

OPUS-RS solution : 018772_14_223_A0.14O OP1408115968393

opus <opus@ngs.noaa.gov>

Fri 8/15/2014 9:22 AM

To:Chad Mozol <Chad.Mozol@neciusa.com>;

FILE: 018772_14_223_A0.14O OP1408115968393

NGS OPUS-RS SOLUTION REPORT =====

All computed coordinate accuracies are listed as 1-sigma RMS values.
For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: cmozol@neciusa.com DATE: August 15, 2014
RINEX FILE: 0187223v.14o TIME: 15:22:09 UTC

SOFTWARE: rsgps 1.37 RS91.prl 1.99.2 START: 2014/08/11 21:04:00
EPHEMERIS: igr18051.eph [rapid] STOP: 2014/08/11 22:05:30
NAV FILE: brdc2230.14n OBS USED: 3786 / 4134 : 92%
ANT NAME: CHCX90D-OPUS NONE QUALITY IND. 10.42/ 56.01
ARP HEIGHT: 1.8 NORMALIZED RMS: 0.328

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.61068)

X:	-1392277.088(m)	0.005(m)	-1392277.963(m)	0.005(m)
Y:	-4039470.264(m)	0.014(m)	-4039469.040(m)	0.014(m)
Z:	4720929.124(m)	0.020(m)	4720929.115(m)	0.020(m)

LAT:	48 2 40.97725	0.005(m)	48 2 40.99805	0.005(m)
E LON:	250 58 57.19523	0.002(m)	250 58 57.13604	0.002(m)
W LON:	109 1 2.80477	0.002(m)	109 1 2.86396	0.002(m)
EL HGT:	978.021(m)	0.025(m)	977.432(m)	0.025(m)

ORTHO HGT: 993.228(m) 0.026(m) [NAVD88 (Computed using GEOID12A)]

	UTM COORDINATES	STATE PLANE COORDINATES
	UTM (Zone 12)	SPC (2500 MT)
Northing (Y) [meters]	5323171.687	421776.442
Easting (X) [meters]	647758.692	635963.424
Convergence [degrees]	1.47462519	0.35299045
Point Scale	0.99986827	0.99955536
Combined Factor	0.99971503	0.99940217

US NATIONAL GRID DESIGNATOR: 12UXU4775823171(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	74241.2
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	114708.9
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	122072.4
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	161467.7
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	167486.0
DI3422	P050 WICKUMRNCHMT2006 CORS ARP	N484834.096	W1111454.296	185737.3

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	-1425435.576	-3984013.202	4757493.865
mtlw	-1449333.483	-4105829.838	4646773.526
p053	-1283559.255	-4015770.318	4771131.589
p049	-1545099.845	-4044895.888	4669084.598
p052	-1266648.341	-4138194.570	4670709.498
p050	-1525480.180	-3923083.421	4777585.178

0187 -1392277.963 -4039469.040 4720929.115

Covariance matrix of the stations:

1 2.4480E-07 4.7470E-07 -5.7990E-07 -1.5370E-08 -9.6280E-08 1.1840E-07 -1.3600E-08 -8.6260E-08 1.0330E-07 -1.7780E-08 -1.0420E-07 1.2820E-07
-1.2960E-08 -8.3190E-08 1.0180E-07 -1.8340E-08 -1.0490E-07 1.2810E-07 2.6060E-08 -2.3020E-09 6.1540E-09

2 4.7470E-07 1.4310E-06 -1.6800E-06 -9.9200E-08 -2.6230E-07 3.3800E-07 -8.7580E-08 -2.5740E-07 3.4780E-07 -1.0110E-07 -2.4130E-07 3.2120E-07
-8.7780E-08 -2.7580E-07 3.4980E-07 -9.8570E-08 -2.2790E-07 3.2290E-07 2.2750E-09 4.2450E-08 -8.0060E-09

3 -5.7990E-07 -1.6800E-06 2.2930E-06 1.1150E-07 3.2540E-07 -4.1510E-07 1.2350E-07 3.4810E-07 -4.3640E-07 1.0890E-07 3.2750E-07 -4.1670E-07
1.2090E-07 3.3700E-07 -4.2690E-07 1.1490E-07 3.4290E-07 -4.3080E-07 9.5970E-09 1.0190E-08 4.4620E-09

