

## OPUS solution : 033845\_14\_256\_A0.14O OP1410878427008

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

Tue 9/16/2014 8:43 AM

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

FILE: 033845\_14\_256\_A0.14O OP1410878427008

## 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: 0338256r.14oDATE: September 16, 2014  
TIME: 14:43:20 UTCSOFTWARE: page5 1209.04 master91.pl 022814    START: 2014/09/13 17:27:00  
EPHEMERIS: igr18096.eph [rapid]            STOP: 2014/09/13 20:27:00  
NAV FILE: brdc2560.14n                    OBS USED: 6974 / 7147 : 98%  
ANT NAME: CHCX90D-OPUS    NONE            # FIXED AMB: 35 / 36 : 97%  
ARP HEIGHT: 1.804                        OVERALL RMS: 0.012(m)

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000)            IGS08 (EPOCH:2014.7008)

X: -1313970.695(m) 0.002(m)    -1313971.558(m) 0.002(m)  
Y: -4250960.379(m) 0.010(m)    -4250959.130(m) 0.010(m)  
Z: 4555911.462(m) 0.017(m)    4555911.426(m) 0.017(m)LAT: 45 52 11.81625 0.015(m)    45 52 11.83725 0.015(m)  
E LON: 252 49 25.08667 0.001(m)    252 49 25.03135 0.001(m)  
W LON: 107 10 34.91333 0.001(m)    107 10 34.96865 0.001(m)  
EL HGT: 999.114(m) 0.014(m)    998.434(m) 0.014(m)  
ORTHO HGT: 1013.970(m) 0.025(m) [NAVD88 (Computed using GEOID12A)]

## UTM COORDINATES    STATE PLANE COORDINATES

UTM (Zone 13)    SPC (2500 MT )

Northing (Y) [meters]    5081901.278    182703.959  
Easting (X) [meters]    331085.834    780317.152  
Convergence [degrees]    -1.56247809    1.69974891  
Point Scale    0.99995077    0.99958940  
Combined Factor    0.99979417    0.99943286

US NATIONAL GRID DESIGNATOR: 13TCL3108581901(NAD 83)

## BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DI3425	P052 LRRNCHJRDNMT2006	CORS ARP	N472229.026 W1070107.185	167731.7
DM7161	WYSH SHERIDAN	CORS ARP	N4444801.769 W1070035.715	119590.9
DL7728	P051 BILLINGSAPMT2005	CORS ARP	N454823.741 W1083246.070	106662.9

## NEAREST NGS PUBLISHED CONTROL POINT

QV0310	MASCHETAH	N455111.220	W1071412.746	5051.2
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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.