

## OPUS-RS solution : 401289224R.14O OP1408208251642

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

Sat 8/16/2014 11:00 AM

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

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## 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 16, 2014  
 RINEX FILE: 4012224r.14o                              TIME: 17:00:04 UTC

SOFTWARE: rsgps 1.37 RS92.prl 1.99.2              START: 2014/08/12 17:49:45  
 EPHEMERIS: igr18052.eph [rapid]                    STOP: 2014/08/12 18:49:00  
 NAV FILE: brdc2240.14n                              OBS USED: 2490 / 3455 : 72%  
 ANT NAME: CHCX91R                                  NONE                      QUALITY IND. 8.45/ 37.02  
 ARP HEIGHT: 1.800                                    NORMALIZED RMS:        0.306

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)              IGS08 (EPOCH:2014.61305)

X: -1383771.545(m) 0.005(m)                      -1383772.420(m) 0.005(m)  
 Y: -4034581.281(m) 0.016(m)                      -4034580.058(m) 0.016(m)  
 Z: 4727518.019(m) 0.011(m)                      4727518.010(m) 0.011(m)

LAT: 48 8 1.45141 0.005(m)                      48 8 1.47226 0.005(m)  
 E LON: 251 4 9.02361 0.002(m)                    251 4 8.96439 0.002(m)  
 W LON: 108 55 50.97639 0.002(m)                    108 55 51.03561 0.002(m)  
 EL HGT: 945.837(m) 0.019(m)                      945.248(m) 0.019(m)  
 ORTHO HGT: 961.222(m) 0.021(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 12)              SPC (2500 MT )

Northing (Y) [meters]    5333235.236              431713.647  
 Easting (X) [meters]    653948.055              642346.895  
 Convergence [degrees]    1.54122401              0.41635261  
 Point Scale              0.99989121              0.99958475  
 Combined Factor            0.99974301              0.99943659

US NATIONAL GRID DESIGNATOR: 12UXU5394833235(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG9749	MTMS MONTANA STATE UNI CORS ARP	N483227.426	W1094111.858	72051.2
DL7731	P053 WHITEWATERMT2007 CORS ARP	N484333.865	W1074331.456	110899.2
DM7133	MTLW LEWISTOWN CORS ARP	N470314.929	W1092633.764	126073.2
DI3425	P052 LRRNCHJRDNMT2006 CORS ARP	N472229.026	W1070107.185	166376.8
DI2257	P049 ARMINGTON_MT2006 CORS ARP	N472059.850	W1105422.382	171893.6

## 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.

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.