

## OPUS-RS solution : 018697\_14\_227\_A0.14O OP1408376550516

opus &lt;opus@ngs.noaa.gov&gt;

Mon 8/18/2014 9:45 AM

To:John Freetly &lt;John.Freetly@neciusa.com&gt;;

FILE: 018697\_14\_227\_A0.14O OP1408376550516

## NGS OPUS-RS SOLUTION REPORT

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All computed coordinate accuracies are listed as 1-sigma RMS values.

For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: john.freetly@neciusa.com                      DATE: August 18, 2014  
 RINEX FILE: 0186227r.14o                              TIME: 15:45:12 UTC

SOFTWARE: rsgps 1.37 RS52.prl 1.99.2              START: 2014/08/15 17:05:00  
 EPHEMERIS: igr18055.eph [rapid]                      STOP: 2014/08/15 18:08:15  
 NAV FILE: brdc2270.14n                              OBS USED: 4020 / 4980 : 81%  
 ANT NAME: CHCX90D-OPUS    NONE                      QUALITY IND. 15.45/ 55.40  
 ARP HEIGHT: 1.80000                                  NORMALIZED RMS:    0.330

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)              IGS08 (EPOCH:2014.62119)

X: -1393772.176(m) 0.004(m)              -1393773.051(m) 0.004(m)  
 Y: -4033919.279(m) 0.017(m)              -4033918.056(m) 0.017(m)  
 Z: 4725266.574(m) 0.017(m)              4725266.565(m) 0.017(m)

LAT: 48 6 9.42793 0.008(m)              48 6 9.44871 0.008(m)  
 E LON: 250 56 21.46381 0.004(m)              250 56 21.40453 0.004(m)  
 W LON: 109 3 38.53619 0.004(m)              109 3 38.59547 0.004(m)  
 EL HGT: 1024.854(m) 0.023(m)              1024.266(m) 0.023(m)  
 ORTHO HGT: 1039.980(m) 0.025(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 12)              SPC (2500 MT )

Northing (Y) [meters]    5329524.967              428192.899  
 Easting (X) [meters]    644372.653              632703.413  
 Convergence [degrees]    1.44374730              0.32134651  
 Point Scale              0.99985611              0.99957420  
 Combined Factor              0.99969553              0.99941367

US NATIONAL GRID DESIGNATOR: 12UXU4437229524(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	67317.2
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	120080.9
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	120747.8
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	161792.2
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	173236.1

NEAREST NGS PUBLISHED CONTROL POINT

Information on nearest mark is not available due to database connectivity issues or has restrictions on when or how it can be published.

OPUS-RS Extended Output, Level 2

FINAL COORDINATES (ITRF at epoch of observations)

mtms	-1425435.575	-3984013.192	4757493.872
mtlw	-1449333.483	-4105829.829	4646773.508
p053	-1283559.254	-4015770.317	4771131.591
p049	-1545099.842	-4044895.880	4669084.586
p052	-1266648.340	-4138194.584	4670709.505
0186	-1393773.051	-4033918.056	4725266.565

Covariance matrix of the stations:

1	2.5980E-07	6.4160E-07	-6.9450E-07	-1.7560E-08	-1.7670E-07	1.9060E-07	-8.4600E-09	-1.3370E-07	1.4360E-07
	-2.5000E-08	-2.0180E-07	2.1610E-07	-8.7150E-09	-1.2950E-07	1.4450E-07	3.4930E-08	-1.3550E-08	1.8120E-08
2	6.4160E-07	2.5440E-06	-2.5100E-06	-2.4000E-07	-7.3910E-07	7.4990E-07	-4.1440E-08	-3.6600E-07	4.7100E-07
	-3.0670E-07	-6.1130E-07	7.1750E-07	-5.3030E-08	-6.2640E-07	5.7150E-07	6.0710E-08	3.2940E-07	-2.4620E-07
3	-6.9450E-07	-2.5100E-06	2.7920E-06	2.0310E-07	6.8890E-07	-6.9950E-07	1.2800E-07	5.3750E-07	-5.7800E-07
	2.3170E-07	6.5820E-07	-7.0360E-07	1.3150E-07	6.2520E-07	-6.1180E-07	-8.1760E-09	-7.8460E-08	9.0670E-08
4	-1.7560E-08	-2.4000E-07	2.0310E-07	3.1170E-07	8.2110E-07	-8.0510E-07	-5.4930E-08	-2.2060E-07	2.0500E-07
	1.5950E-08	-2.1610E-07	2.0660E-07	-5.4980E-08	-1.4490E-07	1.9080E-07	9.5120E-10	-1.5090E-07	1.3620E-07
5	-1.7670E-07	-7.3910E-07	6.8890E-07	8.2110E-07	3.0420E-06	-2.9070E-06	-2.6550E-07	-7.6660E-07	7.6180E-07
	-1.0060E-07	-6.6020E-07	6.6530E-07	-2.7690E-07	-6.7680E-07	7.9140E-07	-9.7570E-08	-3.1450E-07	3.1620E-07
6	1.9060E-07	7.4990E-07	-6.9950E-07	-8.0510E-07	-2.9070E-06	3.0260E-06	2.2650E-07	7.4740E-07	-7.1580E-07
	1.5860E-07	7.2010E-07	-6.9610E-07	2.2830E-07	6.8980E-07	-7.1400E-07	6.7340E-08	2.3500E-07	-1.6450E-07
7	-8.4600E-09	-4.1440E-08	1.2800E-07	-5.4930E-08	-2.6550E-07	2.2650E-07	2.8570E-07	6.5070E-07	-6.4680E-07
	-1.1830E-07	-2.1060E-07	2.4620E-07	9.5570E-08	-1.3220E-07	4.5430E-08	1.0360E-07	2.3310E-07	-2.1510E-07
8	-1.3370E-07	-3.6600E-07	5.3750E-07	-2.2060E-07	-7.6660E-07	7.4740E-07	6.5070E-07	2.5760E-06	-2.5260E-06
	-3.0440E-07	-6.2870E-07	7.2380E-07	5.7130E-09	-6.1360E-07	5.1730E-07	1.0160E-07	3.6330E-07	-2.9160E-07
9	1.4360E-07	4.7100E-07	-5.7800E-07	2.0500E-07	7.6180E-07	-7.1580E-07	-6.4680E-07	-2.5260E-06	2.7260E-06
	2.7930E-07	6.7840E-07	-7.2440E-07	2.1020E-08	6.1520E-07	-5.0810E-07	-8.2090E-08	-2.3970E-07	2.5310E-07
10	-2.5000E-08	-3.0670E-07	2.3170E-07	1.5950E-08	-1.0060E-07	1.5860E-07	-1.1830E-07	-3.0440E-07	2.7930E-07
	4.4710E-07	8.5370E-07	-9.2050E-07	-1.1920E-07	-1.4310E-07	2.5180E-07	-4.4020E-08	-2.9300E-07	2.7620E-07
11	-2.0180E-07	-6.1130E-07	6.5820E-07	-2.1610E-07	-6.6020E-07	7.2010E-07	-2.1060E-07	-6.2870E-07	6.7840E-07

