



9375 Chillicothe Road
Kirtland, OH 44094-8501

T (440) 256-6500

www.sme-usa.com

March 25, 2016

David Lastovka, P.E.
ODOT District 12 Transportation Engineer
Ohio Department of Transportation
5500 Transportation Boulevard
Garfield Heights, Ohio 44125-5396

E-mail to: Dave.Lastovka@dot.state.oh.us

Re: March 9 and 11, 2016 Bi-Weekly Readings
CUY-90-15.24 Slope Monitoring
PID 96504
SME Project No. 069032.00

Dear Mr. Lastovka:

Bi-weekly instrument readings for the I-90 west slope taken on March 9 and 11, 2016, are presented in this report. Bi Weekly readings currently include instruments at I/P-001-13, I/P-002-13, I/P-003-A-10, I/P-004-13, I/P-009-13, B-101, B-102, B-105, B-105A, B-05-03, B-05-04, B-05-A-11, P-1, P-9N, TGR I-2, and TGR I-4.

Piezometer Readings

P-001-13 – In every piezometer at this location, pore pressure readings indicate an increase in total head of about 0.5 feet over the past two weeks.

P-002-13 – Pore pressure readings in all piezometers at this location indicate a slight increase in total head.

P-003-10 – The gabion basket construction and backfill operation in the immediate area of these instruments was completed last week. We installed protective covers and reattached the dataloggers. When we returned later in the week for our biweekly readings we were unable to download data for the piezometer at 98 feet. We replaced the batteries in the datalogger and it seems to be functioning normally again. Pore pressure readings in the other piezometers indicate increases in total head ranging from 0.3 feet to 1 foot, with the largest increases occurring in the piezometers at 38, 48, and 68 feet. With these changes, the total heads are about the same as they were in early February.

P-004-13 – Piezometers at this location are still inaccessible.

P-009-13 – Pore pressure readings in the deep piezometer at this location increased by about 0.5 feet over the past two weeks. Pore pressures in the shallow piezometer fluctuated throughout the past two weeks, but show virtually no net change.

B-05-04 – Bi-weekly readings at this location show increases in total head of about 0.5 feet in both piezometers. Average pore water pressures have remained nearly constant since mid-December 2015.

B-05-A-11 – Pore pressure readings at this location indicate increases in total head of about 0.5 feet in both piezometers during the past two weeks. Average pore water pressures have remained nearly constant since mid-October 2015.

Inclinometer Readings

Inclinometer readings at I-001-13, I-002-13, B-102, B-05-04, B-05-A-11, P-9N, and TGR I-4 showed virtually no movement this two-week period. Displacements at the top of some slope tubes is due to flexing of the tube when readings are taken because some of the protective covers are only temporarily set in place until earthwork near these installations is completed.

I-003-10 – We added a 4 foot section of casing to the inclinometer tube at this location because of the change in grade from the backfill operation in this area. We also installed a new protective cover. Absolute position plots for our new baseline reading as well as the plots from our previous readings are included in this report.

I-004-13 – The inclinometer at this location is still inaccessible.

I-009-13 – Inclinometer readings at this location indicate slight movement in the positive B-axis direction above 40 feet. No movement was indicated in the A-axis direction.

B-101 – At this location, inclinometer readings indicate displacement in the negative A-axis direction between 80 and 180 feet. This is a reversal of the direction of movement seen over the past two months. No movement was indicated in the B-axis.

B-105A – We extended the inclinometer at this location so that TGR could continue backfilling in this area. The “stickup” at this inclinometer is still too high for us to take readings.

P-1 – Inclinometer readings for this location indicate movement in the positive A-axis direction and negative B-axis direction between about 120 and 140 feet. This is a reversal of the direction of movement observed over the past month. The cumulative resultant displacement zone plot at 132 feet indicates a decrease of about 0.4 inches.

TGR I-2 – This location is still inaccessible.

This concludes our report of bi-weekly instrument readings. Please call or email with any questions.

