

## OPUS solution : 018506\_14\_251\_A0.14O OP1410292262855

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

Tue 9/9/2014 1:54 PM

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

FILE: 018506\_14\_251\_A0.14O OP1410292262855

## 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: 0185251s.14oDATE: September 09, 2014  
TIME: 19:53:59 UTCSOFTWARE: page5 1209.04 master91.pl 022814    START: 2014/09/08 18:08:00  
EPHEMERIS: igr18091.eph [rapid]            STOP: 2014/09/08 21:21:30  
NAV FILE: brdc2510.14n                    OBS USED: 7027 / 7564 : 93%  
ANT NAME: CHCX90D-OPUS    NONE            # FIXED AMB: 54 / 56 : 96%  
ARP HEIGHT: 2.000                        OVERALL RMS: 0.014(m)

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)            IGS08 (EPOCH:2014.6872)

X: -1410133.844(m) 0.007(m)    -1410134.705(m) 0.007(m)  
Y: -4259746.728(m) 0.017(m)    -4259745.479(m) 0.017(m)  
Z: 4519524.533(m) 0.025(m)    4519524.494(m) 0.025(m)LAT: 45 23 55.48539    0.004(m)    45 23 55.50560    0.004(m)  
E LON: 251 41 0.76208    0.003(m)    251 41 0.70646    0.003(m)  
W LON: 108 18 59.23792    0.003(m)    108 18 59.29354    0.003(m)  
EL HGT: 1334.321(m) 0.031(m)    1333.651(m) 0.031(m)  
ORTHO HGT: 1346.717(m) 0.053(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 12)            SPC (2500 MT )

Northing (Y) [meters]    5030750.938            128374.297  
Easting (X) [meters]    710031.276            692645.708  
Convergence [degrees]    1.91140859            0.86576816  
Point Scale            1.00014241            0.99978406  
Combined Factor            0.99993323            0.99957495

US NATIONAL GRID DESIGNATOR: 12TYR1003130750(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL7758	P722 YNPBASSRCHMT2005	CORS ARP N452725.985	W1093415.586	98411.8
DI3064	BIL6 BILLINGS 6	CORS ARP N455816.251	W1075948.499	68335.7
DG9745	MTEI ENGINC	CORS ARP N454447.035	W1083600.736	44546.5

## NEAREST NGS PUBLISHED CONTROL POINT

QW0678	22 DHW	N452420.	W1081934.	1069.7
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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.