

OPUS solution : 018772_14_259_A0.14O OP1411073458415

opus <opus@ngs.noaa.gov>

Thu 9/18/2014 2:54 PM

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

FILE: 018772_14_259_A0.14O OP1411073458415

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>USER: john.freetly@neciusa.com
RINEX FILE: 0187259t.14oDATE: September 18, 2014
TIME: 20:54:01 UTCSOFTWARE: page5 1209.04 master50.pl 022814 START: 2014/09/16 19:30:00
EPHEMERIS: igr18102.eph [rapid] STOP: 2014/09/16 21:33:00
NAV FILE: brdc2590.14n OBS USED: 4358 / 4623 : 94%
ANT NAME: CHCX90D-OPUS NONE # FIXED AMB: 23 / 23 : 100%
ARP HEIGHT: 1.800 OVERALL RMS: 0.009(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.7092)

X: -1375136.519(m) 0.011(m) -1375137.378(m) 0.011(m)
Y: -4297223.749(m) 0.010(m) -4297222.495(m) 0.010(m)
Z: 4495224.175(m) 0.021(m) 4495224.132(m) 0.021(m)LAT: 45 5 10.95717 0.009(m) 45 5 10.97757 0.009(m)
E LON: 252 15 18.09714 0.009(m) 252 15 18.04227 0.009(m)
W LON: 107 44 41.90286 0.009(m) 107 44 41.95773 0.009(m)
EL HGT: 1543.628(m) 0.023(m) 1542.939(m) 0.023(m)
ORTHO HGT: 1555.218(m) 0.040(m) [NAVD88 (Computed using GEOID12A)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 13) SPC (2500 MT)

Northing (Y) [meters] 4996211.806 94511.264
Easting (X) [meters] 283979.585 738151.679
Convergence [degrees] -1.94466204 1.28380962
Point Scale 1.00017383 0.99994925
Combined Factor 0.99993183 0.99970730

US NATIONAL GRID DESIGNATOR: 13TBK8397996211(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DI3062	BIL5 BILLINGS 5 CORS ARP	N455816.237	W1075947.298	100302.0
DM7161	WYSH SHERIDAN CORS ARP	N444801.769	W1070035.715	66157.8
DL7728	P051 BILLINGSAPMT2005 CORS ARP	N454823.741	W1083246.070	101683.7

NEAREST NGS PUBLISHED CONTROL POINT

QV0349	SPRING	N450430.189	W1074418.593	1359.5
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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.