4 -1.5370E-08 -9.9200E-08 1.1150E-07 2.4570E-07 4.8840E-07 -5.5700E-07 -1.5920E-08 -8.9330E-08 9.8730E-08 -1.5690E-08 -1.0660E-07 1.2500E-07
-1.5140E-08 -8.2810E-08 9.7030E-08 -1.7110E-08 -1.1060E-07 1.2490E-07 2.2280E-08 -1.2700E-08 1.1410E-08

5 -9.6280E-08 -2.6230E-07 3.2540E-07 4.8840E-07 1.4960E-06 -1.6550E-06 -1.0420E-07 -2.7310E-07 3.3760E-07 -9.1060E-08 -2.5810E-07 3.2610E-07
-1.0560E-07 -2.7620E-07 3.4620E-07 -9.1750E-08 -2.5960E-07 3.2090E-07 -1.3510E-08 -1.5330E-09 2.3860E-08

6 1.1840E-07 3.3800E-07 -4.1510E-07 -5.5700E-07 -1.6550E-06 2.1440E-06 9.8670E-08 3.4660E-07 -4.2060E-07 1.2220E-07 3.1030E-07 -3.5890E-07
8.9800E-08 3.4500E-07 -3.8320E-07 1.2790E-07 3.1490E-07 -3.9970E-07 -7.1610E-10 -2.4380E-09 4.6280E-08

7 -1.3600E-08 -8.7580E-08 1.2350E-07 -1.5920E-08 -1.0420E-07 9.8670E-08 2.3270E-07 4.3490E-07 -5.0760E-07 -3.1680E-08 -8.6120E-08 9.3520E-08
2.4840E-08 -8.7620E-08 7.5240E-08 -2.9650E-08 -6.8590E-08 1.1600E-07 4.5380E-08 3.0620E-08 -3.7010E-08

8 -8.6260E-08 -2.5740E-07 3.4810E-07 -8.9330E-08 -2.7310E-07 3.4660E-07 4.3490E-07 1.4740E-06 -1.7160E-06 -9.4310E-08 -2.5880E-07 3.3860E-07
-7.3500E-08 -2.7330E-07 3.4210E-07 -9.1640E-08 -2.4450E-07 3.4060E-07 8.2100E-09 2.1150E-08 1.3230E-08

9 1.0330E-07 3.4780E-07 -4.3640E-07 9.8730E-08 3.3760E-07 -4.2060E-07 -5.0760E-07 -1.7160E-06 2.3130E-06 1.0210E-07 3.4380E-07 -4.3080E-07
9.6340E-08 3.3190E-07 -4.1060E-07 1.0750E-07 3.5480E-07 -4.4870E-07 -2.4010E-09 2.6930E-08 -1.2690E-08

10 -1.7780E-08 -1.0110E-07 1.0890E-07 -1.5690E-08 -9.1060E-08 1.2220E-07 -3.1680E-08 -9.4310E-08 1.0210E-07 2.7850E-07 4.9020E-07 -5.7240E-07
-3.3290E-08 -8.1480E-08 1.1120E-07 -1.3390E-08 -1.2290E-07 1.2860E-07 1.1250E-08 -2.8000E-08 3.3590E-08

11 -1.0420E-07 -2.4130E-07 3.2750E-07 -1.0660E-07 -2.5810E-07 3.1030E-07 -8.6120E-08 -2.5880E-07 3.4380E-07 4.9020E-07 1.4110E-06 -1.6100E-06
-8.3640E-08 -2.8200E-07 3.3390E-07 -1.0920E-07 -2.0480E-07 2.9490E-07 -3.8980E-09 4.3870E-08 -2.2680E-08

12 1.2820E-07 3.2120E-07 -4.1670E-07 1.2500E-07 3.2610E-07 -3.5890E-07 9.3520E-08 3.3860E-07 -4.3080E-07 -5.7240E-07 -1.6100E-06 2.1360E-06
8.2720E-08 3.5130E-07 -3.8370E-07 1.4230E-07 2.7340E-07 -3.7870E-07 -1.1720E-09 -3.2440E-08 7.2460E-08