8.5370E-07 2.7780E-06 -2.7940E-06 -2.2230E-07 -6.7860E-07 7.3790E-07 -6.8960E-08 -8.2310E-08 1.2670E-07  
 12 2.1610E-07 7.1750E-07 -7.0360E-07 2.0660E-07 6.6530E-07 -6.9610E-07 2.4620E-07 7.2380E-07 -7.2440E-07  
 -9.2050E-07 -2.7940E-06 3.0560E-06 2.4910E-07 6.8740E-07 -7.3170E-07 8.8690E-08 1.9630E-07 -1.5610E-07  
 13 -8.7150E-09 -5.3030E-08 1.3150E-07 -5.4980E-08 -2.7690E-07 2.2830E-07 9.5570E-08 5.7130E-09 2.1020E-08  
 -1.1920E-07 -2.2230E-07 2.4910E-07 2.8690E-07 5.4740E-07 -6.3070E-07 1.0450E-07 2.2440E-07 -2.1540E-07  
 14 -1.2950E-07 -6.2640E-07 6.2520E-07 -1.4490E-07 -6.7680E-07 6.8980E-07 -1.3220E-07 -6.1360E-07 6.1520E-07  
 -1.4310E-07 -6.7860E-07 6.8740E-07 5.4740E-07 2.7940E-06 -2.6180E-06 4.5060E-09 -9.4440E-08 9.3860E-08  
 15 1.4450E-07 5.7150E-07 -6.1180E-07 1.9080E-07 7.9140E-07 -7.1400E-07 4.5430E-08 5.1730E-07 -5.0810E-07  
 2.5180E-07 7.3790E-07 -7.3170E-07 -6.3070E-07 -2.6180E-06 2.7660E-06 -6.5840E-08 -1.1340E-07 1.7690E-07  
 16 3.4930E-08 6.0710E-08 -8.1760E-09 9.5120E-10 -9.7570E-08 6.7340E-08 1.0360E-07 1.0160E-07 -8.2090E-08  
 -4.4020E-08 -6.8960E-08 8.8690E-08 1.0450E-07 4.5060E-09 -6.5840E-08 2.8570E-06 8.9210E-06 -9.3080E-06  
 17 -1.3550E-08 3.2940E-07 -7.8460E-08 -1.5090E-07 -3.1450E-07 2.3500E-07 2.3310E-07 3.6330E-07 -2.3970E-07  
 -2.9300E-07 -8.2310E-08 1.9630E-07 2.2440E-07 -9.4440E-08 -1.1340E-07 8.9210E-06 3.4650E-05 -3.5100E-05  
 18 1.8120E-08 -2.4620E-07 9.0670E-08 1.3620E-07 3.1620E-07 -1.6450E-07 -2.1510E-07 -2.9160E-07 2.5310E-07  
 2.7620E-07 1.2670E-07 -1.5610E-07 -2.1540E-07 9.3860E-08 1.7690E-07 -9.3080E-06 -3.5100E-05 3.7540E-05

Covariance Matrix for the xyz OPUS Rover Position (meters^2).

```
0.0000028570  0.0000089210  -0.0000093080
0.0000089210  0.0000346500  -0.0000351000
-0.0000093080 -0.0000351000  0.0000375400
```

Covariance Matrix for the enu OPUS Position (meters^2).

```
0.0000007405  -0.0000002881  0.0000038512
-0.0000002881  0.0000010856  -0.0000032892
0.0000038512  -0.0000032892  0.0000732210
```

Horizontal network accuracy = 0.00238 meters.

Vertical network accuracy = 0.01678 meters.

		Vectors		
To	From	X	Y	Z
mtms	0186	-31662.525	49904.864	32227.307
mtlw	0186	-55560.433	-71911.773	-78493.056
p053	0186	110213.797	18147.739	45865.026
p049	0186	-151326.792	-10977.824	-56181.979
p052	0186	127124.710	-104276.528	-54557.060

Covariance matrix of the 5 vectors

```
1 3.0469E-06 9.5154E-06 -1.0012E-05 2.8036E-06 8.8554E-06 -9.2029E-06 2.7100E-06 8.6992E-06 -9.1004E-06
2.8411E-06 8.8017E-06 -9.1987E-06 2.7089E-06 8.8005E-06 -9.1158E-06
2 9.5154E-06 3.6535E-05 -3.7285E-05 8.7712E-06 3.3896E-05 -3.4339E-05 8.5857E-06 3.3591E-05 -3.4143E-05
8.8466E-06 3.3792E-05 -3.4333E-05 8.5829E-06 3.3789E-05 -3.4169E-05
3 -1.0012E-05 -3.7285E-05 4.0151E-05 -9.2329E-06 -3.4649E-05 3.6914E-05 -8.9567E-06 -3.4192E-05 3.6618E-05
-9.3443E-06 -3.4490E-05 3.6902E-05 -8.9529E-06 -3.4490E-05 3.6661E-05
4 2.8036E-06 8.7712E-06 -9.2329E-06 3.1668E-06 9.9906E-06 -1.0317E-05 2.6975E-06 8.7497E-06 -9.1571E-06
2.9160E-06 8.9248E-06 -9.3263E-06 2.6966E-06 8.9225E-06 -9.1876E-06
5 8.8554E-06 3.3896E-05 -3.4649E-05 9.9906E-06 3.8321E-05 -3.8558E-05 8.5200E-06 3.3835E-05 -3.4415E-05
9.2110E-06 3.4387E-05 -3.4947E-05 8.5173E-06 3.4382E-05 -3.4511E-05
6 -9.2029E-06 -3.4339E-05 3.6914E-05 -1.0317E-05 -3.8558E-05 4.0895E-05 -8.9337E-06 -3.4296E-05 3.6736E-05
-9.4929E-06 -3.4742E-05 3.7165E-05 -8.9316E-06 -3.4739E-05 3.6814E-05
```

