



(200)
R290
no. 78-107-B

UNITED STATES (DEPARTMENT OF THE INTERIOR)

GEOLOGICAL SURVEY

[Reports - Open
series]

Principal facts for a gravity survey of the Gerlach Extension

Known Geothermal Resource Area, Pershing County, Nevada

by

GS
✓ cat
Donald L. Peterson and Harold E. Kaufmann

1928-
U.S. Geological Survey
Box 25046, Denver Federal Center
Denver, Colorado 80225

TN

DM
✓ Twang

Open-file Report 78-526-107-B

1978



288375

PRINCIPAL FACTS FOR GRAVITY STATIONS

Explanation of the headings of the accompanying table of principal facts:

Sta. no.	Gravity station number.
Latitude	North latitude in degrees, minutes, and hundredths of minutes.
Longitude	West longitude in degrees, minutes, and hundredths of minutes.
Elev, f	Elevation in feet (to convert to meters, multiply by 0.3048).
Observed gravity	Observed gravity in milligals.
Standard gravity	Theoretical gravity in milligals.
Fr.-air correction	Free-air correction in milligals
Bouguer correction	Bouguer and curvature correction in milligals.
Fr.-air anomaly	Free-air anomaly in milligals.
Bouguer Anomaly	Bouguer anomaly in milligals.

During July 1977, fifty-one gravity stations were obtained in the Gerlach Extension Known Geothermal Resource Area and vicinity, northwestern Nevada. Elevations for twenty-seven stations were estimated from lake bed topographic contours. Horizontal positions for these stations were determined from topographic maps and vehicle odometer.

Positions for the remaining stations were either taken from benchmarks or spot elevations shown on U.S. Geological Survey topographic maps at scales of 1:24,000 and 1:62,500 or from plane-table surveying.

The gravity observations were made with a Worden gravimeter having a scale factor of about 0.5 milligal per division.^{1/} A base station was occupied at the beginning of each day, at mid-day, and at the end of the day.

No terrain corrections have been applied to these data. The earth tide correction was not used in drift reduction. The Geodetic Reference System 1967 formula (International Association of Geodesy, 1967) was used to compute theoretical gravity. Observed gravity is referenced to a base station in Gerlach, Nevada, having a value based on the Potsdam System of 1930 (fig. 1). A density of 2.67 g per cm³ was used in computing the Bouguer anomaly.

Reference

International Association of Geodesy, 1967, Geodetic Reference System, 1967: International Association of Geodesy Spec. Pub. no. 3, 74 p.

^{1/} Use of brand names in this report is for descriptive purposes only, and in no way constitutes endorsement by the U.S. Geological Survey.

