5		
			Very small local disturbance.				
27		e 14	28 13	0.3	0.1		
			Very small local or near disturbance.				
28		e 7	09.7		No time marks.		
		es 10.7					
		F 12					
			Very small near shock.				
28		e 9	25 00	No time marks.	0.7	0.1	
		es 55					
		F 27					
			Very small near shock, 310 mi.				
29		15 22	33 28	0.2	1.5		
		F 33.6					
			Very small local disturbance.				

11

Time used is G.C.T.

PIERCE FERRY

Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			
			E	N	Z				E	N	Z				E	N	Z	
e 18 P	1 31 11.8 12.5 31.3	0.2	1.9			--					--							
	Very small local shock, 4 mi. (as above)																	
e es m P	1 35 38.8 36 31.6 37 38.6	1.2	0.9			e 18 1	1 36 51 37 51				e 18 1	1 36 02 58						
	Very small near shock, 300 mi. 343 mi. 320 mi.																	
1P 18 P	2 26 04.5 05.4	0.2	1.1 15.			es 2	2 26 52	faint, time in error.			--							
	Medium local shock, 4.5 mi. Felt as a jolt in Boulder City.																	
1	2 28 20	0.3	1			--					--							
	Very small local disturbance.																	
18	22 09 32	0.2	0.6			--					--							
	Very small local disturbance.																	
18	22 16 39		0.5			--					--							
	Very small local disturbance.																	
es	22 32 24		0.5			--					--							
	Very small local disturbance.																	
1P 18 P	22 59 46.2 47.5	0.2 0.3	2.0 15.5			eP 18 F	22 59 57 00 04.5 00.4	blur	2.4 1.5		es 23	00 09	faint waves	0.1				
	Slight shock, 6.5 mi. time ? 41.5 mi.																	
	Rumble and vibration in Boulder City.																	
	Abrupt shock at Boulder Dam; epicenter may be in hills 5 mi. north of Boulder City, or near Boulder dam if Plerce Ferry time is in error.																	

Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
			E	N	Z				E	N	Z				E	N	Z
1P 23 01 34.1 1S 35.1 F 02.2	0.3 1.5 0.4 7.5					1S 23 01 52 F 01.9	1.2 0.6				--						
Slight shock, 5 mi. Rumble and less vibration than preceding felt shock in Boulder City; not reported from Boulder dam; epicenter may be in Lake Mead - 6 mi. northeast of Boulder City.																	
1P 23 06 48.7 1S 49.9 F 07.7	0.3 2.8 0.4 11.7					2P 23 06 59 1S 07 07 F 07.5	2 1				--						
Slight shock, 6 mi. Felt with rumble at both Boulder City and Boulder Dam.																	
23 07 54.5 1S 55.5 F 08.1	0.2 1.7										--						
Very small local shock, 5 mi.																	
23 11 50.8 1S 52.2 F 12.0	0.2 0.2										--						
Very small local shock, 4 mi.																	
11 38 18.2 1S 20.5 F 38.5	0.2 0.8										--						
Very small local shock, 11 mi.																	
17 05 27.2 1S 28.1 F 05.6	0.2 1.2										--						
Very small local shock, 4.5 mi.																	

LAKE MEAD SEISMOLOGICAL STATIONS

Instrumental Report - - - - -February, 1941.

One epicenter was located in the Lake Mead area in February, 1941
as follows:

Feb. 21, 14h 17m G.C.T. Located in north side of Hemenway Wash
4 or 5 mi. N of Boulder City.

The following shocks were reported felt in Boulder City.

Feb. 1,	18h 00m G.C.T.	Earth noise only.
Feb. 6,	7h 34m	Light shock and earth noise.
Feb. 6,	7h 37m	Light shock, awakened few.
Feb. 6,	7h 57m	Light shock, awakened few.
Feb. 14,	9h 07m	Light shock preceded by noise as of a car hitched to one end of train and sound carried along train to other end.
Feb. 21,	14h 17m	Sharp shock and earth noise.
Feb. 26,	5h 18m	Earth noise only.

- - -

7

Time used is G.C.T.

PIERCE FERRY

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude				
				E	N	Z				E	N	Z		
1	15 15 F	5 00 11.3 12.5 00.5 Very small local shock,	0.1 0.2 0.7 0.8	0.4 0.6			-	No time corrections during the greater part of February, 1941.						
1	e 15 F	5 32 49 33 44.5 51.3 36.1 Very small near shock, 355 ml.	0.7 0.7 1. 0.8				e 15 F				5 33 16 34 01 35.7 Distance indefinite.		0.3 0.7	e 15 F
1	1 1 1 F	7 44 50.3 51.8 53.2 45.1 Very small local shock.		0.1 0.3 0.9			-							
1	eP 15	17 42 56.0 56.7 Small local shock, 3 1/2 mi.		0.1 2.2			-							
2	e 15	5 59 54.5 55.1 Very small local shock, 3 mi. earth noise reported at Boulder City.		0.1 0.9			-							
2	e e F	19. 01 58 03 44 05.6 Faint seismic waves at start ?	1.5 1.5				-				e F	19 02 30 04.8		
2	e F	23 46 54 48.8 Faint seismic waves.	1.5				-							
4	e 15	9 32 05. 05.5 Small local shock, 2 ml.		1.5			-							

1941

Time used is G.C.T.

[illegible]

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z
8	1	1P 1S F	10 00 43.5 44.1 00.9 Small local, 3 ml.	0.1- 0.2 0.6 4.0				-					
8		1 1S	10 33 34.8 35.6 Very small local disturbance, 4 ml.?	- - 1.0	0.2			-					
8		1 1S	10 34 38.5 39.5 Very small local shock, 5 ml.	- 0.1 1.2	0.2			-					
8		e	10 36 30.4 Very small local shock.	0.2 0.2				-					
8		e	10 36 37.6 Very small local shock.	0.2 0.8				-					
8		e 1S	10 47 38.6 39.5 Very small local shock, 4.5 ml.	- 0.2 1.0	0.2			-					
8		1S	10 53 19 Very small local shock.	0.2 0.8				-					
8		1S	10 59 34 Very small local disturbance.	0.2 1.0				-					
8		e	12 30 07 Very small local shock.	0.2 0.2				-					
8		1P 1S F	12 51 56.7 57.5 52.1 Small local shock, 4 ml.	0.1 0.2 2.5	0.6			-					

1041 5

Time used is CCT

PIERCE FERRY

BOULDER CITY					OVERVIEW																	
Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude									
	h	m	s		E	N	Z		h	m	s		E	N	Z							
eP	9	46	27.5	2.0	0.5			eP	9	46	27	8				No record						
IP			28.8	1.0				IP			31	20										
eS			41.8	25	2			eS			55	3										
IS			48	4	2			IS			01	12										
N			49	4	7			N			50											
F			50.00	16	12			F	11	10												
	11	31																				
Moderate record of a distant shock, 915 mi. Felt at Durck, California. Epicenter 40° 7' N Lat, 125° 4' W Long; time at origin 9h 44.1m according to U.S.C. & G.S.																						
eP	19	33	35	1.5				eP	16	37	31	-	1.2	1.0	-	-	No record					
eS		43	28	4				eS		37.8												
F	20	03	40	30				F														
		42							Small local shock, dist. ? 10 mi.													
Very small distant earthquake, recorded at Pasadena.																						
eP	14	41	20	3.5				eP	14	41	28											
eS		46	31	7				eS		50	20											
N		49	49	25				N		26												
F		51.00		13	6.5			F	15	30												
	15	42																				
Moderate record of distant earthquake. Epicenter 14.5° N Lat, 94.0° W Long; time at origin 14h 35.4m according to U.S.C. & G.S.																						
	11	34	12					eP	11	33	58					blwr						
eS		35	37					eS		35	18					1	0.2	0.4				
F		36.6						N			26											
Very small near shock, 500 mi.																						

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z				E	N	Z
18		eP 15	19 25 12.1 14.5 Very small local shock, 12 mi.	0.2 1.0			-						-						
18		eP 15 F	19 33 07.8 10.3 33.3 Very small local shock, 12 mi.	0.2 0.8			e	19 33 22 faint disturbance.	time poor				-						
18		e	19 36 31 Very small local shock.	- 0.6			-						-						
18		e eS F	19 52 21 31 52.9 Very small near shock, 55+ mi.	0.7 0.2			-						e	19 52 46					
19		eP 1 1 1 F	10 12 43 55.7 13 42.7 16.4 Small near shock, 260 to 340 mi. Recorded at Pasadena.	0.2 0.1 0.4 0.3 0.7 0.3			e eS F	10 11 02 11 50 12.9 270 mi.					e eS F	10 12 44 13 26 15.9 230 mi.					
19		-					1P 15 F	22 22 45 49 23.0 Small local disturbance, 20 mi.	- 0.6 0.2 1.5 -				-						
19		-					eP 15 F	22 58 33 37 58.7 Small local disturbance, 20 mi.					-						
20		e F	8 00 42 00.8				eP 15 F	7 59 32 39 00.1 Very small local shock, 34 mi.	time in error - 0.7 0.5				-						

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **February** 194 **1** 8
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
20	e es F	16	55	40																				
			56	21.3																				
			57.5																					
		Very small near shock, 225 mi.																						
20	-								1	17	31	11												
		Very small local disturbance.																						
20	-								1P	22	26	44												
									1S		48			1.2										
		Very small local shock, 20 mi.																						
20	-								1	22	50	42		0.6										
		Very small local disturbance.																						
21	eP 1S F	5	28	27.7	-	0.2			e	5	26	32		No time correction.										
			30.6		0.3	1.4			1S		40			0.7	0.7									
			28.7						F		27.0													
		Small local shock, 14.5 mi.																						
21	1S F	5	29	40	0.3	0.4			e	5	28	48		?										
			29.8																					
21	e es F	11	34	40	0.7	0.2			1P	11	33	48												
			35	17	1.0	0.5			1S		34	24			0.3	0.5								
			37.1						F		34.9													
		Very small near shock, 200 mi.																						
21	1P 1S F	14	17	08.3		3.5			1P	14	15	17.5												
			09.2		?	12.			1S		26			0.6	0.5									
			17.8						F		15.7													
		Moderate local shock, maybe 5 mi.																						
		Felt as a sharp shock by several.																						
		Hemerway Wash.																						
21	eP 1S F	15	21	43.7	-	0.2																		
			44.5		0.2	2.5																		
			21.8																					
		Small local shock, 4 mi.																						

Others report on earth rumble only. Located on N side of 47 mi.

Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z
21	-						-	17 40 12 16	-	1.2 0.5		
								Very small local shock, 20 ml.				
21	e F	18 26 01 26.2	-	0.2			-					
		Very small local shock.										
21	eP IS	19 54 04.3 04.9	0.1 0.3	1.2			-					
		Very small local shock, 3 ml.										
21	e eS F	21 26 23 27 54 28.7	1.5				-	Artificial disturbance, here				
		Very small near shock, 530 ml.										
21	-						-	18 21 42 56	0.8 0.5			
								Very small local shock, maybe 20 ml.?				
21	-						-	18 22 16 13	blur 0.6 0.4			
								Very small local shock, no time correction.				
22	e 1 IS	5 56 00.2 01.0 01.5	? 0.6 0.6	0.3 P? 1.5			-					
		Small local shock, maybe 2.5 ml.										
22	IP IS F	23 22 55.2 56.1 23.3	0.05 0.1	0.3 6.0			-					
		Small local shock, 5 ml. Not reported felt.										
23	e eS F	2 03 44.7 04 02.5 04.6	0.5	0.6			-	2 02 38	blur			
		Very small near shock, 85 ml.						2 02 48	no time correction " blur" disturbance, 50 ml.??			

PIERCE FERRY

[illegible]

PIERCE FERRY

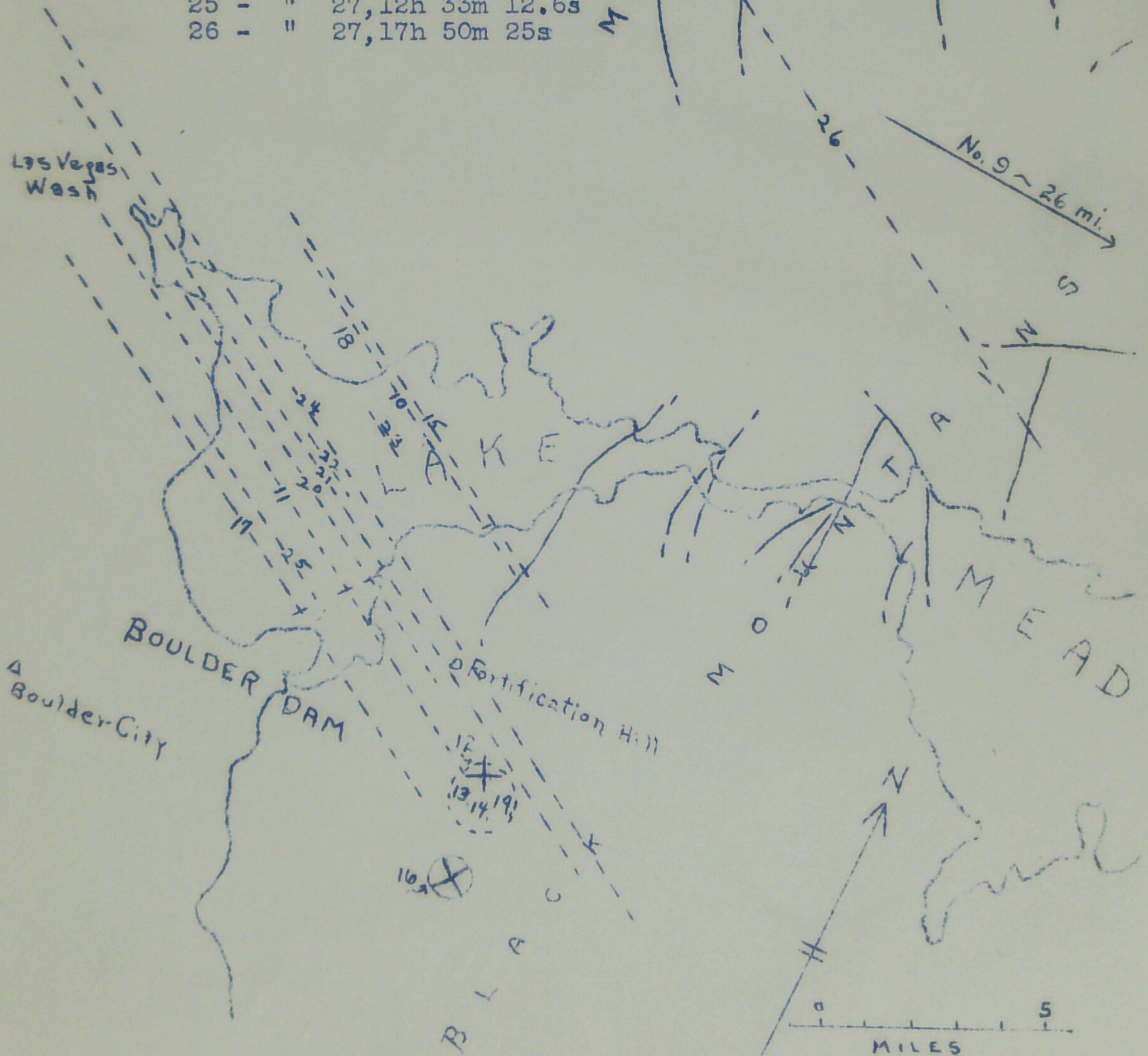
Date

Two more disturbances on record that probably are artificial.

No. 9 - Mar. 3, 07h 45m 49s Tentative Epicenters - Lake Mead
Area -- March 1941.

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10	-	"	10, 17h 32m	
11	-	"	11, 14h 19m	
12	-	"	13, 3h 01m 02s	
13	-	"	18, 23h 17m 07s	
14	-	"	19, 6h 10m 54.7s	
15	-	"	20, 23h 19m 39.8s	
16	-	"	21, 6h 31m 29s	
17	-	"	21, 12h 10m 22.5s	
18	-	"	22, 11h 29m 18s	
19	-	"	22, 12h 08m 07.3s	
20	-	"	22, 15h 15m 57.3s	
21	-	"	22, 20h 07m 44.6s	
22	-	"	23, 11h 32m 05.1s	
23	-	"	23, 13h 33m 30.2s	
24	-	"	25, 5h 39m 17.2s	
25	-	"	27, 12h 33m 12.6s	
26	-	"	27, 17h 50m 25s	



An Epicenter, if represented by dotted line, may be at one extremity or other of line, or in between, depending on depth of focus. If represented by a cross, location is fairly definite.

--- FAULTS
--- Approximate Epicenters.

Erratum: Sheet of instrumental constants accompanying January 1941 report:

Boulder City Station, Instruments, line 2, ~~6~~ should read 19:1 instead of 9:1.

Addition: To sheet entitled "Notations used in instrumental reports, 1941," add 0 - Time at origin.

The Seismological Laboratory, 220 San Rafael Ave., Pasadena, California, has submitted the following memoranda on Boulder City reports of September to November, 1940.

Sept. 18	15:20.	Not local; teleseism. Deep focus; probably Chile.
Sept. 26	04:09.	Teleseism; New Hebrides Islands.
Sept. 27	17:05.	Felt at Eureka, California.
Sept. 29	01:33.	Chile.
Sept. 30	09:48:52	(? Should read 09:47:52. Mexico)
Oct. 1	10:54.	Chile.
Oct. 11	07:59.	Alaska?
Oct. 23	02:32.	Teleseism, not local near Stauffer, which occurred at 10:31 PST = 18:31 GCT
Oct. 30	12:00.1	Teleseism.
Oct. 30	23:10:38	Teleseism.
Nov. 1	15:56	Teleseism; Mexico?
Nov. 1	20:01	33° 38' N., 118° 12' W., 0 = 12:00:46.
Nov. 2	02:59	33° 47' N., 118° 35' W., 0 = 18:58:26
Nov. 5	16:05, 16:07	Two shocks; Gulf of California?
Nov. 7	14:09	Pasadena 4 = 84°? Deep?
Nov. 9	06:57	34° 20' N., 117° 00' W., 0 = 22:56:48
Nov. 10	10:26	34° 21' N., 119° 46' W., 0 = 02:25:10
Nov. 10	20:47	Probably Central America
Nov. 16	02:36	Probably Aleutian Islands.
Nov. 17	03:59	Off British Columbia?
Nov. 19	15:13	Felt in Japan
Nov. 19	18:37	Felt in Humboldt County.
Nov. 22	12:37	33.1° N., 116.0° W., 0 = 04:36.9
Nov. 23	05:54	33° 10' N., 116° 08' W., 0 = 21:52:58
Nov. 24	13:05	32° 44' N., 115° 27' W., 0 = 05:04:44
Nov. 29	08:21	34° 30' N., 116° 42' W., 0 = 00:20:26

March 1941.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows:

(Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.

