

## OPUS-RS solution : 018697\_14\_253\_A0.14O OP1410794392301

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

Mon 9/15/2014 9:23 AM

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

FILE: 018697\_14\_253\_A0.14O OP1410794392301

6011 Warning - OPUS-RS was able to find a set of reference stations  
 6011 with data suitable for use with your dataset. However, your  
 6011 position does not fall within the polygon enclosing these reference  
 6011 stations. This means that the geographic interpolation algorithms  
 6011 performed within OPUS-RS must instead perform extrapolation.  
 6011 Extrapolation, especially if your position is far from the  
 6011 reference stations, is prone to error. Use this solution with  
 6011 caution.

bi5  
 mtei  
 p033  
 p722

Your station is 13.7 KM outside the polygon enclosing the reference stations

## 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  
 RINEX FILE: 0186253a.14o

DATE: September 15, 2014  
 TIME: 15:22:55 UTC

SOFTWARE: rsgps 1.37 RS93.prl 1.99.2      START: 2014/09/10 00:10:00  
 EPHEMERIS: igr18093.eph [rapid]      STOP: 2014/09/10 01:09:15  
 NAV FILE: brdc2530.14n      OBS USED: 2208 / 2824 : 78%  
 ANT NAME: CHCX90D-OPUS    NONE      QUALITY IND. 13.17/ 3.26  
 ARP HEIGHT: 1.8000      NORMALIZED RMS:    0.309

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)      IGS08 (EPOCH:2014.69049)

X: -1360624.474(m) 0.008(m)      -1360625.332(m) 0.008(m)  
 Y: -4305241.697(m) 0.027(m)      -4305240.442(m) 0.027(m)  
 Z: 4491600.102(m) 0.026(m)      4491600.058(m) 0.026(m)

LAT: 45 2 33.71148 0.008(m) 45 2 33.73198 0.008(m)  
 E LON: 252 27 41.14746 0.005(m) 252 27 41.09281 0.005(m)  
 W LON: 107 32 18.85254 0.005(m) 107 32 18.90719 0.005(m)  
 EL HGT: 1268.544(m) 0.037(m) 1267.850(m) 0.037(m)  
 ORTHO HGT: 1280.746(m) 0.039(m) [NAVD88 (Computed using GEOID12A)]

UTM COORDINATES STATE PLANE COORDINATES

	UTM (Zone 13)	SPC (2500 MT )
Northing (Y) [meters]	4990828.780	90044.209
Easting (X) [meters]	300070.505	754517.561
Convergence [degrees]	-1.79697027	1.43479418
Point Scale	1.00009152	0.99997464
Combined Factor	0.99989265	0.99977579

US NATIONAL GRID DESIGNATOR: 13TCK0007090828(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DI3062	BIL5 BILLINGS 5 CORS ARP	N455816.237	W1075947.298	109238.4
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	114153.9
DJ8992	P033 TENSLEEPTRWY2005 CORS ARP	N435710.415	W1072315.121	121718.9
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	166095.2

NEAREST NGS PUBLISHED CONTROL POINT

QV0344	LH 52	N450419.736	W1073520.458	5146.3
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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.