13 -1.2960E-08 -8.7780E-08 1.2090E-07 -1.5140E-08 -1.0560E-07 8.9800E-08 2.4840E-08 -7.3500E-08 9.6340E-08 -3.3290E-08 -8.3640E-08 8.2720E-08
2.3420E-07 4.1590E-07 -5.0090E-07 -3.1350E-08 -6.4340E-08 1.1050E-07 4.9350E-08 3.5450E-08 -4.9080E-08

14 -8.3190E-08 -2.7580E-07 3.3700E-07 -8.2810E-08 -2.7620E-07 3.4500E-07 -8.7620E-08 -2.7330E-07 3.3190E-07 -8.1480E-08 -2.8200E-07 3.5130E-07
4.1590E-07 1.5580E-06 -1.7100E-06 -8.2200E-08 -2.8300E-07 3.4570E-07 -1.9110E-10 -1.3970E-08 3.4490E-08

15 1.0180E-07 3.4980E-07 -4.2690E-07 9.7030E-08 3.4620E-07 -3.8320E-07 7.5240E-08 3.4210E-07 -4.1060E-07 1.1120E-07 3.3390E-07 -3.8370E-07
-5.0090E-07 -1.7100E-06 2.1960E-06 1.1670E-07 3.3610E-07 -4.2550E-07 -1.9390E-08 5.3930E-09 4.0880E-08

16 -1.8340E-08 -9.8570E-08 1.1490E-07 -1.7110E-08 -9.1750E-08 1.2790E-07 -2.9650E-08 -9.1640E-08 1.0750E-07 -1.3390E-08 -1.0920E-07 1.4230E-07
-3.1350E-08 -8.2200E-08 1.1670E-07 2.7680E-07 4.7250E-07 -6.0900E-07 1.2350E-08 -2.3080E-08 3.4970E-08

17 -1.0490E-07 -2.2790E-07 3.4290E-07 -1.1060E-07 -2.5960E-07 3.1490E-07 -6.8590E-08 -2.4450E-07 3.5480E-07 -1.2290E-07 -2.0480E-07 2.7340E-07
-6.4340E-08 -2.8300E-07 3.3610E-07 4.7250E-07 1.3860E-06 -1.6240E-06 7.3280E-09 7.4940E-08 -4.1180E-08

18 1.2810E-07 3.2290E-07 -4.3080E-07 1.2490E-07 3.2090E-07 -3.9970E-07 1.1600E-07 3.4060E-07 -4.4870E-07 1.2860E-07 2.9490E-07 -3.7870E-07
1.1050E-07 3.4570E-07 -4.2550E-07 -6.0900E-07 -1.6240E-06 2.2500E-06 1.3850E-08 -7.9380E-09 1.5680E-08

19 2.6060E-08 2.2750E-09 9.5970E-09 2.2280E-08 -1.3510E-08 -7.1610E-10 4.5380E-08 8.2100E-09 -2.4010E-09 1.1250E-08 -3.8980E-09 -1.1720E-09

4.9350E-08 -1.9110E-10 -1.9390E-08 1.2350E-08 7.3280E-09 1.3850E-08 2.5660E-06 5.8770E-06 -7.0150E-06
 20 -2.3020E-09 4.2450E-08 1.0190E-08 -1.2700E-08 -1.5330E-09 -2.4380E-09 3.0620E-08 2.1150E-08 2.6930E-08 -2.8000E-08 4.3870E-08 -3.2440E-08
 3.5450E-08 -1.3970E-08 5.3930E-09 -2.3080E-08 7.4940E-08 -7.9380E-09 5.8770E-06 1.8230E-05 -2.1460E-05
 21 6.1540E-09 -8.0060E-09 4.4620E-09 1.1410E-08 2.3860E-08 4.6280E-08 -3.7010E-08 1.3230E-08 -1.2690E-08 3.3590E-08 -2.2680E-08 7.2460E-08
 -4.9080E-08 3.4490E-08 4.0880E-08 3.4970E-08 -4.1180E-08 1.5680E-08 -7.0150E-06 -2.1460E-05 2.8090E-05

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

```
0.0000025660  0.0000058770  -0.0000070150
0.0000058770  0.0000182300  -0.0000214600
-0.0000070150 -0.0000214600  0.0000280900
```

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

```
0.0000006082  0.0000000962  0.0000003995
0.0000000962  0.0000012833  0.0000016868
0.0000003995  0.0000016868  0.0000469945
```

Horizontal network accuracy = 0.00243 meters.