sta. no.	latitude	location longitude	elev, f	observed gravity	standard gravity	fr.-air bouguer	corrections	anomalies fr.-air bouguer
geex01	40 46.59	-119 15.77	3912.0	979879.73	-980238.28	367.85	-134.67	9.30 -125.37
geex02	40 46.70	-119 15.90	3934.0	979878.92	-980238.45	369.91	-135.42	10.38 -125.04
geex03	40 46.80	-119 16.01	3972.0	979875.85	-980238.60	373.49	-136.73	10.74 -125.99
geex04	40 46.92	-119 16.14	4011.0	979874.31	-980238.78	377.15	-138.07	12.68 -125.39
geex05	40 47.11	-119 16.29	4014.0	979874.65	-980239.06	377.43	-138.17	13.02 -125.15
geex06	40 47.30	-119 16.42	4057.0	979871.04	-980239.34	381.47	-139.64	13.17 -126.47
ex07	40 47.52	-119 16.65	4087.0	979868.07	-980239.67	384.30	-140.67	12.70 -127.97
geex08	40 47.45	-119 16.56	4083.0	979868.86	-980239.57	383.92	-140.53	13.21 -127.32
geex09	40 46.43	-119 15.37	3905.0	979877.50	-980238.05	367.19	-134.43	6.64 -127.79
geex10	40 46.33	-119 15.08	3905.0	979873.87	-980237.90	367.19	-134.43	3.16 -131.27
geex11	40 46.20	-119 14.70	3905.0	979868.93	-980237.70	367.19	-134.43	-1.58 -136.01
geex12	40 46.10	-119 14.34	3905.0	979863.92	-980237.55	367.19	-134.43	-6.44 -140.87
geex13	40 45.98	-119 13.99	3905.0	979859.58	-980237.38	367.19	-134.43	-10.61 -145.04
geex14	40 45.88	-119 13.62	3905.0	979857.17	-980237.23	367.19	-134.43	-12.87 -147.30
geex15	40 45.77	-119 13.27	3905.0	979856.26	-980237.06	367.19	-134.43	-13.61 -148.04
geex16	40 45.64	-119 12.90	3905.0	979856.71	-980236.87	367.19	-134.43	-12.97 -147.40
geex17	40 45.53	-119 12.57	3905.0	979857.44	-980236.70	367.19	-134.43	-12.07 -146.50
geex18	40 45.35	-119 11.99	3905.0	979859.63	-980236.44	367.19	-134.43	-9.62 -144.05
geex19	40 45.16	-119 11.36	3905.0	979860.41	-980236.15	367.19	-134.43	-8.55 -142.98
geex20	40 45.05	-119 11.01	3905.0	979861.42	-980235.99	367.19	-134.43	-7.38 -141.81
geex21	40 47.75	-119 16.88	4004.0	979874.06	-980240.01	376.49	-137.83	10.54 -127.29
geex22	40 47.89	-119 17.40	3968.0	979873.10	-980240.22	373.11	-136.59	5.99 -130.60
geex23	40 48.03	-119 18.40	3982.0	979865.44	-980240.43	374.42	-137.07	-0.57 -137.64
geex24	40 48.02	-119 19.44	3993.0	979860.71	-980240.42	375.46	-137.45	-4.25 -141.70
geex25	40 45.78	-119 15.60	3974.0	979872.12	-980237.08	373.67	-136.80	8.71 -128.09
geex26	40 45.33	-119 16.18	3948.0	979871.61	-980236.41	371.23	-135.90	6.43 -129.47
geex27	40 45.16	-119 16.90	3942.0	979868.15	-980236.15	370.66	-135.70	2.66 -133.04
geex28	40 44.26	-119 17.59	3978.0	979858.87	-980234.81	374.05	-136.93	-1.89 -138.82
geex29	40 43.77	-119 18.32	3960.0	979856.88	-980234.08	372.36	-136.32	-4.84 -141.16
geex30	40 42.88	-119 20.28	3936.0	979845.31	-980232.75	370.10	-135.49	-17.34 -152.83
geex31	40 44.67	-119 10.09	3939.0	979861.22	-980235.42	370.38	-135.60	-3.82 -139.42
geex32	40 44.27	-119 10.60	3967.0	979862.16	-980234.83	373.01	-136.56	0.34 -136.22
geex33	40 43.09	-119 10.29	4100.0	979846.59	-980233.07	385.52	-141.12	-0.96 -142.08
geex34	40 42.40	-119 10.19	4162.0	979838.59	-980232.04	391.35	-143.24	-2.10 -145.34
geex35	40 39.99	-119 19.55	3907.0	979834.14	-980228.45	367.37	-134.50	-26.94 -161.44
geex36	40 41.03	-119 17.78	3906.0	979845.80	-980230.00	367.28	-134.46	-16.92 -151.38
geex37	40 45.70	-119 15.39	3907.0	979875.34	-980236.96	367.37	-134.50	5.75 -128.75
geex38	40 45.61	-119 15.06	3905.0	979869.74	-980236.82	367.19	-134.43	0.11 -134.32
geex39	40 45.50	-119 14.69	3905.0	979860.56	-980236.66	367.19	-134.43	-8.91 -143.34
geex40	40 45.41	-119 14.37	3905.0	979856.19	-980236.52	367.19	-134.43	-13.14 -147.57

