

## OPUS-RS solution : 018773\_14\_260\_A1.14O OP1411500757794

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

Tue 9/23/2014 1:37 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: 0187260v.14oDATE: September 23, 2014  
TIME: 19:37:05 UTCSOFTWARE: rsgps 1.37 RS53.prl 1.99.2      START: 2014/09/17 21:40:00  
EPHEMERIS: igr18103.eph [rapid]      STOP: 2014/09/17 22:59:30  
NAV FILE: brdc2600.14n      OBS USED: 2400 / 3125 : 77%  
ANT NAME: CHCX90D-OPUS    NONE      QUALITY IND. 10.25/ 31.78  
ARP HEIGHT: 1.8000      NORMALIZED RMS:    0.445

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)      IGS08 (EPOCH:2014.71214)

X: -1372888.708(m) 0.007(m)      -1372889.567(m) 0.007(m)  
Y: -4295604.622(m) 0.007(m)      -4295603.368(m) 0.007(m)  
Z: 4497556.329(m) 0.016(m)      4497556.286(m) 0.016(m)LAT: 45 6 55.35421 0.007(m)      45 6 55.37464 0.007(m)  
E LON: 252 16 33.44604 0.007(m)      252 16 33.39116 0.007(m)  
W LON: 107 43 26.55396 0.007(m)      107 43 26.60884 0.007(m)  
EL HGT: 1623.743(m) 0.016(m)      1623.054(m) 0.016(m)  
ORTHO HGT: 1635.725(m) 0.018(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 13)      SPC (2500 MT )

Northing (Y) [meters]    4999377.583      97770.170  
Easting (X) [meters]    285735.299      739725.917  
Convergence [degrees]    -1.93079562      1.29912018  
Point Scale      1.00016453      0.99993271  
Combined Factor      0.99990998      0.99967821

US NATIONAL GRID DESIGNATOR: 13TBK8573599377(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DM7161	WYSH SHERIDAN CORS ARP	N444801.769	W1070035.715	66344.6
DI3062	BIL5 BILLINGS 5 CORS ARP	N455816.237	W1075947.298	97487.2
DG9745	MTEI ENGINC CORS ARP	N454447.035	W1083600.736	98098.2
DJ8992	P033 TENSLEEPTRWY2005 CORS ARP	N435710.415	W1072315.121	131946.7
DL7758	P722 YNPBASSRCHMT2005 CORS ARP	N452725.985	W1093415.586	149826.0

## NEAREST NGS PUBLISHED CONTROL POINT

QV0349	SPRING	N450430.189	W1074418.593	4630.3
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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.