7 2.7100E-06 8.5857E-06 -8.9567E-06 2.6975E-06 8.5200E-06 -8.9337E-06 2.9355E-06 9.2370E-06 -9.6576E-06  
 06 2.6791E-06 8.5463E-06 -8.9354E-06 2.7445E-06 8.5512E-06 -8.9816E-06  
 8 8.6992E-06 3.3591E-05 -3.4192E-05 8.7497E-06 3.3835E-05 -3.4296E-05 9.2370E-06 3.6499E-05 -3.7095E-05  
 05 8.8080E-06 3.3740E-05 -3.4281E-05 8.6007E-06 3.3768E-05 -3.4178E-05  
 9 -9.1004E-06 -3.4143E-05 3.6618E-05 -9.1571E-06 -3.4415E-05 3.6736E-05 -9.6576E-06 -3.7095E-05 3.9760E-05  
 -9.2228E-06 -3.4309E-05 3.6719E-05 -8.9895E-06 -3.4339E-05 3.6602E-05  
 10 2.8411E-06 8.8466E-06 -9.3443E-06 2.9160E-06 9.2110E-06 -9.4929E-06 2.6791E-06 8.8080E-06 -9.2228E-06  
 3.3921E-06 1.0137E-05 -1.0593E-05 2.6773E-06 9.0664E-06 -9.2666E-06  
 11 8.8017E-06 3.3792E-05 -3.4490E-05 8.9248E-06 3.4387E-05 -3.4742E-05 8.5463E-06 3.3740E-05 -3.4309E-05  
 05 1.0137E-05 3.7593E-05 -3.8217E-05 8.5433E-06 3.4148E-05 -3.4375E-05  
 12 -9.1987E-06 -3.4333E-05 3.6902E-05 -9.3263E-06 -3.4947E-05 3.7165E-05 -8.9354E-06 -3.4281E-05 3.6719E-05  
 -1.0593E-05 -3.8217E-05 4.0908E-05 -8.9322E-06 -3.4703E-05 3.6787E-05  
 13 2.7089E-06 8.5829E-06 -8.9529E-06 2.6966E-06 8.5173E-06 -8.9316E-06 2.7445E-06 8.6007E-06 -8.9895E-06  
 06 2.6773E-06 8.5433E-06 -8.9322E-06 2.9349E-06 9.2395E-06 -9.6575E-06  
 14 8.8005E-06 3.3789E-05 -3.4490E-05 8.9225E-06 3.4382E-05 -3.4739E-05 8.5512E-06 3.3768E-05 -3.4339E-05  
 05 9.0664E-06 3.4148E-05 -3.4703E-05 9.2395E-06 3.7633E-05 -3.7698E-05  
 15 -9.1158E-06 -3.4169E-05 3.6661E-05 -9.1876E-06 -3.4511E-05 3.6814E-05 -8.9816E-06 -3.4178E-05 3.6602E-05  
 -9.2666E-06 -3.4375E-05 3.6788E-05 -9.6575E-06 -3.7698E-05 3.9952E-05

