

AMAX EXPLORATION, INC.

A SUBSIDIARY OF AMERICAN METAL CLIMAX, INC.

4704 HARLAN STREET • DENVER, COLORADO 80212 • (303) 493-6151

June 27, 1974

Mr. Frank Fritz
AMAX Exploration, Inc.
2510 North Campbell Avenue
Tucson, Arizona 85719

Dear Frank:

I enclose the material for the Mt. Princeton gravity survey. Geafield, Poncha Spgs., Mt. Harvard and Buena Vista contain station locations; Cameron Mt., Antero Res., Bonanza, Taylor Park, and Pitkin contain necessary topography for terrain correction, as indicated. The gravity data in mgals and elevations in feet are provided. One mgal accuracy should be adequate.

Please transmit the material to Digit Graphics, and let them try a few interpretations, if they like, after reducing the data.

Gracias,



Arthur L. Lange

ALL/bs
Enclosures

Three corrections were used to find "true" elevations of the gravity stations.

First, the elevations in a loop were corrected for temperature by the equation:

$$\left[(T + T_0 - 100)(0.00102) \right] (E_0 - E_1) = \epsilon$$

where $T_0 + T_1$ are the temperatures in $^{\circ}\text{F}$ at the time of each reading, and $E_0 + E_1$ are the two altimeter readings. The correction ϵ is then added to the sum of the prior correction (preserving its sign) and this total is then added to E_0 (again observing the sign).

After a loop (i.e. a closed loop) has been corrected for temperature, the closure error is assumed to be due to barometric variations. The closure error is then divided by the minutes taken to close the loop and the result gives you Δ' / min . which can be multiplied by the amount of time from the reading of the first to the time of reading of the second station, thus giving the barometric correction which is added (preserving the sign) to the second station's temperature corrected elevation.

Next the difference between the surveyed elevation of the base station is added or subtracted from the barometric corrected data depending on whether the surveyed elevation is ~~lower~~ ~~or~~ higher or lower than the ^{corrected} read elevation.

STATION		GRAVITY	ELEVATION	Comments
G-1		2867.83	9568	
G-2	6/1	2970.17	8192	
		2969.98		
		2970.09		
		2970.18		
	6/2/74	2969.98		
		2970.49		
		2970.11		
		2970.28		
	6/3	2970.30		
		2970.28		
	6/12	2970.77		
		2970.77		
		2970.78		
	6/13	2970.80		
		2970.68		
	6/14	2970.65		
		2970.56		
		2970.72		
		2970.90		
	6/15	2970.77	↓	
G-3		2899.17	9044	
G-4		2917.02	8785	
G-5		2926.38	8,685	
G-6		2937.68	8,552	

STATION		GRAVITY	ELEVATION
G-7		2941.72	8549
G-8		2948.57	8471
G-9		2952.75	8326
G-10		2959.80	8314
G-11	6/1	2960.66	8312
	6/17	2961.89	↓
G-12	6/1	2959.56	8369
	6/17	2960.29	↓
G-13		2896.59	9108
G-14		2894.32	9088
G-15		2890.50	9120
G-16		2888.76	9228
G-17		2880.29	9304
G-18		2879.84	9335
G-19		2973.41	8112
G-20		2976.98	8147
G-21		2981.44	7990
G-22		2985.95	7901
G-23		2990.87	7873
G-24		2988.84	7802
G-25		3000.94	7699
G-26		3007.88	7748
G-27		3015.10	7674
G-28		3022.80	7694
G-29		3015.63	7976

