

OPUS-RS solution : 018506_14_240_A1.14O OP1409696175875

opus <opus@ngs.noaa.gov>

Tue 9/2/2014 4:22 PM

To:John Freetly <John.Freetly@neciusa.com>;

FILE: 018506_14_240_A1.14O OP1409696175875

6030 ***** WARNING *****
 6030 One or both of the standard deviations associated with
 6030 horizontal coordinates is greater than 5 cm, and/or the
 6030 standard deviation associated with the vertical coordinate
 6030 is greater than 10 cm. This means that the vectors used to
 6030 determine your position did not agree as well as expected.
 6030 Often this is the result of problems with the adopted coordinates
 6030 at one or more of the reference stations selected by OPUS-RS.
 6030 If a problem reference station can be identified, it can
 6030 be excluded with the Exclude feature on the OPUS Options
 6030 page.
 6030

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
 RINEX FILE: 0185240b.14o

DATE: September 02, 2014
 TIME: 22:21:50 UTC

SOFTWARE: rsgps 1.37 RS91.prl 1.99.2 START: 2014/08/28 01:24:30
 EPHEMERIS: igr18074.eph [rapid] STOP: 2014/08/28 02:24:15
 NAV FILE: brdc2400.14n OBS USED: 3110 / 3520 : 88%
 ANT NAME: CHCX90D-OPUS NONE QUALITY IND. 5.61/ 39.41
 ARP HEIGHT: 1.8000 NORMALIZED RMS: 0.317

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.65501)

X: -1347000.426(m) 0.021(m) -1347001.285(m) 0.021(m)
 Y: -4284268.086(m) 0.102(m) -4284266.833(m) 0.102(m)
 Z: 4515342.852(m) 0.046(m) 4515342.811(m) 0.046(m)

LAT: 45 20 49.35923 0.042(m) 45 20 49.37990 0.042(m)
 E LON: 252 32 47.50558 0.012(m) 252 32 47.45068 0.012(m)
 W LON: 107 27 12.49442 0.012(m) 107 27 12.54932 0.012(m)

EL HGT: 1131.513(m) 0.105(m) 1130.825(m) 0.105(m)
 ORTHO HGT: 1145.806(m) 0.105(m) [NAVD88 (Computed using GEOID12A)]

UTM COORDINATES STATE PLANE COORDINATES

	UTM (Zone 13)	SPC (2500 MT)
Northing (Y) [meters]	5024432.074	124024.195
Easting (X) [meters]	307800.504	760336.475
Convergence [degrees]	-1.74587435	1.49704481
Point Scale	1.00005421	0.99980941
Combined Factor	0.99987683	0.99963208

US NATIONAL GRID DESIGNATOR: 13TCL0780024432(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DM7161	WYSH SHERIDAN CORS ARP	N444801.769	W1070035.715	70078.8
DI3062	BIL5 BILLINGS 5 CORS ARP	N455816.237	W1075947.298	81271.4
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	99962.6
DJ8992	P033 TENSLEEPTRWY2005 CORS ARP	N435710.415	W1072315.121	155040.1
DI2260	P054 TEREKALAKAMT2006 CORS ARP	N455046.833	W1042629.062	241488.1

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)

wysh	-1326396.432	-4335757.902	4472504.219
bil5	-1372156.894	-4223945.800	4563650.228
mtei	-1422329.048	-4226311.535	4546317.393
p033	-1374663.812	-4389900.520	4405280.400
p054	-1110122.543	-4310701.944	4554151.775
0185	-1347001.285	-4284266.833	4515342.811

Covariance matrix of the stations:

1	2.8200E-07	8.5220E-07	-7.8510E-07	-1.9840E-08	-2.1810E-07	1.9930E-07	-2.3190E-08	-2.3370E-07	2.1460E-07
	-2.4220E-08	-2.3260E-07	2.1780E-07	-1.4740E-08	-1.6790E-07	1.5340E-07	3.2460E-08	-4.1440E-08	3.4170E-08
2	8.5220E-07	3.8080E-06	-3.3890E-06	-1.9830E-07	-8.8430E-07	8.0890E-07	-1.9270E-07	-8.9450E-07	8.2290E-07
	-2.1370E-07	-9.2040E-07	9.0490E-07	-2.4730E-07	-9.0870E-07	8.5250E-07	-4.2960E-08	-1.8270E-07	1.8680E-07
3	-7.8510E-07	-3.3890E-06	3.2620E-06	1.9780E-07	8.5550E-07	-7.7560E-07	2.0370E-07	8.7390E-07	-7.9150E-07
	2.0410E-07	8.7840E-07	-7.8740E-07	1.7920E-07	7.8100E-07	-7.0760E-07	2.4040E-08	1.2640E-07	-5.9670E-08
4	-1.9840E-08	-1.9830E-07	1.9780E-07	2.8510E-07	8.0280E-07	-7.9110E-07	-1.9180E-08	-2.1350E-07	2.0440E-07
	-2.3370E-08	-2.1800E-07	2.2050E-07	-2.2710E-08	-1.7340E-07	1.6880E-07	3.5990E-08	-1.7510E-08	2.2440E-08
5	-2.1810E-07	-8.8430E-07	8.5550E-07	8.0280E-07	3.4460E-06	-3.2030E-06	-2.2870E-07	-7.7220E-07	8.1380E-07

-2.6430E-07 -1.0210E-06 9.2760E-07 -9.1390E-08 -5.6830E-07 6.0620E-07 2.5680E-08 1.9970E-07 -1.1700E-07
 6 1.9930E-07 8.0890E-07 -7.7560E-07 -7.9110E-07 -3.2030E-06 3.2700E-06 1.9430E-07 7.9050E-07 -7.5720E-07
 2.0750E-07 8.4040E-07 -8.0210E-07 1.8990E-07 7.6350E-07 -7.3630E-07 5.3750E-09 -1.8250E-09 1.7450E-08
 7 -2.3190E-08 -1.9270E-07 2.0370E-07 -1.9180E-08 -2.2870E-07 1.9430E-07 3.3330E-07 8.8200E-07 -8.7730E-07
 -1.3870E-08 -1.8260E-07 2.2160E-07 -7.6700E-08 -2.7870E-07 2.5840E-07 1.2000E-08 -1.1410E-07 1.1040E-07
 8 -2.3370E-07 -8.9450E-07 8.7390E-07 -2.1350E-07 -7.7220E-07 7.9050E-07 8.8200E-07 3.5830E-06 -3.3380E-06
 -2.6330E-07 -9.9110E-07 9.3640E-07 -1.7020E-07 -7.2460E-07 7.3730E-07 -2.5560E-08 1.9060E-08 4.3880E-08
 9 2.1460E-07 8.2290E-07 -7.9150E-07 2.0440E-07 8.1380E-07 -7.5720E-07 -8.7730E-07 -3.3380E-06 3.3850E-06
 2.1210E-07 8.2790E-07 -8.1020E-07 2.4510E-07 8.7350E-07 -8.2740E-07 4.9340E-08 1.4190E-07 -1.1330E-07