Very truly yours,

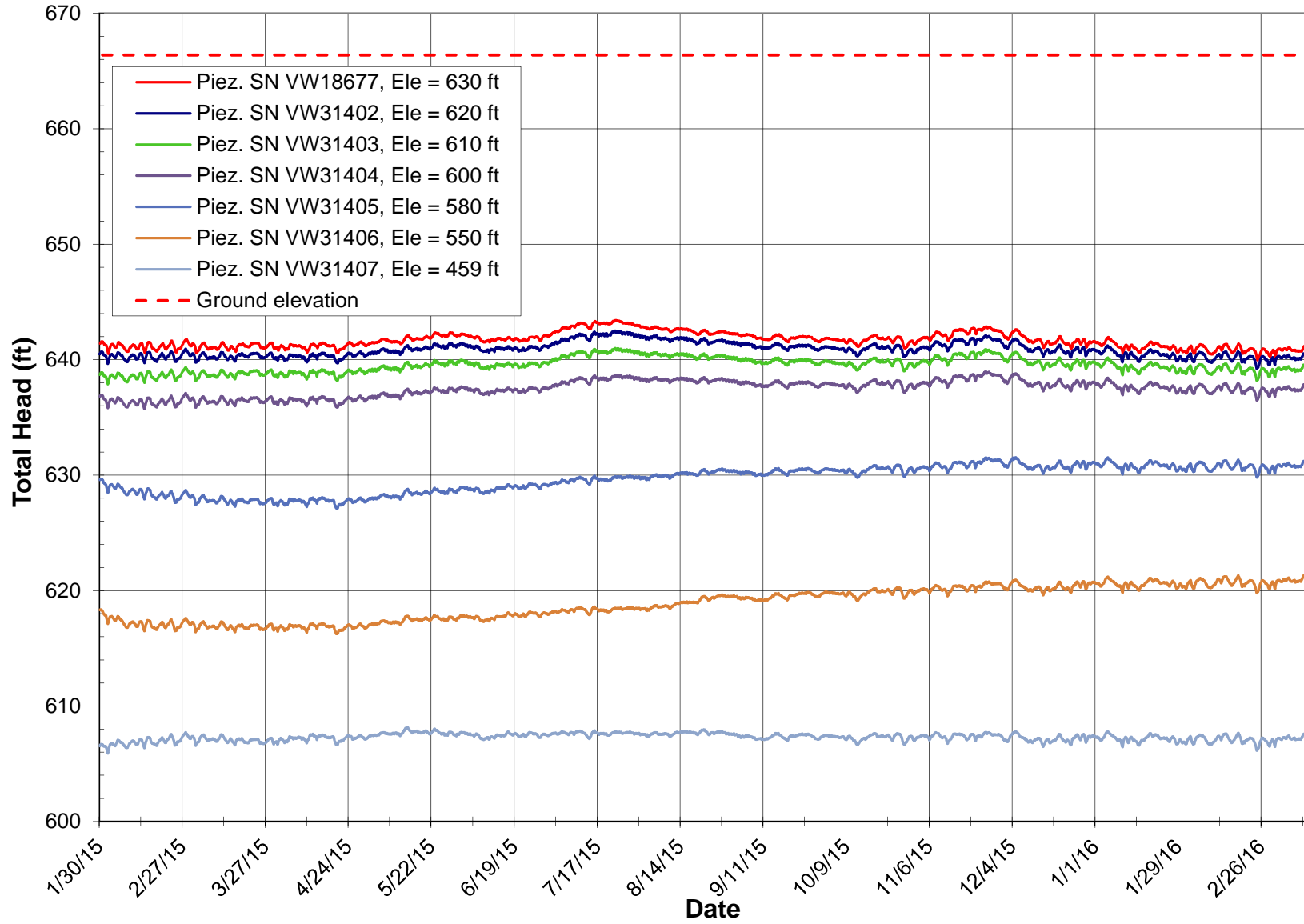
SME

Brendan P. Lieske, E.I.
Staff Engineer

For:
Alan J. Esser, P.E., D.GE
Chief Consultant

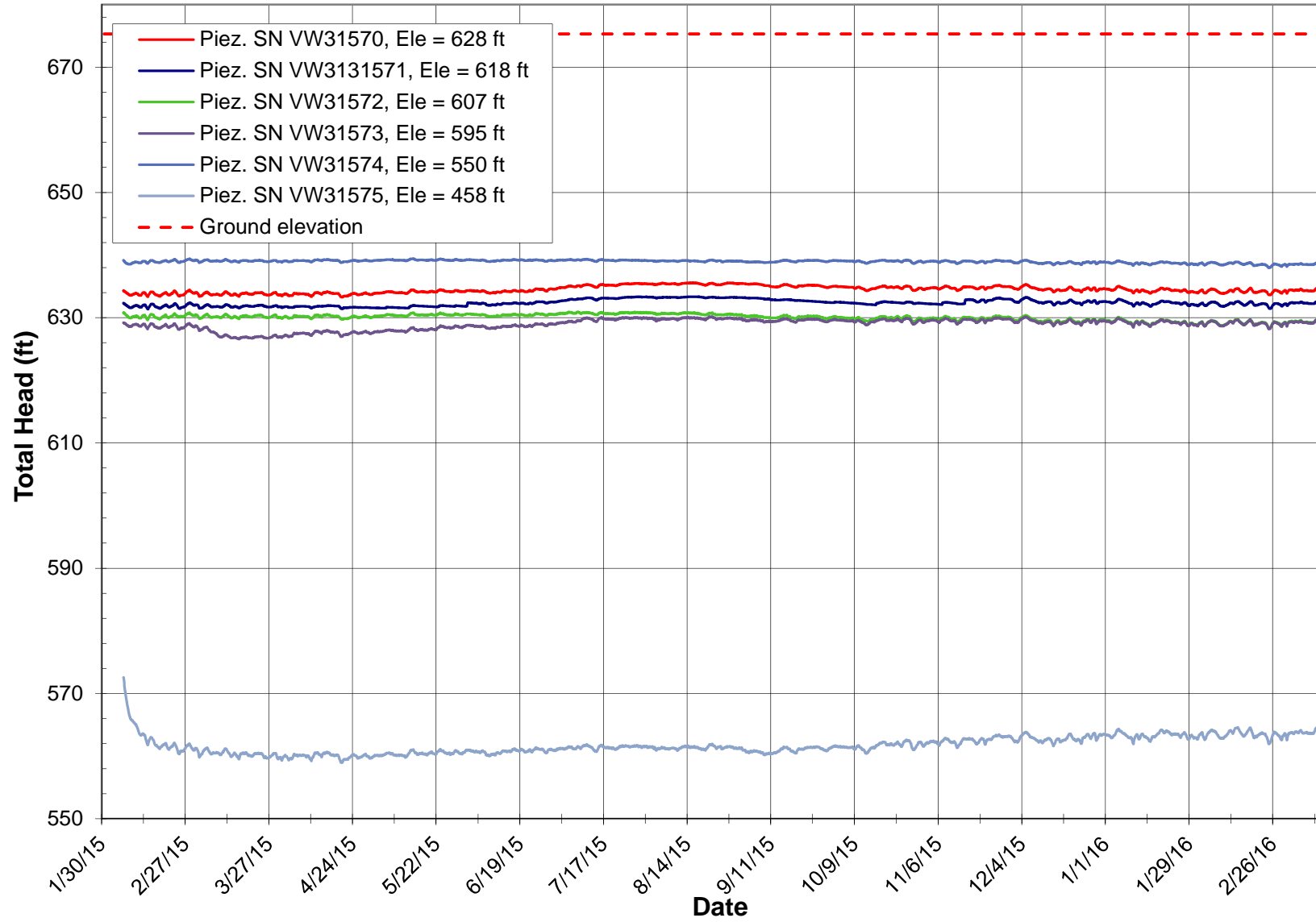
P-001-13 VW Piezometer Readings

Ground surface elevation = 666.4 ft



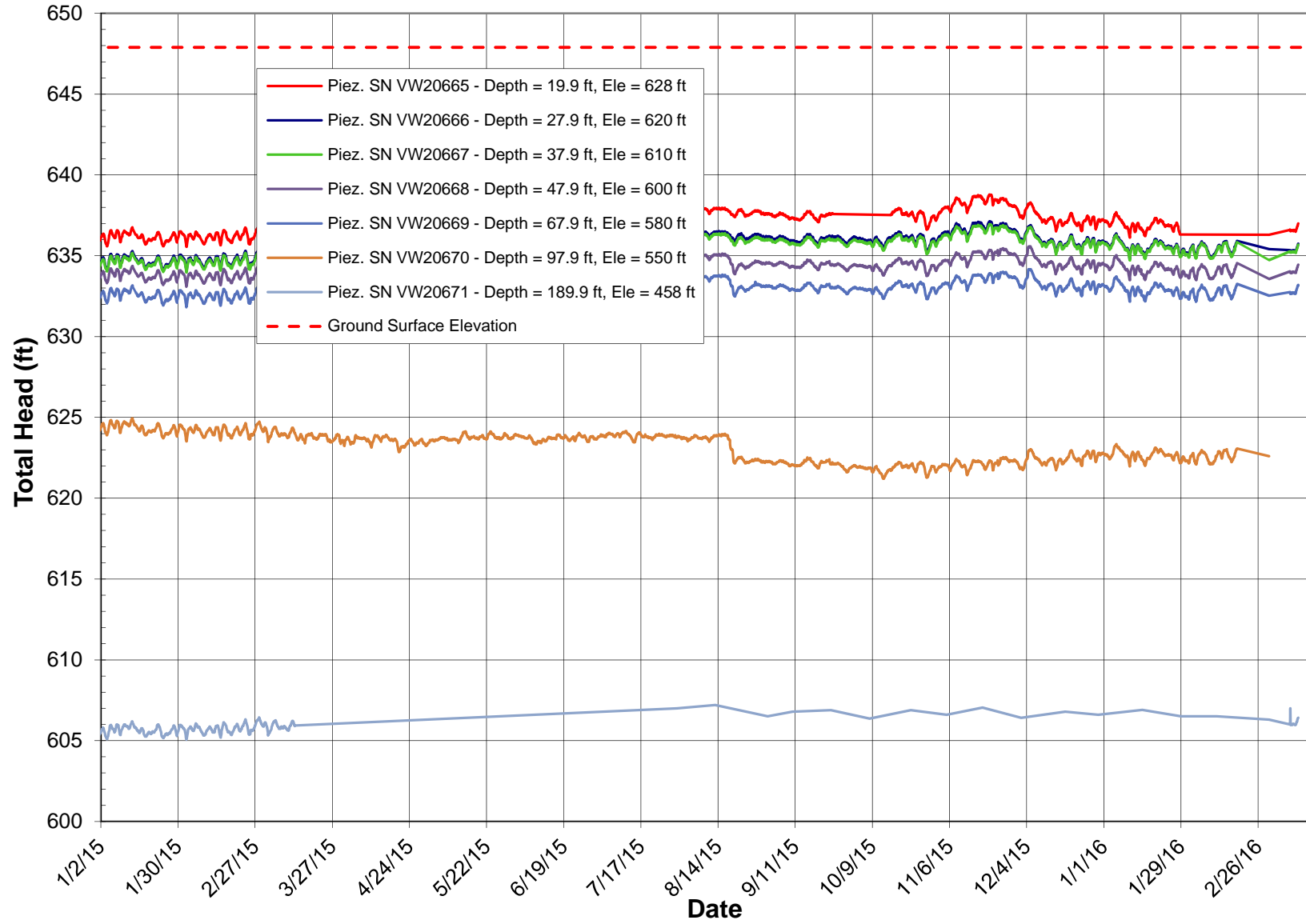
P-002-13 VW Piezometer Readings

Ground surface elevation = 675.29 ft



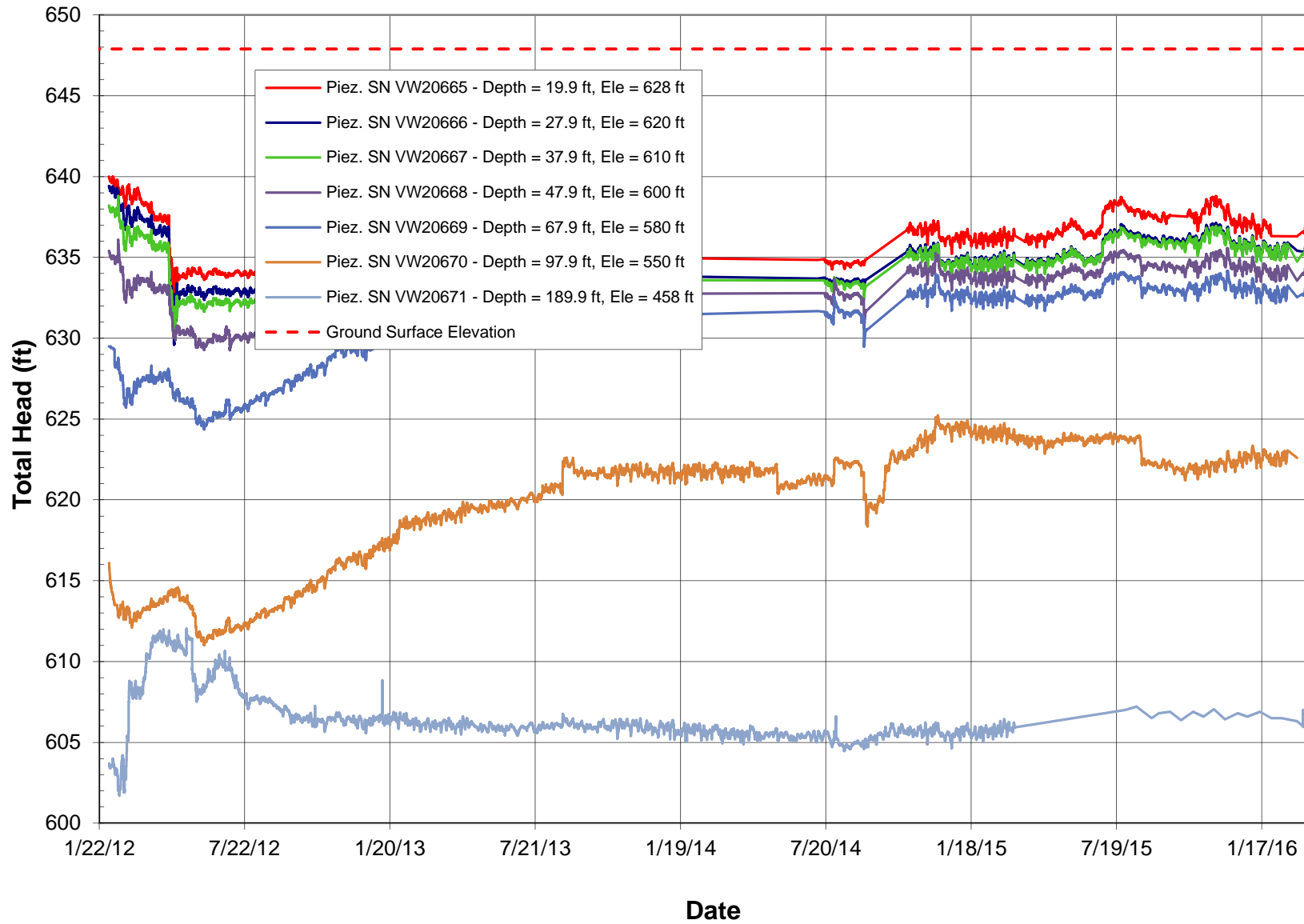
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