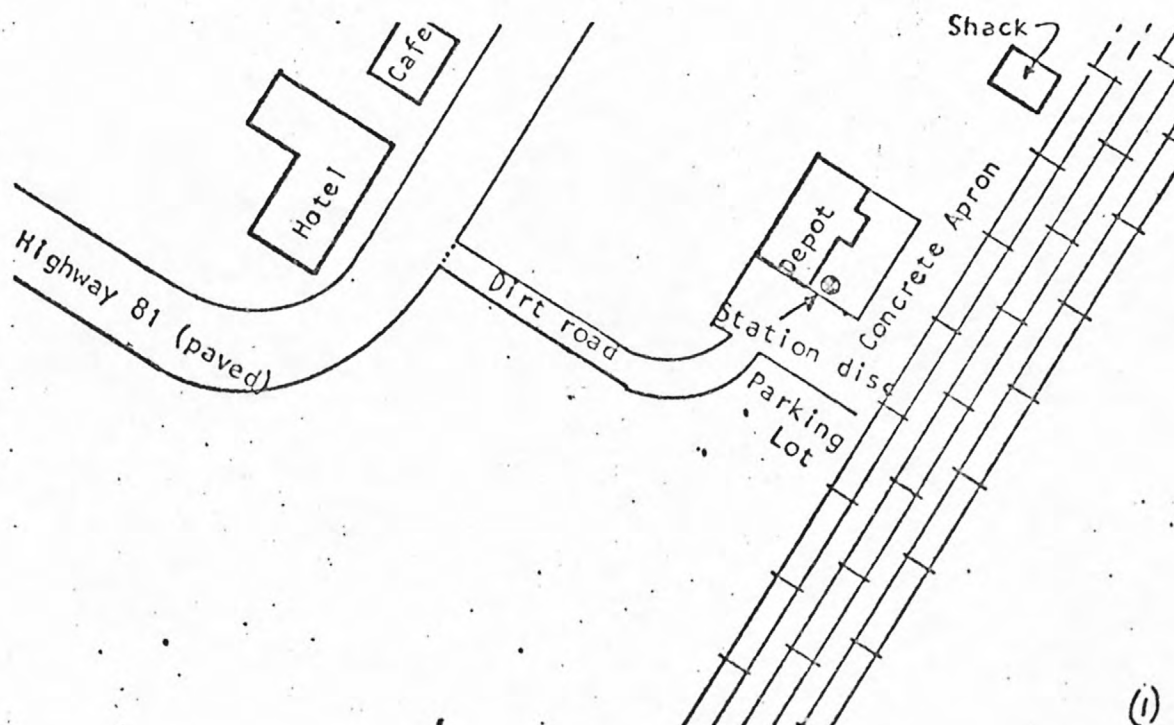
sta. no.	latitude	location		elev, f	observed gravity	standard gravity	corrections		anomalies	
		longitude					fr.-air	bouguer	fr.-air	bouguer
. geex41	40 45.32	-119 14.03		3905.0	979854.67	-980236.39	367.19	-134.43	-14.53	-148.96
. geex42	40 45.22	-119 13.68		3905.0	979854.32	-980236.24	367.19	-134.43	-14.73	-149.16
. geex43	40 45.12	-119 13.35		3905.0	979854.62	-980236.09	367.19	-134.43	-14.28	-148.71
. geex44	40 44.97	-119 12.78		3905.0	979855.87	-980235.87	367.19	-134.43	-12.81	-147.24
. GEEX45	40 46.91	-119 14.77		3905.0	979875.31	-980238.76	367.18	-134.43	3.73	-130.70
. GEEX46	40 47.43	-119 13.91		3905.0	979871.04	-980239.54	367.18	-134.43	-1.32	-135.75
. GEEX47	40 47.30	-119 13.58		3905.0	979863.60	-980239.34	367.18	-134.43	-8.56	-142.99
. GEEX48	40 47.20	-119 13.25		3905.0	979860.81	-980239.19	367.18	-134.43	-11.20	-145.63
. GEEX49	40 47.08	-119 12.91		3905.0	979859.92	-980239.01	367.18	-134.43	-11.91	-146.34
. GEEX50	40 46.90	-119 12.38		3905.0	979860.95	-980238.75	367.18	-134.43	-10.62	-145.05
. GEEX51	40 49.64	-119 12.05		3905.0	979874.97	-980242.83	367.18	-134.43	-0.68	-135.11

GRAVITY BASE STATION

LATITUDE 40° 39.1' N (1)		STATION DESIGNATION GERLACH	
LONGITUDE 119° 21.2' W (1)			
ELEVATION 1199 METERS (1)		COUNTRY/STATE USA/Nevada	
REFERENCE CODE NUMBERS		ADOPTED GRAVITY VALUE	
ACIC 2350-1		g = 979 829.16 mgals	
IGB 15609J			
		ESTIMATED ACCURACY	DATE
		± 0.1 mgals	MONTH/YEAR Jan/1969

DESCRIPTION AND/OR SKETCH

Station is in Gerlach, on the east side of town, at the Western Pacific Railroad depot, which is 50 yds, southeast of Nevada Highway 81, and across the street from a cafe and a hotel. Station is outside the depot building, on the east side of it, (i.e. facing the tracks), and at the southeast corner of it, 0.5 ft. from the wall, on the concrete apron. Site is monumented with a standard "USAF Gravity Station" disc. (1)



REFERENCE SOURCE

(1) Personal Communication 1st GSS (23 Jan 69)

3 1818 00073185 9

USGS LIBRARY-RESTON



3 1818 00073185 9