 10 -2.4220E-08 -2.1370E-07 2.0410E-07 -2.3370E-08 -2.6430E-07 2.0750E-07 -1.3870E-08 -2.6330E-07 2.1210E-07
 3.4100E-07 1.0410E-06 -8.8220E-07 -7.9090E-08 -3.0020E-07 2.5880E-07 8.9440E-09 -1.4450E-07 1.1890E-07
 11 -2.3260E-07 -9.2040E-07 8.7840E-07 -2.1800E-07 -1.0210E-06 8.4040E-07 -1.8260E-07 -9.9110E-07 8.2790E-07
 1.0410E-06 4.3760E-06 -3.6560E-06 -4.0590E-07 -1.2450E-06 1.1090E-06 -1.0710E-07 -4.4440E-07 3.8830E-07
 12 2.1780E-07 9.0490E-07 -7.8740E-07 2.2050E-07 9.2760E-07 -8.0210E-07 2.2160E-07 9.3640E-07 -8.1020E-07
 -8.8220E-07 -3.6560E-06 3.3700E-06 2.2050E-07 8.8610E-07 -7.6990E-07 5.1050E-08 2.0870E-07 -1.0200E-07
 13 -1.4740E-08 -2.4730E-07 1.7920E-07 -2.2710E-08 -9.1390E-08 1.8990E-07 -7.6700E-08 -1.7020E-07 2.4510E-07
 -7.9090E-08 -4.0590E-07 2.2050E-07 3.9230E-07 9.1620E-07 -8.3610E-07 1.1050E-07 3.1730E-07 -2.8560E-07
 14 -1.6790E-07 -9.0870E-07 7.8100E-07 -1.7340E-07 -5.6830E-07 7.6350E-07 -2.7870E-07 -7.2460E-07 8.7350E-07
 -3.0020E-07 -1.2450E-06 8.8610E-07 9.1620E-07 3.6470E-06 -3.3050E-06 1.5010E-07 6.0970E-07 -5.0320E-07
 15 1.5340E-07 8.5250E-07 -7.0760E-07 1.6880E-07 6.0620E-07 -7.3630E-07 2.5840E-07 7.3730E-07 -8.2740E-07
 2.5880E-07 1.1090E-06 -7.6990E-07 -8.3610E-07 -3.3050E-06 3.2420E-06 -1.2970E-07 -4.7540E-07 4.5770E-07
 16 3.2460E-08 -4.2960E-08 2.4040E-08 3.5990E-08 2.5680E-08 5.3750E-09 1.2000E-08 -2.5560E-08 4.9340E-08
 08 8.9440E-09 -1.0710E-07 5.1050E-08 1.1050E-07 1.5010E-07 -1.2970E-07 3.0360E-06 1.0280E-05 -9.7550E-06
 17 -4.1440E-08 -1.8270E-07 1.2640E-07 -1.7510E-08 1.9970E-07 -1.8250E-09 -1.1410E-07 1.9060E-08 1.4190E-07
 -1.4450E-07 -4.4440E-07 2.0870E-07 3.1730E-07 6.0970E-07 -4.7540E-07 1.0280E-05 4.4130E-05 -4.0940E-05
 18 3.4170E-08 1.8680E-07 -5.9670E-08 2.2440E-08 -1.1700E-07 1.7450E-08 1.1040E-07 4.3880E-08 -1.1330E-07
 1.1890E-07 3.8830E-07 -1.0200E-07 -2.8560E-07 -5.0320E-07 4.5770E-07 -9.7550E-06 -4.0940E-05 4.0060E-05