Vertical network accuracy = 0.01344 meters.

		Vectors		
To	From	X	Y	Z
mtms	0187	-33157.613	55455.838	36564.750
mtlw	0187	-57055.520	-66360.798	-74155.589
p053	0187	108718.708	23698.722	50202.474
p049	0187	-152821.883	-5426.848	-51844.517
p052	0187	125629.622	-98725.530	-50219.617
p050	0187	-133202.217	116385.619	56656.062

Covariance matrix of the 6 vectors

```
1 2.7587E-06 6.3517E-06 -7.6107E-06 2.5023E-06 5.7965E-06 -6.9020E-06 2.4810E-06 5.7848E-06 -6.9155E-06 2.5109E-06 5.7790E-06 -6.8918E-06
2.4776E-06 5.7963E-06 -6.9000E-06 2.5093E-06 5.7671E-06 -6.9069E-06
2 6.3517E-06 1.9576E-05 -2.3142E-05 5.7882E-06 1.7927E-05 -2.1112E-05 5.7565E-06 1.7909E-05 -2.1131E-05 5.8016E-06 1.7902E-05 -2.1098E-05
5.7515E-06 1.7926E-05 -2.1108E-05 5.7992E-06 1.7885E-05 -2.1121E-05
3 -7.6107E-06 -2.3142E-05 3.0374E-05 -6.9245E-06 -2.1169E-05 2.7624E-05 -6.8641E-06 -2.1135E-05 2.7662E-05 -6.9493E-06 -2.1120E-05 2.7596E-05
-6.8546E-06 -2.1168E-05 2.7618E-05 -6.9447E-06 -2.1086E-05 2.7639E-05
4 2.5023E-06 5.7882E-06 -6.9245E-06 2.7671E-06 6.3916E-06 -7.5827E-06 2.4824E-06 5.7922E-06 -6.9253E-06 2.5168E-06 5.7870E-06 -6.9002E-06
2.4792E-06 5.8071E-06 -6.9100E-06 2.5143E-06 5.7718E-06 -6.9154E-06
5 5.7965E-06 1.7927E-05 -2.1169E-05 6.3916E-06 1.9729E-05 -2.3136E-05 5.7557E-06 1.7937E-05 -2.1173E-05 5.8274E-06 1.7930E-05 -2.1125E-05
5.7495E-06 1.7969E-05 -2.1143E-05 5.8218E-06 1.7897E-05 -2.1155E-05
```

