

OPUS-RS solution : 940123268W.14O OP1412016319400

opus <opus@ngs.noaa.gov>

Mon 9/29/2014 12:50 PM

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

FILE: 940123268W.14O OP1412016319400

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: September 29, 2014
 RINEX FILE: 9401268w.14o TIME: 18:49:49 UTC

SOFTWARE: rsgps 1.37 RS92.prl 1.99.2 START: 2014/09/25 22:35:35
 EPHEMERIS: igr18114.eph [rapid] STOP: 2014/09/25 23:35:25
 NAV FILE: brdc2680.14n OBS USED: 2708 / 2712 : 100%
 ANT NAME: CHCX91R NONE QUALITY IND. 11.69/ 15.15
 ARP HEIGHT: 1.8000 NORMALIZED RMS: 0.345

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.73414)

X: -1346521.662(m) 0.003(m) -1346522.527(m) 0.003(m)
 Y: -4225692.849(m) 0.008(m) -4225691.603(m) 0.008(m)
 Z: 4569760.336(m) 0.012(m) 4569760.303(m) 0.012(m)

LAT: 46 2 57.87030 0.004(m) 46 2 57.89111 0.004(m)
 E LON: 252 19 31.66769 0.003(m) 252 19 31.61176 0.003(m)
 W LON: 107 40 28.33231 0.003(m) 107 40 28.38824 0.003(m)
 EL HGT: 971.681(m) 0.014(m) 971.015(m) 0.014(m)
 ORTHO HGT: 986.344(m) 0.016(m) [NAVD88 (Computed using GEOID12A)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 13) SPC (2500 MT)

Northing (Y) [meters] 5103015.096 201612.836
 Easting (X) [meters] 293091.501 741201.670
 Convergence [degrees] -1.92618252 1.33533404
 Point Scale 1.00012632 0.99953260
 Combined Factor 0.99997400 0.99938037

US NATIONAL GRID DESIGNATOR: 13TBM9309103015(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7728	P051 BILLINGSAPMT2005	CORS ARP	N454823.741 W1083246.070	72803.0
DI3425	P052 LRRNCHJRDNMT2006	CORS ARP	N472229.026 W1070107.185	155648.2
DL7758	P722 YNPBASSRCHMT2005	CORS ARP	N452725.985 W1093415.586	161593.3
DM7133	MTLW LEWISTOWN	CORS ARP	N470314.929 W1092633.764	175692.8

NEAREST NGS PUBLISHED CONTROL POINT

RU0415	C 554	N460432.	W1074138.	3272.1
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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.