

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Principal Facts for New Gravity Stations
in the area of the Richmond Early Mesozoic basin, Virginia

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Open-File Report 88-602

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

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1988

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Introduction

This report presents some of the results of a study done under contract to the U.S. Geological Survey (USGS) by A.A. Nowroozi of Old Dominion University at Norfolk, Virginia. The work was undertaken to support the objectives of the Early Mesozoic Basins Project under the auspices of the USGS Strategic and Critical Minerals Program and the Geologic Framework and Synthesis Program.

During 1984-1985, 830 new gravity stations were acquired in profile form along local Virginia roads across the Richmond early Mesozoic basin near Richmond, Virginia (Figure 1). Thirteen profiles were completed in this study, of which four cross the width of the basin (Virginia routes 708, 602, 604, 711, Figure 2). The average spacing between stations is about 100 m. These profiles were intended to complement previous gravity surveys in the region of the Richmond basin completed by the Virginia Division of Mineral Resources (VDMR) (Johnson, 1973, 1975; Johnson and others, 1985). The new profiles reported here are along many of the roads crossing the Richmond basin not covered by the VDMR surveys in order to permit modelling of various structural features of the basin. This report presents the principal facts for these measurements.

Data collection

Gravity observations were made using LaCoste-Romberg gravity meter G-289. All gravity stations were referenced to a base station at Chesterfield, Virginia (see Appendix A), one of a net of 58 base stations in Virginia established by Johnson and Ziegler (1972). The gravity survey in this study was accomplished by loops which were started and closed daily with repeat observations at the Chesterfield base. The stations of the Virginia base net, including the base at Chesterfield, were tied to base stations WASHINGTON R at Dulles International airport near Washington, DC and RALEIGH K at Raleigh-Durham airport in North Carolina. These ties were carried out prior to the establishment of the International Gravity Standardization Net (IGSN71) and consequently the observed gravity values for the Virginia net (Johnson and Ziegler, 1972) were based upon the datum of the U.S. National Gravity Base Net (USNGBN). The difference between USNGBN (Johnson and Ziegler, 1972) and IGSN71 (Morelli, 1971) datums at base WASHINGTON R is -13.71 mGals (Table 1). Base CHESTERFIELD was therefore adjusted downward by 13.71 mGals to bring it into conformity with IGSN71.

Table 1 Observed gravity (mGals) at reference stations

BASE	USNGBN	IGSN71	Difference
----	-----	-----	-----
WASHINGTON R	980092.16 (1)	980078.45 (2)	13.71
CHESTERFIELD	979929.27 (1)	979915.56	13.71

(1) Johnson and Ziegler (1972)

(2) Morelli (1971)

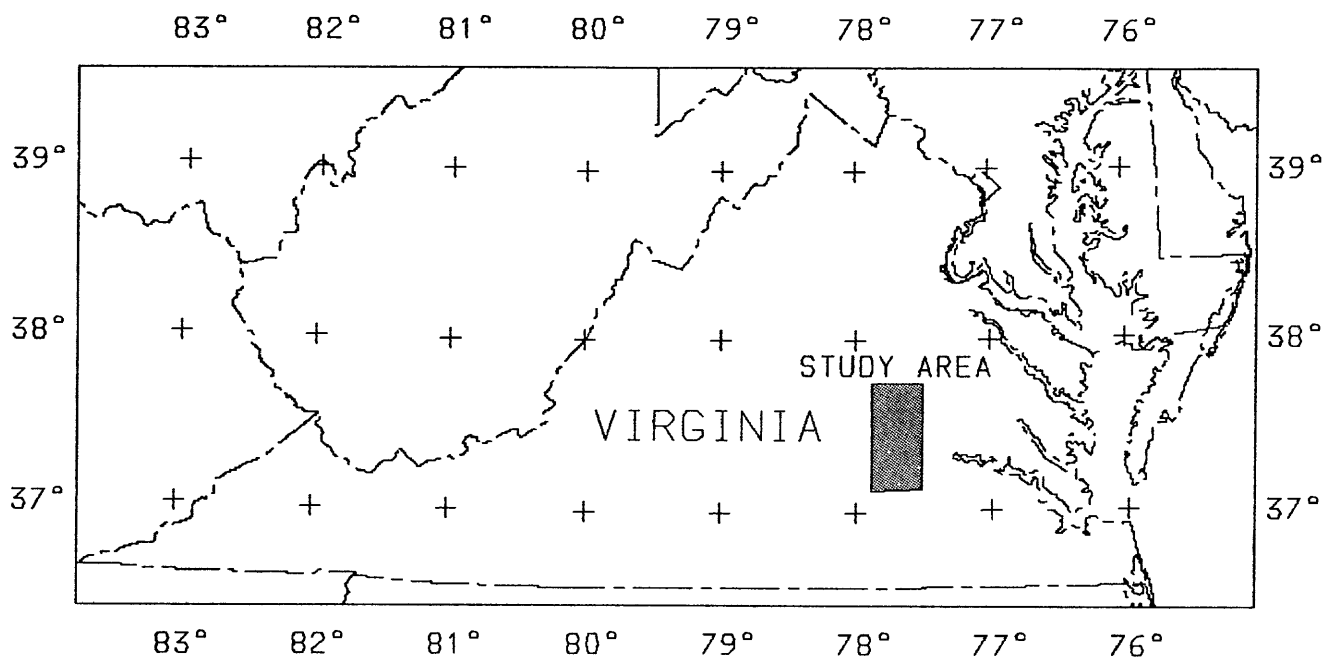


Figure 1 Index map showing the location of the study area.

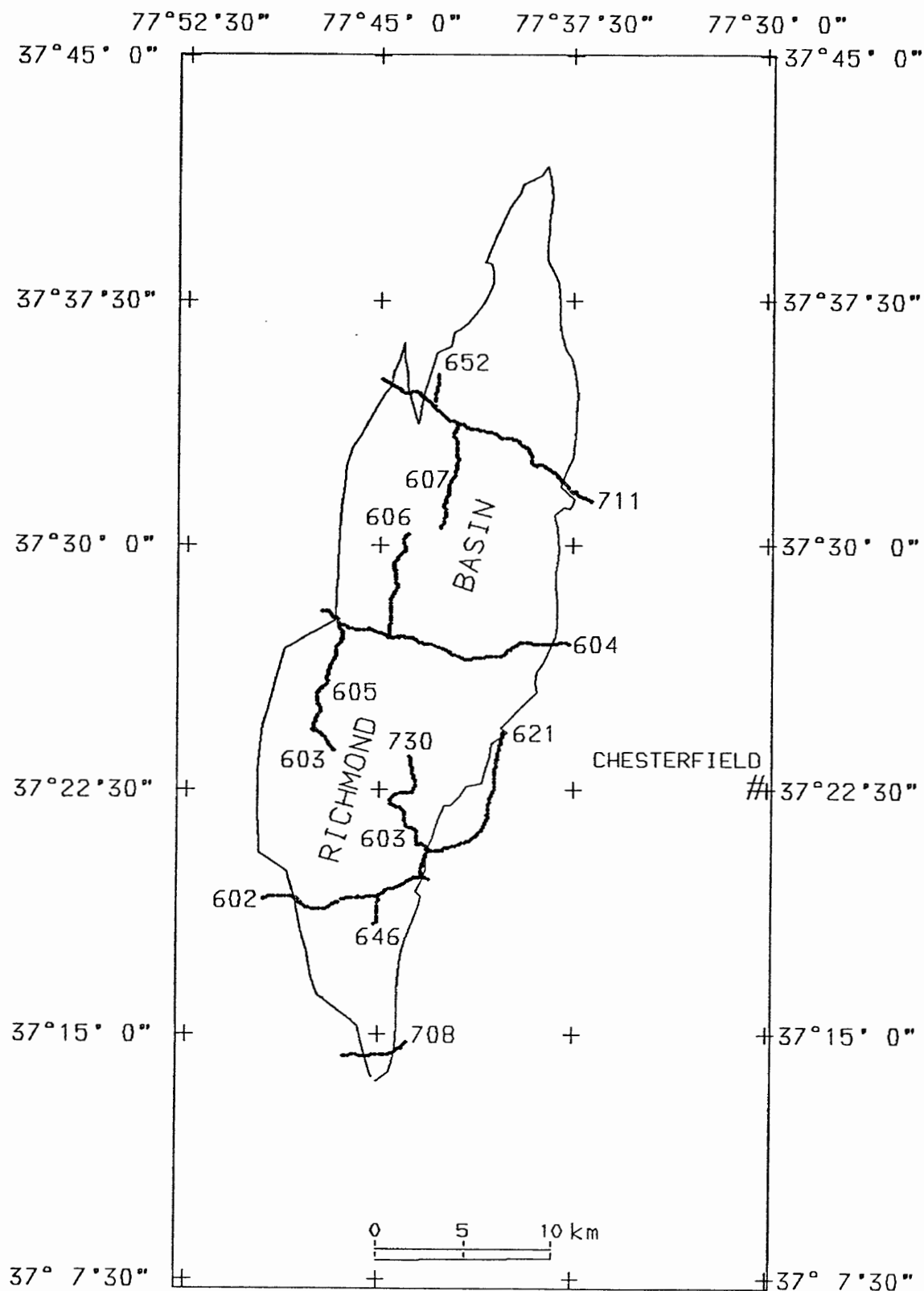


Figure 2 Index map showing the locations of the gravity profiles acquired in this study (heavy lines). The profiles are numbered with the state route numbers. The outline of the Richmond basin was digitized from Johnson and others (1985).

Elevation and Location Control

The elevation of the stations was determined by transit and leveling rod, in most cases beginning and ending on a National Geodetic Survey or USGS benchmark with established vertical control. The uncertainty of the determined elevations is estimated to be ± 0.25 feet based on closure errors. At a density of 2.67 g/cc, these elevation uncertainties translate to uncertainties in the Bouguer anomaly value of about ± 0.02 mGals.

Station positions were plotted on USGS 7.5 minute topographic maps with an estimated accuracy of ± 25 m. Station latitudes and longitudes were then scaled from the topographic maps.

Data Reduction

Program GRAVAS on the computer system at Old Dominion University was used to reduce gravity meter-readings to observed-gravity values by calculating and correcting for earth-tide and linear meter-drift. Computer programs existing on the USGS Digital Equipment Corporation VAX 11/780 computer system at Reston, Virginia were used to reduce the data to Bouguer anomalies and to obtain a listing of the principal facts. Terrain corrections were computed using program BOUGUER by R.H. Godson (USGS unpub. program, 1978), which corrects for the gravity effects of terrain at each station out to a radius 166.7 km using the method of Plouff (1977). Godson's program also calculates earth-curvature corrections and complete (terrain-corrected) Bouguer gravity anomaly values. These computed terrain corrections use mean-elevation data digitized on a 30-second grid for corrections from 0.895 to 5 km, 1-minute terrain data for corrections from 5 to 21 km, and 3-minute terrain data for corrections from 21 to 166.7 km. No correction was made for the region from the station out to a radius of 0.895 km because this is approximately the limit of resolution of the digital terrain values at this latitude. As the terrain is generally flat in the region, little error should be introduced by this omission. A density of 2.67 g/cc was used to calculate terrain corrections, giving the corrections and gravity anomaly values listed in Appendix B. The theoretical gravity value was calculated using the 1967 formula of the Geodetic Reference System (International Association of Geodesy, 1967). Mathematical equations are given in Cordell and others (1982). Errors in the estimation of terrain corrections give rise to the greatest uncertainty in Bouguer values. Computer-generated terrain corrections in mountainous areas are generally accurate to within 1 mgal.

Acknowledgements

We thank Stanley S. Johnson (VDMR) for the use of program GRAVAS and for information regarding VDMR work in the study area.

REFERENCES

- Cordell, Lindrith, Keller, G.R., and Hildenbrand, T.G., 1982, Bouguer gravity map of the Rio Grande Rift, Colorado, New Mexico, and Texas: U. S. Geological Survey Geophysical Investigations Series, Map GP- 949, scale 1:1,000,000.
- International Association of Geodesy, 1967, Geodetic Reference System, 1967: International Association of Geodesy Special Publication No. 3, 116 p.
- Johnson, S.S., 1973, Bouguer gravity, northeastern Virginia and the eastern shore Peninsula: Virginia Division of Mineral Resources Report of Investigations 32, 48 p.
- Johnson, S.S., 1975, Bouguer gravity in southeastern Virginia: Virginia Division of Mineral Resources Report of Investigations 39, 42 p.
- Johnson, S.S., and Ziegler, R.E., 1972, Virginia gravity base net: Virginia Division of Mineral Resources Information Circular 17, 22 p.
- Johnson, S.S., Wilkes, G.P., and Gwin, M.R., 1985, Simple Bouguer gravity anomaly map of the Richmond and Taylorsville basins and vicinity, Virginia: Virginia Division of Mineral Resources Publication 53, scale 1:125,000.
- Morelli, C., 1971, The International Gravity Standardization Net, 1971: International Association of Geodesy Special Publication 4, 194 p.
- Plouff, Donald, 1977, Preliminary documentation for a FORTRAN program to compute gravity terrain corrections based on topography digitized on a geographic grid: U.S. Geological Survey Open-File Report 77-535.