6 -6.9020E-06 -2.1112E-05 2.7624E-05 -7.5827E-06 -2.3136E-05 3.0141E-05 -6.8786E-06 -2.1124E-05 2.7636E-05 -6.9257E-06 -2.1125E-05 2.7612E-05
-6.8754E-06 -2.1147E-05 2.7620E-05 -6.9214E-06 -2.1101E-05 2.7628E-05
7 2.4810E-06 5.7565E-06 -6.8641E-06 2.4824E-06 5.7557E-06 -6.8786E-06 2.7079E-06 6.2731E-06 -7.4832E-06 2.4777E-06 5.7642E-06 -6.8833E-06
2.4961E-06 5.7590E-06 -6.8834E-06 2.4786E-06 5.7705E-06 -6.8758E-06
8 5.7848E-06 1.7909E-05 -2.1135E-05 5.7922E-06 1.7937E-05 -2.1124E-05 6.2731E-06 1.9662E-05 -2.3216E-05 5.8025E-06 1.7906E-05 -2.1102E-05
5.7598E-06 1.7950E-05 -2.1137E-05 5.8002E-06 1.7889E-05 -2.1125E-05
9 -6.9155E-06 -2.1131E-05 2.7662E-05 -6.9253E-06 -2.1173E-05 2.7636E-05 -7.4832E-06 -2.3216E-05 3.0428E-05 -6.9441E-06 -2.1120E-05 2.7599E-05
-6.8672E-06 -2.1190E-05 2.7651E-05 -6.9401E-06 -2.1091E-05 2.7638E-05
10 2.5109E-06 5.8016E-06 -6.9493E-06 2.5168E-06 5.8274E-06 -6.9257E-06 2.4777E-06 5.8025E-06 -6.9441E-06 2.8220E-06 6.3991E-06 -7.6198E-06
2.4721E-06 5.8237E-06 -6.9180E-06 2.5290E-06 5.7748E-06 -6.9338E-06
11 5.7790E-06 1.7902E-05 -2.1120E-05 5.7870E-06 1.7930E-05 -2.1125E-05 5.7642E-06 1.7906E-05 -2.1120E-05 6.3991E-06 1.9553E-05 -2.3015E-05
5.7618E-06 1.7918E-05 -2.1109E-05 5.7948E-06 1.7906E-05 -2.1134E-05
12 -6.8918E-06 -2.1098E-05 2.7596E-05 -6.9002E-06 -2.1125E-05 2.7612E-05 -6.8833E-06 -2.1102E-05 2.7599E-05 -7.6198E-06 -2.3015E-05 3.0081E-05
-6.8820E-06 -2.1111E-05 2.7593E-05 -6.9065E-06 -2.1113E-05 2.7623E-05
13 2.4776E-06 5.7515E-06 -6.8546E-06 2.4792E-06 5.7495E-06 -6.8754E-06 2.4961E-06 5.7598E-06 -6.8672E-06 2.4721E-06 5.7618E-06 -6.8820E-06
2.7015E-06 6.2576E-06 -7.4474E-06 2.4730E-06 5.7699E-06 -6.8693E-06
14 5.7963E-06 1.7926E-05 -2.1168E-05 5.8071E-06 1.7969E-05 -2.1147E-05 5.7590E-06 1.7950E-05 -2.1190E-05 5.8237E-06 1.7918E-05 -2.1111E-05
6.2576E-06 1.9816E-05 -2.3210E-05 5.8181E-06 1.7886E-05 -2.1141E-05
15 -6.9000E-06 -2.1108E-05 2.7618E-05 -6.9100E-06 -2.1143E-05 2.7620E-05 -6.8834E-06 -2.1137E-05 2.7651E-05 -6.9180E-06 -2.1109E-05 2.7593E-05
-7.4474E-06 -2.3210E-05 3.0204E-05 -6.9139E-06 -2.1088E-05 2.7608E-05
16 2.5093E-06 5.7992E-06 -6.9447E-06 2.5143E-06 5.8218E-06 -6.9214E-06 2.4786E-06 5.8002E-06 -6.9401E-06 2.5290E-06 5.7948E-06 -6.9065E-06
2.4730E-06 5.8181E-06 -6.9139E-06 2.8181E-06 6.3653E-06 -7.6728E-06
17 5.7671E-06 1.7885E-05 -2.1086E-05 5.7718E-06 1.7897E-05 -2.1101E-05 5.7705E-06 1.7889E-05 -2.1091E-05 5.7748E-06 1.7906E-05 -2.1113E-05
5.7699E-06 1.7886E-05 -2.1088E-05 6.3653E-06 1.9466E-05 -2.3035E-05
18 -6.9069E-06 -2.1121E-05 2.7639E-05 -6.9154E-06 -2.1155E-05 2.7628E-05 -6.8758E-06 -2.1125E-05 2.7638E-05 -6.9338E-06 -2.1134E-05 2.7623E-05
-6.8693E-06 -2.1141E-05 2.7608E-05 -7.6728E-06 -2.3035E-05 3.0309E-05