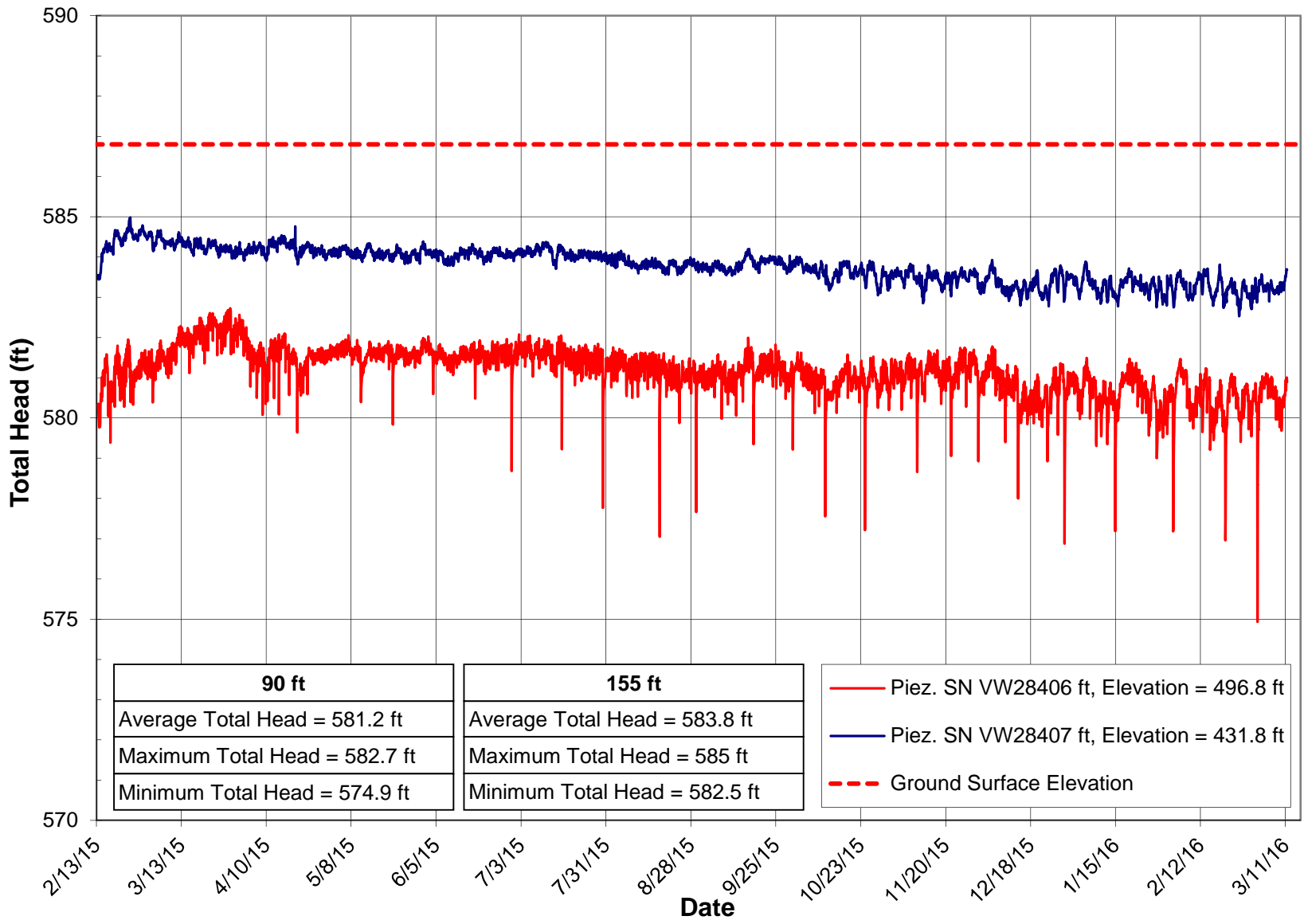
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