APPENDIX A: DESCRIPTION OF GRAVITY BASE

Base name: CHESTERFIELD
 Location: Chesterfield, Chesterfield County, Virginia
 Observed gravity (IGSN71): 979915.56 mGals

	D	M	S	
Latitude:	37	22	34	N Elevation: 209.652 ft
Longitude:	77	30	25	W Date established: 4/5/71

Description (from Johnson and Ziegler, 1972):

At "Chesterfield County Courthouse, about 0.1 mile east along State Highway 10 from its intersection with State Road 655 in Chesterfield, about 80 feet east of the SE corner of the courthouse, over BM in concrete base of the Soldiers Monument, about 5 feet south of the south face." Bench mark (BM) is designated R 245 1942.

APPENDIX B: PRINCIPAL FACTS OF GRAVITY STATIONSExplanation of Headings:

STATION ID	Gravity station identification number. The first three digits give the Virginia highway route number.
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LOCATIONS:

LATITUDE	North latitude in degrees, decimal minutes
LONGITUDE	West longitude in degrees, decimal minutes
ELEV	Station elevation in feet

OBSERVED GRAVITY	Observed gravity in milligals
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CORRECTIONS:

TERRAIN	Terrain correction from 0.895 to 166.7 km radius, in milligals
CURV	Curvature correction in milligals

ANOMALIES:

FREE AIR	Free-air anomaly in milligals
COMPLETE BOUGUER	Complete Bouguer anomaly in milligals for density 2.67 gm/cc.

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN	CURV	FREE AIR	COMPLETE BOUGUER
708- 27	37 14.33	77 46.33	191.6	979930.65	-0.03	-0.08	23.12	16.47
708- 26	37 14.33	77 46.26	193.7	979930.90	-0.03	-0.09	23.56	16.84
708- 25	37 14.35	77 46.14	204.2	979930.72	-0.03	-0.09	24.33	17.25
708- 24	37 14.37	77 46.04	206.3	979931.10	-0.03	-0.09	24.88	17.73
708- 23	37 14.37	77 45.96	212.1	979931.10	-0.03	-0.09	25.43	18.07
708- 22	37 14.37	77 45.84	235.9	979929.97	-0.02	-0.10	26.53	18.37
708- 21	37 14.35	77 45.76	239.3	979929.79	-0.01	-0.10	26.71	18.43
708- 20	37 14.33	77 45.70	250.8	979928.90	-0.01	-0.11	26.93	18.26
708- 19	37 14.33	77 45.63	249.7	979930.40	-0.01	-0.11	28.33	19.69
708- 18	37 14.33	77 45.54	231.8	979930.90	-0.02	-0.10	27.14	19.11
708- 17	37 14.35	77 45.46	225.6	979930.72	-0.02	-0.10	26.35	18.53
708- 16	37 14.35	77 45.39	221.9	979930.47	-0.02	-0.10	25.75	18.07
708- 15	37 14.35	77 45.31	213.6	979930.90	-0.03	-0.09	25.40	17.99
708- 14	37 14.37	77 45.25	204.4	979931.65	-0.03	-0.09	25.26	18.16
708- 13	37 14.37	77 45.16	192.4	979930.97	-0.03	-0.08	23.44	16.77
708- 12	37 14.37	77 45.08	187.6	979931.35	-0.03	-0.08	23.37	16.86
708- 11	37 14.37	77 44.96	182.8	979931.35	-0.03	-0.08	22.92	16.57
708- 10	37 14.38	77 44.91	187.3	979930.90	-0.03	-0.08	22.88	16.38
708- 9	37 14.38	77 44.83	194.5	979930.54	-0.03	-0.09	23.20	16.45
708- 8	37 14.38	77 44.76	201.8	979930.10	-0.03	-0.09	23.45	16.45
708- 7	37 14.40	77 44.68	208.5	979929.72	-0.03	-0.09	23.67	16.44
708- 6	37 14.40	77 44.61	217.2	979928.79	-0.02	-0.10	23.56	16.04
708- 5	37 14.42	77 44.54	222.5	979928.54	-0.02	-0.10	23.78	16.07
708- 4	37 14.43	77 44.46	214.2	979928.40	-0.03	-0.09	22.84	15.41
708- 3	37 14.45	77 44.39	219.4	979928.54	-0.02	-0.10	23.44	15.84
708- 2	37 14.48	77 44.33	225.4	979928.15	-0.02	-0.10	23.57	15.77
708- 1	37 14.52	77 44.28	223.9	979927.97	-0.02	-0.10	23.19	15.44
708- X2	37 14.55	77 44.21	229.3	979927.97	-0.02	-0.10	23.66	15.72
708- X3	37 14.58	77 44.14	224.8	979928.72	-0.02	-0.10	23.94	16.16
708- X4	37 14.63	77 44.11	226.8	979929.22	-0.02	-0.10	24.56	16.70
708- X5	37 14.68	77 44.06	234.0	979929.79	-0.01	-0.10	25.73	17.64
708- X6	37 14.72	77 44.01	237.3	979929.90	-0.01	-0.10	26.10	17.89
708- X7	37 14.77	77 43.96	243.1	979929.90	-0.01	-0.11	26.57	18.16
602- 94	37 19.13	77 49.49	291.2	979927.90	0.03	-0.13	22.76	12.73
602- 93	37 19.17	77 49.45	283.7	979928.10	0.02	-0.12	22.20	12.42
602- 92	37 19.20	77 49.38	277.9	979928.35	0.01	-0.12	21.85	12.26
602- 91	37 19.22	77 49.31	280.3	979928.04	0.02	-0.12	21.75	12.09
602- 90	37 19.23	77 49.25	288.2	979927.40	0.03	-0.13	21.83	11.91
602- 89	37 19.22	77 49.16	282.2	979927.54	0.02	-0.12	21.42	11.69
602- 88	37 19.23	77 49.09	277.1	979927.97	0.01	-0.12	21.36	11.80
602- 87	37 19.23	77 49.03	270.8	979928.54	0.01	-0.12	21.33	11.99
602- 86	37 19.25	77 48.96	271.8	979928.35	0.01	-0.12	21.21	11.83
602- 85	37 19.25	77 48.89	265.5	979928.79	0.00	-0.12	21.06	11.89
602- 84	37 19.23	77 48.81	255.1	979929.65	-0.01	-0.11	20.97	12.15
602- 83	37 19.23	77 48.74	245.9	979930.04	-0.02	-0.11	20.49	11.98
602- 82	37 19.23	77 48.66	230.9	979930.85	-0.03	-0.10	19.89	11.88
602- 81	37 19.23	77 48.61	221.4	979931.40	-0.03	-0.10	19.55	11.87
602- 80	37 19.23	77 48.53	211.9	979931.79	-0.04	-0.09	19.04	11.68
602- 79	37 19.23	77 48.45	200.1	979932.54	-0.04	-0.09	18.68	11.73
602- 78	37 19.23	77 48.38	186.3	979932.97	-0.04	-0.08	17.82	11.34
602- 77	37 19.20	77 48.31	185.3	979932.90	-0.04	-0.08	17.69	11.25
602- 76	37 19.17	77 48.23	186.8	979932.54	-0.04	-0.08	17.52	11.03
602- 75	37 19.12	77 48.16	186.5	979931.79	-0.04	-0.08	16.81	10.33
602- 74	37 19.05	77 48.13	188.5	979932.35	-0.04	-0.08	17.66	11.11
602- 73	37 19.02	77 48.06	204.7	979931.10	-0.04	-0.09	17.98	10.87
602- 72	37 18.98	77 48.01	216.5	979930.10	-0.04	-0.10	18.14	10.63
602- 71	37 18.93	77 47.93	238.9	979928.22	-0.02	-0.10	18.46	10.18
602- 70	37 18.92	77 47.86	234.5	979928.85	-0.03	-0.10	18.68	10.54
602- 69	37 18.90	77 47.80	234.2	979928.79	-0.03	-0.10	18.62	10.50
602- 68	37 18.88	77 47.71	251.9	979927.22	-0.01	-0.11	18.75	10.04

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
602- 67	37 18.87	77 47.64	254.7	979926.79	-0.01	-0.11	18.59	9.79
602- 66	37 18.85	77 47.57	254.1	979926.54	-0.01	-0.11	18.31	9.52
602- 65	37 18.87	77 47.49	264.3	979925.79	0.00	-0.12	18.50	9.37
602- 64	37 18.87	77 47.45	266.8	979925.60	0.00	-0.12	18.54	9.33
602- 63	37 18.87	77 47.36	274.4	979924.79	0.01	-0.12	18.45	8.98
602- 62	37 18.83	77 47.31	267.0	979925.22	0.00	-0.12	18.24	9.01
602- 61	37 18.85	77 47.21	269.5	979924.90	0.00	-0.12	18.12	8.81
602- 60	37 18.85	77 47.14	261.9	979925.47	-0.01	-0.11	17.98	8.92
602- 59	37 18.87	77 47.06	260.1	979925.35	-0.01	-0.11	17.67	8.67
602- 58	37 18.88	77 47.00	284.6	979923.72	0.01	-0.12	18.32	8.50
602- 57	37 18.92	77 46.96	308.7	979922.15	0.04	-0.13	18.96	8.33
602- 56	37 18.95	77 46.91	310.4	979922.10	0.04	-0.14	19.03	8.34
602- 55	37 18.97	77 46.83	316.2	979921.47	0.05	-0.14	18.91	8.04
602- 54	37 18.98	77 46.78	315.9	979921.47	0.05	-0.14	18.87	8.00
602- 53	37 19.02	77 46.71	322.8	979921.04	0.06	-0.14	19.04	7.94
602- 52	37 19.03	77 46.63	330.0	979920.40	0.06	-0.14	19.05	7.71
602- 51	37 19.07	77 46.56	341.7	979919.54	0.08	-0.15	19.24	7.52
602- 50	37 19.12	77 46.46	348.5	979919.22	0.09	-0.15	19.48	7.54
602- 49	37 19.13	77 46.43	349.0	979919.10	0.09	-0.15	19.39	7.43
602- 48	37 19.15	77 46.36	348.0	979919.10	0.09	-0.15	19.27	7.34
602- 47	37 19.17	77 46.29	345.2	979919.15	0.08	-0.15	19.03	7.18
602- 46	37 19.17	77 46.25	340.8	979919.54	0.07	-0.15	19.01	7.30
602- 45	37 19.18	77 46.16	336.2	979919.79	0.06	-0.15	18.81	7.26
602- 44	37 19.18	77 46.09	330.9	979920.15	0.06	-0.14	18.67	7.30
602- 43	37 19.18	77 46.03	325.8	979920.40	0.05	-0.14	18.44	7.23
602- 42	37 19.18	77 45.94	319.5	979920.90	0.04	-0.14	18.35	7.35
602- 41	37 19.18	77 45.89	314.6	979921.10	0.03	-0.14	18.08	7.25
602- 40	37 19.20	77 45.83	308.6	979921.60	0.03	-0.13	17.99	7.36
602- 39	37 19.22	77 45.78	304.3	979921.97	0.02	-0.13	17.94	7.44
602- 38	37 19.20	77 45.71	306.5	979921.85	0.02	-0.13	18.04	7.48
602- 37	37 19.20	77 45.61	303.5	979922.22	0.02	-0.13	18.13	7.67
602- 36	37 19.20	77 45.57	308.3	979921.72	0.03	-0.13	18.09	7.47
602- 35	37 19.22	77 45.51	310.1	979921.60	0.03	-0.14	18.11	7.43
602- 34	37 19.22	77 45.43	309.7	979921.54	0.03	-0.14	18.01	7.34
602- 33	37 19.23	77 45.36	303.7	979921.97	0.02	-0.13	17.86	7.39
602- 32	37 19.23	77 45.31	298.4	979922.35	0.02	-0.13	17.74	7.45
602- 31	37 19.23	77 45.23	291.3	979922.85	0.01	-0.13	17.57	7.52
602- 30	37 19.23	77 45.16	291.2	979923.04	0.01	-0.13	17.75	7.70
602- 29	37 19.25	77 45.09	284.7	979923.54	0.01	-0.12	17.61	7.78
602- 28	37 19.27	77 45.03	296.2	979922.85	0.02	-0.13	17.97	7.76
602- 27	37 19.28	77 44.98	300.5	979922.65	0.03	-0.13	18.16	7.81
602- 26	37 19.32	77 44.91	305.0	979922.65	0.03	-0.13	18.53	8.03
602- 25	37 19.35	77 44.86	312.7	979922.15	0.04	-0.14	18.70	7.94
602- 24	37 19.38	77 44.81	308.9	979922.54	0.04	-0.13	18.70	8.07
602- 23	37 19.42	77 44.76	303.2	979923.04	0.03	-0.13	18.60	8.16
602- 22	37 19.45	77 44.73	296.7	979923.35	0.03	-0.13	18.26	8.04
602- 21	37 19.47	77 44.66	291.0	979924.22	0.02	-0.13	18.56	8.53
602- 20	37 19.48	77 44.59	280.2	979925.04	0.01	-0.12	18.35	8.68
602- 19	37 19.48	77 44.54	273.8	979925.72	0.00	-0.12	18.43	8.97
602- 18	37 19.48	77 44.48	267.0	979926.40	0.00	-0.12	18.47	9.25
602- 17	37 19.50	77 44.41	260.1	979927.04	-0.01	-0.11	18.44	9.44
602- 16	37 19.52	77 44.36	252.5	979927.85	-0.01	-0.11	18.51	9.77
602- 15	37 19.55	77 44.29	243.0	979928.65	-0.02	-0.11	18.36	9.95
602- 14	37 19.57	77 44.23	236.1	979929.40	-0.02	-0.10	18.44	10.27
602- 13	37 19.58	77 44.16	229.8	979930.10	-0.02	-0.10	18.53	10.57
602- 12	37 19.62	77 44.11	224.9	979930.72	-0.02	-0.10	18.62	10.84
602- 11	37 19.63	77 44.04	218.9	979931.29	-0.03	-0.10	18.61	11.02
602- 10	37 19.67	77 43.98	213.6	979931.85	-0.03	-0.09	18.63	11.22
602- 9	37 19.70	77 43.93	208.0	979932.54	-0.03	-0.09	18.75	11.53
602- 8	37 19.72	77 43.86	202.5	979933.22	-0.03	-0.09	18.88	11.85