Mar. 8	12h 24m	G.C.T.	Momentary earth noise reported at Boulder City II.
Mar. 8	13h 27m		Momentary earth noise reported at Boulder City II.
Mar. 10	17h 32m		Reported as a sharp shock at Boulder Dam II or III.
Mar. 12	7h 09m		Reported at Boulder City as a sharp shock accompanied by earth noise II or III.
Mar. 18	23h 17m		Reported from Boulder City and Boulder Dam as a sharp shock accompanied by earth noise III.
Mar. 19	6h 10m		Reported as a sharp noisy earthquake at Boulder Dam; harder than usual at Boulder City IV.
Mar. 21	12h 10m		Reported as a light shock at Boulder City II.
Mar. 22	11h 29m		Reported as an earth noise at Boulder City, II, and as a sharp noisy earthquake at Boulder Dam III.
Mar. 22	12h 08m		Reported as awakening several at Boulder City and felt all over the plant at Boulder Dam IV.
Mar. 23	13h 33m		Earth noise at Boulder City II.
Mar. 24	11h 46m		Reported felt in Boulder City II.

- - -

LAKE MEAD SEISMOLOGICAL STATIONS

Instrumental Report - - - - - March 1941. •

The stations at Boulder City, Overton, and Pierce Ferry operated on a routine schedule throughout the month. Tentative Epicenters were located in the Lake Mead Region as follows:

Location No.

9.	Mar. 3	0 = 07h 45m 49s G.C.T.	In or on W side of Grand Wash about 10 mi. N to NNW of Pierce Ferry.
10.	Mar. 10	0 = 17h 32m	Probably NNW of Fortification Hill.
11.	Mar. 11	0 = 14h 19m	Probably W of Fortification Hill.
12.	Mar. 13	0 = 3h 01m 02s	2.5 mi. SE Fortification Hill, 5 mi. E of Boulder Dam.
13.	Mar. 18	0 = 23h 17m 07s	Location same as ? 12.
14.	Mar. 19	0 = 6h 10m 54.7s	" " " "
15.	Mar. 20	0 = 23h 19m 39.8s	Location nearby that of 10.
16.	Mar. 21	0 = 6h 31m 29s.	6 mi. ESE Boulder Dam near W slope of Black Mountains.
17.	Mar. 21	0 = 12h 10m 22.5s	Probably W of Fortification Hill.
18.	Mar. 22	0 = 11h 29m 18s	Location probably same as No. 10.
19.	Mar. 22	0 = 12h 08m 07.3s 15m	Probably five mi E of Boulder Dam.
20.	Mar. 22	0 = 15h/57.3s	Probably on fault W of Fortification Hill.
21.	Mar. 22	0 = 20h 07m 44.6s	Probably five to eight mi E of Boulder Dam.
22.	Mar. 23	0 = 11h 32m 05.1s	Probably in Lake Mead 6 mi. NW of Fortification Hill.
23.	Mar. 23	0 = 13h 33m 30.2s	Probably 2 mi. NE of epicenter 22, in Lake Mead.
24.	Mar. 25	0 = 5h 39m 17.2s	Probably near Fortification Hill.
25.	Mar. 27	0 = 12h 33m 42.6s	Probably in Lake Mead, 3 to 8 mi. W of Fortification Hill.
26.	Mar. 27	0 = 17h 50m 25s	Probably on the S side of the Muddy Mts. or Sandstone Spring Anticline.

MONTH OF March 1947 2

Time used is G.C.T.

BOULDER CITY										OVERTON										PIERCE FERRY									
No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude						
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z				
1		1P 1S F	1	48	39.7	0.1	0.2			-																			
				49.0		0.15	2.0																						
2		1P 1S F	23	51	09.7	0.3	0.6			-																			
				51.4	10.6	-	2.5																						
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								
3		1P 1S 1 F	7	46	05.2	0.2	0.1																						
				46.7		0.2	0.1																						
					13.4	0.2	0.7																						
					14.2																								

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF March

1941 2

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
8	1P 13 F	12	24	34.6 36.1 24.7	0.1 0.1 0.1	0.2 3.0			-								-							
		Small local shock, 7.5 ml.								Felt at Boulder City as momentary earth noise.														
8	1P 13 F	13	27	18.8 20.3 27.5	0.1 0.2 0.2	0.1 3.0			-								-							
		Small local shock, 7.5 ml.								Felt at Boulder City as momentary earth noise.														
9	e 13 M F	1	50	02.5 07.6 09.6 50.7	0.2 0.2 0.3	faint 0.5 1.0			-								-							
		Very small local shock.																						
10	1P 13 F	17	32	01.3 03.6 32.6	0.2 0.2 0.2	40.3 34			1P 13 F	17	32	09 16 32.5					No record							
		Small local shock, 11.5 ml. NE Felt at Power House in control								34 ml. SW room and 7th floor as sharp shock. No earth noise.														
10	eP es F	20	48	26 49 03 50.3	1				e	20	49	00 faint					e es F	20	48 49 50.5 215 ml.?	45 15				
		Very small near shock. 190 ml.																						
10	-								eP 13 F	21	36	52 58 37.3		1.3 1.5			-							
										Small local shock, 30 ml.														
11	e 13 M F	1	51	07 07.6 08.5 51.4	0.2	1.4			e	1	51	19 faint					-							
		Small local shock.																						

1941

Time used is G.C.T.

BOULDER CITY										OVERVIEW															
No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
20		e 15 P	23	19	43.2 45.7 20.2	0.4	2.5			e 15	23	19	53 20 00	-	0.5	0.4		-							
			Small local shock, 12 ml. Located near shock of 3-10-41.								34 ml.														
21		eP 15 m P	6	31	31.3 33.6 34 32.2	-0.1	0.3	5		e 15 P	6	31	39.3 47.5 32.1 40 ml.	1.0	0.2		e 15 P	6	31	39.5 47 31.7 ca. 38 ml.					
			Local shock, 11.5 ml. Located 6 miles ESE of Boulder Dam under W slope of Black Mt.																						
21		e P	8	10	03 14.4	1.5				e P	8	10	05 16				e P	8	10	00 16					
			Very small seismic waves, 5500 ml. Epicenter 7.3° N Lat, 36.6° W Long; time at origin 7h 58.4m according to U.S.C. & G.S.																						
21		eP 15 P	12	10	24.3 26.2 10.9	0.1 -0.2 0.2	3.5			eP 15	12	10	32 40				-								
			Small local shock, 9.5 ml. Felt at Boulder City as light shock, located approximately on fault W of Fortification Hill.								39 ml.														
21		15	19	37	22	0.3	0.6			-							-								
			Very small local shock.																						
21		e	20	15	17	0.2	0.3			-							-								
			Very small local shock.																						
22		e	6	47	32	0.4	0.6			-							-								
			Very small local disturbance.																						
22		eP eS P	8	23	48.3 38.3 26.1	0.8	0.2			e eS	8	24	50 55 57	faint			e eS	8	23	55 24 57					
			Very small near shock.																						

MONTH OF **March** 194**1** 9

Time used is G.C.T.

PIERCE FERRY

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z				E	N	Z
22	eP 13 F	8 57 44 46.5 58.1	0.2 1.7				e	8 58 00	-	0.4 0.4			-					
		Small local shock, 12.5 ml. Probably near those of 13, 18, 19 and 21.																
22	e 11 11 F	9 55 15 18.9 24.8 55.6	0.1 -0.3 0.1 1.				-						-					
		Small local disturbance.																
22	eP 13 m F	11 29 21.0 23.0 24 29.9	0.2 0.2 0.8 0.2 4.0				e e F	11 29 29 36 29.9	blur	0.5 0.4			-					
		Small local shock, 11.5 ml. Reported at Boulder City as earth noise. Felt at Boulder Dam as sharp noisy shock. Probably near the epicenter of 3-10-41.																
22	1 F	11 56 29 56.6	0.1 0.9				-						-					
		Very small local disturbance.																
22	1P 13 m F	12 08 10.4 12.7 13 10.4	0.2 40.5 0.2 -0.8 0.2 26.0				1P 13 F	12 08 18.5 26 09.7 39 ml.	-	10 5			e 13 F	12 08 18 25 10.7 38 ml.	?			
		Moderate shock, 11.5 ml. Felt at Boulder City and in general at Boulder Dam. Epicenter about 5 ml. E of Boulder Dam, probably near epicenter of 3-18-41.																
22	eP 13 F	15 15 59.9 16 01.8 16.4	0.2 1.5				e e	15 16 08 16					-					
		Small local shock, 9.5 ml. Located on the S side of Fortification Hill, or Las Vegas Wash or in between depending on depth of focus.																

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z
22		ep 15 P	19 25 53.2 26.2 Very small local shock, 12 ml.					-					
22		ep 15 P	20 07 48.3 51.0 52 0.3 1.0 08.1 Very small local shock, 13.5 ml. May be located 5 to 8 mi. E of Boulder Dam.					es	20 08 04	blur			
22		ep 15 P	22 43 52.3 54.9 44.1 Very small local shock, 12.5 ml.					-					
23		ep 15 P	11 32 07.4 09.1 10 0.2 0.2 32.4 Small local shock, 8.5 ml. May be located in Lake Mead 6 mi. NW of Fortification Hill.					es	11 32 22	blur	0.5 0.4		
23		ep 15 P	13 33 32.9 34.9 34.0 Small local shock, 10 ml. Felt at Boulder City, noise only. May be located 2 miles NE of above epicenter.					e	13 33 41 48	-	0.6 0.3		
23		ep 15 P	19 21 50. 52.0 22.1 Very small local shock, 10 ml.					-					
23		ep 15 P	20 19 36.4 37.6 Small local shock, 6 ml.					es	20 19 52	-	0.3 0.3		

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF March

194 1 11

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
23		e	21	09	49		0.8	0.2		-															
		e	10	24																					
		f	12																						
			Very small near shock, 190 ml.																						
24		e	3	22	13.		0.8	0.2		e	3	23	13	blur											
		e	51																						
		f	24.7																						
			Very small near shock, 210 ml.																						
24		e	11	46	26.7					-															
		f	28.5				0.2	2.5																	
			46.7																						
			Small local shock, 97 ml. Felt at Boulder City.																						
25		e	4	18	20		1.5			-															
		f	20																						
			Very small seismic waves.																						
25		e	5	39	21.2						13	5	39	36.5											
		f	24.1																						
		m	25.5				0.1	1.3					38 ml.												
		f	39.7																						
			Very small local shock, 15 ml. Epicenter may be near Fortification Hill.																						
25		e	9	23	38		0.2	0.9		-															
		f	Very small local shock, 4 ml. or more.																						
25		e	19	09	22					-															
		f	09.9																						
			Very small seismic waves.																						
25		e	20	14	10					-															
		e	46				1.5	0.2																	
		f	15.9																						
			Very small near shock, 195 ml.																						

PIERCE FERRY

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No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z
27		15 e F	12 33 14.5 15.9 16.5 33.6	0.1 2.2				es e F	12 33 30 36 ml.	blur			
			Very small local shock, 7 ml. May be located in Lake Mead 3 to 8 miles W of Fortification Hill.										
27		e es F	17 50 35.8 37.4 50.8	0.7 0.2				e e F	17 50 31 32 37 50.7				
			Very small local shock. May be located along faults on the E side of the Muddy Mts. or the Sandstone Spring anticline.										
28		e e F	22 43 06 53 24 23 45	1.5 7				e F	22 43 14 48				
			Very small distant shock, 5700 ml.										
29		e es	0 22 40 44	0.7 0.3				-					
			Very small local shock, 20 ml. or more.										
29		1 e	0 41 42 Very small local disturbance.	0.2 0.9				-					
29		15 e	2 45 08.1 08.9 Very small local shock.	0.1 1.5				-					
29		e es	7 26 12 37 Very small near shock, 125 ml.	0.3 0.6				e es	7 26 21 53 157 to 170 ml.				
29		e es F	21 30 10.5 48.8 32.1 Very small near shock, 210 ml.	1 0.2				e es F	21 30 23.3 31 07 240 ml.				

Time used is G.C.T.

PIERCE FERRY

[illegible]

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27.	-	April 2	-	9h	12m	49m
28.	-	"	6	-	7h	49m 25s
29.	-	"	12	-	14h	30m 57s
30.	-	"	17	-	12h	26m 33s
31.	-	"	19	-	19h	43m 34s
32.	-	"	19	-	19h	48m 38s



LAKE MEAD SEISMOLOGICAL STATIONS

Instrumental Report - - - - - April 1941.

The stations at Boulder City, Overton, and Pierce Ferry operated on a routine schedule throughout the month. A new station was completed in Boulder Dam during the month, and daily experimental records were obtained after April 18.

Tentative epicenters were located in the Lake Mead region as follows:

- 27. - April 2 - 9h 12m 49s Very tentative epicenter, located from two stations, to the S of Lake Mead and Boulder Dam. Probably near epicenter 28.
- 28. - " 6 - 7h 49m 25s Located from records of three stations. Epicenter 7 or 8 mi. SE of Boulder Dam, and of very shallow focus.
- 29. - " 12 - 14h 30m 57s Located from three stations, epicenter about 6½ mi. ESE of Boulder Dam. Probably 3 mi. N of 28 and of comparable depth of focus.
- 30. - " 17 - 12h 26m 33s Approximate epicenter three mi. W of Willow Beach on the Colorado River, and with an apparent depth of focus of 30 mi.
- 31. - " 19 - 19h 43m 34s Probably epicenter 37° 08' N Lat, 114° 07' W Long. About 30 mi. W of St. George, Utah, and 20 mi. NW of Littlefield, Ariz.
- 32. - " 19 - 19h 48m 38s Probable epicenter 15 mi. SE of 31. 36° 58' N Lat; 113° 58' W Long. 6 mi. N of Littlefield, Arizona.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows: (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

- April 16, - 20h 02m Felt by several in Boulder City and in Boulder Dam, earth rumble also reported from Boulder City. II.
- April 16, - 20h 25m Reported as an earth rumble at Boulder City. II.
- April 17, - 0h 58m Reported as an earth rumble at Boulder City and as a light shock at Boulder Dam. II.
- April 27, - 2h 12m Reported as a momentary earth rumble at Boulder City. II.

1947

11

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z
1		e F	4 18 29 18.6	0.3	0.9			-					
			Very small local disturbance.										
1		e 1S F	5 57 42 44 58	0.2	1.4			-					
			Very small local disturbance										
1		e? eP e eL F	10 47 31 42 51 38 56 12 14	1 5 15				-					
			Small distant earthquake, 2250 mi.										
27 2		iP 1S F	9 12 49.0 51.6 13.3	0.2 0.2 1.2				e 1S	9 12 58 13 07	- 0.5 0.5			
			Epicenter 56° 0 N Lat, 153° 0 W Long; 0 = 10h 41.1m according to U. S. C. & G. S.										
			Small local shock, 13 mi. Epicenter probably S to SE of Boulder Dam, probably near No. 28. 43 mi.										
2		e 1S F	23 14 53.1 57.7 15.4	- 0.6				-					
			Very small local shock, 23+ mi.										
3		eP eS F	15 06 28 15 47 26					e e	15 06 34 15 15 58				
			Very small deep Chilean earthquake, foreshock of next.										

PIERCE FERRY



Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
			E	N	Z				E	N	Z				E	N	Z
eP pP F	15 32 50.7 52	1.5				eP 1P eS	15 32 56 59				eP eS e	15 32 48 42 05 52 00	8 4.5	-	-		
Small record of teleseism, 5200 mi. Felt at Taltal, Chile and vicinity. Epicenter 25° S lat, 69° W Long; 0 = 15h 21m according to U. S. C. of G. S.																	
is	16 29 50	- 1.1				-					-						
Small local disturbance.																	
eP is F	17 35 15.5 16.4 35.5	0.2 2.5				-					-						
Small local shock, 4.5 mi.																	
-						1P is	22 16 05 08	- 1.5 1.5			-						
Small local shock, 4.5 mi.																	
e is	4 46 47.5 48.4	- 2.0				-					-						
Small local shock, 4.5 mi.																	
e es e F	12 42 30 43 25.3 32.5 45.5	0.8 0.2				eS	12 43 27	- 0.4			e eS e F	12 42 37 43 42.2 52. 45.5					
Very small near shock, 313 mi.																	
e	7 04 37	0.2 1.0				-					-						
Very small local disturbance.																	
e es e F	7 22 31 25 40 29 18 31	1.5 7				-					e eS F	7 22 29.5 25 42 30					
Very small probably distant earthquake, 1130 mi.?																	