Correlation matrix of the 5 vectors

1 1.0000E+00 9.0186E-01 -9.0524E-01 9.0254E-01 8.1952E-01 -8.2443E-01 9.0615E-01 8.2491E-01 -8.2681E-01  
 8.8372E-01 8.2240E-01 -8.2393E-01 9.0585E-01 8.2185E-01 -8.2621E-01  
 2 9.0186E-01 1.0000E+00 -9.7350E-01 8.1544E-01 9.0589E-01 -8.8837E-01 8.2905E-01 9.1987E-01 -8.9583E-01  
 7.9466E-01 9.1180E-01 -8.8807E-01 8.2886E-01 9.1124E-01 -8.9434E-01  
 3 -9.0524E-01 -9.7350E-01 1.0000E+00 -8.1881E-01 -8.8333E-01 9.1099E-01 -8.2501E-01 -8.9318E-01 9.1649E-01  
 -8.0069E-01 -8.8776E-01 9.1053E-01 -8.2475E-01 -8.8729E-01 9.1534E-01  
 4 9.0254E-01 8.1544E-01 -8.1881E-01 1.0000E+00 9.0690E-01 -9.0655E-01 8.8474E-01 8.1384E-01 -8.1607E-01  
 8.8970E-01 8.1797E-01 -8.1940E-01 8.8451E-01 8.1732E-01 -8.1681E-01  
 5 8.1952E-01 9.0589E-01 -8.8333E-01 9.0690E-01 1.0000E+00 -9.7401E-01 8.0330E-01 9.0469E-01 -8.8166E-01  
 8.0789E-01 9.0598E-01 -8.8265E-01 8.0313E-01 9.0538E-01 -8.8201E-01  
 6 -8.2443E-01 -8.8837E-01 9.1099E-01 -9.0655E-01 -9.7401E-01 1.0000E+00 -8.1537E-01 -8.8770E-01 9.1102E-01  
 -8.0599E-01 -8.8606E-01 9.0863E-01 -8.1527E-01 -8.8552E-01 9.1076E-01  
 7 9.0615E-01 8.2905E-01 -8.2501E-01 8.8474E-01 8.0330E-01 -8.1537E-01 1.0000E+00 8.9237E-01 -8.9394E-01  
 8.4901E-01 8.1355E-01 -8.1539E-01 9.3502E-01 8.1358E-01 -8.2936E-01  
 8 8.2491E-01 9.1987E-01 -8.9318E-01 8.1384E-01 9.0469E-01 -8.8770E-01 8.9237E-01 1.0000E+00 -9.7375E-01  
 7.9159E-01 9.1087E-01 -8.8716E-01 8.3099E-01 9.1111E-01 -8.9501E-01  
 9 -8.2681E-01 -8.9583E-01 9.1649E-01 -8.1607E-01 -8.8166E-01 9.1102E-01 -8.9394E-01 -9.7375E-01 1.0000E+00  
 -7.9415E-01 -8.8742E-01 9.1046E-01 -8.3218E-01 -8.8773E-01 9.1836E-01  
 10 8.8372E-01 7.9466E-01 -8.0069E-01 8.8970E-01 8.0789E-01 -8.0599E-01 8.4901E-01 7.9159E-01 -7.9415E-01  
 1.0000E+00 8.9765E-01 -8.9928E-01 8.4853E-01 8.0244E-01 -7.9600E-01  
 11 8.2240E-01 9.1180E-01 -8.8776E-01 8.1797E-01 9.0598E-01 -8.8606E-01 8.1355E-01 9.1087E-01 -8.8742E-01  
 8.9765E-01 1.0000E+00 -9.7454E-01 8.1335E-01 9.0789E-01 -8.8701E-01  
 12 -8.2393E-01 -8.8807E-01 9.1053E-01 -8.1940E-01 -8.8265E-01 9.0863E-01 -8.1539E-01 -8.8716E-01 9.1046E-01  
 -8.9928E-01 -9.7454E-01 1.0000E+00 -8.1518E-01 -8.8445E-01 9.0997E-01  
 13 9.0585E-01 8.2886E-01 -8.2475E-01 8.8451E-01 8.0313E-01 -8.1527E-01 9.3502E-01 8.3099E-01 -8.3218E-01  
 8.4853E-01 8.1335E-01 -8.1518E-01 1.0000E+00 8.7916E-01 -8.9186E-01  
 14 8.2185E-01 9.1124E-01 -8.8729E-01 8.1732E-01 9.0538E-01 -8.8552E-01 8.1358E-01 9.1111E-01 -8.8773E-01  
 8.0244E-01 9.0789E-01 -8.8445E-01 8.7916E-01 1.0000E+00 -9.7223E-01  
 15 -8.2621E-01 -8.9434E-01 9.1534E-01 -8.1681E-01 -8.8201E-01 9.1076E-01 -8.2936E-01 -8.9501E-01 9.1836E-01  
 -7.9600E-01 -8.8701E-01 9.0997E-01 -8.9186E-01 -9.7223E-01 1.0000E+00