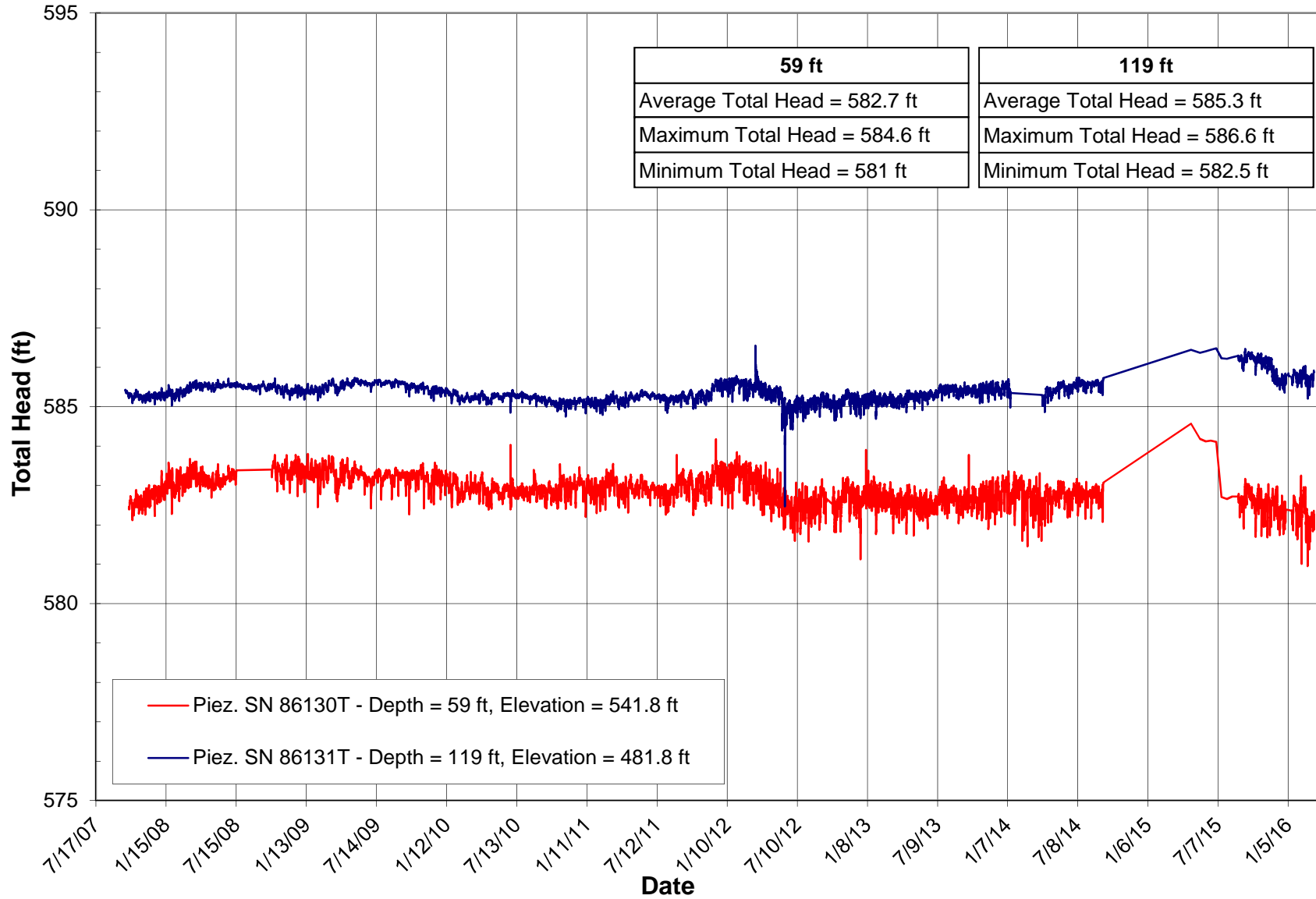
P-009-13 VW Piezometer Readings

Ground surface elevation = 586.6 ft



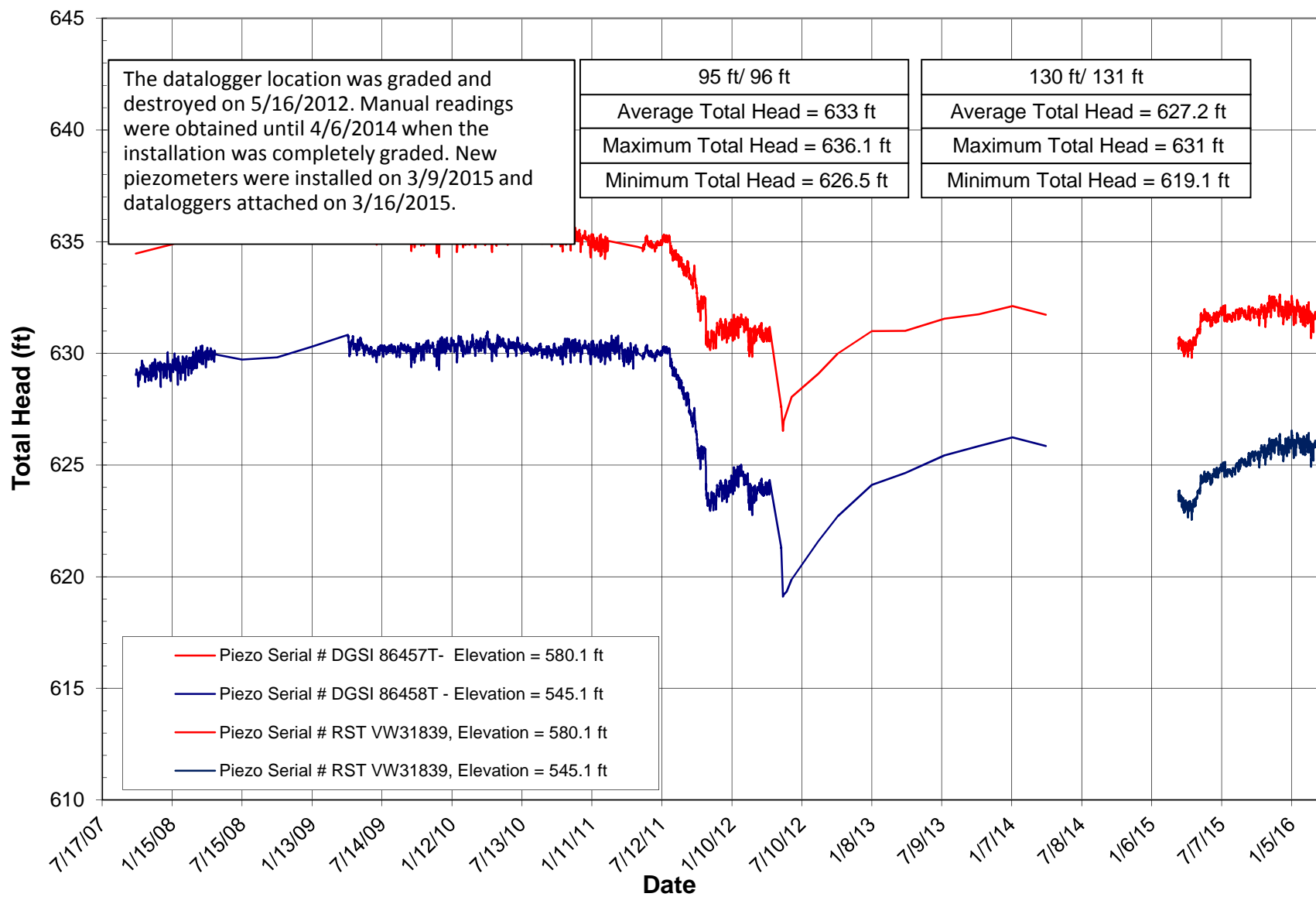
B-05-04 VW Piezometer Readings

Ground surface elevation = 600.8 ft



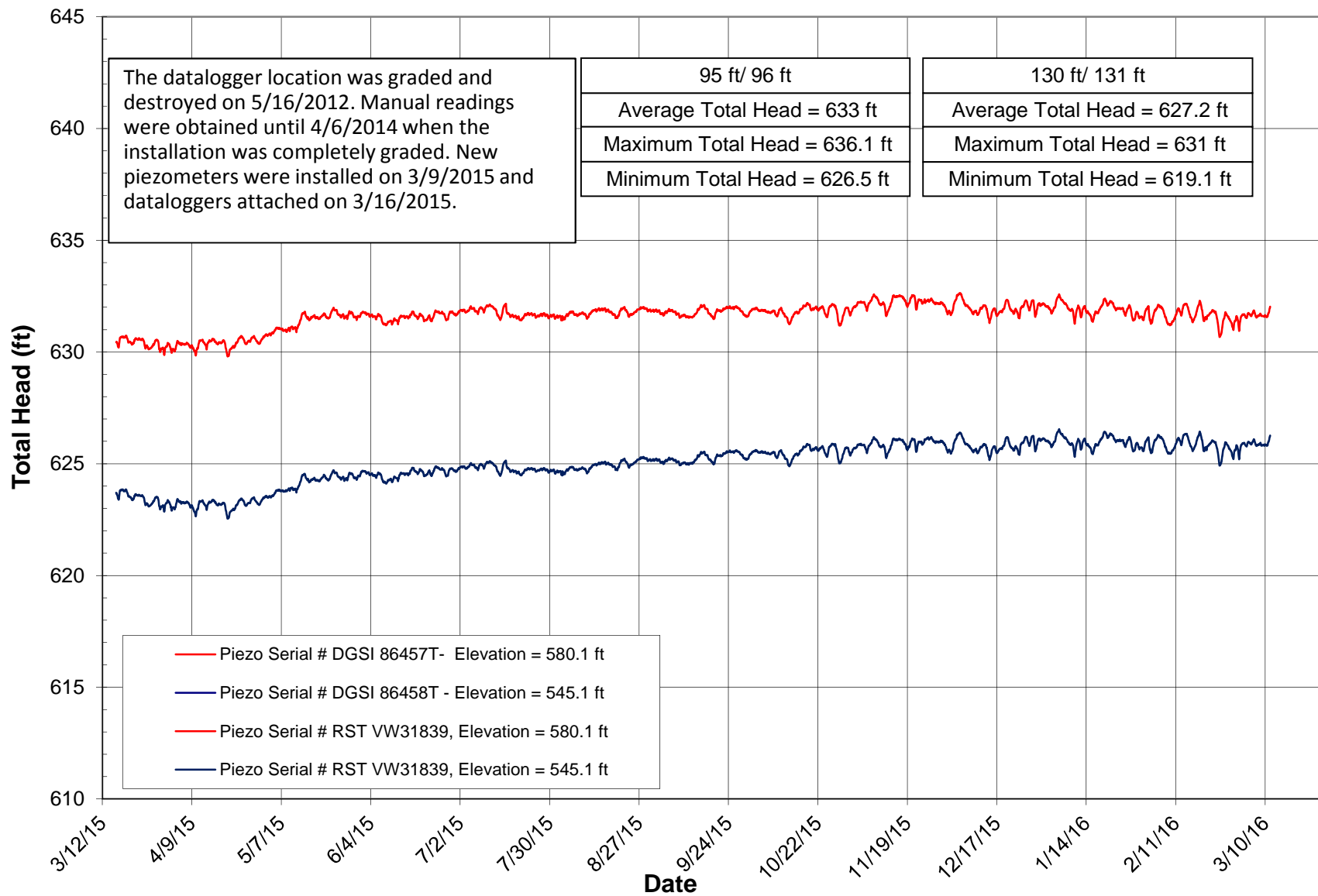
B-05-11/B-05-A-11 VW Piezometer Readings

Ground surface elevation = 675.1 ft (B-05-11) / 676.1 ft (B-05-A-11)



B-05-11/B-05-A-11 VW Piezometer Readings

Ground surface elevation = 675.1 ft (B-05-11) / 676.1 ft (B-05-A-11)

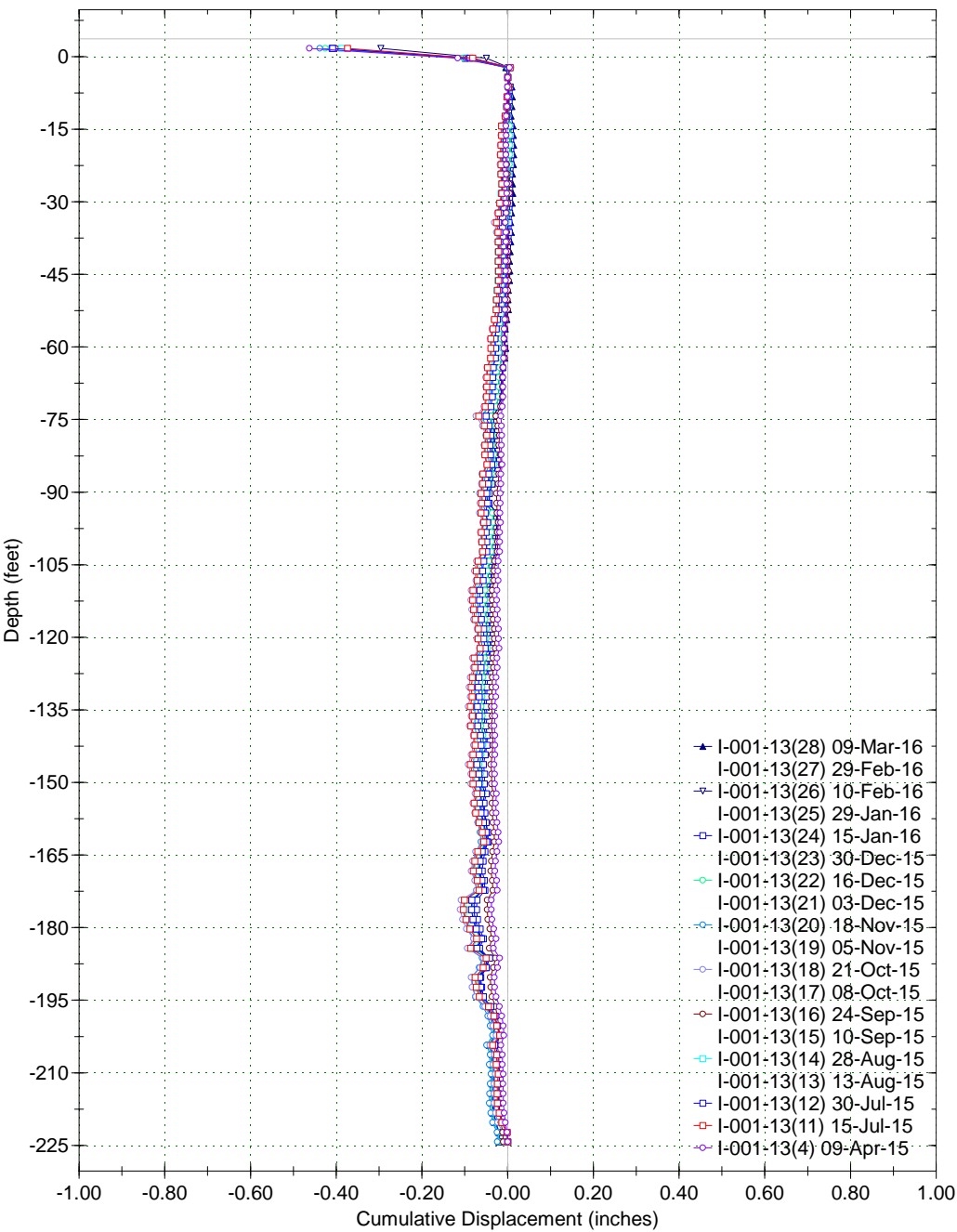


Borehole : I-001-13
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :

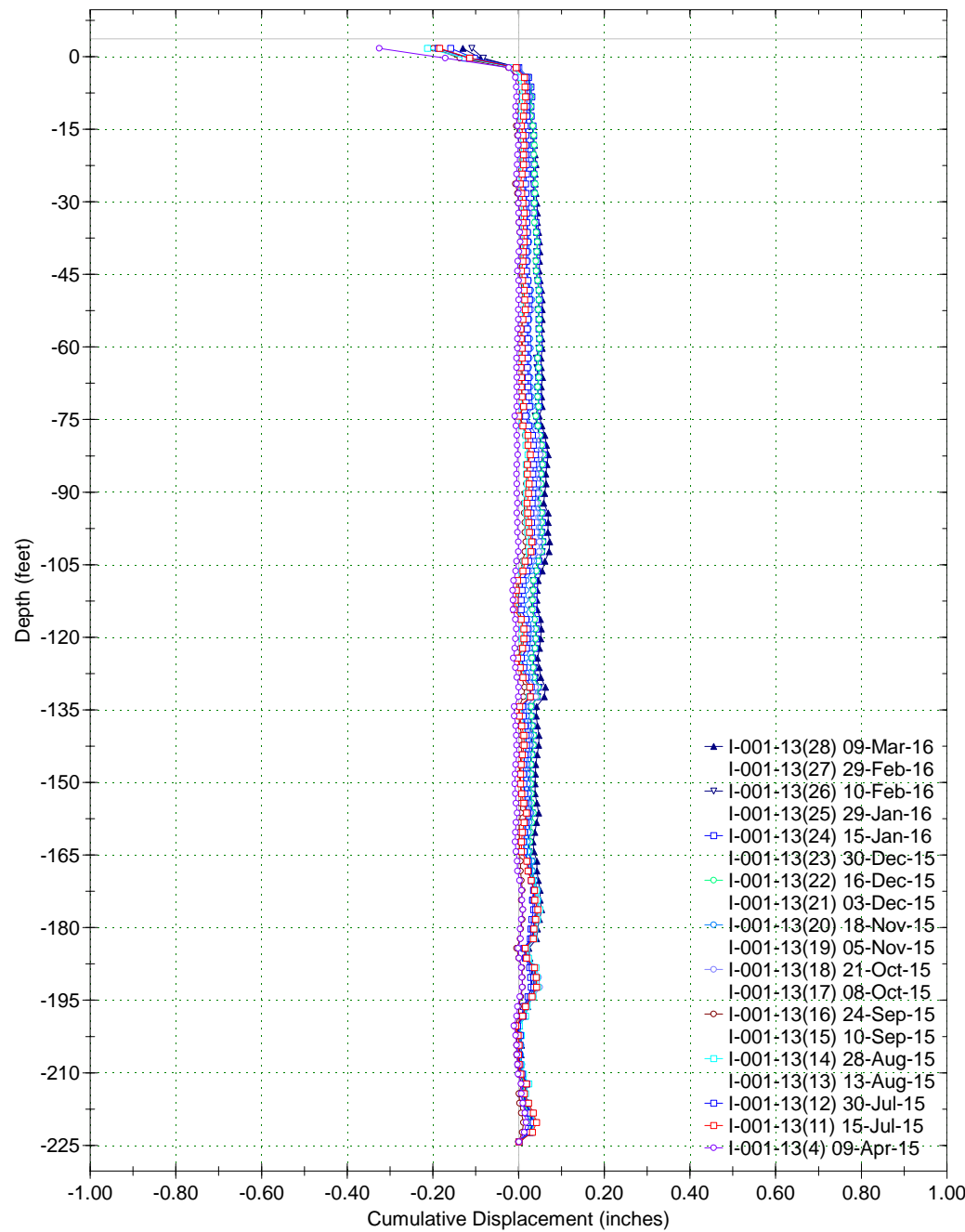


Spiral Correction : N/A
Collar Elevation : 3.7 feet
Borehole Total Depth : 228.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 03 11:14
Applied Azimuth : 0.0 degrees

Axis - A



Axis - B

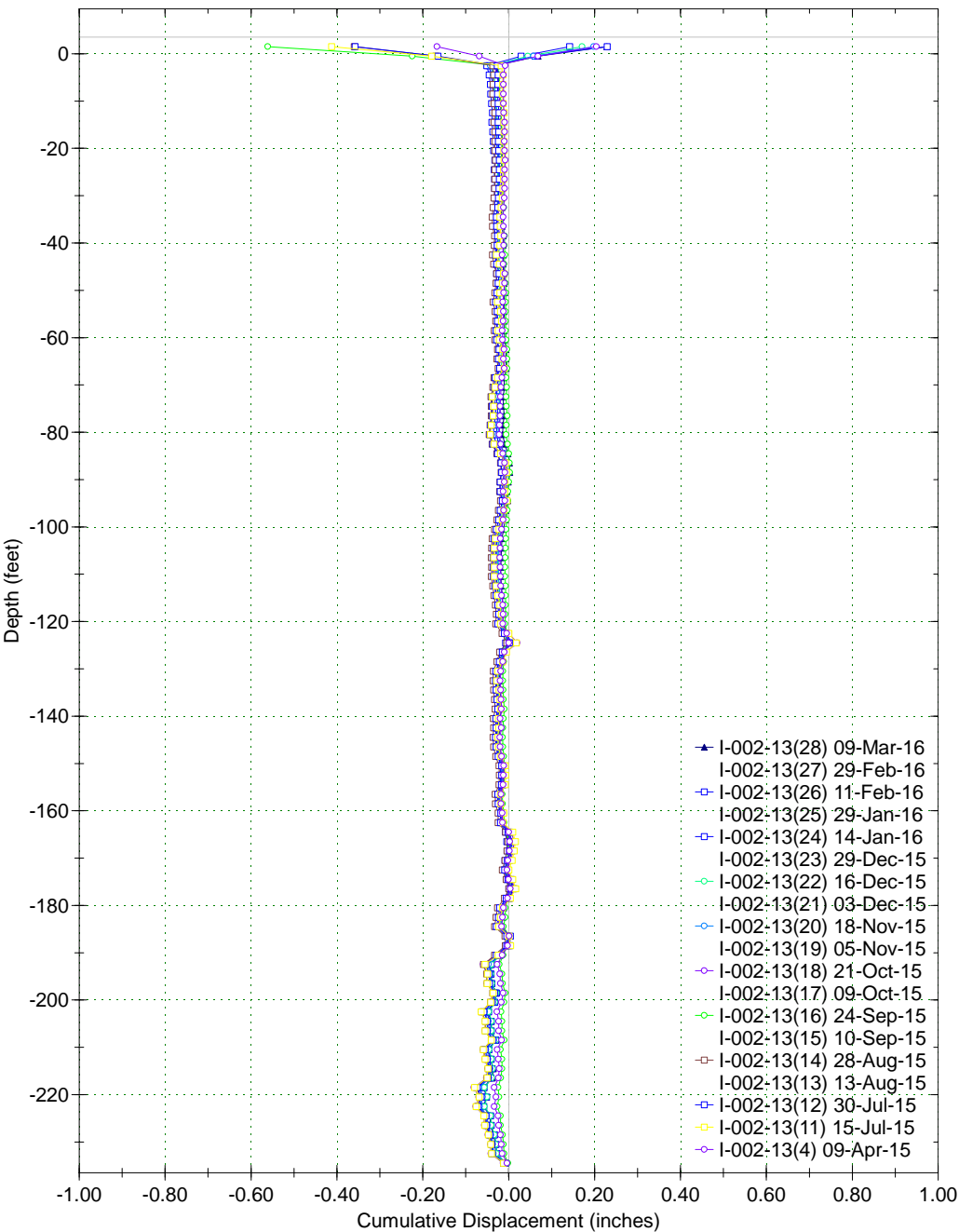


Borehole : I-002-13
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :

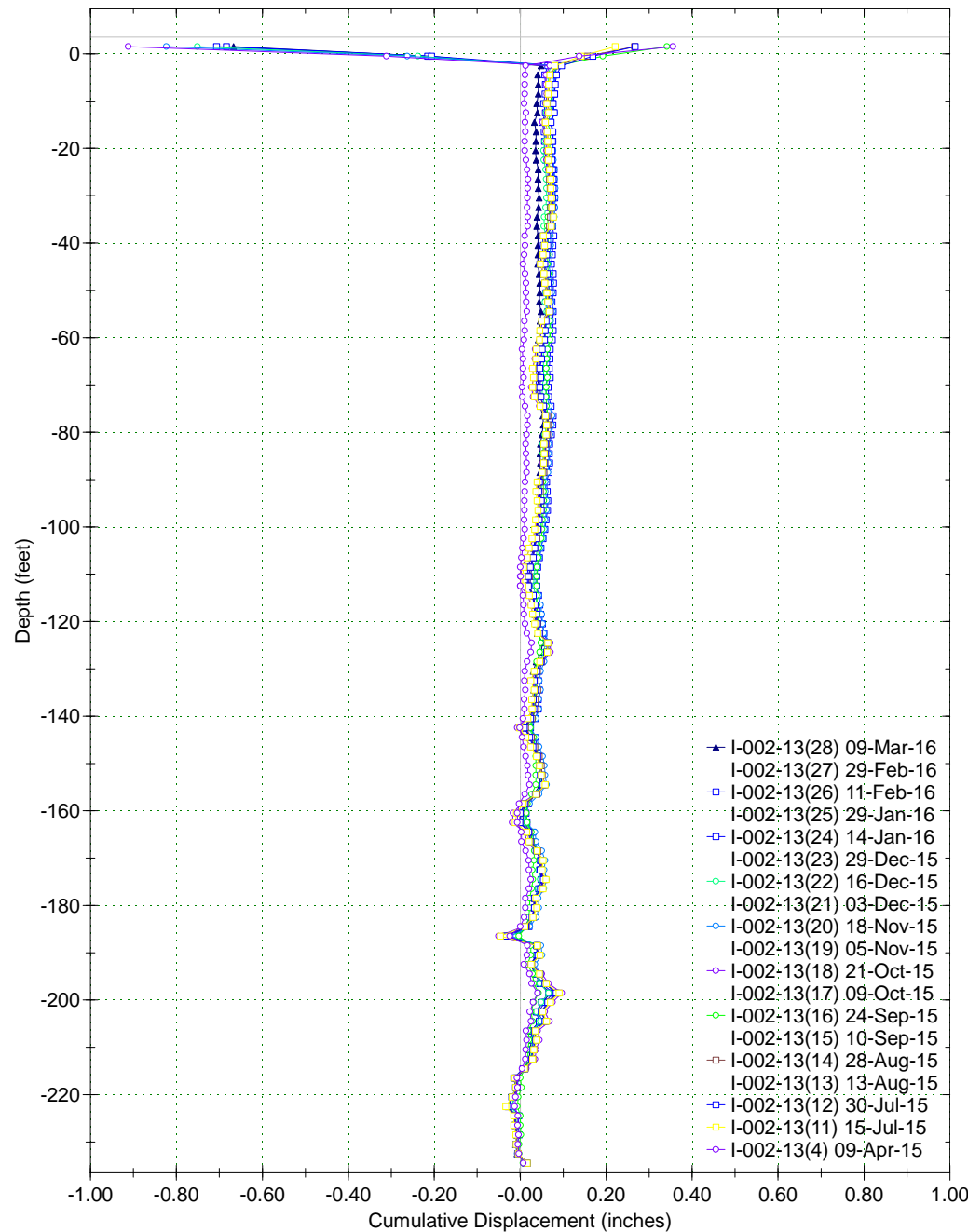


Spiral Correction : N/A
Collar Elevation : 3.5 feet
Borehole Total Depth : 238.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 03 10:04
Applied Azimuth : 0.0 degrees

Axis - A



Axis - B

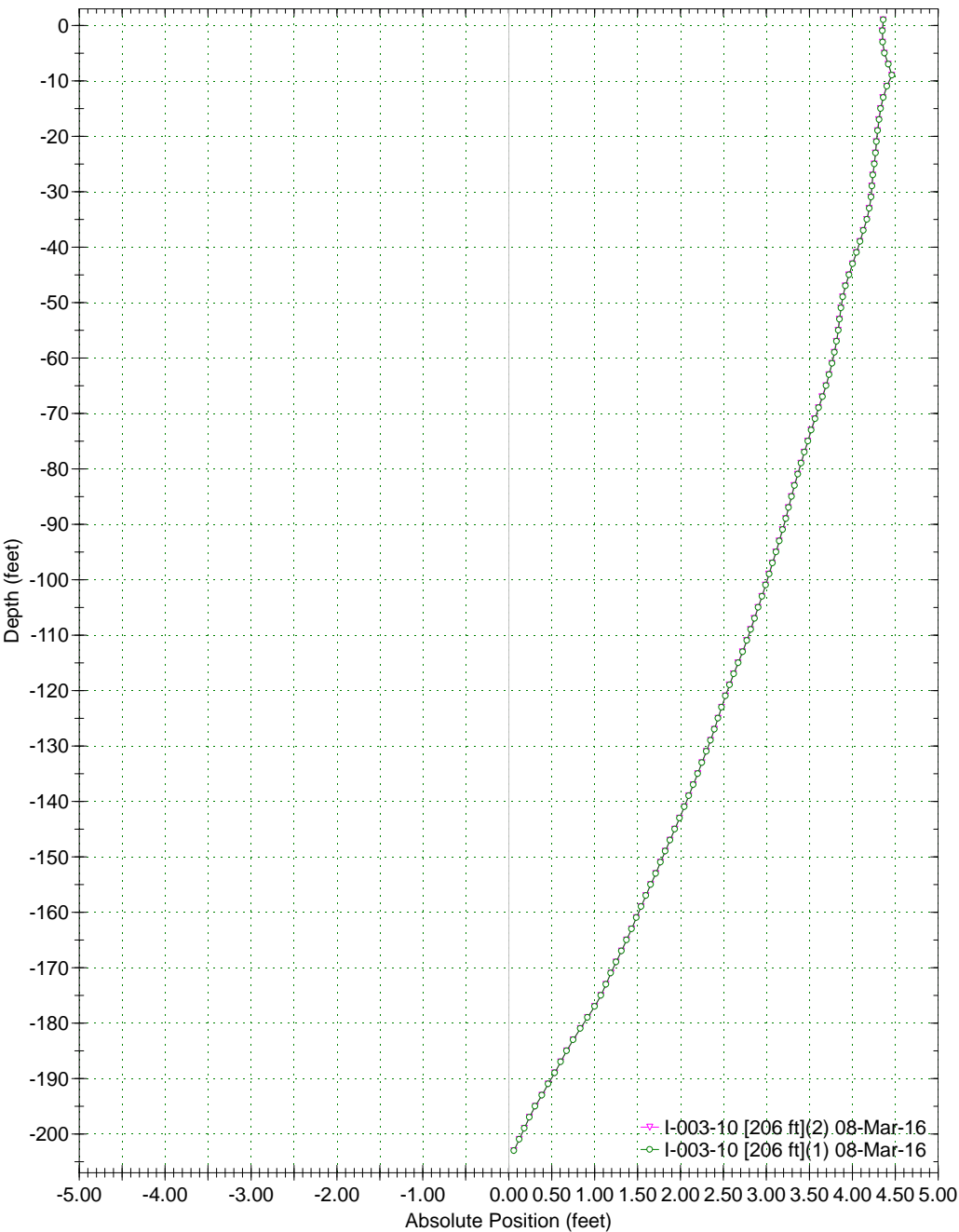


Borehole : I-003-10 [206 ft]
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :

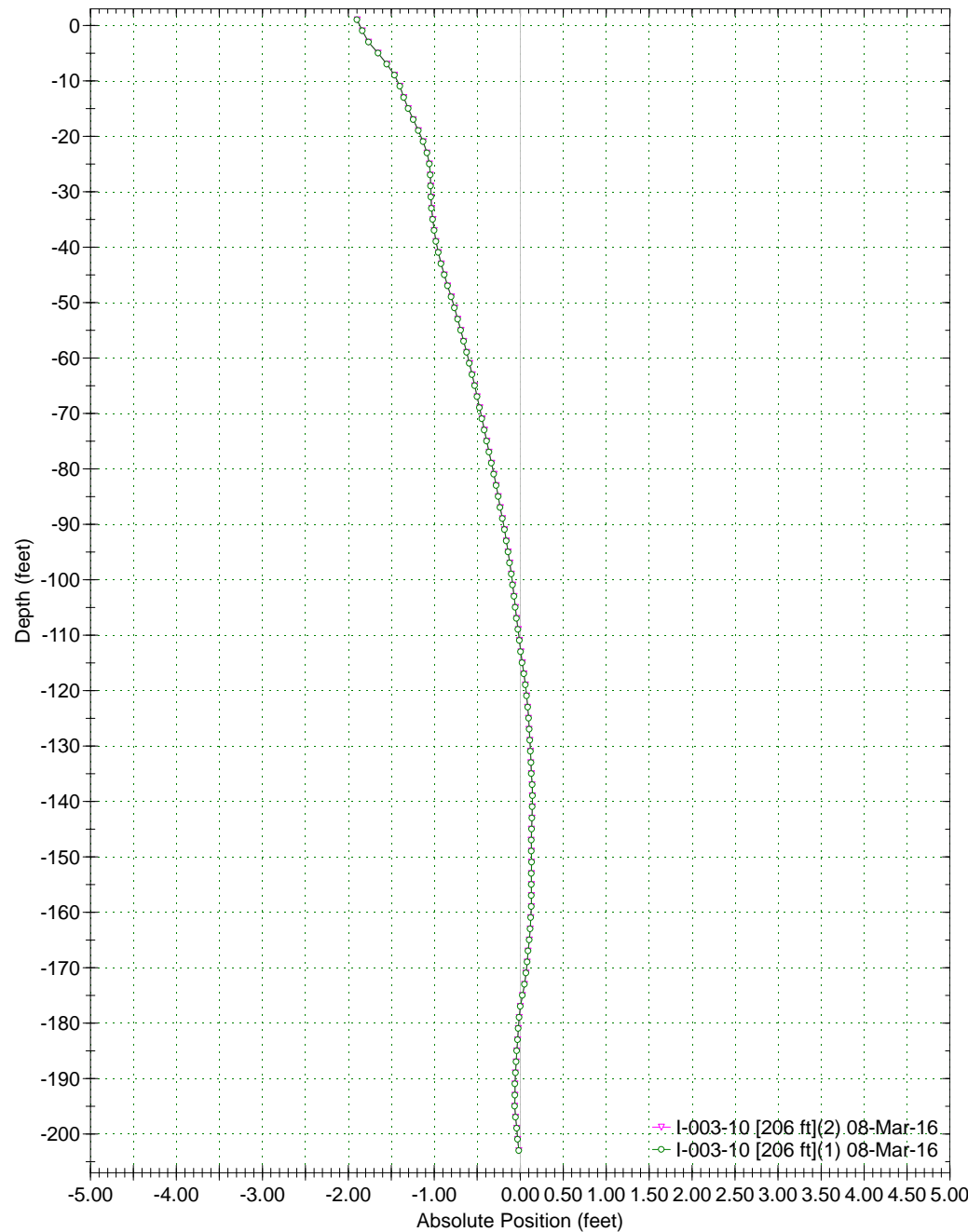


Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 206.0 feet
A+ Groove Azimuth :
Base Reading : 2016 Mar 08 15:08
Applied Azimuth : 0.0 degrees