1941 2

Time needed to C/C/T

[illegible]

1947

Time used is 0.01 T

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude E N Z
9		e e P	15 52 50 53 34 55	-	-
9		e es F	Very small near shock, 240 ml. 16 11 20 12 46 14.4	1.7 0.2	-
9		eP e es M F	Very small near shock, 510 ml.? Near earthquake, felt in San Diego, Calif. $\Delta = \text{ca } 570 \text{ mi.}$ 17 10 04 11 25 12 35 32	2 4.5	- - - -
9		e e F	17 20 57 21 41 23.8	0.8 0.1	-
9		e es e M F	Very small near shock, in Goddard above. 17 41 18 42 47 55 42 08 52	blur 0.3 0.1	- - -
10		iS	6 04 50 Very small local shock.	0.3 0.7	-
10		e e es F	9 47 20 47 48 06 49.1	faint waves	- - -
10		F	Very small near shock, 400 ml.?	-	-
9		e es F	15 52 24 54 28 56.3	2 2 2	0.5 0.1 6 4
9		e e e e F	16 11 21 13 14 17 28 15.5	2 2 2 2	0.5 0.1 6 4
9		eP e es M F	17 10 05 11 54 12 20 35	2 2 2 2	0.5 0.1 6 4
9		e e F	17 20 57 21 41 23.8	0.8 0.1	-
9		e es e M F	Very small near shock, in Goddard above. 17 41 18 42 47 55 42 08 52	blur 0.3 0.1	- - -
10		iS	6 04 50 Very small local shock.	0.3 0.7	-
10		e e es F	9 47 20 47 48 06 49.1	faint waves	- - -
10		F	Very small near shock, 400 ml.?	-	-

[illegible]

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF APRIL

1941 9

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z				E	N	Z
19	1S	17 57 32.6	-	2.5			-						-					
		Small local disturbance.																
19	1S	17 57 59	1.8				-						-					
		Small local disturbance,																
19	e	18 16 06	-	1.2			-						-					
	1S	07	-															
		Small local shock, 5 mi.																
31	0	19 43 34.3	computed				0	19 43 34.4					0	19 43 34.4				
	eP	19 44 02.5	0.5				1P	19 43 51.5	-0.3	-0.5			eP	19 43 57.4	at end of min. mark			
	1S	23.1	0.8	0.5			1S	44 04.	6.2	5			1S	44 14.3				
	F	46.2					F	45.5					1S	17	1	1.5	2.4	
		Very small near shock, 98 mi.						62 mi.					F	46.6	83 mi.			
		Epicenter about 15 to 20 mi. NW of Littlefield, Arizona.						37° 08' N Lat; 114° 07' W Long.						114° 07' W Long.				
32	es	19 48 38	0.7	0.2			0	19 47 49					e	19 48 12				
	F	48.9					1S	20	1.8	1.5			es	28	1.2	0.2	0.2	
							F	49.0										
		97.5 mi.						65 mi.										
		Very small near shock, 6 mi. N of Littlefield, Arizona.						36° 58' N Lat; 113° 58' W Long.										
20	eP	5 37 32.7					-						-					
	1S	33.4	0.2	3.5														
	F	37.7																
		Small local shock, 3.5 mi.																
20	e	13 09 53	0.7				-						-					
		Faint seismic waves, near?																
21	1S	5 21 15	0.2	0.9			-						-					
		Very small local disturbance.																
22	e	10 37 10.3	0.4				eP	10 37 05.5					eP	10 36 57.5				
	e	44.7	0.6	0.2			1S	36.3	0.9	0.7			es	37 21.9	1.2	0.8	0.5	
	F	38.6					F	38.2					F	38.1				
		$\Delta = 167-185$ mi.						$\Delta = 162$ mi.						$\Delta = 123$ mi.	SE of Pierce Ferry			

1041 12

Time used is GCT

[illegible]

LAKE MEAD SEISMOLOGICAL STATIONS.

Instrumental Report - - - - - May, 1941.

The stations at Boulder City, Overton, Pierce Ferry and Boulder Dam operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

- 33 - May 6, 03-11-43 Tentative epicenter located from three stations. Twin earthquakes, the second occurred 1.3 minutes later. After the epicenter was tentatively located the area was covered by questionnaires. It was felt as two separate shocks a minute apart by several in Joseco, Nevada, and as only a slight shock at Caliente, other reports were negative. Epicenter about eight miles south of Joseco, $37^{\circ} 25' N - 114^{\circ} 10' W$. Also recorded at Logan, Utah, and at four stations of the Seismological Laboratory in California.
- 34 - May 21, 17-27-30 Located from three stations, a small local shock on the east side of the Black Mts. 8 mi. E. of Boulder Dam.
- 35 - May 24, 12-08-16 Located from three stations, a small local shock midway between Boulder City and Boulder Dam.
- 36 - May 25, 00-50-39 Located from three stations, a local shock 3 mi. E. of Boulder Dam.
- 37 - May 25, 09-39-10 Located from three stations, a local shock, 3 mi. NE. of Boulder Dam.

Vibrations caused by water escaping through the valves at the dam became perceptible on the seismograms at Boulder City early in May and continued with increasing intensity through the remainder of the month. The observed dominant periods of these vibrations at Boulder City is about 1.0 sec. and at Boulder Dam it is 0.8 sec. or 0.9 sec. Trains of waves having periods from 0.6 to 1.2 sec. have been observed on seismograms from both stations. On May 30, these vibrations had a maximum amplitude of about 3×10^{-6} inches at Boulder City and about 8×10^{-6} inches at Boulder Dam.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows: (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931)

May 21, 15-30 Reported as an earth rumble in Boulder City, II.

May 24, 12-08 Slight jar and rumble at Boulder Dam in control room of cubicles.

May 25, 00-51 Felt only by observer in Boulder City, II.

May 31, 15-19 Reported felt by one person in Boulder City, II.

PIERCE FERRY

BOULDER CITY

OVERTON

PIERCE FERRY

MONITORING STATIONS

**Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey**

Time used is G.C.T.

International Seismological Centre

MONITORING STATIONS

BOULDER CITY

OVERTON

PIERCE FERRY

MONITORING STATIONS

**Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey**

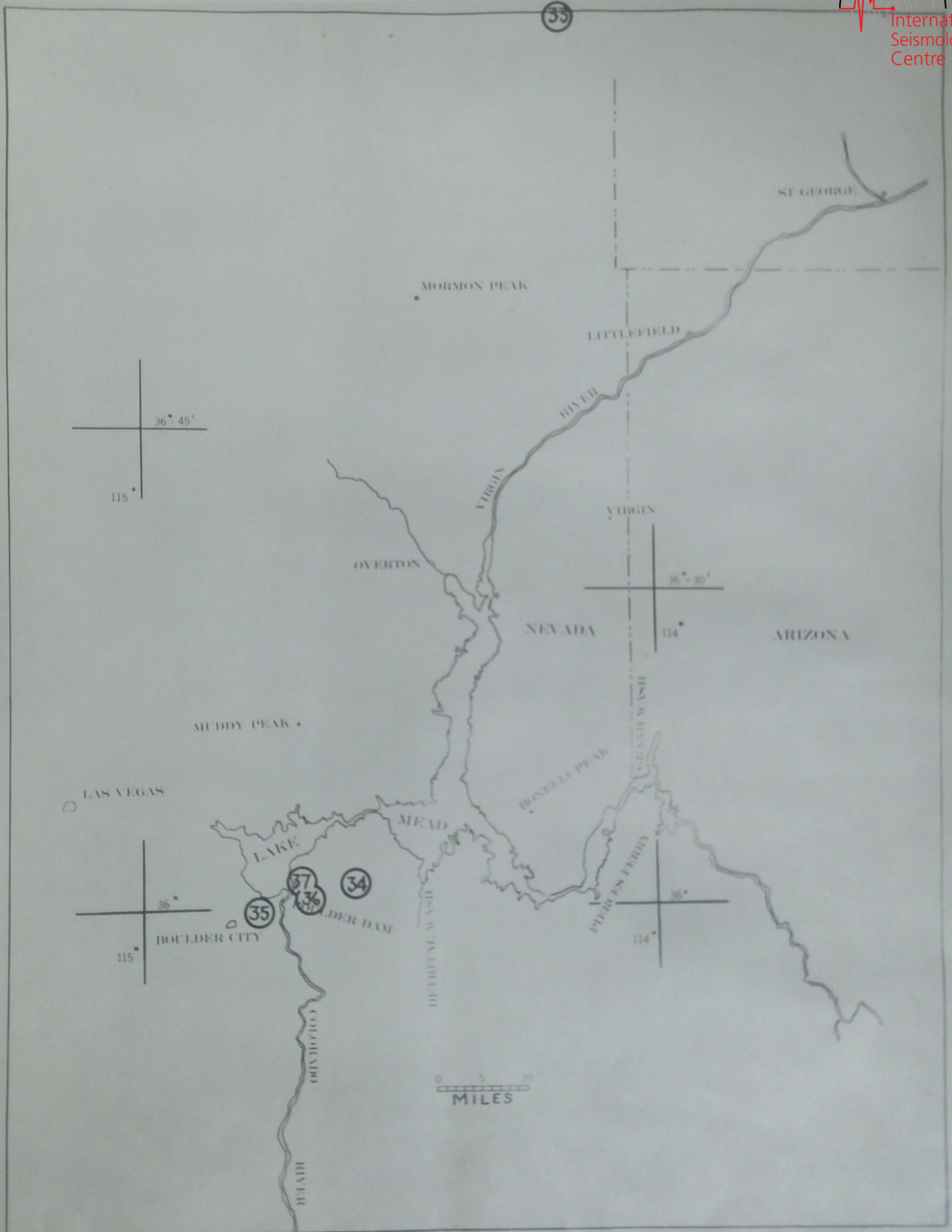
Time used is G.C.T.

International Seismological Centre

MONITORING STATIONS

This is the second of a twin earthquake. It was felt also at Joseco as a separate shock. Report from Caliente does not distinguish the second shock. Epicenter nearly same as of earlier shock.

ep	3	35	4	7	
1.5		34	00		-
	Small local shock, $\Delta = 65$ ml. probably aftershock of preceding shock.				





LAKE MEAD SEISMOLOGICAL STATIONS.

Instrumental Report - - - - - June, 1941.

The stations at Boulder City, Overton, Pierce Ferry and Boulder Dam operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

- | | | | | |
|----|---|----------|-----------------|--|
| 38 | - | June 1, | 03:36:48 G.C.T. | Located from three stations in Gregg's Basin, about 8 miles SW of Pierce Ferry. |
| 39 | - | June 14, | 23:18:16 | Located from three stations 6.5 miles E of Boulder Dam. |
| 40 | - | June 14, | 23:23:17 | Very small shock, located from two stations near Boulder City. |
| 41 | - | June 15, | 13:35:52 | Small shock. Located from three stations in Lake Mead about 6 mi. N of Boulder Dam. |
| 42 | - | June 24, | 12:01:17 | Located from four stations near the Lake shore 2 mi. S Boulder Canyon on W slope of Black Mountains. |
| 43 | - | June 24, | 12:02:11 | Second of a twin shock. Same location as epicenter No.42. |
| 44 | - | June 24, | 13:59:30 | Location about same as epicenter No.42 |

Shocks located from the Lake Mead stations outside of the area are as follows:

- | | | |
|----------|----------|--|
| June 6, | 19:38:48 | Located from three stations in Emigrant Valley, 85 mi. NW of Boulder City. |
| June 6, | 19:12:55 | Located from two stations, probably after-shock of above. |
| June 14, | 10:30:22 | Located tentatively from three stations near Wolf Hole, Arizona, 90 mi. E of Boulder City. |

Shocks which were felt at Boulder City and/or Boulder Dam are listed and described as follows: (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931)

- | | | |
|----------|-------------|--|
| June 15, | 4:55 G.C.T. | Reported as earthnoise by one observer only at Boulder City, II. |
| June 24, | 12:01 | Felt by several at Boulder City as earth rumble of several seconds duration. |
| June 24, | 12:02 | Reported as a slight momentary shock at Boulder Dam. Probably felt at Boulder City also, as first shock may have awakened several persons. III |

Vibration due to escaping water at Boulder Dam, has decreased slightly from the figure of 8×10^{-6} inches given for May 30, 1941, and miscopied in that report.

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **June** 194**1**
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
1	15	3	36	59.8	0.2	-1			1	3	37	00	11.5	11.5			1	3	36	30.8	11.5			
			37	07.9	0.2																			
			37.5	09	0.2	2.5																		
			$\Delta = 39$ ml.																					
			Small local shock, $\Delta = 39$ ml.																					
			Boulder Dam $\Delta = 35.5$ ml.																					
1	15	9	37	34	0.2	0.9			-															
			Very small local disturbance.																					
1	15	20	34	17.5	0.2	2.5			-															
			Small local shock, $\Delta = 5$ ml.																					
1	15	21	48	38	0.2	1.5			-															
			Small local disturbance.																					
2	0	2	24	20	2				-															
			Small seismic waves.																					
2	0	6	10	43.2	0.2	1.5			-															
			Small local shock, $\Delta = 5.5$ ml.																					
4	0	8	57	52					-															
			Faint seismic waves, probably near earthquake.																					
5	-								-															
6	0	24	20	48.2	0.2	1.5			-															
			Small local shock, $\Delta = 3.5$ ml.																					

$\Delta = 8$ ml.
located in Gregg's Basin
1/2 mi SW of Pierce Ferry, Ariz.

2 22 19
24 00
28
Probably 610 ml. ENE.

8 57 10 0.6
28 13 0.0
9 01
17 36 15
17
Small local shock, $\Delta = 1.0$ ml.

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF

June

1941

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
6		07 15	19	39	11 23 29.7	Record forged				07 15	19	38	42 08.5		-0.57 -0.5			07 15	19	38	42 08.5				
			$\Delta = 85$ mi.								Near shock, $\Delta = 75$ mi.								$\Delta = 114$ mi.						
			Probably located in the Sulphur Valley, 3721 ft. lat; 115.77 W. long.								(0-23-12-55) 6.6 4.2								(0-23-12-55) 4.8						
6		-	Record forged							07 15	22	13	17 33					07 15	22	13	24.5				
			Small local shock, $\Delta = 4$ mi.								Probably an aftershock of preceding earthquake.								$\Delta = 116$ mi.						
9		07 15	12	09	03.0 3.8	0.1 0.1	-0.5 5																		
9		07 15	6	20	10 23 37	25				07 15	6	20	13 25					07 15	6	20	15 11	2			
		07 15	6	23	13					07 15	6	23	25					07 15	6	23	22 25	1.5 20.			
		07 15	6	46	37 05					07 15	6	49	04					07 15	6	49	39				
9		07 15	13	53	21 26	0.7 0.5				07 15	13	53	29					07 15	13	53	29				
		07 15	53.6								Very small local shock, $\Delta = 23$ mi. or more.														
12		-									15	19	24, 24		2	1			Small local shock.						

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF June

1941 3

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
14	0 es	10 30 22.5			0.3	0.1			es 15	10 30 38			1	5.2	5.0		es	10 30 50			blur			
		Very small seismic waves.								31.3								48.5						
		$\Delta = 89.5$ ml.								Local shock, $\Delta = 52.5$ ml.								$\Delta = 54.5$ ml.						
		Probably located near Wolf Hole, Ariz. 36.8 N - 113.6 W.																						
39	1 es	23 18 19			0.2	0.3			es 15	23 18 15.5							es 15	23 18 16.0			0.4	2.0		
		21.5								17.3								17.3						
		18.6								$\Delta = 6.5$ ml.														
		Small local shock, $\Delta = 12.5$ ml.								$\Delta = 7.5$ ml.								Boulder Dam, Ariz. 36.8 N - 113.6 W.						
		Located 6.5 ml. E of Boulder Dam, nearly under crest of Black Mts.																						
14	1 es	23 18 19			0.2	0.3			es 15	23 18 15.5							es 15	23 18 16.0			0.4	2.0		
		21.5								17.3								17.3						
		18.6								$\Delta = 6.5$ ml.														
		Small local shock, $\Delta = 12.5$ ml.								$\Delta = 7.5$ ml.								Boulder Dam, Ariz. 36.8 N - 113.6 W.						
		Located 6.5 ml. E of Boulder Dam, nearly under crest of Black Mts.																						
15	2 es	01 07.7			0.4	1.0			es 15	23 13 13.7							es 15	23 13 14.5						
		01.4								14.5								14.5						
		Very small local to near shock.																						
15	2 es	18 54 0.2			1.3				es 15	23 13 13.7							es 15	23 13 14.5						
		0.2								14.5								14.5						
		Very small local disturbance.																						
15	4 es	44 54.6			0.2	4.0			es 15	23 13 13.7							es 15	23 13 14.5						
		45.0								14.5								14.5						
		Small local shock, $\Delta = 3.5$ ml.																						
		earthquake at Boulder City, not recorded elsewhere.																						

194 6

Time used is G.C.T.

PIERCE FERRY

Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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LAKE MEAD SEISMOLOGICAL STATIONS
 Bureau of Reclamation, National Park Service
 and Coast and Geodetic Survey

MONTH OF June 1947
 Time used is C.C.T.

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude					
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z			
25		08 13 P	2	04	26.7 30.5 04.7	0.2	1.1			-																		
			Small local shock, $\Delta = 18.5$ ml.																									
25		08 03 P	17	15	56 16 18.4	0.5	0.3			08 03 13	17	16	24 51 17 00								08 03	17	16	19 51				
			Small near shock, $\Delta = 250$ ml. Probably lower California.																									
26		08 08 08 08 08 08 P	12	11	12 17 26 4.5 50 50	1.5 5 30 50	1.5			08 08 13 08 08 08 P	12	11	11 15 18 21 37	1.5 7 50							08 08 13 08 08 08 P	12	11	08 15 23 08 05	1.5 5 30			
26		-								13	18	01	43	-	1.2	1.6				-								
27		08 08 P	17	17	04 43 33	1.5	0.4			08 08 P	17	17	03 36								08 08 P	17	17	03 36				
			Small teleseism.																									

BOULDER CITY

OVERTON

PIERCE FERRY

Lake Mead Seismological Stations

INSTRUMENTAL CONSTANTS - 1941.

BOULDER DAM, Arizona, In an unused grouting gallery off the second floor near the Arizona abutment.

Tom C. Mead
in charge.

Position: Lat. $36^{\circ} 00' 55.47''$ N., Long. $114^{\circ} 44' 11.86''$ W.,
elevation 237 m. (777 ft.) Underlying ground—
Volcanic tuff.

Instruments:

SURVEY vibration meter: E-W component. $T_0 = 1.0$ sec.,
 $\frac{1}{f} = \text{ca } 6:1$, $V = \text{ca } 1000$. Photographic recording: 60mm
per minute. Impulse upwards corresponds to ground mo-
tion west. Time corrections made from radio signals—
impression made on record by telegraph key on success-
ive half-minutes before the hour. Use beginning of
time breaks. The station was placed in service April 18,
1941. The instrument registers vibration (period 0.8 sec)
when water is allowed to escape in large quantities over
the spillways or thru the valves.