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---		
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER	
602-	7	37 19.75	77 43.81	198.7	979933.72	-0.03	-0.09	18.98	12.08
602-	6	37 19.78	77 43.76	195.4	979934.22	-0.03	-0.09	19.12	12.34
602-	5	37 19.80	77 43.71	194.1	979934.72	-0.03	-0.09	19.47	12.74
602-	4	37 19.82	77 43.61	194.3	979935.15	-0.03	-0.09	19.89	13.15
602-	3	37 19.82	77 43.57	195.5	979935.72	-0.03	-0.09	20.57	13.79
602-	2	37 19.80	77 43.51	199.3	979936.29	-0.03	-0.09	21.53	14.62
602-	1	37 19.80	77 43.43	204.0	979936.65	-0.03	-0.09	22.34	15.26
602-	X2	37 19.82	77 43.31	220.4	979935.65	-0.03	-0.10	22.85	15.21
602-	X3	37 19.80	77 43.25	222.4	979935.90	-0.02	-0.10	23.32	15.61
602-	X4	37 19.80	77 43.18	224.0	979935.60	-0.02	-0.10	23.17	15.41
602-	X5	37 19.78	77 43.11	233.8	979934.97	-0.02	-0.10	23.49	15.39
604-	132	37 27.98	77 47.25	340.5	979937.60	0.02	-0.15	24.22	12.48
604-	131	37 27.98	77 47.16	344.7	979936.85	0.02	-0.15	23.87	11.98
604-	130	37 27.97	77 47.09	338.5	979937.35	0.02	-0.15	23.80	12.13
604-	129	37 27.97	77 47.04	339.1	979936.85	0.02	-0.15	23.36	11.67
604-	128	37 27.93	77 46.96	337.0	979936.79	0.02	-0.15	23.17	11.55
604-	127	37 27.90	77 46.91	332.0	979937.04	0.01	-0.14	22.99	11.53
604-	126	37 27.87	77 46.88	326.9	979937.04	0.01	-0.14	22.55	11.27
604-	125	37 27.80	77 46.83	325.2	979936.97	0.01	-0.14	22.42	11.20
604-	124	37 27.78	77 46.80	326.2	979936.60	0.01	-0.14	22.18	10.92
604-	123	37 27.78	77 46.71	330.0	979935.97	0.01	-0.14	21.90	10.51
604-	122	37 27.73	77 46.66	325.4	979935.97	0.01	-0.14	21.54	10.31
604-	121	37 27.68	77 46.63	321.9	979935.85	0.01	-0.14	21.16	10.05
604-	120	37 27.63	77 46.61	319.8	979935.90	0.00	-0.14	21.09	10.05
604-	118	37 27.57	77 46.46	320.4	979934.72	0.01	-0.14	20.06	9.00
604-	117	37 27.55	77 46.38	307.8	979934.90	0.00	-0.13	19.07	8.44
604-	116	37 27.52	77 46.31	305.3	979933.97	0.00	-0.13	17.96	7.41
604-	115	37 27.48	77 46.26	292.2	979935.35	-0.01	-0.13	18.16	8.05
604-	114	37 27.47	77 46.21	287.2	979935.85	-0.01	-0.13	18.20	8.27
604-	113	37 27.45	77 46.09	282.0	979936.04	-0.02	-0.12	17.94	8.17
604-	112	37 27.42	77 46.00	296.3	979934.79	-0.01	-0.13	18.08	7.84
604-	111	37 27.40	77 45.91	313.9	979933.35	0.00	-0.14	18.32	7.48
604-	110	37 27.40	77 45.84	320.1	979932.90	0.01	-0.14	18.45	7.40
604-	109	37 27.43	77 45.78	317.4	979932.65	0.01	-0.14	17.90	6.95
604-	108	37 27.42	77 45.70	318.3	979932.65	0.01	-0.14	18.01	7.02
604-	107	37 27.40	77 45.61	318.6	979932.29	0.01	-0.14	17.70	6.71
604-	106	37 27.43	77 45.53	316.0	979932.47	0.01	-0.14	17.59	6.69
604-	105	37 27.45	77 45.46	322.9	979931.97	0.02	-0.14	17.71	6.58
604-	104	37 27.42	77 45.39	319.3	979931.97	0.02	-0.14	17.43	6.42
604-	103	37 27.40	77 45.33	319.2	979931.79	0.02	-0.14	17.26	6.25
604-	102	37 27.38	77 45.26	313.3	979931.90	0.01	-0.14	16.84	6.03
604-	101	37 27.37	77 45.18	293.9	979932.90	0.00	-0.13	16.03	5.88
604-	100	37 27.33	77 45.09	286.4	979933.10	-0.01	-0.13	15.58	5.68
604-	99	37 27.32	77 45.04	286.2	979932.90	-0.01	-0.13	15.38	5.48
604-	98	37 27.30	77 44.98	284.2	979932.97	-0.01	-0.12	15.30	5.47
604-	97	37 27.28	77 44.91	280.0	979933.15	-0.01	-0.12	15.11	5.43
604-	96	37 27.25	77 44.83	276.8	979933.15	-0.01	-0.12	14.85	5.28
604-	95	37 27.23	77 44.76	278.0	979932.90	-0.01	-0.12	14.74	5.13
604-	94	37 27.20	77 44.70	283.0	979932.40	-0.01	-0.12	14.75	4.97
604-	93	37 27.18	77 44.61	278.7	979932.65	-0.01	-0.12	14.63	4.99
604-	92	37 27.18	77 44.54	280.4	979932.35	-0.01	-0.12	14.48	4.79
604-	91	37 27.20	77 44.46	277.9	979932.47	-0.01	-0.12	14.35	4.74
604-	90	37 27.22	77 44.36	284.4	979931.97	0.00	-0.12	14.43	4.61
604-	89	37 27.20	77 44.28	276.1	979932.22	0.00	-0.12	13.93	4.39
604-	88	37 27.22	77 44.21	279.0	979931.85	0.00	-0.12	13.80	4.16
604-	87	37 27.22	77 44.11	279.0	979931.72	0.00	-0.12	13.67	4.03
604-	86	37 27.20	77 44.03	272.9	979932.04	0.00	-0.12	13.45	4.02
604-	85	37 27.17	77 43.96	270.2	979932.10	0.00	-0.12	13.30	3.96
604-	84	37 27.17	77 43.88	272.7	979931.72	0.00	-0.12	13.15	3.73
604-	83	37 27.15	77 43.81	274.6	979931.54	0.00	-0.12	13.18	3.69

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
604- 82	37 27.15	77 43.73	274.4	979931.29	0.00	-0.12	12.91	3.43
604- 81	37 27.13	77 43.66	275.2	979931.29	0.00	-0.12	13.02	3.51
604- 80	37 27.10	77 43.61	271.4	979931.29	0.00	-0.12	12.70	3.32
604- 79	37 27.07	77 43.54	273.0	979931.10	0.00	-0.12	12.70	3.27
604- 78	37 27.05	77 43.49	270.6	979931.15	0.00	-0.12	12.56	3.21
604- 77	37 27.02	77 43.41	267.8	979931.04	0.00	-0.12	12.22	2.97
604- 76	37 27.00	77 43.33	265.5	979931.10	0.00	-0.12	12.10	2.93
604- 75	37 26.98	77 43.26	279.1	979930.60	0.01	-0.12	12.91	3.28
604- 74	37 26.97	77 43.21	270.1	979930.35	0.00	-0.12	11.83	2.50
604- 73	37 26.98	77 43.13	265.8	979930.65	0.00	-0.12	11.71	2.53
604- 72	37 26.97	77 43.04	271.0	979930.15	0.01	-0.12	11.71	2.36
604- 71	37 26.97	77 43.00	279.3	979929.65	0.02	-0.12	11.98	2.36
604- 70	37 26.95	77 42.93	292.0	979928.72	0.03	-0.13	12.28	2.22
604- 69	37 26.93	77 42.88	300.3	979927.97	0.04	-0.13	12.35	2.01
604- 68	37 26.90	77 42.81	295.5	979928.29	0.04	-0.13	12.25	2.08
604- 67	37 26.88	77 42.76	291.4	979928.47	0.03	-0.13	12.08	2.04
604- 66	37 26.87	77 42.70	282.0	979928.72	0.02	-0.12	11.46	1.74
604- 65	37 26.85	77 42.63	282.1	979928.85	0.02	-0.12	11.63	1.91
604- 64	37 26.83	77 42.56	277.0	979929.15	0.01	-0.12	11.49	1.93
604- 63	37 26.80	77 42.51	263.3	979929.85	0.00	-0.12	10.93	1.84
604- 62	37 26.78	77 42.46	259.1	979930.10	0.00	-0.11	10.82	1.87
604- 61	37 26.77	77 42.41	249.0	979930.54	-0.01	-0.11	10.32	1.71
604- 60	37 26.73	77 42.36	245.9	979930.72	-0.01	-0.11	10.27	1.77
604- 59	37 26.72	77 42.31	248.0	979930.40	-0.01	-0.11	10.16	1.59
604- 58	37 26.68	77 42.28	245.3	979930.22	-0.01	-0.11	9.79	1.30
604- 57	37 26.65	77 42.23	238.7	979930.65	-0.02	-0.10	9.64	1.37
604- 56	37 26.63	77 42.18	235.9	979930.65	-0.02	-0.10	9.41	1.24
604- 55	37 26.62	77 42.11	231.9	979930.85	-0.02	-0.10	9.24	1.21
604- 54	37 26.60	77 42.03	226.0	979931.79	-0.03	-0.10	9.65	1.81
604- 53	37 26.58	77 41.96	224.1	979931.85	-0.03	-0.10	9.57	1.80
604- 52	37 26.55	77 41.89	223.4	979932.04	-0.03	-0.10	9.73	1.99
604- 51	37 26.53	77 41.83	216.4	979932.54	-0.03	-0.10	9.61	2.10
604- 50	37 26.52	77 41.78	208.4	979932.97	-0.03	-0.09	9.29	2.06
604- 49	37 26.50	77 41.71	197.5	979933.85	-0.04	-0.09	9.18	2.32
604- 48	37 26.50	77 41.64	183.9	979934.90	-0.04	-0.08	8.95	2.56
604- 47	37 26.50	77 41.59	181.6	979935.29	-0.04	-0.08	9.12	2.81
604- 46	37 26.52	77 41.53	181.7	979934.79	-0.04	-0.08	8.60	2.28
604- 45	37 26.52	77 41.48	182.3	979934.60	-0.04	-0.08	8.47	2.13
604- 44	37 26.53	77 41.41	181.2	979934.65	-0.04	-0.08	8.40	2.10
604- 43	37 26.53	77 41.33	181.5	979934.65	-0.04	-0.08	8.43	2.12
604- 42	37 26.53	77 41.26	183.4	979934.40	-0.04	-0.08	8.36	1.98
604- 41	37 26.55	77 41.20	190.9	979933.97	-0.04	-0.08	8.61	1.97
604- 40	37 26.55	77 41.13	192.1	979933.90	-0.04	-0.08	8.66	1.98
604- 39	37 26.57	77 41.08	182.5	979934.60	-0.04	-0.08	8.42	2.08
604- 38	37 26.57	77 41.00	181.6	979934.54	-0.04	-0.08	8.27	1.96
604- 37	37 26.58	77 40.94	188.8	979934.10	-0.04	-0.08	8.50	1.93
604- 36	37 26.58	77 40.88	185.5	979934.15	-0.04	-0.08	8.23	1.78
604- 35	37 26.58	77 40.81	182.1	979934.54	-0.04	-0.08	8.30	1.97
604- 34	37 26.58	77 40.74	181.3	979934.40	-0.04	-0.08	8.09	1.78
604- 33	37 26.58	77 40.66	181.5	979934.35	-0.04	-0.08	8.06	1.75
604- 32	37 26.60	77 40.56	181.8	979934.22	-0.04	-0.08	7.92	1.60
604- 31	37 26.60	77 40.49	181.7	979934.15	-0.04	-0.08	7.85	1.53
604- 30	37 26.60	77 40.39	181.4	979934.22	-0.04	-0.08	7.89	1.58
604- 29	37 26.60	77 40.33	189.5	979933.72	-0.04	-0.08	8.15	1.57
604- 28	37 26.62	77 40.28	208.6	979932.54	-0.03	-0.09	8.75	1.51
604- 27	37 26.65	77 40.21	222.1	979931.54	-0.02	-0.10	8.97	1.27
604- 26	37 26.70	77 40.16	234.1	979930.79	-0.02	-0.10	9.28	1.17
604- 25	37 26.75	77 40.11	241.6	979930.22	-0.01	-0.11	9.33	0.98
604- 24	37 26.78	77 40.06	238.1	979930.60	-0.01	-0.10	9.34	1.11
604- 23	37 26.80	77 39.98	238.4	979930.60	-0.01	-0.10	9.34	1.10