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

```
0.0000030360  0.0000102800  -0.0000097550
0.0000102800  0.0000441300  -0.0000409400
-0.0000097550 -0.0000409400  0.0000400600
```

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

```
0.0000008501  -0.0000002625  0.0000044546
-0.0000002625  0.0000012245  -0.0000033546
0.0000044546  -0.0000033546  0.0000851514
```

Horizontal network accuracy = 0.00253 meters.

Vertical network accuracy = 0.01809 meters.

		Vectors		
To	From	X	Y	Z
wysh	0185	20604.853	-51491.069	-42838.592
bil5	0185	-25155.609	60321.034	48307.418
mtei	0185	-75327.763	57955.298	30974.582
p033	0185	-27662.526	-105633.686	-110062.411
p054	0185	236878.742	-26435.110	38808.964

Covariance matrix of the 5 vectors

1 3.2531E-06 1.1217E-05 -1.0598E-05 2.9477E-06 1.0078E-05 -9.5952E-06 2.9683E-06 1.0113E-05 -9.6239E-06
 2.9704E-06 1.0196E-05 -9.6224E-06 2.8783E-06 1.0003E-05 -9.5061E-06
 2 1.1217E-05 4.8303E-05 -4.4642E-05 1.0142E-05 4.3229E-05 -4.0316E-05 1.0244E-05 4.3399E-05 -4.0446E-05
 1.0254E-05 4.3837E-05 -4.0431E-05 9.7584E-06 4.2794E-05 -3.9799E-05
 3 -1.0598E-05 -4.4642E-05 4.3441E-05 -9.6037E-06 -4.0094E-05 3.9327E-05 -9.6857E-06 -4.0236E-05 3.9441E-05
 -9.6938E-06 -4.0576E-05 3.9434E-05 -9.3142E-06 -3.9782E-05 3.8954E-05
 4 2.9477E-06 1.0142E-05 -9.6037E-06 3.2491E-06 1.1075E-05 -1.0574E-05 2.9688E-06 1.0110E-05 -9.6224E-06
 2.9677E-06 1.0187E-05 -9.6080E-06 2.8668E-06 9.9740E-06 -9.4789E-06
 5 1.0078E-05 4.3229E-05 -4.0094E-05 1.1075E-05 4.7177E-05 -4.4024E-05 1.0140E-05 4.3139E-05 -4.0151E-05
 1.0135E-05 4.3354E-05 -4.0104E-05 9.8456E-06 4.2752E-05 -3.9741E-05
 6 -9.5952E-06 -4.0316E-05 3.9327E-05 -1.0574E-05 -4.4024E-05 4.3295E-05 -9.6765E-06 -4.0192E-05 3.9399E-05
 -9.6718E-06 -4.0486E-05 3.9342E-05 -9.2849E-06 -3.9671E-05 3.8849E-05
 7 2.9683E-06 1.0244E-05 -9.6857E-06 2.9688E-06 1.0140E-05 -9.6765E-06 3.3453E-06 1.1302E-05 -1.0792E-05
 3.0012E-06 1.0319E-05 -9.6949E-06 2.8368E-06 9.9653E-06 -9.4773E-06
 8 1.0113E-05 4.3399E-05 -4.0236E-05 1.0110E-05 4.3139E-05 -4.0192E-05 1.1302E-05 4.7675E-05 -4.4464E-05
 1.0187E-05 4.3564E-05 -4.0256E-05 9.8181E-06 4.2777E-05 -3.9771E-05
 9 -9.6239E-06 -4.0446E-05 3.9441E-05 -9.6224E-06 -4.0151E-05 3.9399E-05 -1.0792E-05 -4.4464E-05 4.3672E-05
 -9.7111E-06 -4.0642E-05 3.9465E-05 -9.2736E-06 -3.9705E-05 3.8888E-05
 10 2.9704E-06 1.0254E-05 -9.6938E-06 2.9677E-06 1.0135E-05 -9.6718E-06 3.0012E-06 1.0187E-05 -9.7111E-06
 3.3591E-06 1.1573E-05 -1.0807E-05 2.8375E-06 9.9742E-06 -9.4854E-06
 11 1.0196E-05 4.3837E-05 -4.0576E-05 1.0187E-05 4.3354E-05 -4.0486E-05 1.0319E-05 4.3564E-05 -4.0642E-05
 1.1573E-05 4.9395E-05 -4.5193E-05 9.6639E-06 4.2720E-05 -3.9744E-05
 12 -9.6224E-06 -4.0431E-05 3.9434E-05 -9.6080E-06 -4.0104E-05 3.9342E-05 -9.6949E-06 -4.0256E-05 3.9465E-05
 -1.0807E-05 -4.5193E-05 4.3634E-05 -9.3000E-06 -3.9759E-05 3.8934E-05
 13 2.8783E-06 9.7584E-06 -9.3142E-06 2.8668E-06 9.8456E-06 -9.2849E-06 2.8368E-06 9.8181E-06 -9.2736E-06
 2.8375E-06 9.6639E-06 -9.3000E-06 3.2073E-06 1.0729E-05 -1.0176E-05
 14 1.0003E-05 4.2794E-05 -3.9782E-05 9.9740E-06 4.2752E-05 -3.9671E-05 9.9653E-06 4.2777E-05 -3.9705E-05
 9.9742E-06 4.2720E-05 -3.9759E-05 1.0729E-05 4.6558E-05 -4.3266E-05
 15 -9.5061E-06 -3.9799E-05 3.8954E-05 -9.4789E-06 -3.9741E-05 3.8849E-05 -9.4773E-06 -3.9771E-05 3.8888E-05
 -9.4854E-06 -3.9744E-05 3.8934E-05 -1.0176E-05 -4.3266E-05 4.2387E-05