LAKE MEAD SEISMOLOGICAL STATIONS



Instrumental Report - - - - - July 1941

The stations at Boulder City, Overton, Pierce Ferry and Boulder Dam operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

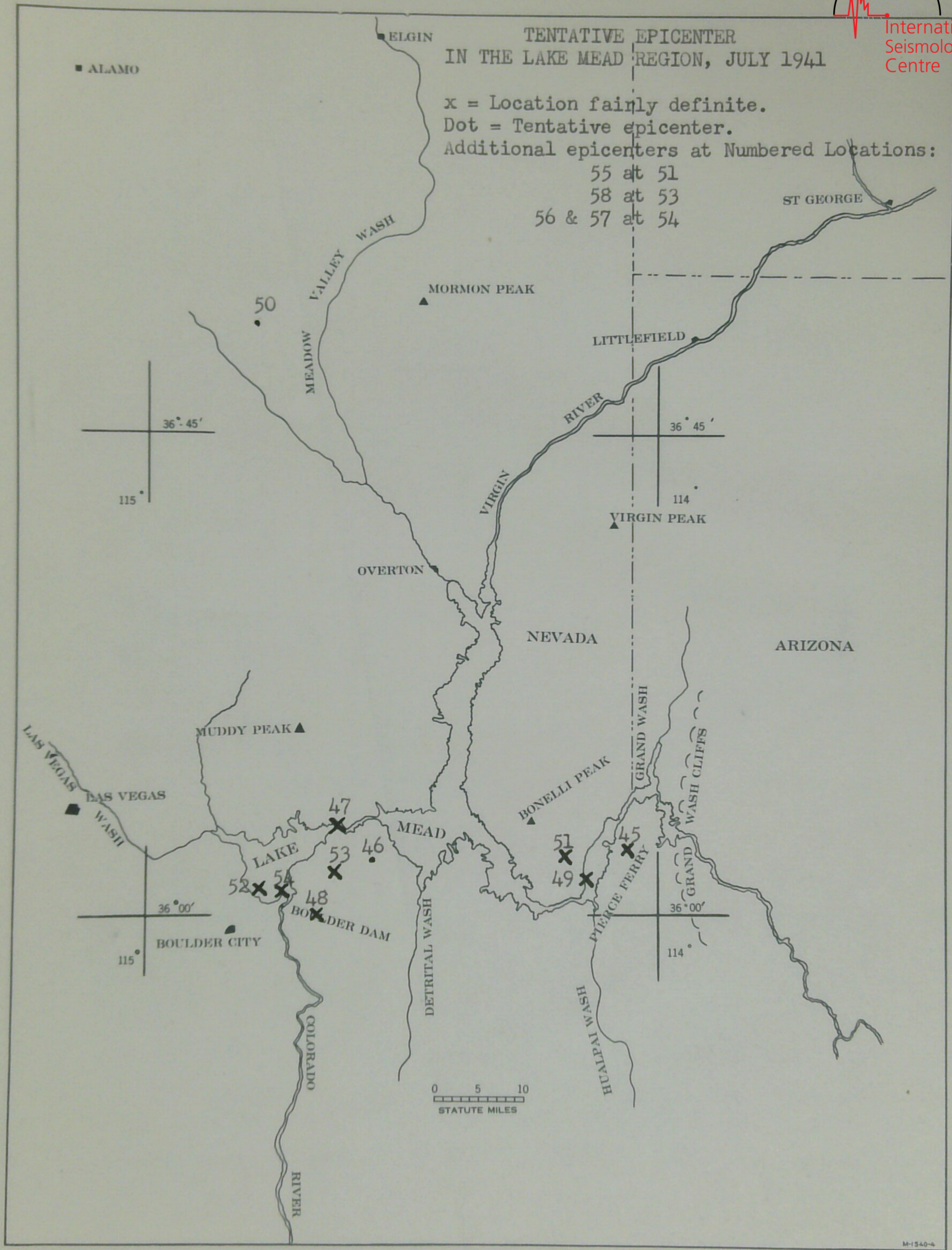
- 45 - July 1, 15h 00m 05s Between Pierce Ferry and Greggs Basin. Probably on faults along east side of the Basin.
- 46 - " 2, 13h 10m 34s Very tentative location about five miles south of Boulder Canyon.
- 47 - " 7, 09h 36m 13s Epicenter at western end of Boulder Canyon.
- 48 - " 7, 18h 32m 28s Epicenter two to three miles southeast of Boulder Dam.
- 49 - " 12, 01h 07m 51s Epicenter in south end of Greggs Basin.
- 50 - " 25, 01h 16m 07s Tentative epicenter near Rox.
- 51 - " 30, 16h 26m 11s Location one to three miles west of Greggs Basin.
- 52 - " 30, 19h 48m 01s Located three miles northwest of Boulder Dam in Lake Mead.
- 53 - " 31, 09h 07m 54s Epicenter seven miles northeast of Boulder Dam in Black Mountains.
- 54 - " 31, 09h 58m 35s Epicenter about a mile north of Boulder Dam in Lake Mead.
- 55 - " 31, 19h 40m 00s Located at epicenter 51, to the west of Greggs Basin.
- 56 - " 31, 21h 20m 22s Tentative location at epicenter 54.
- 57 - " 31, 22h 11m 56s " " " " 54.
- 58 - " 31, 23h 12m 43s Tentative location at epicenter 53.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows: (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

- July 6, 1h 13m Felt as a short rapid vibration in control room of Boulder Dam. III
- " 7, 18h 32m Felt as a short rapid vibration or motion by several at Boulder Dam, even lighter at Boulder City. III
- " 12, 17h 50m Felt lightly in Boulder City. II or III
- " 12, 19h 53m Two earthquakes in this minute, only one reported as felt in Boulder City. III
- " 26, 06h 54m Momentary earthnoise at Boulder City. II
- " 30, 19h 48m Earthnoise at Boulder Dam. II

TENTATIVE EPICENTER
IN THE LAKE MEAD REGION, JULY 1941

x = Location fairly definite.
Dot = Tentative epicenter.
Additional epicenters at Numbered Locations:
55 at 51
58 at 53
56 & 57 at 54



PIERCE FERRY

International
Seismological
Centre

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z
1	eP	7 52 01.4	1.7				eP	7 52 9.3				-0.57-0.2
	1	53 19.8					1	53 23.5				- 1
	1	53 00					1	53 30				
	1	53 26	1.5				1	53 38				
	F	8 19					1	53 54				
		$\Delta = 290$ mi.					1	53 25				
		Boulder Dam					M	53 51	1.5	60	65.	
	e	7 52 02.3					F	8 13				
	1	11.6						$\Delta = 330$ mi.				
	1	18.5										
		Near earthquake, destructive in Santa Barbara.										
		Epicenter 34.9° N Lat, 119.6° W Long; $\theta = 7h 50m 56s$ according to Pasadena.										
1	e	8 20 20					e	8 20 26				
	e	21 17	0.7	0.2			e	21 38				
	e	21 24	2.0	0.4			1	21 37	1.5	0.7	0.7	
	F	26					F	26				
		Very small near shock, aftershock.										
1	e	8 49 28					e	8 49 53				
	e	50 49	0.7	0.2			e	52 00	1.2	0.5	0.1	
	F	52										
		Very small near shock.										
1	e	10 26 42					e	10 26 53				
	e	27					e	27 52				
	F	30					e	28 05	1.5	-	0.5	
		Very small near shock.										
45 - 1	eP	15 00 27.7	-	0.2			eP	15 00 06				
		Δ may be 46 mi.					15	10.0	1.5	5	5	
		Probable location in Dregg Basin.					F	00.5				
		Δ may be 37 mi.						$\Delta = 10$ mi.				

1947

Time used is GCT

PIERCE FERRY

	No.	Date	Phase	Time			Period T	Trace Amplitude		
				h	m	s		E	N	Z
1			e 23	54	49.3	0.5	0.2			
			i 55	04.6						
			e 43	55	11.5	1.0	0.3			
			f 56	11.5		1.0	0.9			
				59.5						
				Small near shock, 480 ml.?						
				$\Delta = 51.5 \text{ ml.}$						
			iS 7	54	37	0.3	1.3			
				Very small local disturbance.						
2			e 11	41	52	0.2	0.3			
			iS 42.4	56						
				Very small local to near shock.						
46 - 2			eP 13	10	39.3	0.2	0.8			
			iS 43.0							
				$\Delta = 18 \text{ ml.}$						
				Very small local.						
				Probably located south of Boulder Canyon.						
4			eP 7	15	55.6	0.2	0.8			
			iS 59.1							
				16.2						
				Very small local shock, $\Delta = 17 \text{ ml.}$						
4			eP 7	20	24.3	0.2	0.8			
			iS 27.6							
				20.7						
				Very small local shock, $\Delta = 16.5 \text{ ml.}$						
5			eP 14	31	27.7	0.3	-0.2			
			iS 30.5			0.3	2			
				31.8						
				Small local shock, $\Delta = 14 \text{ ml.}$						
1			e 23	54	58					
			i 55	10						
				25						
				in radio signal						
2			e 11	42	12.5					
46 - 2			eS 13	10	44.5					
			eS 50.5							
				$\Delta = 33 \text{ ml.}$						
4				No time marks						
4				No time marks.						
5				No time marks						
1			e 23	55	06					
			i 56	24						
				26						
				00.8						
				1 1 2						
2			e 11	42	15	1.5	0.1	0.1		
46 - 2			eS 13	10	49					
			eS 51							
				$\Delta = 34? \text{ ml.}$						

Time used is G.C.T.

PIERCE FERRY

3

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
7		0, eP 1S F	9	36	13.4 18.0 21.3	0.2	1.4			eP 1S	9	36	22? 28?	No time marks				e3	9	36	32				
			Very small local shock, $\Delta = 16.2$ ml. $\Delta = 30$ ml. Epicenter probably near western entrance to Boulder Canyon.																						
7		-								-								eP 1S	17	20	28.0 30.5	-	0.5	0.8	
			$\Delta = 12.5$ ml.																						
48 - 7		1P 1S m F	18	32	30.5 32.4 35	0.2	1.3			1P 1S	18	32	30 38	No time marks 3				e 1S	18	32	39.1 47.9				
			Local shock, $\Delta = 9.5$ ml. Felt by several at Boulder Dam and also at Boulder City. 0 - 18:32:27.8 located two to three miles SE of Boulder Dam.																						
9		e	1	02	00	3				-								e F	1	01	31				
			Faint seismic waves																						
9		e 1S7 F	5	00	24 25	-	1.5?			-								-							
			Small faint local shock, Δ may be 5 ml.																						
10		1S	1	04	08	0.2	1			-								-							
			Very small local disturbance.																						

PIERCE FERRY

3

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			
					E	N	Z				E	N	Z	
10		LS	21 01' 28 Very small local disturbance.		0.7									
11		eP F	1 24 31 1 44 Faint seismic waves.	1.5				-						
			Epicenter 5.5°N Lat., 83°W Long. 0-1h 16.6m according to U.S.C. & G.S.											
11		e F	2 07 29 Very small seismic waves.					-						
			Probably aftershock of above.											
11		LS	7 46 24 Very small local disturbance.	-	0.7			-						
11		e LS	07 47 00.3 01.3 Small local shock, Δ = 5ml.	-	1.5			-						
11		e LS F	08 38 24.1 24.9 38.5 Small local shock, Δ = 4 ml.	0.2	1.6			e?	08 38 33.5 thickening of line -					
11		-						1P LS	20 01 00 02 No time corrections- Small local shock, Δ = 10 ml.					
49	12	eS	01 08 10.5 Δ = 39.5 ml. Located in Oregon Basin.	0.5	0.2			eP LS	01 08 02 09 Δ = 36.5 ml.	-	0.2			
								eP LS	01 07 53.5 55.5 Small shock, Δ = 10 ml.	-		1.9	2.3	

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF

July

194 1 6

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			
		h	m	s		E	N	Z		h	m	s		E	N	Z	
14	13	20	58	25	0.2	1.5			-								
		Small local disturbance.															
15	e ^s	0	17	11.5		0.5			-								
	e ^s			14.0													
	m			17		0.7	1.2										
	F		17.6														
		Very small local shock, $\Delta = 12.5$ ml.															
15	-									15	15	36	00				
										15		01.5	-	2.5	3.0		
		Small local shock, $\Delta = 7.5$ ml.															
16	13	0	44	35	-	1.5			-								
		Small local disturbance.															
16	e	3	16	33	1.8				-	3	16	37					
	e		19	07	9						19	47	18				
	e		19	35	18						21	23	7.5	0.6	0.6		
	e		20	13	10	1.3				Small near to distant earthquake.							
	e		20	55	5	1.6				Pasadena $\Delta = 11^{\circ}$							
	F		44														
18	e	3	55	17.7					-	3	55	15.5					
	e ^s		56	24.0	1.5	0.7					56	18					
	F		4	00.8							19.5	1.5	3.5	2.2			
		$\Delta = 382$ ml.															
		Very near small shock.															
21	13	11	02	17	0.2	1			-								
		Very small local disturbance															

[illegible]

[illegible]

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF

Time used is G.C.T.

194

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BOULDER CITY

OVERTON

PIERCE. FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			
					E	N	Z				E	N	Z	
30		eP IS F	16 18 59.7 02.5 0.5 0.7 18.3 Very small local shock, Δ = 14 mi.				-							
51	30	e es	16 26 21.2 28.9 0.7 0.2 Δ = 38.5 mi. Location probably near Gregg's Basin.				Artificial disturbance							
52	30	IP IS F	19 48 02.7 0.3 1.5 04.0 6? 48.5 Local shock, Δ = 6.5 mi. Earthquake at Boulder Dam. 0-19:48:00.8 Probable location 3 mi. N.W. of Boulder Dam, in Lake Mead.				e IS	19 48 09.2 20.7 Δ = 39 mi.			1.0 0.8			
31		eP? es F	4 22 09.2? 36.0 0.3 0.3 23.4 Very small near shock, Δ = 14.0 mi.				eP IS	4 22 00 18.3 Δ = 91 mi. 0 = 04:21:35.3			2.5 2.7			
31		eP es IS F	5 19 13.7 0.5 -0.2 39.1 39.7 0.6 0.6 20.8 Very small near shock, Δ = 130 mi. 37°1 N. Lat., 113°0 W. Long. 0=05:18:41.1				IP IS	5 19 04.3 22.3 Δ = 87.5 mi. Felt in Zion N. Park Epicenter near Rockville, Utah			4.5 4.5			
53	31	eP IS F	9 07 56.8 0.1 -0.1 59.5 0.2 0.7 08.5 Very small local shock, Δ = 13.5 mi. 0=9:07:52.9: Located 7 mi. N. E. of Boulder Dam in Black Mts.				es	9 08 10.5 Δ = 34 mi.			0.3 0.2 -			
							e	9 08 11.5 Δ = 36 mi.						
							Boulder Dam							
							e?	9 07 52.5						
							e?	55.6						
							IS	56.5			0.2 1.0			
								Δ = 7.0 mi.						

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **July** 1941 10
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
54 31	IP 09 58 37.0 IS 38.4 F 58.9 Small local shock, $\Delta = 7$ ml. 0 = 09:58:35.0 Located a mile north of Boulder Dam, in Lake Mead.				0.3	0.4			es? 09 58 55 $\Delta = 39$ ml.								-							
55 31	e 19 40 20 $\Delta = 38.5$ ml. 0 = 19:40:00.1 Probably epicenter one to two miles west of Gregg's Basin at epicenter 51.				-	0.1			- west								ep 19 40 03 IS 05 Small local shock $\Delta = 10$ ml.					0.2 0.2 1.5 1.5		
56 31	ep 21 20 24.0 IS 25.4 F 20.6 Very small local shock, $\Delta = 7$ ml. 0 = 21:20:22.0					0.2	1.0		-								IS? 21 20 23.4 $\Delta = 2.7$ ml. Location may be near Epicenter 54					0.3		
57 31	ep 22 11 58.2 IS 59.7 F 12.2 Small local shock, $\Delta = 7.5$ ml. 0 = 22:11:56.0 Location may be near epicenter 54.				0.2	0.2	1.5		IP 21 44 35 IS 37 Small local shock, $\Delta = 10$ ml.				-	0.2 0.4 3.3 3.6			IS? 22 11 57.7 $\Delta = 3.5$ ml.					0.3		
58 31	ep 22 19 34.6 IS 36.0 F 19.9 Very small local shock, $\Delta = 7$ ml. 0 = 22:19:32.6 Location may be near epicenter 53				0.2	0.2	0.9		-								ep 22 19 34.0 $\Delta = 2.7$ ml.					0.2		
58 31	Line on record missing. Boulder Dam ep 23 12 45.5 IS 47.3 Small local shock, $\Delta = 9$ ml. 0 = 23:12:42.9, located at or near epicenter 53.								IS 23 13 01 Very small local disturbance $\Delta = 35$ ml.				-	1.0 0.7			es 23 13 01.8 $\Delta = 37$ ml.					0.4 0.1		

LAKE MEAD SEISMOLOGICAL STATIONS

Instrumental Report - - - - - August, 1941.