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
604- 22	37 26.83	77 39.93	249.4	979929.65	-0.01	-0.11	9.38	0.76
604- 21	37 26.87	77 39.86	253.5	979929.15	0.00	-0.11	9.21	0.45
604- 20	37 26.90	77 39.81	255.1	979928.79	0.00	-0.11	8.95	0.14
604- 19	37 26.93	77 39.74	255.2	979928.47	0.00	-0.11	8.60	-0.21
604- 18	37 26.95	77 39.68	250.2	979928.54	-0.01	-0.11	8.17	-0.48
604- 17	37 26.98	77 39.63	239.8	979929.35	-0.01	-0.11	7.96	-0.33
604- 16	37 27.02	77 39.56	236.3	979929.40	-0.02	-0.10	7.63	-0.56
604- 15	37 27.05	77 39.50	241.1	979929.15	-0.01	-0.11	7.79	-0.55
604- 14	37 27.05	77 39.45	243.4	979928.60	-0.01	-0.11	7.45	-0.97
604- 13	37 27.05	77 39.36	236.4	979928.85	-0.02	-0.10	7.04	-1.14
604- 12	37 27.03	77 39.29	234.5	979929.04	-0.02	-0.10	7.08	-1.04
604- 11	37 27.02	77 39.23	227.6	979929.54	-0.02	-0.10	6.95	-0.94
604- 10	37 27.02	77 39.16	236.7	979929.15	-0.01	-0.10	7.41	-0.77
604- 9	37 27.00	77 39.11	246.8	979928.40	-0.01	-0.11	7.65	-0.89
604- 8	37 26.98	77 39.05	259.9	979927.65	0.00	-0.11	8.16	-0.82
604- 7	37 26.98	77 38.98	262.3	979927.54	0.00	-0.11	8.27	-0.79
604- 6	37 26.98	77 38.91	271.1	979926.90	0.01	-0.12	8.46	-0.89
604- 5	37 26.97	77 38.84	267.1	979927.29	0.01	-0.12	8.48	-0.73
604- 4	37 26.97	77 38.76	265.9	979927.35	0.01	-0.12	8.42	-0.75
604- 3	37 26.98	77 38.70	264.8	979928.22	0.01	-0.12	9.18	0.04
604- 2	37 27.00	77 38.63	263.2	979928.85	0.01	-0.12	9.64	0.56
604- 1	37 27.00	77 38.54	265.5	979928.60	0.01	-0.12	9.60	0.44
604- X2	37 27.00	77 38.48	260.2	979928.85	0.01	-0.11	9.35	0.37
604- X3	37 27.00	77 38.43	273.2	979927.90	0.02	-0.12	9.62	0.21
604- X4	37 26.98	77 38.38	286.5	979926.60	0.04	-0.13	9.61	-0.25
604- X5	37 26.98	77 38.31	284.9	979926.65	0.04	-0.12	9.51	-0.29
604- X6	37 26.97	77 38.26	280.4	979926.85	0.03	-0.12	9.30	-0.36
604- X7	37 26.98	77 38.20	272.2	979927.35	0.02	-0.12	9.01	-0.37
604- X8	37 27.00	77 38.13	271.0	979927.35	0.02	-0.12	8.87	-0.47
604- X9	37 27.02	77 38.06	273.5	979927.29	0.02	-0.12	9.01	-0.42
604- X10	37 27.03	77 38.00	274.2	979927.04	0.02	-0.12	8.82	-0.64
604- X11	37 27.03	77 37.95	273.0	979927.04	0.02	-0.12	8.70	-0.71
604- X12	37 27.03	77 37.84	287.6	979925.97	0.04	-0.13	9.00	-0.89
604- X13	37 27.02	77 37.78	286.5	979925.90	0.04	-0.13	8.85	-1.01
604- X14	37 27.00	77 37.73	290.3	979925.79	0.05	-0.13	9.13	-0.85
604- X15	37 26.97	77 37.64	282.0	979925.97	0.04	-0.12	8.56	-1.14
711- 1	37 35.13	77 44.94	251.0	979960.35	-0.02	-0.11	28.15	19.46
711- 2	37 35.08	77 44.91	242.2	979960.35	-0.03	-0.11	27.39	18.99
711- 3	37 35.05	77 44.84	228.0	979961.22	-0.04	-0.10	26.97	19.06
711- 4	37 35.03	77 44.80	223.5	979960.97	-0.04	-0.10	26.34	18.57
711- 5	37 35.00	77 44.73	216.3	979960.90	-0.04	-0.09	25.62	18.11
711- 6	37 34.97	77 44.66	210.3	979961.15	-0.05	-0.09	25.35	18.04
711- 7	37 34.93	77 44.59	202.5	979961.15	-0.05	-0.09	24.68	17.63
711- 8	37 34.90	77 44.54	197.5	979961.35	-0.05	-0.09	24.46	17.58
711- 9	37 34.88	77 44.48	192.9	979961.15	-0.05	-0.08	23.85	17.14
711- 10	37 34.85	77 44.43	189.2	979961.10	-0.05	-0.08	23.50	16.91
711- 11	37 34.82	77 44.38	186.9	979961.10	-0.05	-0.08	23.33	16.82
711- 12	37 34.80	77 44.31	184.3	979961.04	-0.05	-0.08	23.05	16.63
711- 13	37 34.77	77 44.26	181.2	979961.22	-0.05	-0.08	22.98	16.67
711- 14	37 34.73	77 44.21	178.5	979961.29	-0.05	-0.08	22.86	16.64
711- 15	37 34.70	77 44.14	174.7	979961.29	-0.05	-0.08	22.54	16.45
711- 16	37 34.70	77 44.08	170.6	979961.54	-0.05	-0.08	22.40	16.46
711- 17	37 34.70	77 44.00	163.9	979961.79	-0.05	-0.07	22.02	16.31
711- 18	37 34.70	77 43.93	155.3	979962.40	-0.05	-0.07	21.82	16.41
711- 19	37 34.70	77 43.84	147.6	979962.47	-0.05	-0.07	21.17	16.02
711- 20	37 34.72	77 43.78	150.4	979962.35	-0.05	-0.07	21.28	16.03
711- 21	37 34.72	77 43.71	159.1	979961.72	-0.05	-0.07	21.47	15.92
711- 22	37 34.72	77 43.64	182.2	979960.04	-0.05	-0.08	21.96	15.62
711- 23	37 34.70	77 43.57	205.1	979957.97	-0.05	-0.09	22.08	14.94
711- 24	37 34.67	77 43.53	213.2	979957.04	-0.04	-0.09	21.95	14.55

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
711- 25	37 34.63	77 43.48	210.6	979957.22	-0.04	-0.09	21.95	14.63
711- 26	37 34.60	77 43.45	206.2	979957.22	-0.05	-0.09	21.58	14.41
711- 27	37 34.57	77 43.38	212.6	979956.47	-0.04	-0.09	21.47	14.09
711- 28	37 34.53	77 43.33	211.0	979956.97	-0.04	-0.09	21.88	14.55
711- 29	37 34.50	77 43.28	211.6	979956.04	-0.04	-0.09	21.05	13.70
711- 30	37 34.45	77 43.21	215.5	979955.54	-0.04	-0.09	20.99	13.51
711- 31	37 34.42	77 43.14	221.0	979954.90	-0.04	-0.10	20.91	13.24
711- 32	37 34.37	77 43.09	218.7	979954.72	-0.04	-0.10	20.59	13.00
711- 33	37 34.33	77 43.04	212.8	979954.54	-0.04	-0.09	19.91	12.52
711- 34	37 34.28	77 43.00	211.1	979954.60	-0.04	-0.09	19.88	12.55
711- 35	37 34.25	77 42.94	215.3	979953.90	-0.04	-0.09	19.63	12.15
711- 36	37 34.22	77 42.88	217.7	979953.72	-0.04	-0.10	19.72	12.16
711- 37	37 34.17	77 42.83	219.8	979953.10	-0.04	-0.10	19.36	11.73
711- 38	37 34.13	77 42.78	220.6	979952.40	-0.04	-0.10	18.79	11.13
711- 39	37 34.08	77 42.71	229.4	979951.60	-0.03	-0.10	18.90	10.94
711- 40	37 34.05	77 42.66	233.6	979951.15	-0.03	-0.10	18.88	10.78
711- 41	37 34.00	77 42.61	236.2	979950.72	-0.03	-0.10	18.77	10.59
711- 42	37 33.97	77 42.53	232.5	979950.60	-0.03	-0.10	18.35	10.29
711- 43	37 33.93	77 42.51	232.5	979950.54	-0.03	-0.10	18.35	10.29
711- 44	37 33.90	77 42.46	234.1	979950.10	-0.03	-0.10	18.10	9.98
711- 45	37 33.85	77 42.41	233.7	979949.85	-0.03	-0.10	17.89	9.79
711- 46	37 33.83	77 42.34	228.5	979949.97	-0.03	-0.10	17.55	9.62
711- 47	37 33.83	77 42.26	228.1	979949.79	-0.03	-0.10	17.33	9.42
711- 48	37 33.82	77 42.20	227.3	979949.35	-0.03	-0.10	16.83	8.94
711- 49	37 33.78	77 42.08	222.8	979949.47	-0.04	-0.10	16.59	8.85
711- 50	37 33.75	77 42.03	215.4	979949.60	-0.04	-0.09	16.06	8.58
711- 52	37 33.72	77 41.91	217.9	979948.90	-0.04	-0.10	15.64	8.07
711- 53	37 33.70	77 41.83	221.9	979948.35	-0.04	-0.10	15.50	7.80
711- 54	37 33.67	77 41.76	224.9	979947.85	-0.03	-0.10	15.32	7.52
711- 55	37 33.63	77 41.71	220.8	979948.04	-0.04	-0.10	15.18	7.52
711- 56	37 33.60	77 41.66	219.3	979947.97	-0.04	-0.10	15.01	7.40
711- 57	37 33.58	77 41.59	213.9	979947.90	-0.04	-0.09	14.47	7.04
711- 58	37 33.58	77 41.51	211.6	979947.85	-0.04	-0.09	14.20	6.85
711- 59	37 33.57	77 41.45	210.2	979947.72	-0.04	-0.09	13.95	6.65
711- 60	37 33.55	77 41.36	207.6	979947.47	-0.04	-0.09	13.49	6.28
711- 61	37 33.55	77 41.29	202.3	979947.60	-0.04	-0.09	13.13	6.10
711- 62	37 33.53	77 41.21	198.1	979947.65	-0.04	-0.09	12.81	5.92
711- 63	37 33.53	77 41.13	195.2	979947.65	-0.04	-0.09	12.53	5.75
711- 64	37 33.52	77 41.03	192.5	979947.60	-0.05	-0.08	12.24	5.54
711- 65	37 33.50	77 40.94	191.6	979947.47	-0.05	-0.08	12.06	5.39
711- 66	37 33.50	77 40.88	191.1	979947.35	-0.04	-0.08	11.89	5.25
711- 67	37 33.48	77 40.80	190.4	979947.04	-0.04	-0.08	11.54	4.93
711- 68	37 33.47	77 40.74	192.0	979946.90	-0.04	-0.08	11.57	4.89
711- 69	37 33.47	77 40.70	185.5	979946.79	-0.04	-0.08	10.85	4.40
711- 70	37 33.45	77 40.63	173.7	979947.60	-0.04	-0.08	10.58	4.54
711- 71	37 33.43	77 40.60	151.7	979948.85	-0.04	-0.07	9.78	4.50
711- 72	37 33.42	77 40.56	139.5	979949.35	-0.03	-0.06	9.16	4.31
711- 73	37 33.38	77 40.51	132.6	979949.22	-0.03	-0.06	8.43	3.82
711- 74	37 33.37	77 40.48	131.8	979949.29	-0.03	-0.06	8.44	3.86
711- 75	37 33.33	77 40.43	135.0	979949.10	-0.03	-0.06	8.61	3.92
711- 76	37 33.30	77 40.34	147.8	979947.79	-0.03	-0.07	8.54	3.41
711- 77	37 33.28	77 40.28	144.9	979948.15	-0.03	-0.06	8.67	3.63
711- 78	37 33.28	77 40.20	151.4	979947.60	-0.03	-0.07	8.73	3.46
711- 79	37 33.27	77 40.13	154.0	979947.35	-0.03	-0.07	8.74	3.38
711- 80	37 33.27	77 40.05	154.9	979947.15	-0.03	-0.07	8.62	3.24
711- 81	37 33.27	77 39.96	151.4	979947.22	-0.03	-0.07	8.36	3.10
711- 82	37 33.25	77 39.89	149.1	979947.22	-0.03	-0.07	8.18	3.00
711- 83	37 33.25	77 39.83	150.3	979947.10	-0.03	-0.07	8.17	2.95
711- 84	37 33.23	77 39.78	151.5	979946.60	-0.03	-0.07	7.81	2.55
711- 85	37 33.22	77 39.73	155.5	979946.54	-0.03	-0.07	8.14	2.74

