

## OPUS-RS solution : 018772\_14\_250\_A0.14O OP1410562681087

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

Fri 9/12/2014 5:02 PM

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  
RINEX FILE: 0187250r.14oDATE: September 12, 2014  
TIME: 23:01:48 UTCSOFTWARE: rsgps 1.37 RS92.prl 1.99.2      START: 2014/09/07 17:39:30  
EPHEMERIS: igr18090.eph [rapid]      STOP: 2014/09/07 19:38:15  
NAV FILE: brdc2500.14n      OBS USED: 4948 / 5580 : 89%  
ANT NAME: CHCX90D-OPUS    NONE      QUALITY IND. 48.85/102.33  
ARP HEIGHT: 1.8000      NORMALIZED RMS:    0.288

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)      IGS08 (EPOCH:2014.68432)

X: -1361379.392(m) 0.006(m)      -1361380.251(m) 0.006(m)  
Y: -4296604.085(m) 0.009(m)      -4296602.831(m) 0.009(m)  
Z: 4499563.728(m) 0.011(m)      4499563.685(m) 0.011(m)LAT: 45 8 39.46576 0.009(m)      45 8 39.48626 0.009(m)  
E LON: 252 25 9.08451 0.008(m)      252 25 9.02970 0.008(m)  
W LON: 107 34 50.91549 0.008(m)      107 34 50.97030 0.008(m)  
EL HGT: 1256.042(m) 0.010(m)      1255.351(m) 0.010(m)  
ORTHO HGT: 1268.952(m) 0.013(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 13)      SPC (2500 MT )

Northing (Y) [meters]    5002220.474      101248.768  
Easting (X) [meters]    297104.156      750914.058  
Convergence [degrees]    -1.83012015      1.40389566  
Point Scale      1.00010621      0.99991645  
Combined Factor      0.99990930      0.99971958

US NATIONAL GRID DESIGNATOR: 13TBL9710402220(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DM7161	WYSH SHERIDAN CORS ARP	N444801.769	W1070035.715	59069.5
DI3062	BIL5 BILLINGS 5 CORS ARP	N455816.237	W1075947.298	97479.6
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	104122.7
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	159949.2

## NEAREST NGS PUBLISHED CONTROL POINT

QV0340	WAVE	N450858.687	W1073149.176	4007.9
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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.