The stations at Boulder City, Overton, Pierce Ferry and Boulder Dam operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

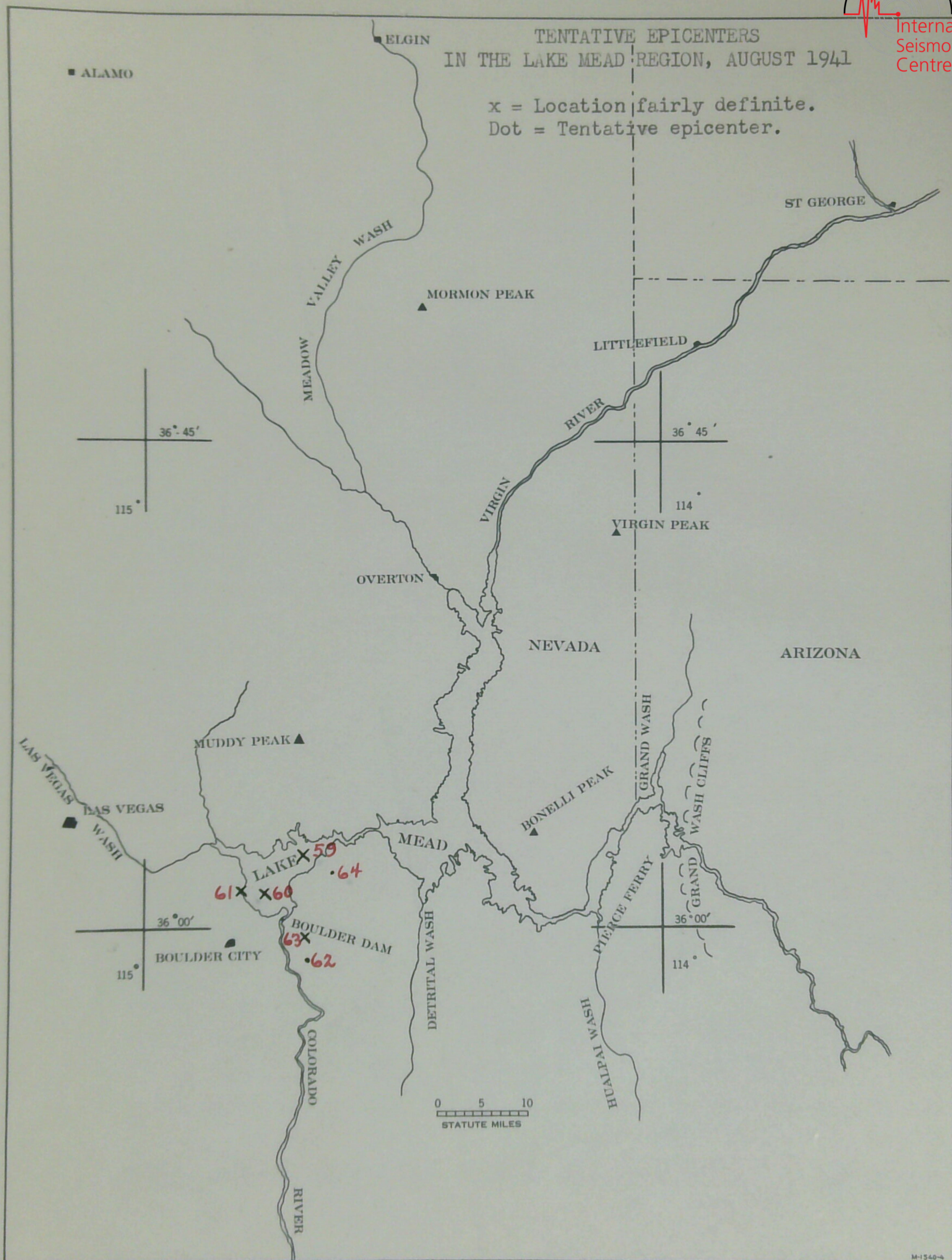
- 59 - Aug. 5, 10h 59m 25s In Lake Mead near position of Old Callville, about seven miles north by east of Boulder Dam.
- 60 - " 8, 00h 42m 05s In Lake Mead several miles northward of Boulder Dam.
- 61 - " 11, 20h 09m 24s Near the Boat Docks at west edge of Lake Mead.
- 62 - " 12, 21h 38m 34s Tentatively on a line between Boulder City and Boulder Dam, favored location four or five miles southward of Boulder Dam.
- 63 - " 20, 10h 14m 00s Two and a half miles southeast of Boulder Dam.
- 64 - " 25, 21h 10m 48s Very tentatively under Black Mountains, three or four miles south of Boulder Canyon.

Shocks which were felt at Boulder City or Boulder Dam are listed and described as follows: (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

- Aug. 1, 10h 40m Earthnoise followed by shock at Boulder City. II and III
- " 1, 10h 41m Earthnoise at Boulder City. II
- " 1, 10h 49m Earthnoise at Boulder City. II
- " 2, 11h 59m Slight vibrations noticed by a few at Boulder City and Boulder Dam. II
- " 2, 21h 14m Felt by several at Boulder Dam. II
- " 4, 01h 48m Light shock at Boulder City. II
- " 8, 00h 42m Rumble and light vibrations reported by several at Boulder Dam. II
- " 8, 14h 46m Felt as a momentary sharp bump at Boulder City. II
- " 11, 02h 58m Very light shock reported in Boulder City. II
- " 11, 20h 09m Felt at Boulder City and Boulder Dam. II
- " 20, 10h 14m Reported as a sharp shock by several at Boulder Dam. II

TENTATIVE EPICENTERS
IN THE LAKE MEAD REGION, AUGUST 1941

x = Location fairly definite.
Dot = Tentative epicenter.



PIERCE FERRY

Time used is 0.000000

Phase	h	Time m s	Period T	Trace Amplitude			Phase	h	Time m s	Period T	Trace Amplitude			
				E	N	Z					E	N	Z	
e	10	49 08.7	0.15	4.0			No							
15		09.2												
Small local shock, Δ may be 2.5 ml.														
15	12	16 46	0.1	1.5			No							
Small local disturbance														
eP	13	32 53.5	0.2	1.8			No							
15		54.0												
Small local shock, $\Delta = 2.5$ ml.														
e	16	06 01.4	0.2	2.			No							
15		02.3												
Small local shock, Δ may be 4.5 ml.														
No							e	19	17 56					
							15		59					
1	21	02 13.4	0.2	0.2			No							
15		14.9	0.2	1.2										
F		02.4												
Very small local shock, $\Delta = 7.5$ ml.														
No							eP	21	06 29					
							15		32					
e	01	28 09.1	0.2	0.8			No							
15		10.8												
F		28.3												
Very small local disturbance, Δ may be 8.5 ml.														
1P	01	38 12.6	0.3	0.8			No							
15		13.9	0.4	-4.7										
F		38.6												
Local shock, $\Delta = 8$ ml.														
15	09	09 31	0.2	1.0			No							
Very small local disturbance.														

22

Time used is GCT

PIERCE FERRY

BOULDER CITY										OVERTON											
No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude						
			h	m	s		E	N	Z		h	m	s		E	N	Z				
2		eP IP e e P	11 12 12 13	54 04 21 14	18.4 40.0 50	1.5 9	0.2 0.4		eP IP es	11 12	54 04	24 32 48				eP 1 1 es e	11 12 04 21	54 04 39 57	21.0 26 42 52	2 1.5 1.5 28	-0.2-0.2 0.3 0.7 0.5 1.0 0.5 0.5
		South Pacific. Epicenter 30° S Lat., 178½° W Long. ± 0 = 11h 41.5m according to U.S.C. & G.S. Δ = 88°																			
2		IP IS M P	11 	58 	39.4 41.0 42	0.2 0.2 0.2	0.8 2.5 4.0		No							No					
		Local shock in preliminary of above teleseism; Δ = 8 mi. Felt in Boulder City and at Boulder Dam.																			
2		eP es P	17 	57 	33.4 35.2	0.2	1.3		No							No					
		Very small local shock, Δ = 9 mi.																			
2		IP IS P	21 13 14.4	14 	10.0 11.6	0.3 0.2	0.3 3.7		No							No					
		Small local shock, Δ = 8 mi. Felt at Boulder Dam.																			
2		eP IS P	23 13 04.5	04 	16.5 18.1	0.3 0.2	0.2 1.3		No							No					
		Very small local shock, Δ = 8 mi.																			
3		eP IS	13 15	39 20.5	19.5 20.5	-	1.7		No							No					
		Small local shock, Δ = 5 mi.																			

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF AUGUST 1941
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
4		o 00 34 0								No															
		Faint seismic waves																							
4		IP 01 48 25.2				0.2	-0.4			No															
		IS 26.2				0.2	-3.0																		
		Small local shock, $\Delta = 5$ ml.																							
		Felt in Boulder City.																							
4		oP 11 01 54				2				No															
		es 08 59 4																							
		P 15																							
		Telesism, $\Delta = 3200$ ml. Epicenter																							
5		oP 10 59 28.8								IS	10 59 43			0.7	0.5										
		IS 31.2				-					10 59 26.3														
		Small local shock, $\Delta = 12$ ml.									27.7														
		Probable location near Old Calville, 7 ml. N. by E. of Boulder Dam																							
5		o 19 14 55.5								No															
		1 56.5				-																			
		Very small local disturbance.																							
5		No																							
		IP 20 53 14								No															
		IS 16				-																			
		Small local shock, $\Delta = 10$ ml.																							
6		oP 6 22 13								IP	6 22 14.8														
		es 27 54.5								es	28 00														
		P 37																							
		Distant earthquake, $\Delta = 2900$ ml.																							
		Epicenter 57.5° N Lat., 160° W Long.; $0 = 6h 15.3m$ according to U. S. C. & G. S.																							
7		IS 09 23 10				0.2	1.6			No															
		Small local disturbance.																							

Boulder Dam
Poor time correction (ca 0.8 slow)

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF AUGUST

194 1 5

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z

7 No 00 42 07.5 0.3 1.5 1.5 5.0 1.5 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

60 8 1P 00 42 07.5 0.3 1.5 1.5 5.0 1.5 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

1S 09.0 0.4 5.0 1.5 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

F 42.5 Local shock, $\Delta = 9$ ml. Vibration and earthquake at Boulder Dam. Probable location in Lake Mead, several miles northward from Boulder Dam.

8 00 46 29.6 0.8 0.8 0.8 0.8 0.8 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

1S 31.9 - 0.8 0.8 0.8 0.8 0.8 0.8 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

Small local shock, $\Delta = 11$ or more mi. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

8 14 06 33.0 0.2 0.3 0.3 0.3 0.3 0.3 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

1S 33.9 - 5.5 5.5 5.5 5.5 5.5 5.5 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

F 06.7 Local shock, $\Delta = 4.5$ ml. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

8 No 07 23 12 0.2 1.7 1.7 1.7 1.7 07 23 12 0.2 1.7 1.7 1.7 1.7 07 23 12 0.2 1.7 1.7 1.7 1.7

9 07 23 12 0.2 1.7 1.7 1.7 1.7 07 23 12 0.2 1.7 1.7 1.7 1.7 07 23 12 0.2 1.7 1.7 1.7 1.7

Small local disturbance. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 2 58 08.8 0.2 0.2 0.2 0.2 0.2 0.2 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

1S 10.2 0.3 2.5 2.5 2.5 2.5 2.5 2.5 00 42 25 39 ml. 1 1 0.7 1.2 Small local shock, $\Delta = 10$ ml.

Small local shock, $\Delta = 7$ ml. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

1S 27.0 - 6 6 6 6 6 6 6 6 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

F 09.8 Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

1S 27.0 - 6 6 6 6 6 6 6 6 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

F 09.8 Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

1S 27.0 - 6 6 6 6 6 6 6 6 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

F 09.8 Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

1S 27.0 - 6 6 6 6 6 6 6 6 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

F 09.8 Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

Local shock, $\Delta = 7$ ml. Located near Boat Docks. Felt at Boulder City. No 21 56 31 33 3.4 4.0 Local shock, $\Delta = 10$ ml.

11 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7 20 09 25.6 0.3 1.7 1.7 1.7 1.7

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **AUGUST** 194**1**
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
12		e 07 15 10.1 13 F 15.4 Very small local shock, $\Delta = 12.5$ ml.				0.2	1.0			No															
62	12	1P 21 38 36.7 13 F 38.3 Small local shock, $\Delta = 8$ ml. Probable location between Boulder City and Boulder Dam.				0.2	1.7			13	21 38 55 $\Delta = 4.2$ ml.			-	0.3 0.2			No	<u>Boulder Dam</u> e 21 38 36.6 13 F 37.5						
12		e 22 54 10.2 1 F 54.4 Very small local shock, Δ may be more than 7.5 ml.				0.2	0.8			No								No							
13		e 06 31 03.8 e 31.3 Very small local shock, $\Delta = 8.5$ ml. or more.				0.2	1.3			No								No							
13		13 10 35 25 Small local disturbance.				0.2	1.6			No								No							
15		eP 6 21 26 e 31 20 15 Tolleson—near Cape Verde Island. Epicenter 19°N lat., 27°W long. $\phi = 6$ according to U.S.C. & G.S.				3				e	6 21 25 31 00			8				eP 6 21 20 e 31 10 eL 7 14 30 P 25							
15		e 7 35 55 13 56 Very small local shock, $\Delta = 5$ ml.				0.2	0.6			No								No							
15		e 22 12 57 13 58 Very small local shock, $\Delta = 5$ ml.?				-	1.4			No								No							

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

BOULDER CITY

PIERCE FERRY

MONTH OF **AUGUST** 194**1**
Time used is C.C.T.

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z				E	N	Z
20		1P 2 51 32.1 1S 33.3 Small local shock, $\Delta = 6$ ml.		0.2 0.2 0.2 2.5				No											
20		1P 10 14 03.1 1S 04.5 F 14.4 Local shock, $\Delta = 7.4$ ml. Located 2.5 ml. southeast of Boulder Dam.		0.4 0.4 0.5 3.5				e	10 14 16.5 blur	-	0.2 0.2			No	<u>Boulder Dam</u> 10 14 01.9 1S 02.4 $\Delta = 2.5$ ml.	-	-1.0 -3.3		
20		No						No	19 11 15 17 Small local shock, $\Delta = 10$ ml.	-	2.0 2.5			No					
20		e 19 26 53.8 1 54.2 1S 55.2 F 27.1 Small local shock, $\Delta = 7$ ml.		0.2 0.2 0.2 1.1 0.2 2.8				No						No	<u>Boulder Dam</u> 15 19 26 53.5				
21		e 00 03 07 e 03 58 eS 08 42 F 17 Seismic waves of unknown origin.		2 5 5				e	00 03 54					e	00 02 43 04 15 09 00 14 45	1.5 1.5 0.9 4 second near shock.			
21		No						No						No					
22		eP 0 40 08.7 1S 09.8 F 40.3 Very small local shocks, $\Delta = 5.5$ ml.		0.1 1.3				No						No					
22		e 16 16 50 Very small local disturbance.		0.1 0.7				No						No					

Time used is 1.0 CT

PIERCE FERRY

Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
			E	N	Z				E	N	Z				E	N	Z
EP 16 22 07.7 1S Very small local shock, $\Delta = 7.5$ ml.		0.2	1.3			No											
EP 16 23 26.5 1S Small local shock, $\Delta = 7.5$ ml.		0.2	1.7			No											
No						No	20 41 12 1S Small local shock.	-	1.2	1.8		No					
EP 01 13 45 1S Very small local shock, $\Delta = 3$ ml.		0.1	0.8			No						No					
EP 06 15 04.5 1S Very small local shock, $\Delta = 2.5$ ml.		0.5	0.5			No						No					
No						EP 21 22 16 1S Small local shock.			0.8	0.8		No					
e 3 09 11 es 16 16 Tolereism.		1.5	3			e 3 17						e 3 09 08 es 16 05					
EP 6 48 03.4 1S Small local shock, $\Delta = 8.5$ ml.		0.2	1.5			No						No					
EP 8 57 12.9 1S Small local shock, $\Delta = 7.0$ ml.		0.1	0.2			No						No					
No																	
IP 14 12 06 1S Small shock, $\Delta = 10$ ml.		-	1.4			1.4											

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF AUGUST

194 11

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z

Phase	Time			Period T	Trace Amplitude		
	h	m	s		E	N	Z

Phase	Time			Period T	Trace Amplitude		
	h	m	s		E	N	Z

27

e 18 44 38 3
e 45 38 11
P 51
Small seismic waves.

e 18 45 15

e 18 44 27
e 45 12

27

No

No

e 23 17 51
18 53
Small local shock, $\Delta = 10$ ml.

28

No

eP 2 07 32
18 34
Small local shock, $\Delta = 10$ ml.

28

eP 17 35 26.4
18 27.8
Small local shock, $\Delta = 7$ ml.

No

No

28

No

1 18 55 20
18 21.5
Small local shock, $\Delta = 7.5$ ml.

No

29

e 11 36 58
eS 35 24
Small near shock.

No

e 11 34 52
eS 35 59
 Δ may be 390 ml.

29

e? 13 11 42.3
e 45.0
18 06
18 11
18 33
5
1.8

e 13 11 41
eS 12 56
18 00
18 07
 Δ may be 455 ml. - 720 ml.

e? 13 11 27
e 11 46
eS 13 13
18 23
3.5 2.5 3.5
 Δ may be 500 ml.

29

e 13 19 17
eS 20 20
P 22.4
Small near shock, Δ may be 360 ml.

e 13 20 08

e 13 20 25
1.5 0.3 0.4

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

BOULDER CITY

OVERTON

PIERCE FERRY

MONTH OF AUGUST

Time used is G.C.T.

194

12

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z
29	ep 19 15 56.3 15 57.3 Very small local shock, $\Delta = 5$ ml.				0.2 0.8				No							
29	ep 19 16 04.6 es 17 25.5 P 20.5 Small near shock, $\Delta = 470$ ml.?				1.2 0.2				es 19 18 18				- 0.3			
30	15 03 49 21 Very small local disturbance.				0.2 1.3				No							
30	ep 13 30 39.7 15 41.2 Very small local shock, $\Delta = 7.5$ ml.				0.2 0.3				No							
30	ep 13 30 48.7 es 32 02.3 es 07 07 Small near shock, $\Delta = 420$ ml.				0.3 0.2				es 13 31 51				2 0.3			
31	e 18 42 51.0 15 52.1 Small local shock, $\Delta = 5.5$ ml.				- 2.5				No							
31	e 18 47 20.2 15 21.5 Small local shock, $\Delta = 6.5$ ml.				- 3.0				No							

LAKE MEAD SEISMOLOGICAL STATIONS

INSTRUMENTAL REPORT- - - - - SEPTEMBER, 1941

The stations at Boulder City, Overton and Boulder Dam operated on routine schedule throughout the month. The Pierce Ferry station was out of service for a few days.

Tentative epicenters were located in the Lake Mead region as follows:

<u>No.</u>	<u>Date</u> <u>Sept.</u>	<u>G.C.T.</u>	<u>Location</u>
65	3	21h 24m 57.6s	4 miles E of Boulder Dam.
66	3	22h 06m 22.6s	4 miles E of Boulder Dam. Slightly S of No. 65.
67	3	22h 09m 7.5s	5 miles SE of Boulder Dam.
68	4	06h 01m 15.8s	4 miles E of Boulder Dam about 0.5 mile N to NW of No. 65.
69	4	23h 35m 24.0s	4 miles E of Boulder Dam. Same as No. 65.
70	5	04h 29m 11.5s	3 to 4 miles SE of Boulder Dam.
71	5	19h 45m 13.7s	8 miles NE of Boulder Dam and 5 miles S of lower entrance to Boulder Canyon.
72	5	23h 11m 00.1s	About 4 miles NW of Boulder Dam.
73	7	07h 08m 49.8s	5 miles NE of Boulder Dam.
74	14	09h 17m 57.3s	About 2½ miles SE of Boulder Dam.
75	14	19h 21m 54.5s	2 to 3 miles E of Boulder Dam.
76	15	01h 20m 20.0s	4 miles ESE of Boulder Dam.
77	15	01h 22m 40.3s	3 to 4 miles ENE of Boulder Dam.
78	15	03h 26m 56.9s	4½ miles E of Boulder Dam.
79	15	03h 53m 30.4s	5 miles ESE of Boulder Dam.
80	15	06h 37m 21.5s	5 miles WNW of Boulder Dam.
81	17	01h 13m 18.6s	4 miles ESE of Boulder Dam.
82	17	05h 42m 05.6s	4½ miles NW of Boulder Dam.