G-FILE for the vectors

```

Axx2014 8152014 815
B201408151700201408151800 5 rsgps 1.37IGS
lant_info.003 NGS
C00060001 -316625246 17 499048641 60 322273073 63
C00060002 -555604325 17 -719117733 61 -784930564 63
C00060003 1102137966 17 181477388 60 458650257 63
C00060004 -1513267918 18 -109778237 61 -561819788 63
C00060005 1271247101 17-1042765282 61 -545570602 63
D 1 2 9018642 1 3 -9052359 1 4 9025422 1 5 8195185 1 6 -8244337
D 1 7 9061454 1 8 8249108 1 9 -8268140 1 10 8837229 1 11 8224013
D 1 12 -8239290 1 13 9058518 1 14 8218524 1 15 -8262120 2 3 -9735001
D 2 4 8154411 2 5 9058875 2 6 -8883733 2 7 8290513 2 8 9198737
D 2 9 -8958289 2 10 7946635 2 11 9118047 2 12 -8880670 2 13 8288570
D 2 14 9112367 2 15 -8943446 3 4 -8188092 3 5 -8833319 3 6 9109898
D 3 7 -8250149 3 8 -8931839 3 9 9164924 3 10 -8006904 3 11 -8877609
D 3 12 9105344 3 13 -8247491 3 14 -8872901 3 15 9153416 4 5 9069047
D 4 6 -9065526 4 7 8847351 4 8 8138420 4 9 -8160676 4 10 8896993
D 4 11 8179657 4 12 -8193955 4 13 8845139 4 14 8173204 4 15 -8168074
D 5 6 -9740095 5 7 8033015 5 8 9046899 5 9 -8816647 5 10 8078859
D 5 11 9059821 5 12 -8826505 5 13 8031290 5 14 9053797 5 15 -8820106
D 6 7 -8153745 6 8 -8876985 6 9 9110242 6 10 -8059883 6 11 -8860605
D 6 12 9086319 6 13 -8152662 6 14 -8855217 6 15 9107576 7 8 8923742
D 7 9 -8939362 7 10 8490128 7 11 8135490 7 12 -8153935 7 13 9350197
D 7 14 8135832 7 15 -8293613 8 9 -9737487 8 10 7915850 8 11 9108668
D 8 12 -8871645 8 13 8309883 8 14 9111142 8 15 -8950135 9 10 -7941531
D 9 11 -8874207 9 12 9104557 9 13 -8321781 9 14 -8877308 9 15 9183562
D 10 11 8976493 10 12 -8992757 10 13 8485291 10 14 8024426 10 15 -7959967
D 11 12 -9745409 11 13 8133466 11 14 9078877 11 15 -8870050 12 13 -8151848
D 12 14 -8844537 12 15 9099651 13 14 8791597 13 15 -8918584 14 15 -9722311
    
```

ITRF position of 0186 as determined by individual baselines

	X	Y	Z
mtms	-1393773.049	-4033918.046	4725266.541
mtlw	-1393773.047	-4033918.044	4725266.561
p053	-1393773.050	-4033918.046	4725266.568
p049	-1393773.046	-4033918.050	4725266.555
p052	-1393773.047	-4033918.027	4725266.542

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
mtms	0.002	0.010	-0.024	-0.001	-0.009	-0.025
mtlw	0.004	0.012	-0.003	0.000	0.007	-0.011
p053	0.001	0.010	0.003	-0.002	0.009	-0.005
p049	0.005	0.006	-0.010	0.003	-0.001	-0.012
p052	0.004	0.029	-0.023	-0.006	0.006	-0.036

STATE PLANE COORDINATES - International Foot

SPC (2500 MT )

Northing (Y) [feet] 1404832.346  
Easting (X) [feet] 2075798.599  
Convergence [degrees] 0.32134651  
Point Scale 0.99957420  
Combined Factor 0.99941367

\*\* Orthometric Heights Above Future Geopotential Datum.

Prototype orthometric heights are now being made available as a precursor to the completion of GRAV-D and the replacement of NAVD 88 with a new geopotential reference system. The following height reflects the current best estimate of the true orthometric height, based on the existing gravimetric geoid model. This height is subject to change as data and modeling for the gravimetric geoid change throughout the lifetime of the GRAV-D project, or as new realizations of the ITRF are adopted. However, at the completion of GRAV-D, these heights will supersede the NAVD 88 heights

APPROX ORTHO HGT: 1038.979 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

dop from interpolation is 0.490  
scatter (mean square distance from rover) is 17941.493  
average edop for rover is 0.570  
average ndop for rover is 0.760  
average hdop for rover is 0.950  
average vdop for rover is 1.690  
average gdop for rover is 2.210

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.