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
711- 86	37 33.17	77 39.66	160.5	979946.15	-0.03	-0.07	8.29	2.72
711- 87	37 33.13	77 39.63	165.0	979945.72	-0.03	-0.07	8.35	2.62
711- 88	37 33.10	77 39.57	170.1	979945.54	-0.03	-0.07	8.69	2.78
711- 89	37 33.05	77 39.53	173.4	979944.85	-0.03	-0.08	8.38	2.36
711- 90	37 33.02	77 39.48	176.2	979944.47	-0.03	-0.08	8.31	2.19
711- 91	37 33.00	77 39.41	179.3	979944.22	-0.02	-0.08	8.38	2.16
711- 92	37 32.98	77 39.34	180.0	979943.72	-0.02	-0.08	7.98	1.74
711- 93	37 32.95	77 39.29	186.9	979942.29	-0.02	-0.08	7.23	0.75
711- 94	37 32.90	77 39.26	203.5	979941.97	-0.02	-0.09	8.56	1.50
711- 95	37 32.85	77 39.23	222.6	979940.40	-0.02	-0.10	8.85	1.14
711- 96	37 32.80	77 39.21	229.0	979939.97	-0.02	-0.10	9.09	1.16
711- 97	37 32.73	77 39.18	244.1	979938.47	-0.01	-0.11	9.11	0.67
711- 98	37 32.68	77 39.16	267.0	979936.35	0.00	-0.12	9.23	0.01
711- 99	37 32.63	77 39.13	300.5	979934.15	0.03	-0.13	10.25	-0.10
711- 100	37 32.57	77 39.14	335.1	979931.90	0.07	-0.15	11.34	-0.17
711- 101	37 32.53	77 39.14	354.0	979931.47	0.10	-0.15	12.75	0.62
711- 102	37 32.48	77 39.09	352.2	979931.40	0.09	-0.15	12.58	0.51
711- 103	37 32.45	77 39.05	354.2	979931.40	0.09	-0.15	12.82	0.67
711- 104	37 32.43	77 38.98	362.3	979930.65	0.11	-0.16	12.85	0.45
711- 105	37 32.45	77 38.93	363.5	979930.65	0.11	-0.16	12.94	0.50
711- 106	37 32.47	77 38.86	364.6	979930.54	0.11	-0.16	12.90	0.42
711- 107	37 32.47	77 38.78	365.8	979930.40	0.11	-0.16	12.87	0.35
711- 108	37 32.45	77 38.71	366.6	979930.04	0.12	-0.16	12.62	0.07
711- 109	37 32.43	77 38.64	370.3	979929.97	0.12	-0.16	12.92	0.25
711- 110	37 32.38	77 38.60	373.1	979929.40	0.12	-0.16	12.70	-0.07
711- 111	37 32.35	77 38.54	369.9	979929.47	0.12	-0.16	12.50	-0.16
711- 112	37 32.32	77 38.48	370.7	979929.35	0.12	-0.16	12.51	-0.18
711- 113	37 32.30	77 38.43	371.6	979929.10	0.12	-0.16	12.37	-0.35
711- 114	37 32.27	77 38.38	371.5	979929.04	0.12	-0.16	12.34	-0.38
711- 115	37 32.23	77 38.31	370.5	979929.04	0.12	-0.16	12.31	-0.37
711- 116	37 32.22	77 38.26	368.4	979929.04	0.11	-0.16	12.12	-0.50
711- 117	37 32.17	77 38.21	367.9	979928.72	0.11	-0.16	11.83	-0.77
711- 118	37 32.12	77 38.14	367.2	979928.72	0.11	-0.16	11.83	-0.74
711- 119	37 32.10	77 38.11	366.4	979928.60	0.10	-0.16	11.67	-0.89
711- 120	37 32.07	77 38.06	365.4	979928.85	0.10	-0.16	11.87	-0.66
711- 121	37 32.02	77 38.03	367.5	979928.47	0.10	-0.16	11.76	-0.84
711- 122	37 32.00	77 37.98	370.9	979928.35	0.11	-0.16	11.98	-0.72
711- 123	37 31.95	77 37.93	373.4	979928.35	0.11	-0.16	12.30	-0.49
711- 124	37 31.92	77 37.88	373.9	979928.15	0.11	-0.16	12.18	-0.62
711- 125	37 31.87	77 37.83	374.4	979927.90	0.11	-0.16	12.06	-0.76
711- 126	37 31.82	77 37.78	375.8	979927.60	0.11	-0.16	11.96	-0.91
711- 127	37 31.77	77 37.73	380.6	979927.10	0.12	-0.17	11.98	-1.05
711- 128	37 31.72	77 37.68	383.9	979926.35	0.12	-0.17	11.62	-1.52
711- 129	37 31.67	77 37.61	380.3	979927.15	0.11	-0.16	12.15	-0.87
711- 130	37 31.60	77 37.53	381.4	979927.47	0.11	-0.17	12.68	-0.39
711- 131	37 31.65	77 37.48	378.7	979927.72	0.11	-0.16	12.60	-0.37
711- 132	37 31.62	77 37.43	375.4	979927.47	0.11	-0.16	12.08	-0.78
711- 133	37 31.58	77 37.38	373.3	979927.22	0.10	-0.16	11.70	-1.10
711- 134	37 31.55	77 37.33	368.3	979927.35	0.09	-0.16	11.40	-1.23
711- 135	37 31.52	77 37.28	362.2	979927.97	0.08	-0.16	11.49	-0.94
711- 136	37 31.48	77 37.21	359.9	979928.47	0.08	-0.16	11.82	-0.53
711- 137	37 31.47	77 37.14	358.8	979928.60	0.08	-0.16	11.86	-0.45
711- 138	37 31.45	77 37.09	358.3	979928.40	0.08	-0.16	11.65	-0.65
711- 139	37 31.43	77 37.03	355.9	979928.22	0.07	-0.15	11.28	-0.94
711- 140	37 31.42	77 37.00	353.4	979928.40	0.07	-0.15	11.24	-0.90
711- 141	37 31.38	77 36.93	352.8	979928.29	0.07	-0.15	11.13	-0.99
711- 142	37 31.37	77 36.86	349.7	979928.04	0.07	-0.15	10.60	-1.41
711- 143	37 31.35	77 36.81	346.2	979928.22	0.06	-0.15	10.48	-1.41
646- 18	37 18.35	77 45.21	334.8	979919.65	0.07	-0.15	19.74	8.24
646- 17	37 18.40	77 45.11	324.5	979920.29	0.06	-0.14	19.34	8.19

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
646- 16	37 18.43	77 45.08	329.8	979920.10	0.06	-0.14	19.61	8.28
646- 15	37 18.47	77 45.08	333.3	979920.10	0.07	-0.15	19.88	8.44
646- 14	37 18.53	77 45.08	326.6	979920.40	0.06	-0.14	19.46	8.24
646- 13	37 18.58	77 45.08	320.9	979920.79	0.05	-0.14	19.24	8.21
646- 12	37 18.63	77 45.08	317.2	979921.15	0.05	-0.14	19.18	8.27
646- 11	37 18.70	77 45.08	321.5	979920.85	0.05	-0.14	19.18	8.12
646- 10	37 18.75	77 45.08	329.6	979920.47	0.06	-0.14	19.49	8.17
646- 9	37 18.80	77 45.08	327.4	979920.97	0.06	-0.14	19.71	8.46
646- 8	37 18.87	77 45.09	325.8	979920.65	0.06	-0.14	19.14	7.95
646- 7	37 18.92	77 45.11	325.3	979920.79	0.05	-0.14	19.16	7.97
646- 6	37 18.97	77 45.11	317.7	979921.29	0.04	-0.14	18.87	7.94
646- 5	37 19.03	77 45.09	308.9	979921.47	0.03	-0.13	18.14	7.50
646- 4	37 19.10	77 45.04	313.4	979921.54	0.04	-0.14	18.53	7.75
646- 3	37 19.15	77 45.04	303.1	979922.15	0.03	-0.13	18.10	7.66
646- 2	37 19.22	77 45.04	295.7	979922.60	0.02	-0.13	17.75	7.56
646- 1	37 19.25	77 45.04	293.3	979923.15	0.02	-0.13	18.03	7.92
621- 44	37 19.87	77 43.41	214.1	979935.97	-0.03	-0.09	22.50	15.08
621- 46	37 19.92	77 43.39	215.1	979935.72	-0.03	-0.09	22.27	14.81
621- 47	37 19.95	77 43.39	215.5	979935.60	-0.03	-0.09	22.14	14.67
621- 48	37 19.98	77 43.38	211.9	979935.40	-0.03	-0.09	21.56	14.21
621- 49	37 20.03	77 43.39	211.3	979935.60	-0.03	-0.09	21.64	14.31
621- 50	37 20.10	77 43.36	199.0	979936.04	-0.03	-0.09	20.82	13.91
621- 51	37 20.15	77 43.34	196.9	979935.79	-0.03	-0.09	20.30	13.47
621- 52	37 20.20	77 43.31	198.8	979935.65	-0.03	-0.09	20.26	13.36
621- 53	37 20.27	77 43.31	195.5	979935.79	-0.03	-0.09	19.99	13.20
621- 54	37 20.32	77 43.29	197.5	979935.72	-0.03	-0.09	20.04	13.19
621- 55	37 20.37	77 43.26	199.5	979935.90	-0.03	-0.09	20.34	13.41
621- 56	37 20.43	77 43.21	208.0	979935.90	-0.03	-0.09	21.05	13.83
621- 57	37 20.48	77 43.21	208.6	979935.85	-0.03	-0.09	20.97	13.74
621- 58	37 20.53	77 43.18	208.5	979935.79	-0.03	-0.09	20.83	13.60
621- 59	37 20.60	77 43.16	205.1	979935.54	-0.03	-0.09	20.17	13.05
621- 60	37 20.68	77 43.16	200.9	979935.47	-0.02	-0.09	19.58	12.62
621- 61	37 20.67	77 43.09	214.5	979935.15	-0.02	-0.09	20.56	13.13
621- 62	37 20.65	77 43.03	224.5	979934.65	-0.02	-0.10	21.03	13.25
621- 63	37 20.65	77 42.94	245.8	979934.04	-0.01	-0.11	22.42	13.92
621- 64	37 20.63	77 42.86	253.7	979933.15	-0.01	-0.11	22.30	13.52
621- 65	37 20.63	77 42.78	266.7	979932.10	0.00	-0.12	22.47	13.26
621- 66	37 20.63	77 42.71	271.6	979931.72	0.00	-0.12	22.55	13.17
621- 67	37 20.65	77 42.64	264.8	979931.97	0.00	-0.12	22.14	12.99
621- 68	37 20.63	77 42.56	277.2	979931.15	0.01	-0.12	22.51	12.94
621- 69	37 20.68	77 42.53	282.1	979930.35	0.01	-0.12	22.10	12.37
621- 70	37 20.72	77 42.49	273.2	979930.54	0.00	-0.12	21.40	11.96
621- 71	37 20.73	77 42.45	262.8	979931.04	0.00	-0.11	20.90	11.83
621- 72	37 20.75	77 42.36	243.6	979931.65	-0.01	-0.11	19.68	11.25
621- 73	37 20.75	77 42.28	241.7	979931.47	-0.01	-0.11	19.32	10.96
621- 74	37 20.77	77 42.20	256.8	979930.15	-0.01	-0.11	19.39	10.51
621- 75	37 20.78	77 42.09	266.9	979929.47	0.00	-0.12	19.64	10.42
621- 76	37 20.78	77 42.04	275.4	979928.40	0.00	-0.12	19.37	9.85
621- 77	37 20.80	77 41.96	288.0	979927.29	0.01	-0.13	19.42	9.48
621- 78	37 20.82	77 41.89	291.7	979926.90	0.02	-0.13	19.35	9.29
621- 79	37 20.85	77 41.84	295.8	979926.29	0.02	-0.13	19.08	8.88
621- 80	37 20.87	77 41.80	291.2	979926.60	0.01	-0.13	18.93	8.88
621- 81	37 20.88	77 41.73	294.6	979925.97	0.02	-0.13	18.60	8.45
621- 82	37 20.90	77 41.66	301.8	979925.22	0.02	-0.13	18.50	8.10
621- 83	37 20.92	77 41.57	308.6	979924.65	0.03	-0.13	18.54	7.91
621- 84	37 20.93	77 41.53	309.5	979924.35	0.03	-0.13	18.32	7.66
621- 85	37 20.98	77 41.46	311.6	979923.97	0.03	-0.14	18.06	7.33
621- 86	37 21.02	77 41.39	316.9	979923.47	0.03	-0.14	18.00	7.08
621- 87	37 21.05	77 41.34	317.0	979923.35	0.03	-0.14	17.84	6.92
621- 88	37 21.08	77 41.28	329.6	979922.79	0.04	-0.14	18.43	7.09