<u>No.</u>	<u>Date</u> <u>Sept.</u>	<u>G.C.T.</u>	<u>Location</u>
83	18	02h 29m 02.0s	9 to 10 miles E of Boulder Dam.
84	18	09h 44m 27.8s	4 to 5 miles SE of Boulder Dam.

It is noted that all of the foregoing epicenters, 20 in number, have been located within 10 miles of, but not at, Boulder Dam. 14 of these are in the Fortification Hill region $2\frac{1}{2}$ to 5 miles in an easterly direction from Boulder Dam. Fairly accurate placement of many of these epicenters was made possible by the station at Boulder Dam, the coordinates of which appeared with the July issue of this report.

Shocks which were felt at Boulder City or Boulder Dam are listed and described below. (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.) Most of these shocks were located as previously stated and occurred in two swarms. The swarm following the larger shock of September 3, (No. 65) was the most distinct. The other swarm occurred September 14, 15, 16 and 17. The following information supercedes similar descriptions in body of report.

<u>No.</u>	<u>Date</u> <u>Sept.</u>	<u>G.C.T.</u>	<u>Intensity and Description</u>
65	3	21h 25m	III at Boulder City, IV at Boulder Dam. Felt throughout Boulder Dam. Set off accelerographs at Boulder Dam. Not felt at boat landing or Railroad Pass. At Midway, 13 miles NE of Boulder City may have been felt as II, but doubtful.
	3	21h 27m	II at Boulder Dam. Two small aftershocks felt in Power House.
	3	21h 31m	II at Boulder Dam. Felt in Power House.
	3	21h 46m	II at Boulder Dam. Felt in Power House and Watermaster's office.
66	3	22h 06m	III at Boulder Dam. Described as heavy shock at Power House.
67	3	22h 09m	II at Boulder Dam. Described as light shock at Power House.
	4	03h 12m	III at Boulder Dam. (Not given number but probably has nearly the same epicenter as No. 65.) Felt in control room, cubicles, at top of Dam, and in Watermaster's office.
68	4	06h 01m	II at Boulder Dam. Felt in Watermaster's office.

<u>No.</u>	<u>Date</u> <u>Sept.</u>	<u>G.C.T.</u>	<u>Intensity and Description</u>
72	5	23h 11m	III at Boulder Dam and Boulder City. Felt generally at both places.
	7	02h 08m	II at Boulder City. Reported by one person as earth-noise.
73	7	07h 09m	II. Reported felt as a momentary tremble.
74	14	09h 18m	III at Boulder Dam. Described as sharp, hard shock followed by lighter one, in Power House. From same authority, reported as probably II at Boulder City.
75	14	19h 22m	III at Boulder Dam. Described as "distant" in Water-master's office. Felt also in Power Plant.
76	15	01h 20m	IV at Boulder Dam; described as very hard shock at Power Plant, distinct at Watermaster's office. III at Boulder City--felt by many. Probably II or III at Railroad Pass four miles NW of Boulder City.
	15	01h 21m	Probably II at Boulder Dam, Power House.
77	15	01h 22m	Probably III at Boulder Dam. Felt in Power House and Watermaster's office.
80	15	06h 37m	III at Boulder City. Felt indoors by several.
81	17	01h 13m	II at Boulder Dam, Watermaster's office. Described as low rumble.
82	17	05h 42m	III at Boulder City. Felt indoors by several as two impulses 1 or 2 seconds apart.

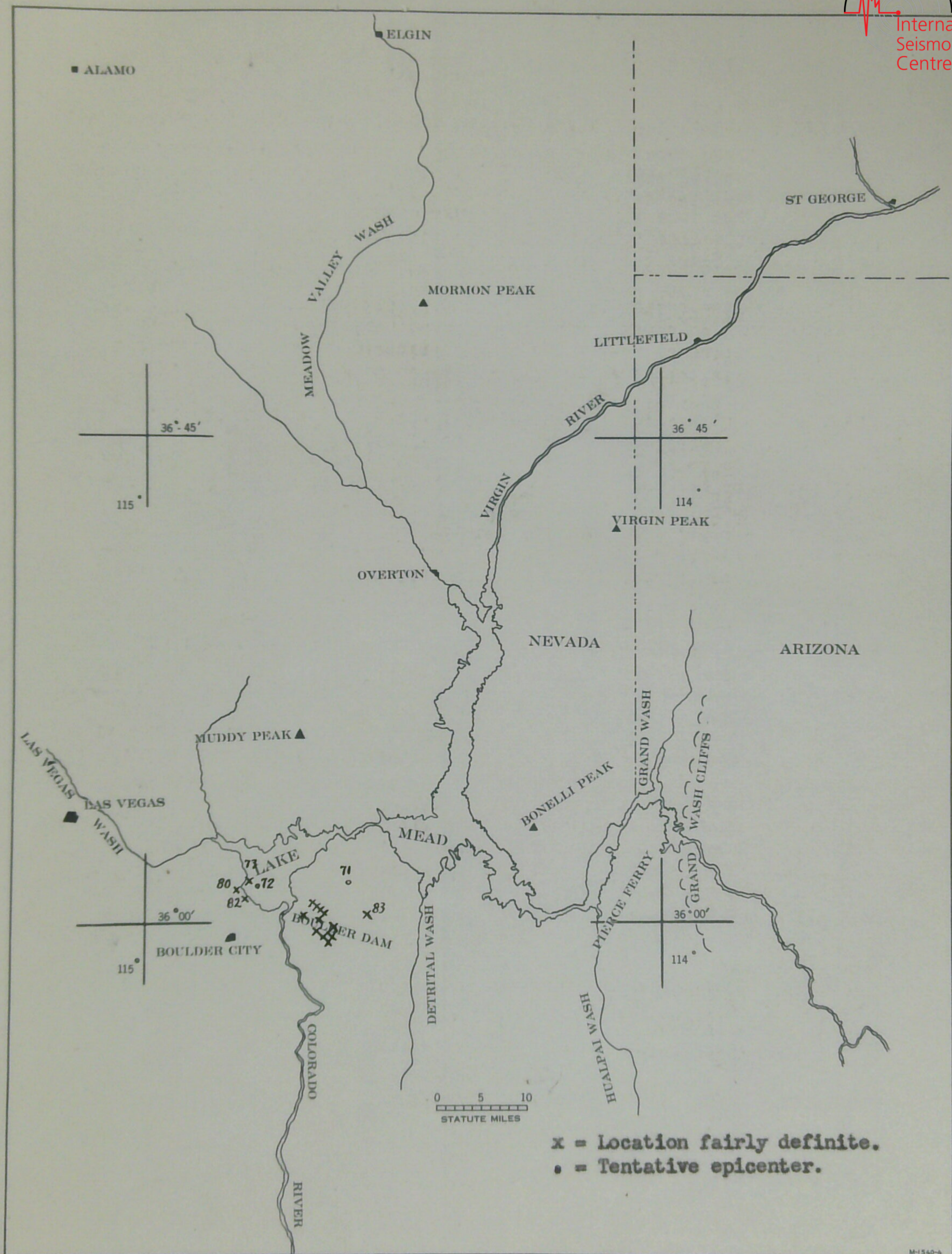
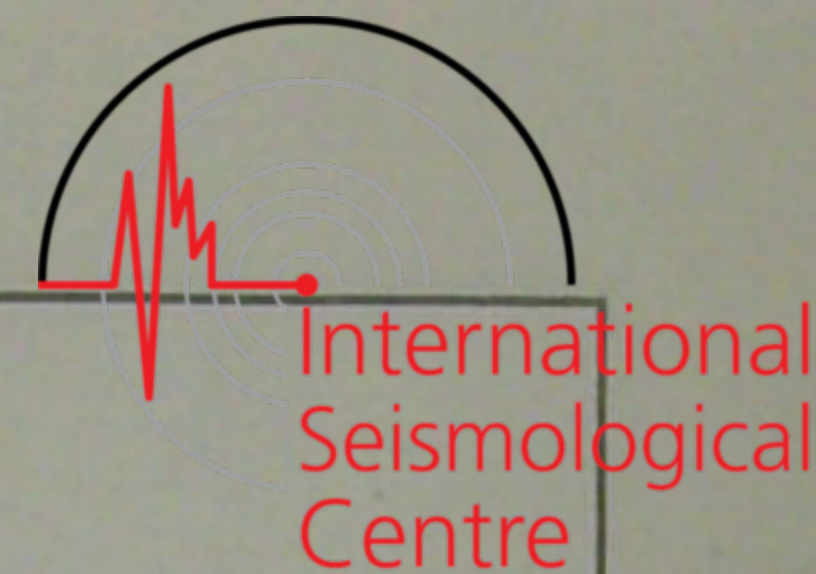
Descriptions of certain shocks, not local, received by this office since typing of report, follows:

Sept. 13, eP 18h 19m 13s at Boulder City. Epicenter 18.7° N Lat, 106.9° W Long; O = 18h 14.9m according to U.S.C. & G.S.

Sept. 14, eP 18h 40m 08s at Boulder City. Epicenter near 37.6° N Lat, 118.7° W Long; O = 18h 39m 11s according to Pasadena. Felt widely in Owens Valley, Sierra Nevada and San Joaquin Valley, causing many rock slides and some damage to mountain cabins.

Sept. 21, 19h 54m 02.5s at Boulder City. Epicenter near 34.8° N Lat, 118.9° W Long; O = 19h 53.1m according to Pasadena. Slight damage near epicenter. Felt in San Joaquin Valley, and at Pasadena, Los Angeles, Santa Barbara, etc. Epicenter in San Andreas rift zone.

TENTATIVE EPICENTERS IN THE LAKE MEAD REGION, SEPTEMBER 1941



LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **September** 194**1** **1**
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
1	1S Very small local disturbance.	12	39	59	-	1.0				1 23 13 About 1/4 of the record covered by vibrations of this amplitude; origin unknown.				-	1.5				-					
3	e F Faint seismic waves.	19	17	08	0.8	0.1				e	19	16	58	1.5	0.3			e	19	17	13	?		
3	0 1P 1S? M F	21 21 25	24 25	57.6 00.6 02.6 06	0.3 0.4	3.0 -10 30-45			1P 1S $\Delta = 38$ miles				-	0.3 12 12			eP 1S F Boulder Dam 28.8 $\Delta = 38$ miles	21 21 24	25 08.7 16.2	08.7 0.8 3.5 3.5				
3	1P 1S F $\Delta = 10.5$ ml. Small local shock, first of about 20 aftershocks.	21 27	23.3 25.7	0.5 0.7	0.4 4				Obscured by local disturbance.								eP 1S Pierce Ferry 21 27 38.5 $\Delta = 35$ ml.	21 27	21.6 22.3	0.5 5.0				
3	1P? 1S $\Delta = 8$ ml. Small local in code of above, much plainer at Boulder Dam. Felt at Boulder Dam.	21 27	32.5 33.7	0.4 2.0					Probably felt at Boulder Dam.								eP 1S F Boulder Dam 21 27 30.4 30.9 $\Delta = 2.5$ miles	21 27	30.4 30.9	0.5 4.2				

MONTH OF **September** 1941 2

Time used is G.C.T.

[illegible]

1

Time used is GCT

BOULDER DAM

[illegible]

2

Time used is GCT

PIERCE FERRY

[illegible]

LAKE MEAD SEISMOLOGICAL STATIONS

MONTH OF **September**

1941

8

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
8	eP 0 1S Small local shock. $\Delta = 6$ miles.	20	01.3	02.6	0.2	1.7			-								-							
8	1P 01 1S F Small local shock. $\Delta = 5$ miles.	25	32.2	33.2	0.1	-0.3	3.2		-								-							
8	e eP 1S F Very small near shock. $\Delta = 460$ miles.?	03	13	52					e es	03	14	02					e es	03	14	05				
8	1S Very small local disturbance.	05	48	18	0.2	1.0			-								-							
8	1P 06 1S F Small local shock. $\Delta = 7.5$ miles.	50	51.5	53.0	0.2	0.4	4.5		-								-							
8	1S 11 Very small local disturbance.	04	53		0.2	1.0			-								-							
8	1S 16 Very small local disturbance.	28	46		0.2	0.9			-								-							
8	-								-	1P 21 1S 1S 1S 1S Four small local shocks. $\Delta = 7.5$ miles.	29	41	42.5		3 3 3 3 5	4 3.4 6.5 5		-						

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **September** 1941 9
Time used is G.C.T.

BOULDER CITY

PIERCE FERRY

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z				E	N	Z
8	1S Very small local	22 27 27	0.3	0.9			-						-					
9	e 1S Very small local	02 31 51.2 52.3	0.2	1.1			-						-					
9	e 1S Very small local	06 39 54.0 54.4	0.2	1.4			-						-					
9	eP 1S F Very small local	07 11 54.7 56.7 12.2	0.3	-0.1			-						-					
9	e eL Faint seismic waves.	07 33 04 08 07 46					e	07 33 09					e	07 33 09				
9	eP 1S Small local shock. $\Delta = 6$ ml.	10 20 21.7 23.9	0.1	-0.2			-						-					
9	e 1S F Small local shock. $\Delta = 8$ ml.	15 53 22 02.8	0.2	0.3			-						-					
9	-						1	20 35 50	-	1.2	0.7		-					
							1	37 16	-	1.6	1.5		-					
							F	37.8	-				-					
9	1S Very small local disturbance.	22 27 51	0.2	1.3			-						-					

Eight small local disturbances of the above amplitude range.

e 07 33 09
eL 08 07 00 20
5 and 6 second microseisms present on record.

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **September** 1941 **11**

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
11	-																							
12	eP 1S F Small local shock. $\Delta = 6$ miles.	19	17	28.5 29.7	0.1	2.5			1 F	21	42	02 04	-	1.5	1.5		-							
13	1 Very small local disturbance.	12	22	30	0.2	0.7			-															
13	e eS F Very small local shock. $\Delta = 32$ miles or more?	17	07	23 25 29.5 07.6	0.5	0.2			1 F	17	06	much artificial dis-					1S	17	07	25.2	0.5	1.2		
13	eP 1 eS e F Distant earthquake. $\Delta = 1330$ mi.	18	19	13 49 50 52 07	2	0.2			eP 1P eS? 1 M	18	19	19 25 23 15 25 28.5	2	0.3	0.1		e	18	19	13 45 51 00	10 8.5			
13	e? e F Faint seismic waves? Near? shock.	20	59	45	0.3	0.2			e? e	20	59	54 44					-							
14	e F Faint seismic waves.	01	47	34	1				-								-							
14	1S Very small local disturbance.	02	04	10	0.2	0.5			-								-							

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF September 1941 12
Time used is G.C.T.

BOULDER CITY

OVERTON

~~BOULDER CITY~~ BOULDER DAM

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
14	is	03	55	16	0.3	3.0			-								-							
		Small local disturbance.																						
14	eP	08	56	09.6	0.1	4.2			-								-							
	is			10.5																				
		Small local shock. $\Delta = 4.5$ miles.																						
14	e	09	02	21.4	0.1	2.8			-								-							
	is			22.9																				
		Small local shock. $\Delta = 4.5$ miles.																						
74	eP	09	17	59.4	0.2	0.2			is	09	18	17.5	-	0.7	0.6		e	09	17	58.0				
	is		18	00.9	0.1	6.3											1			58.3				
	F		18.5														is			58.8				2.5
		Light local shock. $\Delta = 7.5$ miles.																						
		Epicerter $2\frac{1}{2}$ miles S.E. of Boulder Dam. Felt at Boulder Dam.																						
14	e?	12	07	26					is	12	07	18	-	0.3	0.3		0	12	06	56.5				
	e			42.5	$\Delta = 95$ miles.				is			35	-	1.3	1.2		0							
	e			44	$\Delta = 98$ miles.				is			58	-	0.8	0.7		0	12	07	34.5				
	e		08	23.5	0.3	0.2			is		08	16	-	2.0	2.2									
	F		09.1		$\Delta = 110$ mi.																			
		Possible epicenters near Mt. Grant Valley and Timpahute Range.																						
14	e?	16	44	28					eP	16	44	30					e	16	44	38				
	e		44	30					1			33					1			39				
	1			37	0.7				1			38					1			46				1.5
	1		45	21					1?		45	45	-	32	27		is		45	27				1.2
	1			26													is			27				1.8
	1M		45	35	0.9	11.2											M			30				4.2

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF September 1941

15

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY BOULDER DAM

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z				E	N	Z
79	15	IP 03 53 33.6 es Small local shock. $\Delta = 11$ ml. Epicenter five miles SSE of Boulder Dam.		0.2 3.0				es	03 53 50.5 $\Delta = 38.5$ ml.	0.3 0.2				e? 03 53 31.8 IS $\Delta = 5.5$ ml.	0.3 2.0	-0.1			
80	15	IP 06 37 23.0 IS F 37.7 Light local shock. Epicenter five miles WNW of Boulder Dam.		0.1 ± 0.3 0.2 5.5 $\Delta = 5$ ml.				es	06 37 41.5 $\Delta = 41$ ml.	0.1 0.1				e IS	06 37 23.3 24.4	0.2 0.9			
15	15	e? 20 14 13.3 IS Very small local shock. $\Delta = 7$ ml. or more.		0.1 0.5				e?	20 14 19					IS	20 14 12.6	0.5 0.2			
15	15	No						IP 21 44 48 IS Small local shock. $\Delta = 10$ ml.		0.2 0.4 1.7 1.6				-					
16	16	e? 09 34 33 IS Very small local shock. $\Delta = 12.5$ ml. or more.		0.2 1.0				-						-					
16	16	eP 21 51 55 e es 22 02 20 el 18 55 e 25 10 F 23 03 Telesism. $\Delta = 6000$ ml.		1.5 6 26 17				eP 21 51 56 IP 52 06 es 22 02 20 6						eP 21 51 55.5 es 22 02 22	7.5				
16	16	-						e 23 17 22 1 Small local shock. $\Delta = 7.5$ ml.		1.0 0.6				-					
81	17	eP 01 13 21.5 IS F 14 Small local shock. Epicenter 4 ml.		0.2 4.4 $\Delta = 10$ ml.				e 01 13 31.0 IS $\Delta = 40$ ml.		1.0 0.7				e 01 13 20.0 IS $\Delta = 4.5$ ml.	20.8	2.0			

$\Delta = 21$ h 39.1m, according to
U. S. Coast & Geodetic Survey.

