

OPUS solution : 018697_14_247_A1.14O OP1410204515538

opus <opus@ngs.noaa.gov>

Mon 9/8/2014 1:32 PM

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

FILE: 018697_14_247_A1.14O OP1410204515538

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: 0186247v.14oDATE: September 08, 2014
TIME: 19:31:29 UTCSOFTWARE: page5 1209.04 master90.pl 022814 START: 2014/09/04 21:00:00
EPHEMERIS: igr18084.eph [rapid] STOP: 2014/09/04 23:52:00
NAV FILE: brdc2470.14n OBS USED: 6078 / 6585 : 92%
ANT NAME: CHCX90D-OPUS NONE # FIXED AMB: 39 / 41 : 95%
ARP HEIGHT: 1.800 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.6765)

X: -1353055.661(m) 0.008(m) -1353056.520(m) 0.008(m)
Y: -4296808.489(m) 0.011(m) -4296807.235(m) 0.011(m)
Z: 4501884.819(m) 0.007(m) 4501884.776(m) 0.007(m)LAT: 45 10 25.57169 0.007(m) 45 10 25.59226 0.007(m)
E LON: 252 31 15.23431 0.011(m) 252 31 15.17955 0.011(m)
W LON: 107 28 44.76569 0.011(m) 107 28 44.82045 0.011(m)
EL HGT: 1271.398(m) 0.007(m) 1270.707(m) 0.007(m)
ORTHO HGT: 1284.883(m) 0.015(m) [NAVD88 (Computed using GEOID12A)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 13) SPC (2500 MT)

Northing (Y) [meters] 5005244.275 104724.110
Easting (X) [meters] 305200.666 758825.584
Convergence [degrees] -1.75884894 1.47829569
Point Scale 1.00006661 0.99990014
Combined Factor 0.99986730 0.99970087

US NATIONAL GRID DESIGNATOR: 13TCL0520005244(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7728	P051 BILLINGSAPMT2005	CORS ARP	N454823.741 W1083246.070	109123.5
DM7161	WYSH SHERIDAN	CORS ARP	N444801.769 W1070035.715	55597.9
DI3062	BIL5 BILLINGS 5	CORS ARP	N455816.237 W1075947.298	97409.4

NEAREST NGS PUBLISHED CONTROL POINT

QV0341	ATT MICROWAVE TWR 7 MI W WYOLA	N450859.864 W1073146.963	4775.4
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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.