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
621- 89	37 21.10	77 41.23	324.6	979922.40	0.04	-0.14	17.54	6.36
621- 90	37 21.15	77 41.20	321.9	979922.35	0.04	-0.14	17.16	6.09
621- 91	37 21.22	77 41.14	325.9	979921.72	0.04	-0.14	16.81	5.59
621- 92	37 21.25	77 41.06	329.3	979921.40	0.04	-0.14	16.76	5.43
621- 93	37 21.30	77 41.03	333.0	979920.85	0.05	-0.14	16.49	5.03
621- 94	37 21.37	77 40.98	332.6	979920.35	0.04	-0.14	15.85	4.40
621- 95	37 21.42	77 40.96	329.6	979920.35	0.04	-0.14	15.49	4.14
621- 96	37 21.47	77 40.93	328.2	979920.22	0.04	-0.14	15.15	3.86
621- 97	37 21.50	77 40.89	330.0	979919.97	0.04	-0.14	15.03	3.67
621- 98	37 21.55	77 40.86	333.0	979919.47	0.04	-0.14	14.74	3.28
621- 99	37 21.60	77 40.83	328.3	979919.65	0.04	-0.14	14.41	3.11
621-100	37 21.63	77 40.80	334.6	979919.22	0.05	-0.15	14.52	3.01
621-101	37 21.68	77 40.81	333.6	979919.35	0.05	-0.15	14.49	3.02
621-102	37 21.73	77 40.83	326.5	979919.40	0.04	-0.14	13.80	2.56
621-103	37 21.80	77 40.81	308.8	979921.29	0.02	-0.13	13.92	3.28
621-104	37 21.87	77 40.81	313.2	979921.15	0.03	-0.14	14.10	3.31
621-105	37 21.95	77 40.80	310.4	979921.10	0.02	-0.14	13.67	2.97
621-106	37 22.02	77 40.80	289.2	979922.97	0.01	-0.13	13.45	3.47
621-107	37 22.08	77 40.78	281.7	979923.47	0.00	-0.12	13.15	3.42
621-108	37 22.13	77 40.76	289.2	979922.85	0.01	-0.13	13.16	3.18
621-109	37 22.22	77 40.73	298.0	979922.04	0.02	-0.13	13.05	2.78
621-110	37 22.27	77 40.71	294.2	979921.65	0.01	-0.13	12.23	2.07
621-111	37 22.32	77 40.70	301.6	979921.10	0.02	-0.13	12.30	1.90
621-112	37 22.37	77 40.66	299.1	979921.47	0.02	-0.13	12.36	2.05
621-113	37 22.40	77 40.64	297.8	979921.47	0.02	-0.13	12.19	1.93
621-114	37 22.48	77 40.61	304.2	979921.22	0.02	-0.13	12.43	1.94
621-115	37 22.53	77 40.57	300.6	979921.15	0.02	-0.13	11.95	1.59
621-116	37 22.60	77 40.56	289.7	979922.10	0.01	-0.13	11.78	1.78
621-117	37 22.70	77 40.53	300.0	979921.29	0.02	-0.13	11.79	1.45
621-118	37 22.77	77 40.53	292.5	979922.04	0.02	-0.13	11.73	1.64
621-119	37 22.85	77 40.53	278.3	979923.04	0.01	-0.12	11.28	1.67
621-120	37 22.92	77 40.53	272.5	979923.72	0.00	-0.12	11.31	1.90
621-121	37 22.98	77 40.56	266.2	979924.22	0.00	-0.12	11.13	1.93
621-122	37 23.05	77 40.56	263.3	979924.54	0.00	-0.12	11.08	1.98
621-123	37 23.10	77 40.56	262.0	979924.47	0.00	-0.11	10.81	1.76
621-124	37 23.13	77 40.53	262.0	979924.65	0.00	-0.11	10.94	1.89
621-125	37 23.20	77 40.51	259.0	979924.85	0.00	-0.11	10.76	1.81
621-126	37 23.25	77 40.49	251.3	979925.29	-0.01	-0.11	10.41	1.72
621-127	37 23.32	77 40.49	246.1	979925.60	-0.01	-0.11	10.13	1.62
621-128	37 23.40	77 40.48	245.3	979926.04	-0.01	-0.11	10.37	1.89
621-129	37 23.43	77 40.46	251.8	979925.47	-0.01	-0.11	10.37	1.66
621-130	37 23.52	77 40.45	255.0	979925.22	0.00	-0.11	10.29	1.49
621-131	37 23.58	77 40.43	252.5	979925.54	-0.01	-0.11	10.29	1.55
621-132	37 23.63	77 40.41	258.1	979925.15	0.00	-0.11	10.36	1.44
621-133	37 23.70	77 40.39	255.7	979925.22	0.00	-0.11	10.10	1.27
621-134	37 23.77	77 40.38	244.8	979926.15	-0.01	-0.11	9.90	1.43
621-135	37 23.83	77 40.36	250.9	979925.90	-0.01	-0.11	10.14	1.46
621-136	37 23.90	77 40.34	269.7	979925.04	0.01	-0.12	10.94	1.63
621-137	37 23.95	77 40.33	254.5	979926.04	0.00	-0.11	10.44	1.65
621-138	37 24.00	77 40.31	235.6	979926.72	-0.02	-0.10	9.27	1.11
621-139	37 24.05	77 40.29	235.5	979926.97	-0.02	-0.10	9.44	1.28
621-140	37 24.10	77 40.28	249.9	979925.90	0.00	-0.11	9.65	1.02
621-141	37 24.15	77 40.26	258.1	979925.60	0.00	-0.11	10.05	1.13
621-142	37 24.20	77 40.25	243.4	979926.65	-0.01	-0.11	9.64	1.23
621-143	37 24.23	77 40.25	247.0	979926.90	-0.01	-0.11	10.19	1.65
603- 1	37 20.70	77 43.20	209.4	979933.90	-0.02	-0.09	18.78	11.53
603- 2	37 20.77	77 43.23	210.2	979933.35	-0.02	-0.09	18.21	10.93
603- 3	37 20.80	77 43.31	230.2	979931.35	-0.02	-0.10	18.05	10.07
603- 4	37 20.85	77 43.36	241.4	979930.29	-0.02	-0.11	17.96	9.60
603- 5	37 20.83	77 43.43	250.6	979929.40	-0.01	-0.11	17.97	9.30

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---		
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER	
603-	6	37 20.82	77 43.49	239.3	979929.85	-0.02	-0.10	17.37	9.09
603-	7	37 20.83	77 43.56	234.2	979929.85	-0.02	-0.10	16.87	8.76
603-	8	37 20.90	77 43.56	240.9	979929.54	-0.02	-0.11	17.10	8.76
603-	9	37 20.95	77 43.56	248.9	979928.97	-0.01	-0.11	17.21	8.60
603-	10	37 21.02	77 43.56	249.4	979928.90	-0.01	-0.11	17.08	8.45
603-	11	37 21.08	77 43.56	243.2	979929.29	-0.01	-0.11	16.80	8.39
603-	12	37 21.13	77 43.56	251.5	979928.65	-0.01	-0.11	16.86	8.16
603-	13	37 21.20	77 43.56	256.9	979928.15	-0.01	-0.11	16.77	7.89
603-	14	37 21.25	77 43.59	254.4	979928.40	-0.01	-0.11	16.72	7.92
603-	15	37 21.28	77 43.64	258.3	979927.90	-0.01	-0.11	16.53	7.60
603-	16	37 21.32	77 43.70	259.0	979927.72	-0.01	-0.11	16.37	7.41
603-	17	37 21.35	77 43.76	261.8	979927.47	-0.01	-0.11	16.33	7.28
603-	18	37 21.35	77 43.83	271.0	979926.85	0.00	-0.12	16.58	7.22
603-	19	37 21.37	77 43.89	283.5	979925.90	0.00	-0.12	16.78	6.99
603-	20	37 21.38	77 43.98	300.6	979924.65	0.02	-0.13	17.12	6.76
603-	21	37 21.43	77 44.01	307.6	979924.10	0.02	-0.13	17.16	6.55
603-	22	37 21.52	77 44.06	306.6	979924.04	0.02	-0.13	16.87	6.30
603-	23	37 21.57	77 44.08	288.4	979925.35	0.01	-0.13	16.41	6.45
603-	24	37 21.63	77 44.08	287.6	979925.40	0.00	-0.13	16.29	6.35
603-	25	37 21.72	77 44.08	284.5	979925.65	0.00	-0.12	16.12	6.29
603-	26	37 21.77	77 44.08	293.5	979925.04	0.01	-0.13	16.27	6.15
603-	27	37 21.83	77 44.08	305.2	979924.29	0.02	-0.13	16.54	6.01
603-	28	37 21.90	77 44.09	309.1	979923.90	0.02	-0.13	16.42	5.76
603-	29	37 21.93	77 44.20	319.5	979923.04	0.03	-0.14	16.49	5.49
603-	30	37 21.97	77 44.25	318.6	979923.04	0.03	-0.14	16.35	5.37
603-	31	37 22.00	77 44.33	326.1	979922.54	0.03	-0.14	16.51	5.28
603-	32	37 22.03	77 44.39	329.5	979922.22	0.03	-0.14	16.47	5.12
603-	33	37 22.05	77 44.46	332.7	979921.97	0.04	-0.14	16.48	5.03
603-	34	37 22.07	77 44.51	335.9	979921.54	0.04	-0.15	16.33	4.77
603-	35	37 22.10	77 44.57	331.0	979921.85	0.04	-0.14	16.13	4.74
603-	36	37 22.15	77 44.59	322.4	979922.47	0.03	-0.14	15.88	4.77
603-	37	37 22.20	77 44.61	315.7	979922.85	0.02	-0.14	15.55	4.66
730-	38	37 22.25	77 44.56	308.3	979923.29	0.01	-0.13	15.22	4.58
730-	39	37 22.28	77 44.53	306.1	979923.47	0.01	-0.13	15.15	4.59
730-	40	37 22.33	77 44.48	305.1	979923.60	0.01	-0.13	15.11	4.58
730-	41	37 22.35	77 44.43	305.8	979923.60	0.01	-0.13	15.15	4.59
730-	42	37 22.37	77 44.36	303.8	979924.15	0.01	-0.13	15.49	5.00
730-	43	37 22.38	77 44.33	300.9	979924.35	0.01	-0.13	15.40	5.01
730-	44	37 22.40	77 44.25	297.1	979924.72	0.01	-0.13	15.38	5.13
730-	45	37 22.42	77 44.20	290.2	979925.22	0.00	-0.13	15.20	5.18
730-	46	37 22.42	77 44.13	284.3	979925.65	0.00	-0.12	15.08	5.26
730-	47	37 22.42	77 44.06	282.3	979925.72	0.00	-0.12	14.96	5.21
730-	48	37 22.42	77 44.01	270.9	979926.47	-0.01	-0.12	14.64	5.27
730-	49	37 22.42	77 43.94	247.0	979928.22	-0.01	-0.11	14.14	5.60
730-	50	37 22.43	77 43.88	238.3	979928.79	-0.01	-0.10	13.88	5.64
730-	51	37 22.42	77 43.78	238.6	979928.47	-0.01	-0.10	13.60	5.35
730-	52	37 22.47	77 43.74	255.8	979927.79	-0.01	-0.11	14.47	5.62
730-	53	37 22.52	77 43.71	284.0	979925.90	0.00	-0.12	15.16	5.35
730-	54	37 22.57	77 43.68	295.6	979924.72	0.01	-0.13	14.99	4.79
730-	55	37 22.62	77 43.66	300.4	979924.35	0.01	-0.13	15.00	4.63
730-	56	37 22.67	77 43.66	303.0	979924.10	0.01	-0.13	14.92	4.47
730-	57	37 22.73	77 43.64	307.6	979923.72	0.02	-0.13	14.89	4.28
730-	58	37 22.78	77 43.66	312.2	979923.29	0.02	-0.14	14.82	4.05
730-	59	37 22.83	77 43.68	308.5	979923.72	0.02	-0.13	14.83	4.19
730-	60	37 22.88	77 43.70	313.6	979923.35	0.02	-0.14	14.87	4.05
730-	61	37 22.95	77 43.71	314.1	979923.15	0.02	-0.14	14.61	3.78
730-	62	37 23.00	77 43.73	315.4	979923.15	0.02	-0.14	14.66	3.78
730-	63	37 23.08	77 43.74	313.6	979923.29	0.02	-0.14	14.52	3.71
730-	64	37 23.15	77 43.76	309.6	979923.54	0.02	-0.13	14.29	3.62
730-	65	37 23.18	77 43.78	312.5	979923.22	0.02	-0.14	14.19	3.42