Lake Mead Seismological Stations

Additions or Changes in Instruments or
Instrumental Constants.

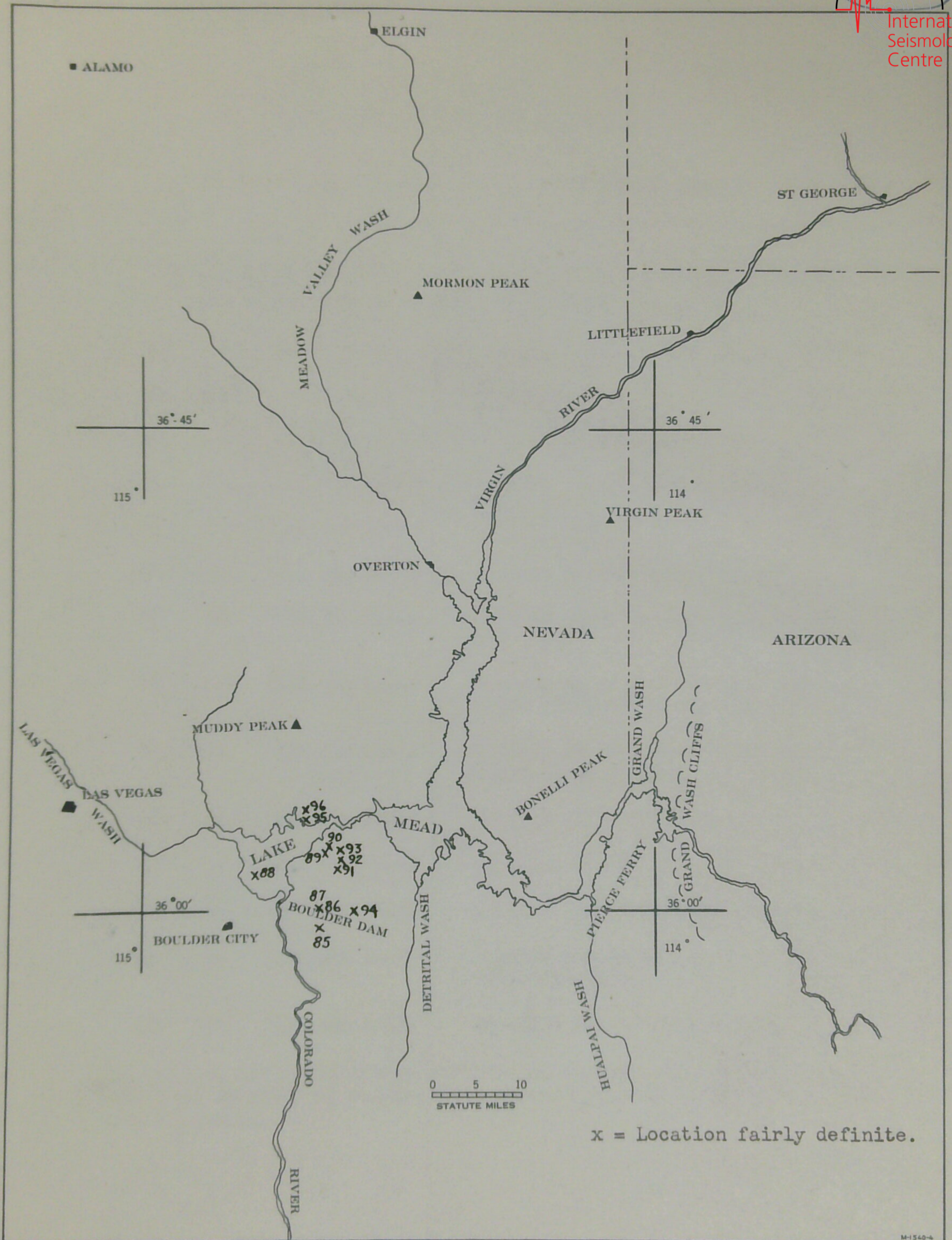
Overton Station: October 29, 1941. Rearranged instruments so that N - S component is on Miller recorder--drum rate 30mm per second--V = 8000--trace up represents ground motion north. E - W on Henson recorder, drum rate 15mm per second--V = 10,000--trace up represents ground motion west.

Pierce Ferry Station: October 1, 1941. Survey vibration meters with Jagger recorder. Impulse upward corresponds to southward and westward ground motion. Patterson vibration meter, vertical component V= ca 5000. ζ = ca 4:1, T_0 = 0.65 sec, drum rate 30mm per second, except that it has been irregular and much less than this in October; impulse upward corresponds to ground motion up.

TENTATIVE EPICENTERS IN THE LAKE MEAD REGION, OCTOBER 1941.



International
Seismological
Centre



LAKE MEAD SEISMOLOGICAL STATIONS

INSTRUMENTAL REPORT- - - - - OCTOBER, 1941.

The stations at Boulder City, Boulder Dam, Overton and Pierce Ferry operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

<u>No.</u>	<u>Date</u> Oct.	<u>G. C. T.</u>	<u>Location</u>
85	9	01h 03m 21.7s	5 miles SE of Boulder Dam.
86	23	19h 47m 19.0s	4 miles ESE of Boulder Dam.
87	23	19h 50m 38.8s	" " " " " "
88	23	19h 53m 10.1s	4 miles NW of Boulder Dam.
89	24	08h 31m 34.1s	7 miles NE of Boulder Dam, SW of Old Fort.
90	24	15h 26m 30.4s	7 miles NE of Boulder Dam. Focal depth about 10 miles.
91	24	18h 50m 14.7s	7 miles NE of Boulder Dam. Focal depth about 5 miles.
92	24	22h 24m 18.7s	8 miles NE of Boulder Dam.
93	25	02h 39m 31.5s	8½ miles NE of " " .
94	26	00h 27m 08.8s	8 miles ESE of Boulder Dam.
95	31	11h 30m 54.2s	9 miles NNE of Boulder Dam, E side Callville Wash.
96	31	13h 00m 41.5s	9½ miles NNE of Boulder Dam.

All of the foregoing epicenters, 12 in number, have been located from 3 to 10 miles of Boulder Dam, generally in an easterly to northerly direction.

Felt Shocks

Shocks which were felt at Boulder City or Boulder Dam are listed and described below. (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

<u>No.</u>	<u>Date</u>	<u>G.C.T.</u>	<u>Intensity and Description</u>
	Oct.		
85	9	01h 03m	IV at Boulder Dam. Sharp up and down movement of 4 sec duration. Rattled doors. Felt in control room, 7th floor, Arizona cubicles, and top of dam. Heard, not felt, in Nevada State switch yard. IV at Boulder City. Felt by several. Rattled windows.
	12	03h 05m	III at Boulder City. Building quivered.
	19	00h 48m	II at Boulder City. Quiver felt.
86	23	19h 49m	III at Boulder Dam. Felt in Watermaster's office as a light, rolling quake. III at Boulder City. Felt as if a truck hit something outside of building.
91	24	18h 50m	II at Boulder Dam. Felt in Watermaster's office as light earthquake.
95	31	12h 30m	II or III at Boulder Dam. Felt in Power house as light shock.
96	31	13h 01m	IV in Boulder City. Awakened several. Walls creaked and doors rattled.

1941 1 2

Time used is GCT

PIERCE FERRY

[illegible]

104

Time used is GCT

PIERCE FERRY

No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z				E	N	Z
15	1P 4 49 40 15 50 09 Very small near shock. $\Delta = 152$ mi. Epicenter probably in the region near the north end of Death Valley.		0.3-0.2 0.5 0.3	time?			eP 04 49 40 1P 50 10.5 15		$\Delta = 160$ mi. 1.8 1.3			e 4 49 50 eS 50 25 $\Delta = 200$ mi.						
18	1P 20 12 03.5						-					e 20 11 37 eS 12 00 Very small near shock. $\Delta = 115$ mi.						
18	e 23 20 23 F 22						-					e 23 20 25 Very small seismic waves.						
19	e 00 48 56 15 56.5 Small local shock. $\Delta = 2.5$ mi.		- 2.5				-					-						
19	-						e 23 48 11 15 12 Small local shock. $\Delta = 5$ mi.											
20	e 07 03 18.5 15 21 Very small local shock. $\Delta = 12$ mi.			0.8			-					-						
22	eP 06 58 20.0 1P 28 15 59 15 14 15 55 F 07 07.5 Near earthquake. $\Delta = 240$ mi. Felt in Los Angeles area.						eP 06 58 29.5 e 44 15P 19.5 15 35.5 1 47.5 1.5 2					No record.						
22	e 17 54 39 15 40 Very small local shock. $\Delta = 5$ mi.						-					-						

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

BOULDER CITY

OCTOBER 1 194 7
MONTH OF
Time used is G.C.T.

PIERCE FERRY

OVERTON

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude				
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z		
27	-								-								e	07	21	38	1.5	0.2	0.2			
																		Faint seismic waves.								
27	ep 15	14	15	08.9	0.1	0.2			-																	
				09.9	0.4	1.6																				
				Small local shock. $\Delta = 5$ ml.																						
27	-																									
28	e es	01	52	30.7	0.8	0.2			1P 15	22	09	03.5		1.3	0.8											
				33.3								06.5														
				$\Delta = 90$ ml.																						
				Epicenter near Pharrangut Valley.																						
28	IP 15	08	04	22.3	0.3	0.3			-																	
				23.3	0.2	3.0																				
				Small local shock. $\Delta = 5$ ml.																						
28	-								ep 15	20	45	19		0.8	0.7											
												20														
				Very small local shock. $\Delta = 5$ ml.																						
28	-								ep 15	21	57	21		1.0	1.0											
												23														
				Very small local shock. $\Delta = 10$ ml.																						
29	-																									
30	IP 15 P	15	38	54.2 55.4	0.1 0.1	0.2 5.0			-																	
				39.1																						
				Light local shock. $\Delta = 6$ ml.																						

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z				E	N	Z
95	31	1P	11 30 58.3	0.2	+0.9			1P	11 31 03.0	-0.5	-0.4			1P	11 31 06.0	1.2	0.2	0.3	
		1S	59 31 01.1	0.3	22.5			1S	09.5	14				1S	13.7		4.5	3.0	4.0
		P	33.4	$\Delta = 14$ ml.															
		Moderate local shock. Probably felt in Boulder City.																	
		Epicenter on East side of Callville Wash. 9 ml. NNE of Boulder Dam.																	
31		eP	12 44 05.5	1.5				e	12 44 03					e	12 44 12				
		e	47 43	10					47 37						47 48				
		P	55																
		Distant earthquake. $\Delta = 1340$ ml. NW.																	
96	31	1P	13 00 45.5	0.1	1.5			1P	13 00 50.2	-0.6	-0.5			eP	13 00 53				
		1S	48.3	0.3	12.5			1S	57	11	5			1S	01 01	0.8	1.5	3.3	
		P	02.4	$\Delta = 14$ ml.						$\Delta = 30.5$ ml.					$\Delta = 39.5$ ml.				
		Moderate local shock. Felt in Boulder City.																	
		Epicenter on East side of Callville Wash, $9\frac{1}{2}$ ml. NNE of Boulder Dam.																	
31		1P	21 54 37	0.3	2.5			-						1P	13 00 44			5.0	
		1S	40											1S	46				
		Small local shock. $\Delta = 15$ ml.																	

LAKE MEAD SEISMOLOGICAL STATIONS

INSTRUMENTAL REPORT- - - - - NOVEMBER, 1941.



The station at Boulder Dam operated on routine schedule throughout the month. At Boulder City, chronometer failure caused the loss of time marks in two records. At Overton, wandering of the spot caused the loss of several days H-S record. At Pierce Ferry, for several days the vertical failed to record, and time signals were not recorded due to trouble with the program device, though an audible time-check was made.

Tentative epicenters were located in the Lake Mead region as follows:

<u>No.</u>	<u>Date</u> <u>Nov.</u>	<u>G.C.T.</u>	<u>Location</u>
97	1	17h 42m 07s	5 mi. SE of Boulder Dam.
98	8	07h 09m 29s	3 mi. NW of Boulder Dam and 5 mi. NE of Boulder City.
99	11	15h 17m 42s	5½ mi. SE of Boulder Dam.
100	11	15h 18m 52s	7 mi. SE of Boulder Dam.
101	11	15h 47m 06s	6½ mi. SE of Boulder Dam.
102	11	17h 05m 22s	5 mi. SE of Boulder Dam.
103	15	14h 34m 27s	Epicenter in Gregg Basin.

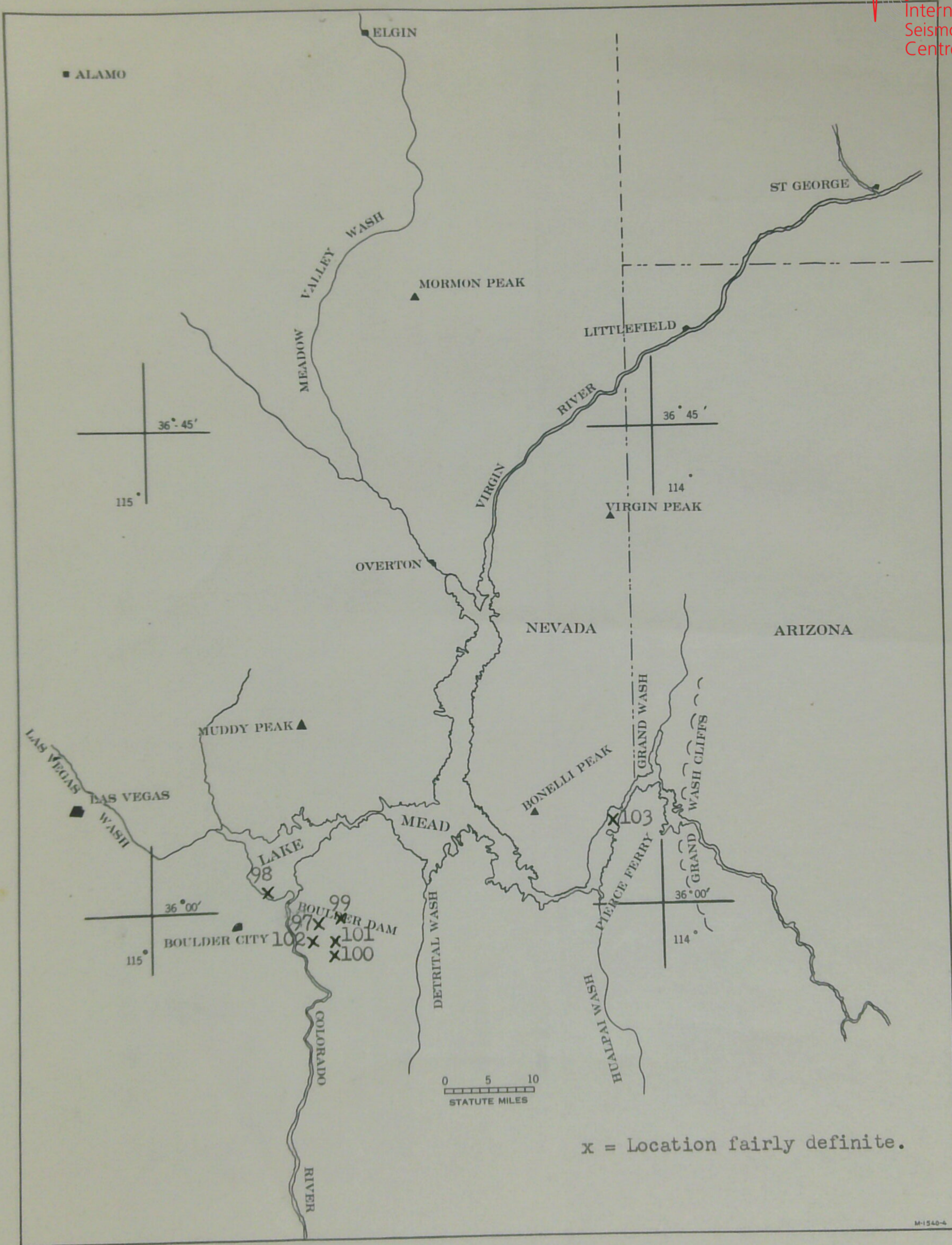
Shocks which were felt at Boulder City are listed and described below. (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

<u>No.</u>	<u>Date</u> <u>Nov.</u>	<u>G.C.T.</u>	<u>Intensity and Description</u>
98	8	07h 09m	III at Boulder City; only observer reported rattling of suspended steam pipes for 2 or 3 sec. Not noted at Boulder Dam.
100	11	15h 18m	II at Boulder City, a momentary quiver noted by only one observer. Not noted at Boulder Dam.

During the last week of November, the large amount of water escaping at Boulder Dam has caused considerable vibration that has recorded on the records at Boulder City.

Erratum: At the end of the October description of Pierce Ferry Station, phrase should be changed to read, "impulse upward corresponds to ground motion down."

TENTATIVE EPICENTERS IN THE LAKE MEAD REGION, NOVEMBER 1941.



LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF NOVEMBER

Time used is G.C.T.