Axis - A



Axis - B

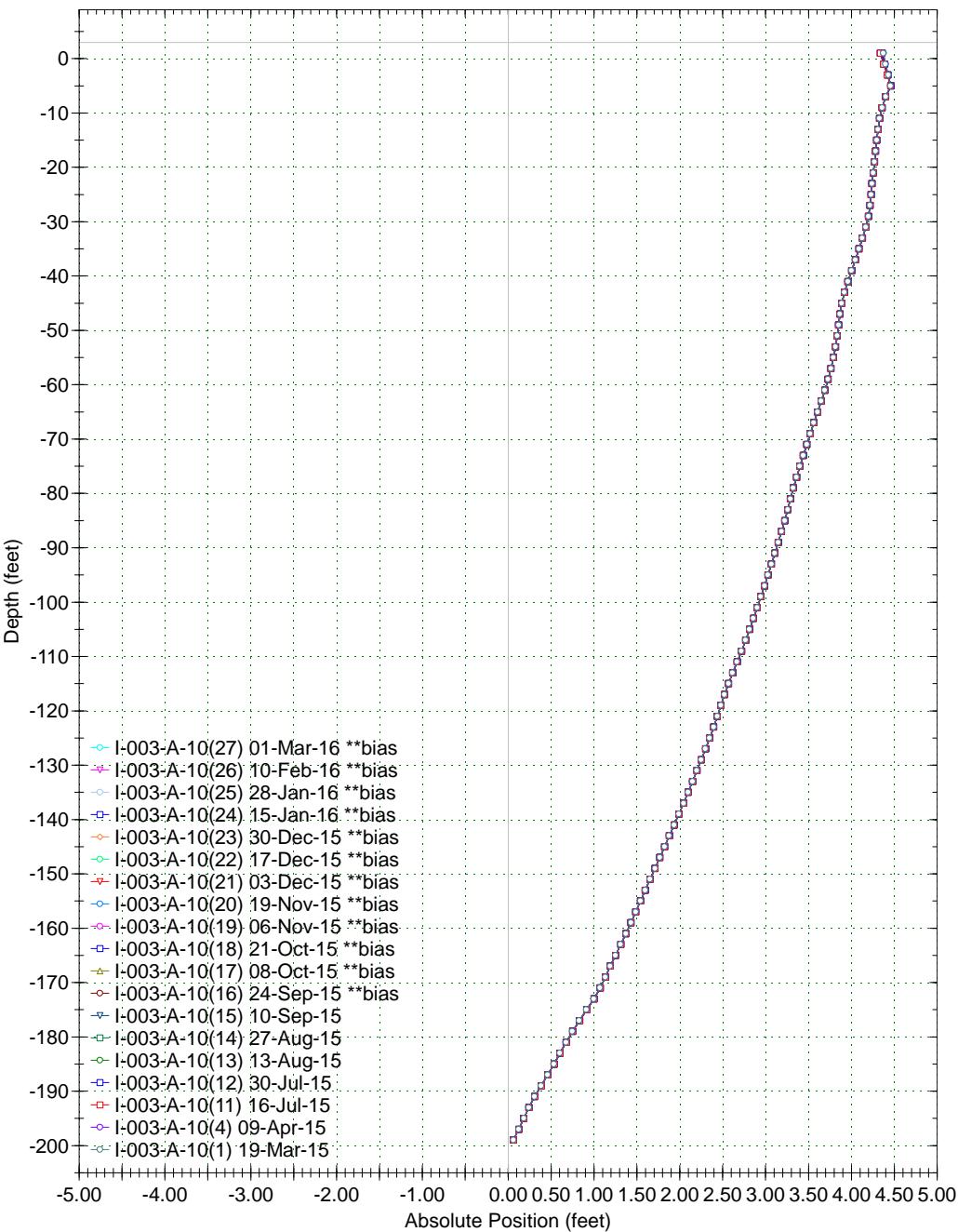


Borehole : I-003-A-10
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :

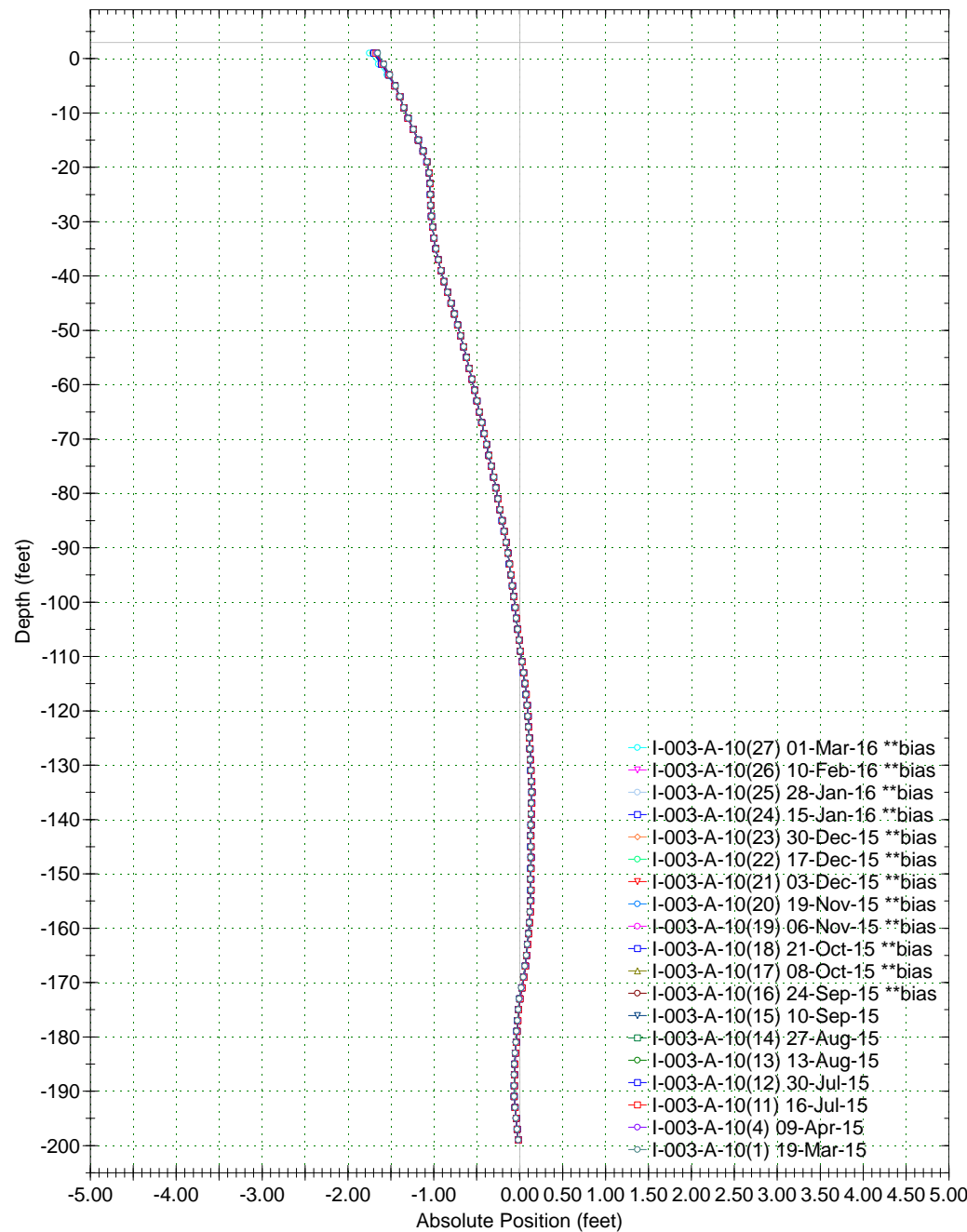


Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 202.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 19 11:00
Applied Azimuth : 0.0 degrees