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
730- 66	37 23.23	77 43.80	317.4	979922.85	0.02	-0.14	14.21	3.27
730- 67	37 23.27	77 43.81	320.3	979922.54	0.03	-0.14	14.11	3.08
730- 68	37 23.33	77 43.83	324.2	979922.40	0.03	-0.14	14.26	3.09
730- 69	37 23.37	77 43.84	330.3	979921.85	0.04	-0.14	14.23	2.86
730- 70	37 23.43	77 43.84	333.4	979921.79	0.04	-0.15	14.37	2.89
730- 71	37 23.47	77 43.84	332.9	979921.90	0.04	-0.14	14.37	2.91
730- 72	37 23.50	77 43.86	328.5	979922.22	0.03	-0.14	14.23	2.92
603- 83	37 23.70	77 46.78	341.3	979925.65	0.03	-0.15	18.58	6.82
603- 82	37 23.73	77 46.81	340.1	979925.54	0.03	-0.15	18.31	6.60
603- 81	37 23.77	77 46.86	337.1	979926.22	0.03	-0.15	18.65	7.04
603- 80	37 23.80	77 46.91	347.6	979925.54	0.04	-0.15	18.92	6.95
603- 79	37 23.85	77 46.96	346.3	979926.04	0.04	-0.15	19.22	7.30
603- 78	37 23.90	77 47.00	346.9	979926.22	0.04	-0.15	19.39	7.44
603- 77	37 23.95	77 47.03	347.5	979926.22	0.04	-0.15	19.37	7.41
603- 76	37 24.02	77 47.09	342.5	979926.54	0.03	-0.15	19.12	7.32
603- 75	37 24.07	77 47.13	340.6	979927.04	0.03	-0.15	19.36	7.63
603- 74	37 24.10	77 47.16	340.9	979927.40	0.03	-0.15	19.71	7.97
603- 73	37 24.15	77 47.23	336.2	979926.72	0.02	-0.15	18.51	6.92
603- 72	37 24.20	77 47.28	331.5	979928.47	0.02	-0.14	19.75	8.32
603- 71	37 24.23	77 47.33	335.9	979928.35	0.02	-0.15	20.00	8.42
603- 70	37 24.25	77 47.38	328.5	979928.79	0.01	-0.14	19.72	8.38
603- 69	37 24.30	77 47.43	325.6	979929.29	0.01	-0.14	19.87	8.64
603- 68	37 24.32	77 47.49	324.2	979929.60	0.01	-0.14	20.02	8.83
603- 67	37 24.30	77 47.56	323.4	979929.60	0.01	-0.14	19.98	8.82
603- 66	37 24.32	77 47.63	318.5	979930.22	0.01	-0.14	20.10	9.11
605- 65	37 24.38	77 47.57	322.3	979929.97	0.01	-0.14	20.13	9.01
605- 64	37 24.43	77 47.54	326.5	979929.65	0.01	-0.14	20.12	8.85
605- 63	37 24.47	77 47.53	316.9	979930.29	0.00	-0.14	19.80	8.86
605- 62	37 24.52	77 47.53	311.9	979930.85	0.00	-0.14	19.82	9.05
605- 61	37 24.57	77 47.51	308.0	979931.10	0.00	-0.13	19.63	8.99
605- 60	37 24.63	77 47.51	291.2	979931.85	-0.01	-0.13	18.72	8.65
605- 59	37 24.68	77 47.48	273.0	979933.47	-0.02	-0.12	18.55	9.10
605- 58	37 24.73	77 47.45	275.7	979933.35	-0.02	-0.12	18.61	9.06
605- 57	37 24.77	77 47.41	295.1	979932.04	-0.01	-0.13	19.06	8.86
605- 56	37 24.82	77 47.39	292.5	979932.04	-0.01	-0.13	18.75	8.64
605- 55	37 24.88	77 47.34	302.9	979931.54	-0.01	-0.13	19.14	8.67
605- 54	37 24.93	77 47.33	301.8	979931.54	-0.01	-0.13	18.97	8.53
605- 53	37 24.98	77 47.31	294.4	979932.15	-0.01	-0.13	18.81	8.63
605- 52	37 25.03	77 47.31	289.7	979932.54	-0.01	-0.13	18.68	8.67
605- 51	37 25.10	77 47.39	286.8	979933.04	-0.02	-0.13	18.81	8.88
605- 50	37 25.13	77 47.41	292.4	979932.90	-0.01	-0.13	19.15	9.04
605- 49	37 25.20	77 47.45	285.9	979933.35	-0.02	-0.12	18.89	8.99
605- 48	37 25.27	77 47.43	264.8	979934.90	-0.02	-0.12	18.35	9.18
605- 47	37 25.32	77 47.43	245.2	979936.47	-0.02	-0.11	18.01	9.52
605- 46	37 25.37	77 47.43	233.0	979937.35	-0.02	-0.10	17.66	9.59
605- 45	37 25.42	77 47.41	234.4	979937.22	-0.02	-0.10	17.59	9.47
605- 44	37 25.48	77 47.39	253.2	979936.22	-0.02	-0.11	18.27	9.51
605- 43	37 25.53	77 47.38	264.7	979935.85	-0.02	-0.12	18.92	9.75
605- 42	37 25.58	77 47.28	281.1	979934.47	-0.02	-0.12	19.00	9.27
605- 41	37 25.62	77 47.23	289.1	979933.85	-0.01	-0.13	19.08	9.08
605- 40	37 25.67	77 47.16	289.1	979933.97	-0.01	-0.13	19.12	9.12
605- 39	37 25.70	77 47.11	285.3	979934.10	-0.02	-0.12	18.85	8.98
605- 38	37 25.73	77 47.08	290.9	979933.54	-0.01	-0.13	18.77	8.72
605- 37	37 25.83	77 47.04	304.8	979932.79	-0.01	-0.13	19.19	8.66
605- 36	37 25.88	77 47.08	293.0	979933.72	-0.01	-0.13	18.93	8.80
605- 35	37 25.93	77 47.08	285.8	979934.29	-0.02	-0.12	18.75	8.86
605- 34	37 25.98	77 47.06	293.3	979933.90	-0.01	-0.13	19.00	8.86
605- 33	37 26.03	77 47.04	301.4	979933.47	-0.01	-0.13	19.25	8.83
605- 32	37 26.08	77 47.03	313.8	979932.97	0.00	-0.14	19.85	9.01
605- 31	37 26.13	77 47.01	312.8	979932.97	0.00	-0.14	19.69	8.88

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
605- 30	37 26.17	77 47.00	308.8	979933.22	0.00	-0.13	19.50	8.83
605- 29	37 26.20	77 46.98	307.7	979933.47	0.00	-0.13	19.61	8.98
605- 28	37 26.27	77 46.94	313.1	979932.97	0.00	-0.14	19.51	8.69
605- 27	37 26.32	77 46.93	322.9	979932.35	0.01	-0.14	19.73	8.59
605- 26	37 26.37	77 46.89	320.3	979932.72	0.00	-0.14	19.79	8.72
605- 25	37 26.43	77 46.86	311.7	979933.40	0.00	-0.14	19.57	8.80
605- 24	37 26.47	77 46.83	315.4	979933.22	0.00	-0.14	19.69	8.79
605- 23	37 26.52	77 46.80	305.2	979933.90	-0.01	-0.13	19.33	8.78
605- 22	37 26.57	77 46.76	301.5	979934.15	-0.01	-0.13	19.16	8.74
605- 21	37 26.60	77 46.71	287.7	979935.04	-0.01	-0.13	18.71	8.76
605- 20	37 26.63	77 46.70	292.7	979934.72	-0.01	-0.13	18.82	8.70
605- 19	37 26.68	77 46.70	285.4	979935.35	-0.02	-0.12	18.68	8.80
605- 18	37 26.75	77 46.70	278.8	979935.85	-0.02	-0.12	18.46	8.81
605- 17	37 26.80	77 46.73	299.1	979934.85	-0.01	-0.13	19.30	8.96
605- 16	37 26.87	77 46.70	318.0	979933.65	0.00	-0.14	19.77	8.79
605- 15	37 26.92	77 46.66	318.3	979933.65	0.00	-0.14	19.73	8.74
605- 14	37 26.95	77 46.63	319.3	979933.72	0.00	-0.14	19.85	8.82
605- 13	37 27.00	77 46.57	315.3	979934.10	0.00	-0.14	19.79	8.89
605- 12	37 27.03	77 46.54	315.0	979933.54	0.00	-0.14	19.15	8.27
605- 11	37 27.10	77 46.53	326.4	979932.97	0.01	-0.14	19.55	8.29
605- 10	37 27.12	77 46.49	326.4	979933.15	0.01	-0.14	19.70	8.44
605- 9	37 27.15	77 46.46	330.1	979933.65	0.01	-0.14	20.51	9.12
605- 8	37 27.22	77 46.45	318.5	979934.22	0.00	-0.14	19.89	8.89
605- 7	37 27.27	77 46.46	317.2	979934.35	0.00	-0.14	19.82	8.86
605- 6	37 27.32	77 46.46	315.6	979934.85	0.00	-0.14	20.09	9.19
605- 5	37 27.37	77 46.49	314.7	979934.97	0.00	-0.14	20.06	9.19
605- 4	37 27.42	77 46.53	314.8	979935.10	0.00	-0.14	20.13	9.26
605- 3	37 27.48	77 46.56	317.5	979935.29	0.00	-0.14	20.48	9.51
605- 2	37 27.53	77 46.57	319.5	979935.47	0.00	-0.14	20.77	9.74
605- 1	37 27.58	77 46.57	325.0	979935.60	0.01	-0.14	21.35	10.13
606- 1	37 27.22	77 44.64	281.9	979932.54	-0.01	-0.12	14.77	5.02
606- 2	37 27.27	77 44.64	272.8	979933.35	-0.01	-0.12	14.65	5.21
606- 3	37 27.32	77 44.63	267.3	979933.79	-0.01	-0.12	14.49	5.24
606- 4	37 27.37	77 44.63	253.4	979934.90	-0.02	-0.11	14.23	5.45
606- 5	37 27.43	77 44.63	250.7	979935.10	-0.02	-0.11	14.09	5.41
606- 6	37 27.48	77 44.63	256.2	979934.79	-0.02	-0.11	14.21	5.34
606- 7	37 27.53	77 44.63	273.1	979934.10	-0.01	-0.12	15.04	5.60
606- 8	37 27.57	77 44.63	287.5	979933.22	0.00	-0.13	15.46	5.53
606- 9	37 27.63	77 44.61	293.8	979933.10	0.01	-0.13	15.85	5.71
606- 10	37 27.70	77 44.59	301.7	979932.65	0.01	-0.13	16.04	5.63
606- 11	37 27.77	77 44.57	289.6	979933.65	0.00	-0.13	15.79	5.79
606- 12	37 27.82	77 44.57	299.2	979934.54	0.01	-0.13	17.51	7.19
606- 13	37 27.87	77 44.57	257.0	979936.10	-0.02	-0.11	15.03	6.14
606- 14	37 27.93	77 44.57	235.7	979937.85	-0.03	-0.10	14.69	6.52
606- 15	37 27.98	77 44.57	218.9	979939.04	-0.03	-0.10	14.23	6.64
606- 16	37 28.03	77 44.57	217.4	979939.40	-0.03	-0.10	14.38	6.84
606- 17	37 28.08	77 44.57	226.0	979939.04	-0.03	-0.10	14.75	6.92
606- 18	37 28.15	77 44.59	245.2	979937.85	-0.03	-0.11	15.27	6.77
606- 19	37 28.22	77 44.59	261.8	979937.10	-0.02	-0.11	15.98	6.92
606- 20	37 28.25	77 44.57	269.3	979936.65	-0.02	-0.12	16.18	6.86
606- 21	37 28.32	77 44.57	259.8	979937.60	-0.02	-0.11	16.14	7.15
606- 22	37 28.37	77 44.57	258.1	979937.72	-0.02	-0.11	16.03	7.10
606- 23	37 28.42	77 44.56	258.5	979938.04	-0.02	-0.11	16.31	7.36
606- 24	37 28.45	77 44.53	252.6	979938.54	-0.02	-0.11	16.22	7.47
606- 25	37 28.50	77 44.49	235.9	979939.85	-0.03	-0.10	15.89	7.71
606- 26	37 28.55	77 44.45	218.1	979940.90	-0.03	-0.10	15.19	7.62
606- 27	37 28.60	77 44.41	207.3	979941.72	-0.03	-0.09	14.92	7.73
606- 28	37 28.63	77 44.39	207.3	979941.79	-0.03	-0.09	14.94	7.75
606- 29	37 28.70	77 44.38	215.0	979941.47	-0.03	-0.09	15.24	7.79
606- 30	37 28.73	77 44.38	214.1	979941.47	-0.03	-0.09	15.12	7.70