STATION	GRAVITY	ELEVATION
G-30	3010.25	8071
G-31	2944.54	9750
G-32	2982.07	8608
G-33	2987.22	8520
G-34	2994.50	8391
G-35	3001.73	8258
G-36	$\frac{6}{2}$ No Reading	7915
	$\frac{6}{3}$ 3007.47	
	3007.40	
	3007.70	
G-37	2991.96	8601
G-38	3000.83	8421
G-39	3010.64	8242 8242
G-40	3015.33	8158
G-41	3016.34	8127
G-42	3023.43	7950
G-43A	3022.06	7854
G-43B	2996.53	7973
G-44	2991.34	8033
G-45	2982.87	8098
G-46	2979.85	8216
G-47	2977.66	8254
G-48	2975.38	8269
G-49	2972.03	8343
G-50	2963.20	8432

STATION	GRAVITY	ELEVATION
G-51	2958.03	8513
G-52	2947.91	8623
G-53	2943.73	8615
G-54	2934.58	8747
G-55	2900.17	9257
G-56	2894.09	9400
G-57	2888.61	9432
G-58	2880.35	9544
G-59	2874.35	9624
G-60	2869.65	9717
G-61	2864.02	9771
G-62	2903.68	9289
G-63	2914.56	9096
G-64	2927.51	8916
G-65	2968.52	8194
G-66	2972.62	8143
G-67	2974.50	8120
G-68	2973.40	8145
G-69	2976.35	8084
G-70	2976.14	8088
G-71	2976.57	8108
G-21	2982.22	7990
G-72	2986.08	9935
G-73	2974.44	8137
G-74	2968.30	8228

START OF SECOND OUTING

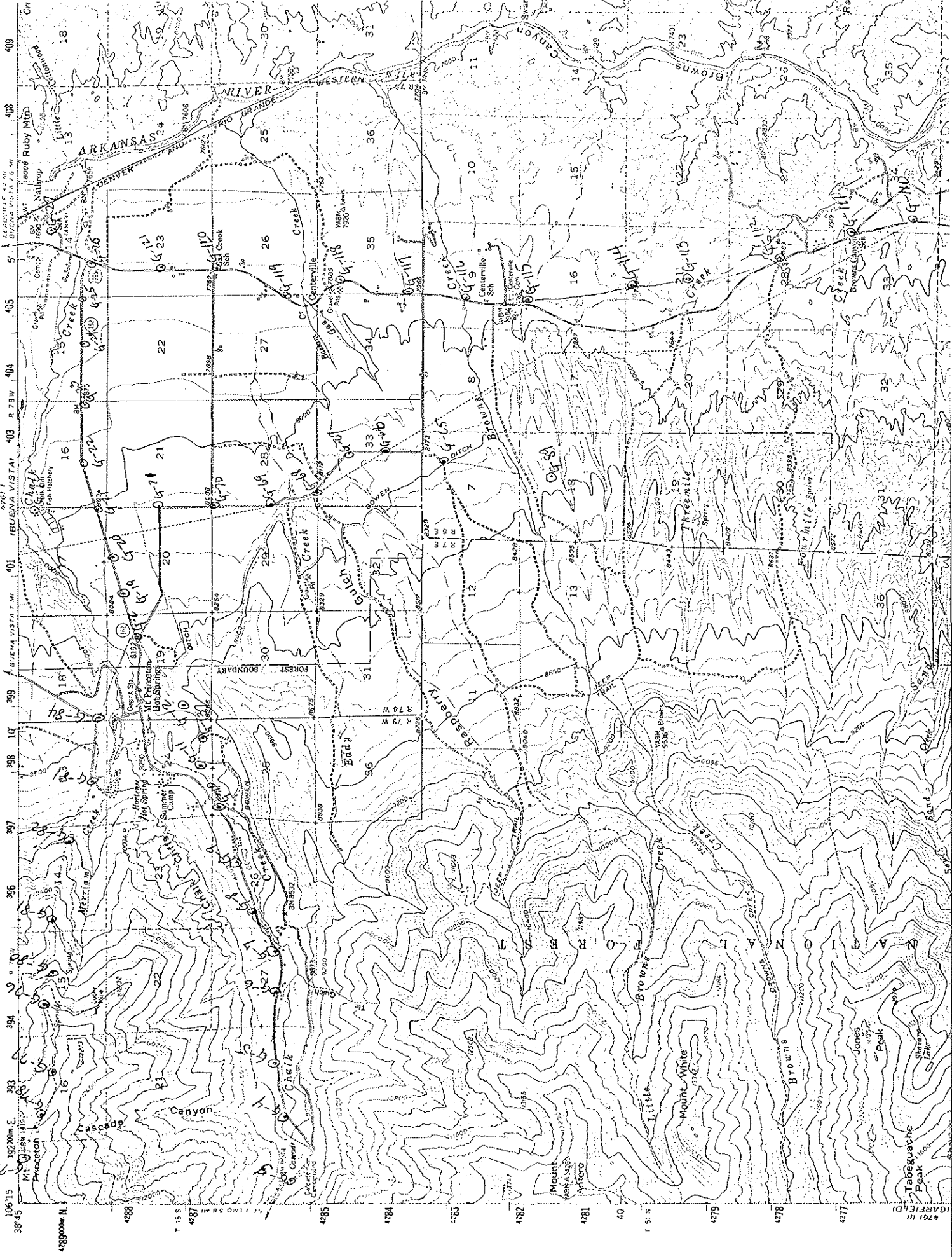
STATION	GRAVITY	ELEVATION
G-75	2970.00	8,235
G-76	2725.45	12,115
G-77	2694.92	12,545
G-78	2660.22	13,095
G-79	2562.01	14,197
G-80	2763.86	11,478
G-81	2804.38	10,851
G-82	2876.43	9,741
G-83	2919.51	9034
G-84	2939.97	8714
G-85	2951.23	8536
G-86	3006.09	7513
G-87	2999.65	7428
G-88	2985.74	7887
G-89	2964.57	8306
G-90	2968.33	8265
G-91	2969.19	8231
G-92	2964.76	8340
G-93	2964.51	8338
G-94	2968.62	8321
G-95	2977.41	8238
G-96	2979.67	8242
G-97	2977.94	8326
G-98	2979.57	8325
G-99	2976.91	8397