Correlation matrix of the 5 vectors

1 1.0000E+00 8.9480E-01 -8.9153E-01 9.0668E-01 8.1348E-01 -8.0852E-01 8.9981E-01 8.1208E-01 -8.0743E-01
 8.9857E-01 8.0434E-01 -8.0765E-01 8.9108E-01 8.1284E-01 -8.0954E-01
 2 8.9480E-01 1.0000E+00 -9.7455E-01 8.0958E-01 9.0557E-01 -8.8160E-01 8.0589E-01 9.0437E-01 -8.8061E-01
 8.0497E-01 8.9745E-01 -8.8066E-01 7.8400E-01 9.0241E-01 -8.7956E-01
 3 -8.9153E-01 -9.7455E-01 1.0000E+00 -8.0836E-01 -8.8565E-01 9.0681E-01 -8.0346E-01 -8.8414E-01 9.0553E-01
 -8.0248E-01 -8.7595E-01 9.0575E-01 -7.8909E-01 -8.8459E-01 9.0780E-01
 4 9.0668E-01 8.0958E-01 -8.0836E-01 1.0000E+00 8.9451E-01 -8.9153E-01 9.0050E-01 8.1228E-01 -8.0779E-01
 8.9831E-01 8.0409E-01 -8.0693E-01 8.8806E-01 8.1095E-01 -8.0772E-01
 5 8.1348E-01 9.0557E-01 -8.8565E-01 8.9451E-01 1.0000E+00 -9.7411E-01 8.0713E-01 9.0962E-01 -8.8457E-01
 8.0506E-01 8.9809E-01 -8.8392E-01 8.0041E-01 9.1222E-01 -8.8872E-01
 6 -8.0852E-01 -8.8160E-01 9.0681E-01 -8.9153E-01 -9.7411E-01 1.0000E+00 -8.0404E-01 -8.8465E-01 9.0607E-01
 -8.0200E-01 -8.7548E-01 9.0517E-01 -7.8793E-01 -8.8362E-01 9.0686E-01
 7 8.9981E-01 8.0589E-01 -8.0346E-01 9.0050E-01 8.0713E-01 -8.0404E-01 1.0000E+00 8.9491E-01 -8.9287E-01
 8.9529E-01 8.0272E-01 -8.0244E-01 8.6605E-01 7.9850E-01 -7.9589E-01
 8 8.1208E-01 9.0437E-01 -8.8414E-01 8.1228E-01 9.0962E-01 -8.8465E-01 8.9491E-01 1.0000E+00 -9.7446E-01
 8.0497E-01 8.9773E-01 -8.8262E-01 7.9398E-01 9.0796E-01 -8.8473E-01
 9 -8.0743E-01 -8.8061E-01 9.0553E-01 -8.0779E-01 -8.8457E-01 9.0607E-01 -8.9287E-01 -9.7446E-01 1.0000E+00
 -8.0179E-01 -8.7506E-01 9.0407E-01 -7.8358E-01 -8.8055E-01 9.0387E-01
 10 8.9857E-01 8.0497E-01 -8.0248E-01 8.9831E-01 8.0506E-01 -8.0200E-01 8.9529E-01 8.0497E-01 -8.0179E-01

1.0000E+00 8.9842E-01 -8.9266E-01 8.6447E-01 7.9757E-01 -7.9493E-01
 11 8.0434E-01 8.9745E-01 -8.7595E-01 8.0409E-01 8.9809E-01 -8.7548E-01 8.0272E-01 8.9773E-01 -8.7506E-01
 8.9842E-01 1.0000E+00 -9.7346E-01 7.6779E-01 8.9082E-01 -8.6859E-01
 12 -8.0765E-01 -8.8066E-01 9.0575E-01 -8.0693E-01 -8.8392E-01 9.0517E-01 -8.0244E-01 -8.8262E-01 9.0407E-01
 -8.9266E-01 -9.7346E-01 1.0000E+00 -7.8614E-01 -8.8213E-01 9.0533E-01
 13 8.9108E-01 7.8400E-01 -7.8909E-01 8.8806E-01 8.0041E-01 -7.8793E-01 8.6605E-01 7.9398E-01 -7.8358E-01
 8.6447E-01 7.6779E-01 -7.8614E-01 1.0000E+00 8.7798E-01 -8.7274E-01
 14 8.1284E-01 9.0241E-01 -8.8459E-01 8.1095E-01 9.1222E-01 -8.8362E-01 7.9850E-01 9.0796E-01 -8.8055E-01
 7.9757E-01 8.9082E-01 -8.8213E-01 8.7798E-01 1.0000E+00 -9.7396E-01
 15 -8.0954E-01 -8.7956E-01 9.0780E-01 -8.0772E-01 -8.8872E-01 9.0686E-01 -7.9589E-01 -8.8473E-01 9.0387E-01
 -7.9493E-01 -8.6859E-01 9.0533E-01 -8.7274E-01 -9.7396E-01 1.0000E+00