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---		
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER	
606-	31	37 28.78	77 44.38	217.2	979941.54	-0.03	-0.10	15.40	7.87
606-	32	37 28.83	77 44.38	231.7	979940.90	-0.03	-0.10	16.06	8.03
606-	33	37 28.88	77 44.39	236.7	979940.65	-0.02	-0.10	16.21	8.01
606-	34	37 28.93	77 44.39	239.7	979940.79	-0.02	-0.11	16.55	8.25
606-	35	37 28.98	77 44.41	256.2	979939.90	-0.02	-0.11	17.14	8.27
606-	36	37 29.05	77 44.41	279.4	979938.47	-0.01	-0.12	17.79	8.13
606-	37	37 29.10	77 44.41	274.8	979939.04	-0.01	-0.12	17.86	8.36
606-	38	37 29.15	77 44.43	284.0	979938.65	-0.01	-0.12	18.26	8.44
606-	39	37 29.22	77 44.43	299.2	979937.65	0.00	-0.13	18.58	8.25
606-	40	37 29.25	77 44.45	284.3	979938.79	-0.01	-0.12	18.29	8.46
606-	41	37 29.30	77 44.45	273.7	979939.72	-0.01	-0.12	18.14	8.68
606-	42	37 29.35	77 44.46	263.1	979940.54	-0.02	-0.12	17.90	8.79
606-	43	37 29.40	77 44.48	264.9	979940.65	-0.02	-0.12	18.10	8.93
606-	44	37 29.45	77 44.48	283.6	979939.54	-0.01	-0.12	18.68	8.87
606-	45	37 29.50	77 44.45	273.8	979940.40	-0.02	-0.12	18.54	9.06
606-	46	37 29.55	77 44.41	271.8	979940.47	-0.02	-0.12	18.35	8.94
606-	47	37 29.58	77 44.38	274.7	979940.35	-0.02	-0.12	18.45	8.95
606-	48	37 29.62	77 44.33	270.5	979940.60	-0.02	-0.12	18.26	8.89
606-	49	37 29.67	77 44.29	263.6	979941.04	-0.02	-0.12	17.98	8.85
606-	50	37 29.72	77 44.25	284.2	979939.72	-0.01	-0.12	18.52	8.69
606-	51	37 29.75	77 44.18	289.7	979939.35	-0.01	-0.13	18.62	8.61
606-	52	37 29.80	77 44.09	300.3	979938.72	0.00	-0.13	18.91	8.54
606-	53	37 29.83	77 44.08	301.6	979938.60	0.00	-0.13	18.88	8.46
606-	54	37 29.88	77 44.08	305.8	979938.60	0.00	-0.13	19.20	8.63
606-	55	37 29.93	77 44.08	302.0	979939.04	0.00	-0.13	19.21	8.77
606-	56	37 29.98	77 44.08	301.2	979939.10	0.00	-0.13	19.12	8.72
606-	57	37 30.05	77 44.09	292.0	979940.35	-0.01	-0.13	19.40	9.31
606-	58	37 30.08	77 44.09	288.0	979940.35	-0.01	-0.13	18.98	9.02
606-	59	37 30.13	77 44.09	287.5	979940.47	-0.01	-0.13	18.99	9.05
606-	60	37 30.22	77 44.11	282.7	979940.97	-0.01	-0.12	18.90	9.13
606-	61	37 30.27	77 44.08	284.1	979941.04	-0.01	-0.12	19.03	9.21
606-	62	37 30.30	77 44.03	288.3	979940.79	-0.01	-0.13	19.13	9.16
606-	63	37 30.35	77 43.96	315.6	979938.90	0.01	-0.14	19.74	8.85
607-	1	37 30.52	77 42.66	401.4	979930.47	0.13	-0.17	19.13	5.39
607-	2	37 30.57	77 42.66	398.0	979930.22	0.13	-0.17	18.49	4.87
607-	3	37 30.60	77 42.64	399.4	979930.40	0.13	-0.17	18.75	5.09
607-	4	37 30.65	77 42.61	401.7	979930.22	0.14	-0.17	18.72	4.98
607-	5	37 30.70	77 42.57	403.2	979930.35	0.14	-0.17	18.92	5.13
607-	6	37 30.75	77 42.54	403.3	979930.35	0.14	-0.17	18.85	5.06
607-	7	37 30.82	77 42.53	400.8	979930.65	0.14	-0.17	18.81	5.11
607-	8	37 30.87	77 42.49	396.3	979930.97	0.13	-0.17	18.64	5.08
607-	9	37 30.92	77 42.48	385.4	979931.79	0.12	-0.17	18.36	5.17
607-	10	37 30.98	77 42.48	390.1	979931.60	0.13	-0.17	18.53	5.18
607-	11	37 31.03	77 42.49	399.0	979931.22	0.15	-0.17	18.91	5.28
607-	12	37 31.10	77 42.51	401.1	979931.47	0.16	-0.17	19.26	5.56
607-	13	37 31.15	77 42.53	398.4	979931.72	0.15	-0.17	19.19	5.57
607-	14	37 31.20	77 42.54	386.4	979932.65	0.13	-0.17	18.92	5.70
607-	15	37 31.27	77 42.53	374.9	979933.15	0.11	-0.16	18.22	5.38
607-	16	37 31.32	77 42.51	350.0	979935.10	0.07	-0.15	17.76	5.74
607-	17	37 31.37	77 42.48	314.4	979937.60	0.03	-0.14	16.84	6.01
607-	18	37 31.42	77 42.46	291.5	979939.22	0.01	-0.13	16.24	6.18
607-	19	37 31.48	77 42.41	286.9	979939.54	0.00	-0.13	16.03	6.12
607-	20	37 31.53	77 42.39	282.2	979939.90	0.00	-0.12	15.87	6.13
607-	21	37 31.58	77 42.39	273.0	979940.79	-0.01	-0.12	15.84	6.39
607-	22	37 31.63	77 42.38	265.4	979941.35	-0.01	-0.12	15.60	6.42
607-	23	37 31.70	77 42.38	256.9	979942.15	-0.01	-0.11	15.50	6.61
607-	24	37 31.75	77 42.36	244.5	979943.04	-0.02	-0.11	15.15	6.69
607-	25	37 31.80	77 42.36	235.1	979943.60	-0.02	-0.10	14.76	6.62
607-	26	37 31.83	77 42.34	230.6	979944.15	-0.03	-0.10	14.84	6.84
607-	27	37 31.92	77 42.33	228.2	979944.29	-0.03	-0.10	14.62	6.71

Richmond Basin gravity profiles

STATION ID	-----LOCATIONS-----			OBSERVED GRAVITY (mgals)	-CORRECTIONS-		---ANOMALIES---	
	LATITUDE deg min	LONGITUDE deg min	ELEV (in ft)		TERRAIN (dens=2.67)	CURV	FREE AIR	COMPLETE BOUGUER
607- 28	37 31.97	77 42.31	223.5	979944.60	-0.03	-0.10	14.42	6.67
607- 29	37 32.02	77 42.25	220.1	979944.65	-0.03	-0.10	14.08	6.44
607- 30	37 32.08	77 42.18	229.8	979944.35	-0.03	-0.10	14.60	6.63
607- 31	37 32.13	77 42.13	227.8	979944.40	-0.03	-0.10	14.38	6.48
607- 32	37 32.20	77 42.11	224.6	979944.79	-0.03	-0.10	14.38	6.59
607- 33	37 32.25	77 42.09	218.3	979945.60	-0.03	-0.10	14.52	6.95
607- 34	37 32.32	77 42.08	216.3	979945.79	-0.04	-0.09	14.42	6.91
607- 35	37 32.37	77 42.08	219.9	979945.79	-0.03	-0.10	14.68	7.05
607- 36	37 32.43	77 42.08	221.0	979945.65	-0.03	-0.10	14.56	6.89
607- 37	37 32.48	77 42.06	229.5	979945.22	-0.03	-0.10	14.86	6.90
607- 38	37 32.53	77 42.04	230.3	979945.35	-0.03	-0.10	15.00	7.01
607- 39	37 32.60	77 42.01	236.5	979944.85	-0.03	-0.10	14.98	6.78
607- 40	37 32.65	77 42.01	226.0	979945.79	-0.03	-0.10	14.85	7.01
607- 41	37 32.70	77 42.03	226.4	979945.29	-0.03	-0.10	14.32	6.47
607- 42	37 32.75	77 42.03	226.7	979945.72	-0.03	-0.10	14.71	6.84
607- 43	37 32.80	77 42.04	220.4	979946.40	-0.04	-0.10	14.71	7.06
607- 44	37 32.88	77 42.04	208.6	979947.40	-0.04	-0.09	14.48	7.24
607- 45	37 32.95	77 42.06	201.1	979948.10	-0.04	-0.09	14.38	7.39
607- 46	37 33.00	77 42.06	197.7	979948.22	-0.04	-0.09	14.11	7.24
607- 47	37 33.07	77 42.06	184.0	979949.54	-0.05	-0.08	14.04	7.63
607- 48	37 33.12	77 42.08	170.7	979950.35	-0.05	-0.08	13.52	7.58
607- 49	37 33.20	77 42.08	149.7	979952.04	-0.04	-0.07	13.13	7.92
607- 50	37 33.27	77 42.09	153.3	979952.04	-0.05	-0.07	13.36	8.01
607- 51	37 33.30	77 42.13	154.3	979952.35	-0.05	-0.07	13.72	8.34
607- 52	37 33.35	77 42.18	164.2	979951.85	-0.05	-0.07	14.08	8.36
607- 53	37 33.42	77 42.16	173.7	979951.54	-0.05	-0.08	14.56	8.51
607- 54	37 33.47	77 42.14	185.4	979950.90	-0.05	-0.08	14.95	8.49
607- 55	37 33.53	77 42.11	196.0	979950.15	-0.05	-0.09	15.11	8.29
607- 56	37 33.55	77 42.04	219.3	979949.35	-0.04	-0.10	16.47	8.86
607- 57	37 33.63	77 42.03	215.8	979949.29	-0.04	-0.09	15.97	8.48
607- 58	37 33.70	77 42.01	222.8	979948.90	-0.04	-0.10	16.13	8.39
607- 59	37 33.73	77 42.06	221.0	979949.29	-0.04	-0.10	16.31	8.63
652- 1	37 34.27	77 42.94	213.5	979954.29	-0.04	-0.09	19.81	12.40
652- 2	37 34.30	77 42.93	205.1	979954.97	-0.05	-0.09	19.66	12.53
652- 3	37 34.43	77 42.91	198.4	979955.47	-0.05	-0.09	19.35	12.44
652- 4	37 34.50	77 42.89	194.6	979955.85	-0.05	-0.09	19.26	12.49
652- 5	37 34.55	77 42.89	189.9	979956.47	-0.05	-0.08	19.37	12.76
652- 6	37 34.62	77 42.88	186.7	979956.60	-0.05	-0.08	19.10	12.60
652- 7	37 34.67	77 42.88	181.5	979957.04	-0.05	-0.08	18.98	12.66
652- 8	37 34.73	77 42.86	174.8	979957.79	-0.05	-0.08	19.01	12.92
652- 9	37 34.78	77 42.86	169.6	979958.40	-0.05	-0.07	19.05	13.14
652- 10	37 34.83	77 42.84	163.5	979959.04	-0.05	-0.07	19.05	13.35
652- 11	37 34.88	77 42.83	141.1	979958.47	-0.05	-0.06	16.30	11.37
652- 12	37 34.93	77 42.80	130.4	979961.54	-0.04	-0.06	18.29	13.74
652- 13	37 34.98	77 42.80	132.5	979961.35	-0.04	-0.06	18.23	13.61
652- 14	37 35.03	77 42.80	133.0	979961.60	-0.04	-0.06	18.45	13.82
652- 15	37 35.10	77 42.80	133.0	979961.65	-0.04	-0.06	18.40	13.76
652- 16	37 35.15	77 42.80	133.4	979961.90	-0.04	-0.06	18.61	13.96
652- 17	37 35.22	77 42.78	134.3	979962.10	-0.04	-0.06	18.79	14.11
652- 18	37 35.27	77 42.78	134.0	979961.90	-0.04	-0.06	18.50	13.83