Correlation matrix of the 6 vectors

1 1.0000E+00 8.6433E-01 -8.3142E-01 9.0567E-01 7.8571E-01 -7.5691E-01 9.0772E-01 7.8547E-01 -7.5480E-01 8.9992E-01 7.8685E-01 -7.5654E-01
9.0758E-01 7.8396E-01 -7.5590E-01 8.9994E-01 7.8698E-01 -7.5535E-01
2 8.6433E-01 1.0000E+00 -9.4905E-01 7.8644E-01 9.1219E-01 -8.6911E-01 7.9064E-01 9.1285E-01 -8.6581E-01 7.8056E-01 9.1504E-01 -8.6944E-01
7.9089E-01 9.1014E-01 -8.6804E-01 7.8078E-01 9.1618E-01 -8.6710E-01
3 -8.3142E-01 -9.4905E-01 1.0000E+00 -7.5530E-01 -8.6475E-01 9.1297E-01 -7.5685E-01 -8.6486E-01 9.0989E-01 -7.5060E-01 -8.6663E-01 9.1296E-01
-7.5671E-01 -8.6281E-01 9.1181E-01 -7.5062E-01 -8.6717E-01 9.1094E-01
4 9.0567E-01 7.8644E-01 -7.5530E-01 1.0000E+00 8.6505E-01 -8.3028E-01 9.0686E-01 7.8526E-01 -7.5471E-01 9.0064E-01 7.8673E-01 -7.5631E-01
9.0677E-01 7.8421E-01 -7.5584E-01 9.0036E-01 7.8642E-01 -7.5512E-01
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7.8754E-01 9.0880E-01 -8.6612E-01 7.8078E-01 9.1324E-01 -8.6512E-01
6 -7.5691E-01 -8.6911E-01 9.1297E-01 -8.3028E-01 -9.4877E-01 1.0000E+00 -7.6138E-01 -8.6774E-01 9.1254E-01 -7.5093E-01 -8.7015E-01 9.1701E-01 -7.6193E-01
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7 9.0772E-01 7.9064E-01 -7.5685E-01 9.0686E-01 7.8745E-01 -7.6138E-01 1.0000E+00 8.5971E-01 -8.2438E-01 8.9629E-01 7.9215E-01 -7.6266E-01
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 8 7.8547E-01 9.1285E-01 -8.6486E-01 7.8526E-01 9.1074E-01 -8.6774E-01 8.5971E-01 1.0000E+00 -9.4916E-01 7.7898E-01 9.1324E-01 -8.6770E-01
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 1.0000E+00 8.5527E-01 -8.2446E-01 8.9626E-01 7.9565E-01 -7.5915E-01
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 17 7.8698E-01 9.1618E-01 -8.6717E-01 7.8642E-01 9.1324E-01 -8.7115E-01 7.9479E-01 9.1442E-01 -8.6660E-01 7.7914E-01 9.1782E-01 -8.7250E-01 7.9565E-
 01 9.1068E-01 -8.6969E-01 8.5940E-01 1.0000E+00 -9.4834E-01
 18 -7.5535E-01 -8.6710E-01 9.1094E-01 -7.5512E-01 -8.6512E-01 9.1409E-01 -7.5897E-01 -8.6536E-01 9.1010E-01 -7.4974E-01 -8.6816E-01 9.1484E-01 -7.5915E-
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G-FILE for the vectors

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 D 11 17 9178226 11 18 -8681580 12 13 -7634265 12 14 -8646684 12 15 9154141
 D 12 16 -7501238 12 17 -8724953 12 18 9148363 13 14 8552652 13 15 -8244607
 D 13 16 8962613 13 17 7956549 13 18 -7591452 14 15 -9487060 14 16 7785625
 D 14 17 9106823 14 18 -8626446 15 16 -7493930 15 17 -8696891 15 18 9124662
 D 16 17 8594046 16 18 -8302207 17 18 -9483378

ITRF position of 0187 as determined by individual baselines

	X	Y	Z
mtms	-1392277.969	-4039469.054	4720929.138
mtlw	-1392277.963	-4039469.034	4720929.104
p053	-1392277.965	-4039469.046	4720929.135
p049	-1392277.959	-4039469.033	4720929.102
p052	-1392277.966	-4039469.056	4720929.129
p050	-1392277.972	-4039469.060	4720929.140

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up
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mtms	-0.006	-0.014	0.023	-0.001	0.004	0.027
mtlw	-0.000	0.006	-0.012	-0.002	-0.004	-0.012
p053	-0.002	-0.006	0.020	0.000	0.009	0.019
p049	0.004	0.007	-0.013	0.001	-0.003	-0.015
p052	-0.003	-0.016	0.014	0.002	-0.002	0.021
p050	-0.009	-0.020	0.025	-0.002	0.000	0.033

STATE PLANE COORDINATES - International Foot

SPC (2500 MT)

Northing (Y) [feet]	1383780.978
Easting (X) [feet]	2086494.173
Convergence [degrees]	0.35299045
Point Scale	0.99955536
Combined Factor	0.99940217

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

dop from interpolation is	0.419
scatter (mean square distance from rover) is	20362.635
average edop for rover is	0.730
average ndop for rover is	1.050
average hdop for rover is	1.279
average vdop for rover is	1.800
average gdop for rover is	2.580

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.