G-FILE for the vectors

Axx2014 8282014 828
 B201408280100201408280200 5 rsgps 1.37IGS
 lant_info.003 NGS
 C00060001 206048530 18 -514910690 69 -428385918 65
 C00060002 -251556085 18 603210336 68 483074176 65
 C00060003 -753277633 18 579552981 69 309745821 66
 C00060004 -276625264 18-1056336862 70-1100624107 66
 C00060005-1926179879 17 -264351104 68 388089644 65
 D 1 2 8947980 1 3 -8915334 1 4 9066809 1 5 8134839 1 6 -8085173
 D 1 7 8998087 1 8 8120835 1 9 -8074295 1 10 8985697 1 11 8043392
 D 1 12 -8076522 1 13 8910845 1 14 8128430 1 15 -8095419 2 3 -9745522
 D 2 4 8095788 2 5 9055657 2 6 -8815968 2 7 8058949 2 8 9043727
 D 2 9 -8806128 2 10 8049743 2 11 8974461 2 12 -8806611 2 13 7840038
 D 2 14 9024056 2 15 -8795649 3 4 -8083569 3 5 -8856525 3 6 9068086
 D 3 7 -8034588 3 8 -8841429 3 9 9055281 3 10 -8024759 3 11 -8759518
 D 3 12 9057528 3 13 -7890890 3 14 -8845897 3 15 9078002 4 5 8945055
 D 4 6 -8915250 4 7 9005024 4 8 8122785 4 9 -8077929 4 10 8983059
 D 4 11 8040928 4 12 -8069323 4 13 8880649 4 14 8109454 4 15 -8077232
 D 5 6 -9741111 5 7 8071330 5 8 9096249 5 9 -8845748 5 10 8050588
 D 5 11 8980949 5 12 -8839199 5 13 8004061 5 14 9122226 5 15 -8887212
 D 6 7 -8040448 6 8 -8846482 6 9 9060713 6 10 -8020003 6 11 -8754789
 D 6 12 9051686 6 13 -7879286 6 14 -8836162 6 15 9068618 7 8 8949111
 D 7 9 -8928663 7 10 8952887 7 11 8027173 7 12 -8024371 7 13 8660468
 D 7 14 7985048 7 15 -7958895 8 9 -9744555 8 10 8049687 8 11 8977278
 D 8 12 -8826230 8 13 7939827 8 14 9079596 8 15 -8847272 9 10 -8017859
 D 9 11 -8750605 9 12 9040680 9 13 -7835755 9 14 -8805470 9 15 9038658
 D 10 11 8984172 10 12 -8926607 10 13 8644674 10 14 7975731 10 15 -7949304
 D 11 12 -9734598 11 13 7677892 11 14 8908247 11 15 -8685914 12 13 -7861371
 D 12 14 -8821288 12 15 9053295 13 14 8779829 13 15 -8727391 14 15 -9739601

ITRF position of 0185 as determined by individual baselines

	X	Y	Z
wysh	-1347001.288	-4284266.828	4515342.808
bil5	-1347001.278	-4284266.825	4515342.812
mtei	-1347001.280	-4284266.847	4515342.798

p033 -1347001.287 -4284266.862 4515342.821
 p054 -1347001.244 -4284266.632 4515342.721

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
wysh	-0.003	0.006	-0.003	-0.005	0.001	-0.005
bil5	0.007	0.009	0.001	0.004	0.008	-0.007
mtei	0.005	-0.013	-0.013	0.009	-0.017	-0.001
p033	-0.002	-0.029	0.010	0.007	-0.013	0.027
p054	0.042	0.201	-0.090	-0.021	0.081	-0.208

STATE PLANE COORDINATES - International Foot

SPC (2500 MT)

Northing (Y) [feet] 406903.527
 Easting (X) [feet] 2494542.241
 Convergence [degrees] 1.49704481
 Point Scale 0.99980941
 Combined Factor 0.99963208

** 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: 1144.946 (m) [PROTOTYPE (Computed using USGG2012,GRS80,IGS08)]

dop from interpolation is 0.391
 scatter (mean square distance from rover) is 26197.516
 average edop for rover is 0.710
 average ndop for rover is 0.880
 average hdop for rover is 1.131
 average vdop for rover is 1.820
 average gdop for rover is 2.480

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.