

OPUS solution : 033845_14_249_A0.14O OP1410277962014

opus <opus@ngs.noaa.gov>

Tue 9/9/2014 9:56 AM

To: John Freetly <John.Freetly@neciusa.com>;

FILE: 033845_14_249_A0.14O OP1410277962014

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

DATE: September 09, 2014

RINEX FILE: 0338249r.14o

TIME: 15:55:33 UTC

SOFTWARE: page5 1209.04 master90.pl 022814 START: 2014/09/06 17:11:00
 EPHEMERIS: igr18086.eph [rapid] STOP: 2014/09/06 20:44:00
 NAV FILE: brdc2490.14n OBS USED: 8143 / 8640 : 94%
 ANT NAME: CHCX90D-OPUS NONE # FIXED AMB: 50 / 51 : 98%
 ARP HEIGHT: 2.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2014.6816)

| | | | | |
|----|-----------------|----------|-----------------|----------|
| X: | -1327259.941(m) | 0.002(m) | -1327260.803(m) | 0.002(m) |
| Y: | -4254100.848(m) | 0.016(m) | -4254099.598(m) | 0.016(m) |
| Z: | 4549195.061(m) | 0.010(m) | 4549195.024(m) | 0.010(m) |

| | | | | |
|------------|-----------------|----------|------------------------------------|----------|
| LAT: | 45 46 59.04602 | 0.012(m) | 45 46 59.06692 | 0.012(m) |
| E LON: | 252 40 20.34425 | 0.003(m) | 252 40 20.28893 | 0.003(m) |
| W LON: | 107 19 39.65575 | 0.003(m) | 107 19 39.71107 | 0.003(m) |
| EL HGT: | 1018.223(m) | 0.013(m) | 1017.543(m) | 0.013(m) |
| ORTHO HGT: | 1032.968(m) | 0.023(m) | [NAVD88 (Computed using GEOID12A)] | |

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 13) SPC (2500 MT)

| | | |
|-----------------------|-------------|------------|
| Northing (Y) [meters] | 5072580.251 | 172717.873 |
| Easting (X) [meters] | 319060.415 | 768845.522 |
| Convergence [degrees] | -1.66871122 | 1.58905964 |
| Point Scale | 1.00000251 | 0.99962034 |
| Combined Factor | 0.99984291 | 0.99946080 |

US NATIONAL GRID DESIGNATOR: 13TCL1906072580(NAD 83)

BASE STATIONS USED

| PID | DESIGNATION | LATITUDE | LONGITUDE | DISTANCE(m) |
|--------|--------------------------------|-------------|--------------|-------------|
| DG9745 | MTEI ENGINC CORS ARP | N454447.035 | W1083600.736 | 99088.0 |
| DI3425 | P052 LRRNCHJRDNMT2006 CORS ARP | N472229.026 | W1070107.185 | 178531.8 |
| DL7728 | P051 BILLINGSAPMT2005 CORS ARP | N454823.741 | W1083246.070 | 94783.2 |

NEAREST NGS PUBLISHED CONTROL POINT

| | | | | |
|--------|-----------|-------------|--------------|---------|
| QV0310 | MASCHETAH | N455111.220 | W1071412.746 | 10509.0 |
|--------|-----------|-------------|--------------|---------|

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.