STATION		GRAVITY	ELEVATION
G-100		2980.35	8375
G-101	6/15	3012.64	7952
	6/16	3012.80	↓
		3012.78	
	6/17	3012.79	
		3012.69	↓
G-102		3008.42	7497
G-103		3001.61	7594
G-104		3002.83	7607
G-105		3017.52	7365
G-106		3031.39	7168
G-107		3027.30	7241
G-108		3022.74	7346
G-109		3020.75	7461
G-110		3024.83	7497
G-111		3027.83	7478
G-112		3021.44	7580
G-113		3013.89	7708
G-114		3003.48	7826
G-115		2990.99	8070
G-116		2991.29	7927
G-117		2988.46	8012
G-118		2990.17	7974
G-119		2997.69	7835
G-120		3002.12	7799

STATION	GRAVITY	ELEVATION
G-121	3003.52	7775
G-122	3015.88	7695
G-123	3014.67	7725
G-124	3009.50	7767
G-125	3007.09	7755
G-126	3006.08	7787
G-127	3004.09	7818
G-128	3006.21	7870
G-129	3010.66	7921
G-130	3012.36	7984
G-131	2998.80	8252
G-132	3003.60	8169
G-133	3009.18	8141
G-134	3013.92	8048
G-135	3014.13	8020
G-136	3013.67	7988
G-137	2962.11	8354
G-138	2941.55	8718
G-139	2956.16	8461
G-140	2970.53	8243
G-141	2980.05	8110
G-142	2943.83	7989

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

4761 IV
1MT HARVARD



Mt. Princeton Gravity Survey



74-6-1



74-6-2



74-6-3



74-6-4



74-6-5



74-6-6



74-6-7



74-6-8



74-6-9



74-6-10



74-6-11



74-6-12



74-6-13