194 1 3

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
					E	N	Z				E	N	Z				E	N	Z
7		-						1P 15	19 03 47	-	2.0			-					
								Small local shock. $\Delta = 10$ ml.											
7		e	19 35 39	1	0.1			e?	19 35 46					e	19 35 43	1.5	0.1	0.1	
		Very small seismic waves.						e?	36 20					P	37.7				
8		e	07 09 28.9	0.3	0.3			e	07 09 39		0.3			e	07 09 42.2				
		1P	29.4		0.6			es	47					es	49.5	$\Delta = 45.5$ ml.			
		1S	30.4	0.2	5									1P	28.5	blurred			
		1	30.6	0.2	5.2									1S	29.7	1.2			
		P	10.1	$\Delta = 7.5$ ml.											$\Delta = 5$ ml.?				
		Light local shock. Felt in Boulder City.																	
		Epicerter 5 ml. NE of Boulder City.																	
8		eP	09 57 43	0.2	1.8			-						-					
		1S	44																
		Small local shock. $\Delta = 5$ ml.																	
8-9		eP	23 57 10					-						e	23 56 22				
		es	0 02 03	7										eP	57 27				
		P	37											es	02 04				
		Small distant earthquake. $\Delta = 105$? according to Pasadena.												el	31 16	38	$\Delta = 3000$ ml.		
10		eP	09 56 09.5					1P	09 56 13					eP	09 56 06				
		es	10 05 27					es	10 05 29					es	10 05 21				
		Small teleseism. $\Delta = 4900$ ml. Probably South America.												P	08				
11		1S	15 11 39	0.2	0.4														
		Very small local disturbance.																	
99		eP	15 17 42.5					e	15 17 53.5					e	15 17 54.3?	$\Delta = 38$ ml.			
		1S	44.8		4.2			1S	59.5		1.9			es	58.3	1.0	0.3	0.4	
		P	18.5	$\Delta = 11$ ml.										Boulder Dam	40.7?	$\Delta = 5.5$ ml.			
		Small local shock. Epicerter 5.5 ml. SE of Boulder Dam.												1S	41.8	4.6			

LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF NOVEMBER

1941

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
17	e 15 Small local shock. $\Delta = 5$ ml.	03	32	21.5	0.2	1.6			-															
17	-								1P 15 Small local shock. $\Delta = 10$ ml.	18	37	29	1.2				-							
17	eP 15 Small local shock. $\Delta = 8$ ml.	21	06	13.5	0.3	1.5			-								-							
18	eP eP eS 15 eL F Telesism. $\Delta = 5500$ to 5800 ml. Pasadena reports damage to Japan.	16	59	17					-								eP eS 15	16	59	31				1n time signal.
18	eP eS F Very small near shock. $\Delta = 305$ ml.	18	09	31	0.7	0.3			eP eS	18	09	46	1.2	0.3	0.3									
22	1P 15 F Small local shock. $\Delta = 5$ ml.	09	12	23.4		1.0			-								-							
23	Considerable vibration from escaping water at Boulder Dam.																							
24	eP eS F Telesism. $\Delta = 84.5^\circ$	21	59	05	2	-0.2			eP eS 15 Pasadena $\Delta = 85^\circ$	21	59	09		+0.5			eP eS	21	59	07				

104

Time used is G.C.T.

PIERCE FERRY

Phase	Time h m s	Period T	Trace Amplitude		
			E	N	Z
eP 18 15 29					
eP 24 38					
eS 30 49		20	7		
M 21 16					
T 21 16					
Telesism					
Epicenter near Madeira Islands.					
Reported strong in Portugal.					
eP 08 27 48	vibration				
e 36 12	present				
M 37 00	4				
F 42.5	1.0				
Small distant earthquake.					
eS? 11 27 55.5	0.3 0.2				
$\Delta = 54.5$ mi.					
-					
eP? 18 40 42.5	time?				
eS 58	0.5 0.5				
Very small near shock.					
S-P $\Delta = 94$ mi.					
Probable epicenter near Alamo,					
in Pharranagat Valley.					
-					
eP 18 15 26					
eP 16 38					
e 24 34					
eS 30 50					
e 33 14					
e 37.3					
G 41					
M 41					
eP 08 27 35	1				
e? 32 15	5				
e 36 17	4				
M 37 18	4.5				
+0.1					
eP 18 15 24					
eS 24 45					
M 41					
1.2 +0.2-0.1					
21 6 8					
eP 08 27 32					
e 33 02					
e 35 55					
M 36 37	4				
0.7 0.6					
e? 11 27 52					
$\Delta = 47.5$ mi.					
-					
1 13 42 30					
Small local disturbance.					
e? 18 40 40.9					
eP 43.7					
eS 41 02.1	0.5 0.9 0.8				
$\Delta = 105$ mi.					
-					
eP 18 19 51.5					
IS 53.5					
Small local shock. $\Delta = 10$ mi.					
0.7 1.5					

LAKE MEAD SEISMOLOGICAL STATIONS

INSTRUMENTAL REPORT- - - - -DECEMBER, 1941.

The stations at Boulder City, Boulder Dam, Overton and Pierce Ferry operated on routine schedule throughout the month.

Tentative epicenters were located in the Lake Mead region as follows:

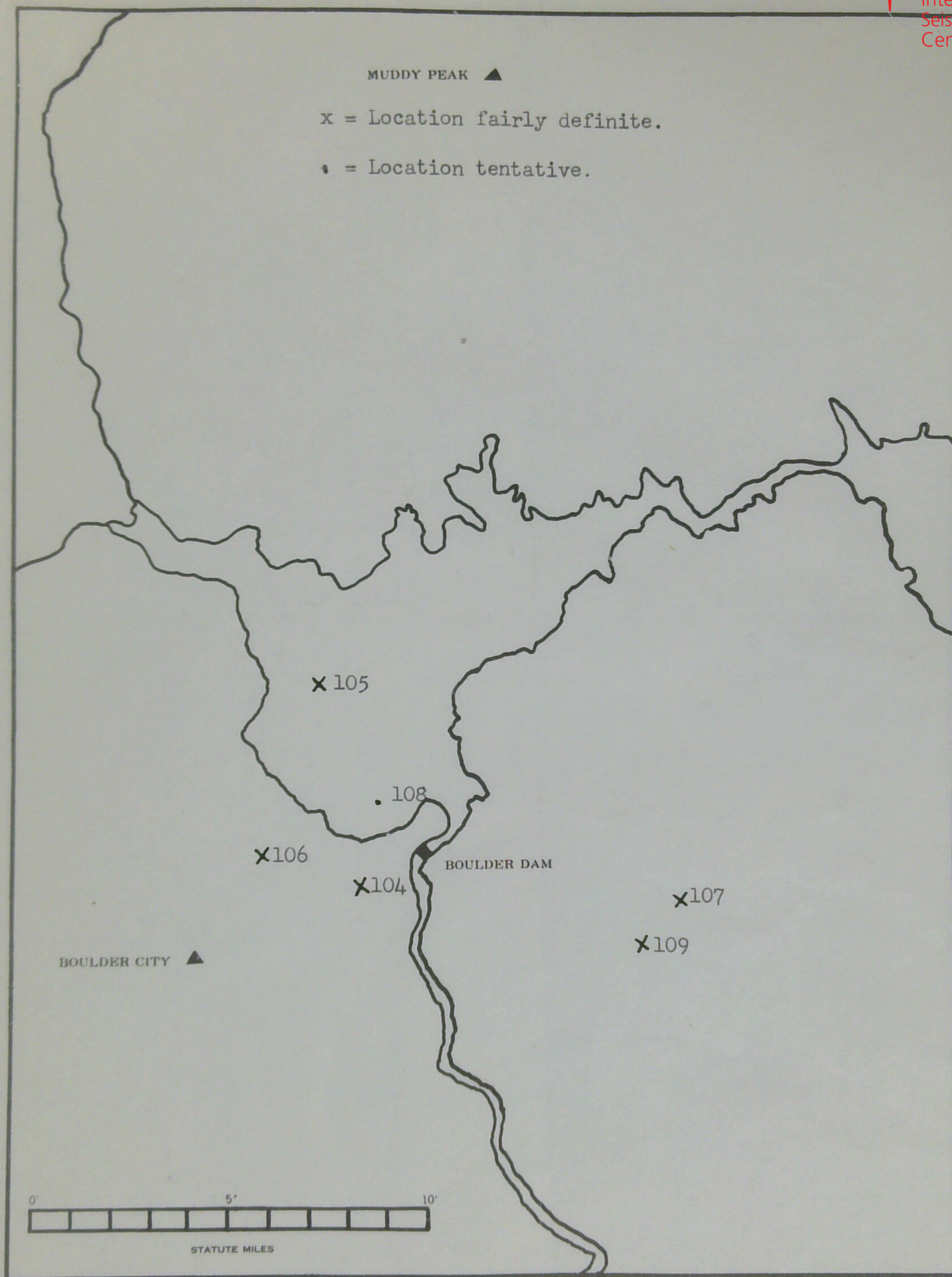
<u>No.</u>	<u>Date</u> Dec.	<u>G.C.T.</u>	<u>Location</u>
104	8	15h 18m 38s	Two miles SW of Boulder Dam.
105	14	14h 50m 31s	Five miles NW of Boulder Dam.
106	14	16h 21m 44s	Three miles NE of Boulder City, apparent depth of focus 12 miles, from four stations.
107	29	10h 57m 35s	Six miles ESE of Boulder Dam.
108	30	11h 26m 02s	Two miles NW of Boulder Dam, in Lake Mead.
109	31	14h 25m 24s	Six miles ESE of Boulder Dam.

Shocks which were felt at Boulder City or Boulder Dam are listed and described below. (Roman numerals are intensity grades as estimated by the modified Mercalli Scale of 1931.)

<u>No.</u>	<u>Date</u> Dec.	<u>G.C.T.</u>	<u>Intensity and Description</u>
	8	17h 24m	II, reported by one observer in Boulder City.
	8	17h 25m	II, reported by one observer in Boulder City.
	8	19h 33m	II, " " " "
106	14	16h 22m	IV, reported by several in Boulder City and Boulder Dam; duration estimated as 10 seconds accompanied by pronounced rumble.
	14	17h 55m	II, reported felt in Boulder City by one observer.
	14	20h 59m	II, " " " "
	14	22h 00m	II, " " " "
109	31	14h 25m	II, reported by one observer in Boulder City.

Throughout December, except a few hours on December 20, the large amount of water released at Boulder Dam caused vibrations which were recorded at Boulder City.

EPICENTERS IN THE LAKE MEAD REGION, DECEMBER 1941

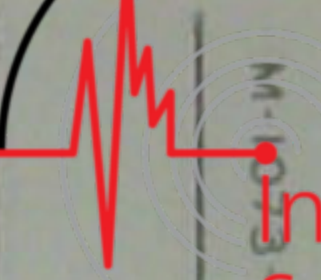


LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

BOULDER CITY

OVERTON

PIERCE FERRY



No. Date	Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude			Phase	Time h m s	Period T	Trace Amplitude		
				E	N	Z				E	N	Z				E	N	Z
1	-						1P	16 13 34		1.5			-					
							13	Local shock. $\Delta = 10$ mi.										
2	15	20 03 45	0.2 2.5				-						-					
		Small local disturbance.																
3.	e	09 20 20					e	09 20 46					e	09 20 23	2.5			
		Faint seismic waves.					F											
3	e	09 39 38					e	09 39 40					e	09 36 47	2.5			
		45					e						e	36 51 16				
		Faint seismic waves.					F						F					
4	-						1P	09 44 05		1.8			-					
							13	Local shock. $\Delta = 15$ mi.										
5	15	17 43 53	1.7				-						-					
		Small local disturbance.																
5	eP	20 54 34					eP	20 54 30					eP	20 54 30	2	-0.2	-0.2	
	1P	41	1.7	-1			1P	40.5	1				1P	36				
	eS	21 00 35	1.5				eS	21 00 59					eS	21 00 28	11			
	e	21 02.5	2.5				e	05.2	22				e	05 43	4.5			
	e	04.1	4.5				e	11.2	4.5				e	10 20	2.3			
	e	07	3.3				e	16	1.7	2.7	7.5		e	18.6	1.5			
	M	11.6	1.7	5			M		1.0	1.6	0.0		M					
	F	23 17					F	23 04					F	23 28				
6	eH	1 45	12															
	F	2 01	$\Delta = 2600$ mi.															
		Provisional epicenter 83° N Lat,																
5	-						1P	22 20 30.5					-					
							13	Local shock. $\Delta = 17$ mi., in coda of above distant earthquake.										

Time used is G.C.T.

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

DECEMBER 1 3
MONTH OF 194
Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No.	Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
			h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
8		1P 17 23 46.3 1S 24.1 F Small local shock. $\Delta = 5.5$ ml.					1.2	3.5		Artificial disturbance on record.								-	17 23 46.1 eS $\Delta = 4$ ml.				0.9		
8		eP 17 24 39.6 1S 40.6 F Small local shock. $\Delta = 5.0$ ml. Felt in Boulder City.					0.2?	4.5		Artificial disturbance.								1S <u>Boulder Dam</u> 17 24 40					0.7		
8		1 19 33 09 10 m Small local disturbance. Felt in Boulder City.					1.5	1.7										-							
9		1P 15 53 14.5 1S 15.5 F 53.6 Small local shock. $\Delta = 5.0$ ml.					0.1	0.8		Disturbance in minute.								e 1S <u>Boulder Dam</u> 15 53 14.3 $\Delta = 3.0$ ml.					0.8		
9		1S 23 38 31 Very small local disturbance.					0.7											-							
10		eP 03 45 18.5 1S 19 Very small local shock. $\Delta = 2.5$ ml.					0.1	0.2										-							
11		eP 21 29 45 1S 46 Very small local shock. $\Delta = 5$ ml.					1.3											-							
12		eS 08 30 31.5 $\Delta = 91$ ml. Very small near shock. Epilcenter about 5 ml. SE of Alamo.					0.6	0.4		eP 08 30 03.5 1P 05.0 1S 16.3 $\Delta = 61$ ml.					3.0	1.1		eP 08 30 12 eS 32.5 $\Delta = 100$ ml.					0.8	0.1	0.2

1041 5

Time used is GCT

Pierce Ferry holder Durr

No.	Date	Phase	Time h m s	Period T	Trace Amplitude E N Z
14	-	P 17 55 08.2 S 15 09.0 Small local shock. Δ = 4 ml. Felt in Boulder City. May be at epicenter 105.			
14	-	I 20 59 00 No records—seismograph out of operation. Small local shock felt in Boulder City. Not recorded at Boulder Dam.			
14	-	I 22 00 00 ca. no record. Small local shock felt in Boulder City. Not recorded at Boulder Dam.			
15	-	P 19 22 10.6 S 15 11.6 Small local shock. Δ = 4 ml.			
16	-	P 03 54 18.0 S 15 19.3 Small local shock. Δ = 6.5 ml.			
17	-	- Local shock. Δ = 10 ml.			
18	-	P 16 02 15 S 15 16 Small local shock. Δ = 5 ml.			
19	-	- Local shock. Δ = 10 ml.			
20	-	O 7 40 vibration due to released water, disappears until 14h 35m when it reappears on the records.			
20	-	P 09 45 10.5 S 15 11.0 Small local shock. Δ = 2.5 ml.			
22	-	- P 22 47 00 S 03 02 Local shock. Δ = 10 ml.			

LAKE MEAD SEISMOLOGICAL STATIONS
Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF ~~DECEMBER~~ 1941

6

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
23	e 15 Very small local shock.	04	08	41.0 41.6	.05 1.1				-								-							
23	15 Very small local disturbance.	18	00	22	1.0				-								-							
24	e e7 e5 F Distant earthquake.	03	37	10 40 41 55	18 9 0.3				e e5	03	37	13.5 32	11	0.1 0.1			e e7 e57	03	37	07 47 23	15 3	0.2 0.1		
24	e 1 13 13 H F Near shock. Reported felt at El Centro and San Diego.	07	31	17.7 21.6 52.8 07 16	1.4 2.0 ca 200 ml.				eP e e5 1 13 H	07	31	13 24 09 12 13 18	3	1.8 3.6			eP 1 15 H	07	31	10 24 05 11	1.2 1.2	5.5 3.5		
24	e7 e5 F Distant earthquake.	12	05	02 07	10 0.5				e eP e5	12	05	09 18 14	9	0.1 0.2			e e7 e57	12	05	01 57 04				
27	eP 15 Very small local shock.	13	42	29 30	0.1 1.2				-								-							
107	1P 15 F Small local shock. Surface location from three stations, 6 ml. ESE of Boulder Dam.	10	57	38.3 40.8 57.9	0.3 0.2 12.5 ml.				eP e 15	10	57	44.8 47.8 54.0		0.1 0.4 0.1			Boulder Dam 15	10	57	37.9		1.3		



LAKE MEAD SEISMOLOGICAL STATIONS

Bureau of Reclamation, National Park Service
and Coast and Geodetic Survey

MONTH OF **DECEMBER**

194**1**

7

Time used is G.C.T.

BOULDER CITY

OVERTON

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
108 30	1P 11 26 03.5 1S 04.9 Light local shock. $\Delta = 7$ ml. Epicenter in Lake Mead, 2 ml. NW of Boulder Dam.				0.3	0.3	time?		es 11 26 21 $\Delta = 39$ ml.					0.2				<u>Boulder Dam</u> eP 11 26 02.6 $\Delta = 4$ ml.						
30	e 22 56 51 1S 52 Small local shock. $\Delta = 5$ ml.				0.2	2.5			es 22 57 09 e 13 $\Delta = 39$ ml.					0.2				<u>P.F.</u> eP 22 57 16					0.1	0.3
31	1S 00 03 09 Small local disturbance.				1.6				-									-						
31	e 06 49 46 eP 49.2 1P 50.2 1 52.0 1 53.7 1S? 36.1 1S 37.2 1 40.8 1 48 M 07 01 Near shock. $\Delta = 240$ to 280 ml.				2	May not be P.			eP 06 49 46 eP 49 eP 53.2 1P 55.8 1 00.8 1 30.2 1 48				1.0	15	32		eP 06 49 49 eP 53 1 50 01 1S? 55					1.2	-0.2	-0.2
109 31	1P 14 25 26.0 1S 28.4 P 26.5 Light local shock. Felt in Boulder City. Epicenter 6 ml. ESE of Boulder Dam.				0.25	0.4	time?		es 14 25 34 1S 42.0 $\Delta = 40$ ml.					2.5	2.0		1S 14 25 41.5 <u>Boulder Dam</u> e 14 25 24.6 1S 26.1 $\Delta = 7.5$ ml.					$\Delta = 38$ ml.		
31	eP 14 30 11.6 1S 12.4 Very small local shock. $\Delta = 4$ ml.				0.2	1.2			1S 14 30 25.5					0.2				<u>Boulder Dam</u> 1S 14 30 10.9					0.7	

194

Time used is G.C.T.

PIERCE FERRY

No. Date	Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude			Phase	Time			Period T	Trace Amplitude		
		h	m	s		E	N	Z		h	m	s		E	N	Z		h	m	s		E	N	Z
31	-									1P 15 06 17 15 local shock. $\Delta = 10$ ml.				0.3 1.5 0.4										
31	e? e e e	17 34 45 50	44 01		1 3					e e e e	17 34 45 50	01		1.5 2				1 e	17 34 44 49	27	0.8			
	Faint seismic waves. Probably two earthquakes of near distance.																							
31	eP e3 e e	18 06 07 11	50 36 45		0.6 0.5 1.4					eP e3? e3	18 06 07 40	49 36.5 40				0.5 0.7			eP	18 06 57				
	Near shock. $\Delta = 255$ to 265 ml.																							