Axis - A



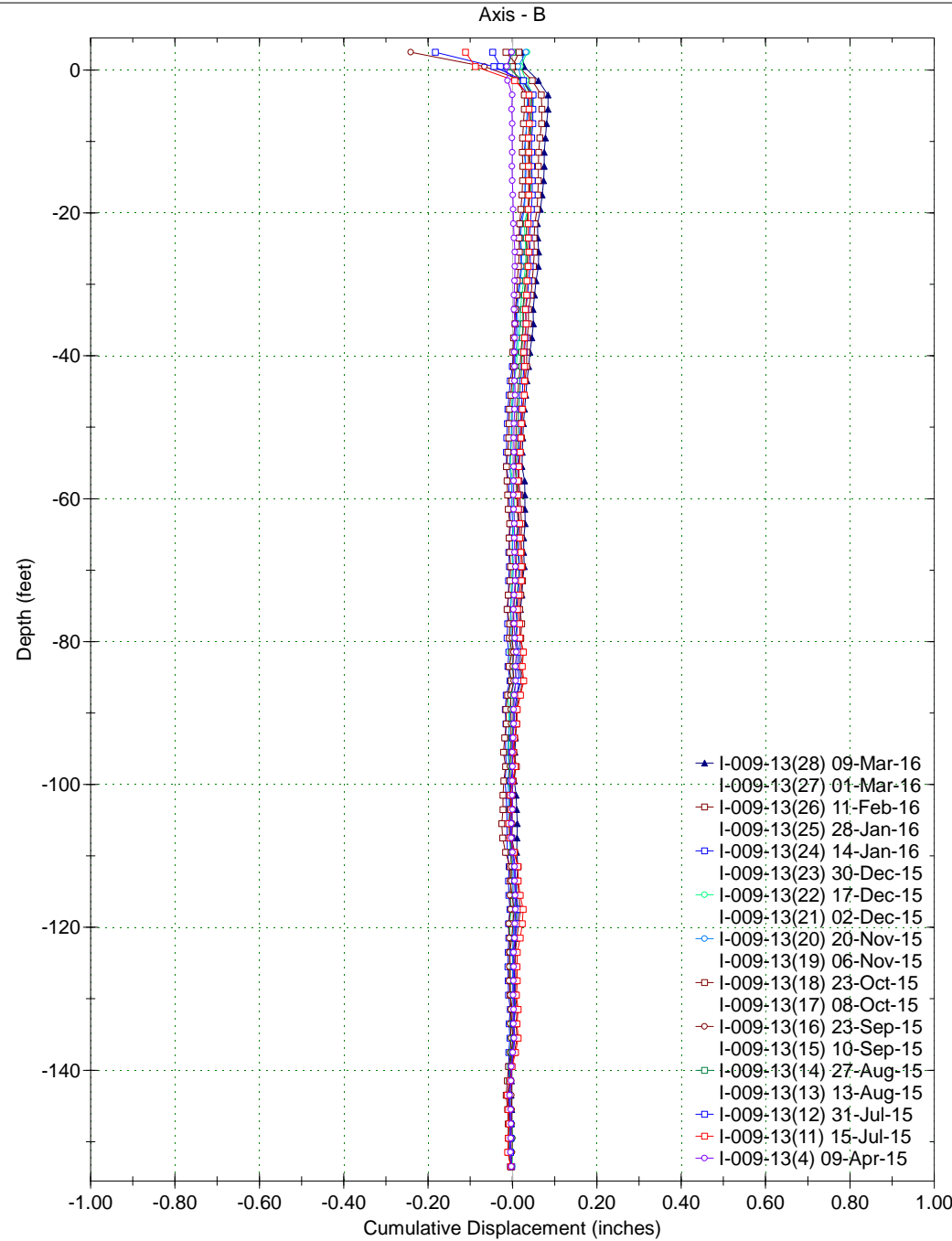
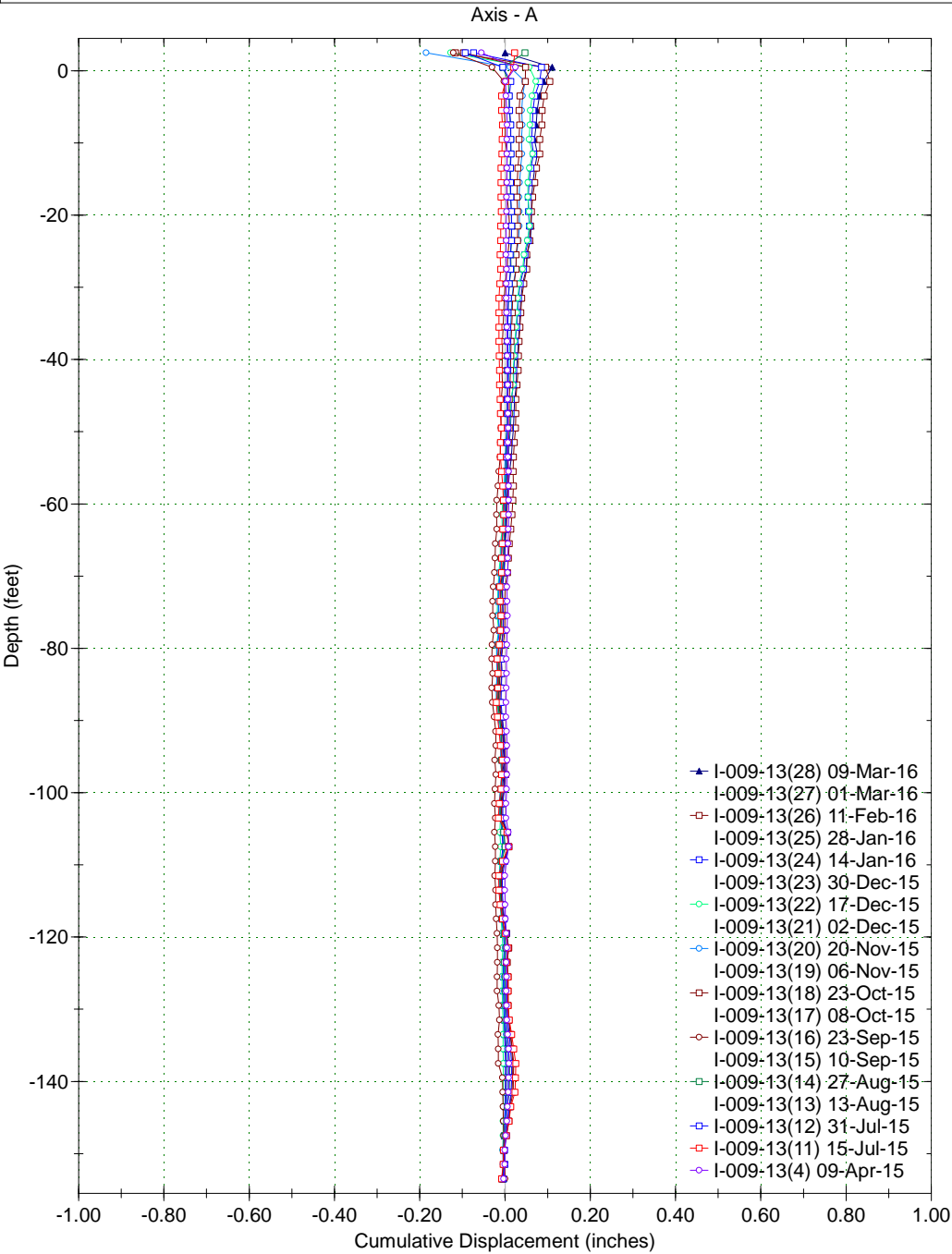
Axis - B



Borehole : I-009-13
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :



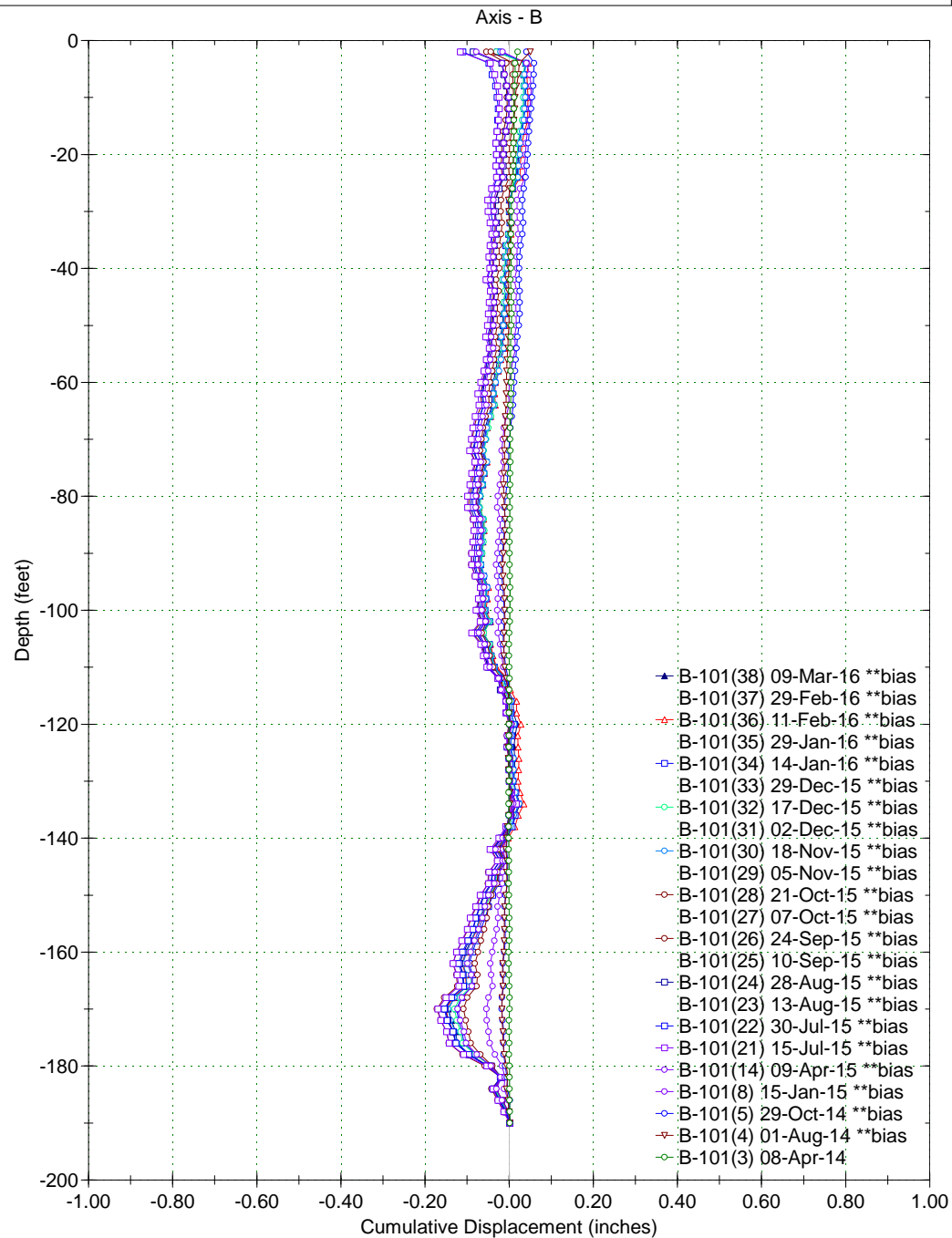
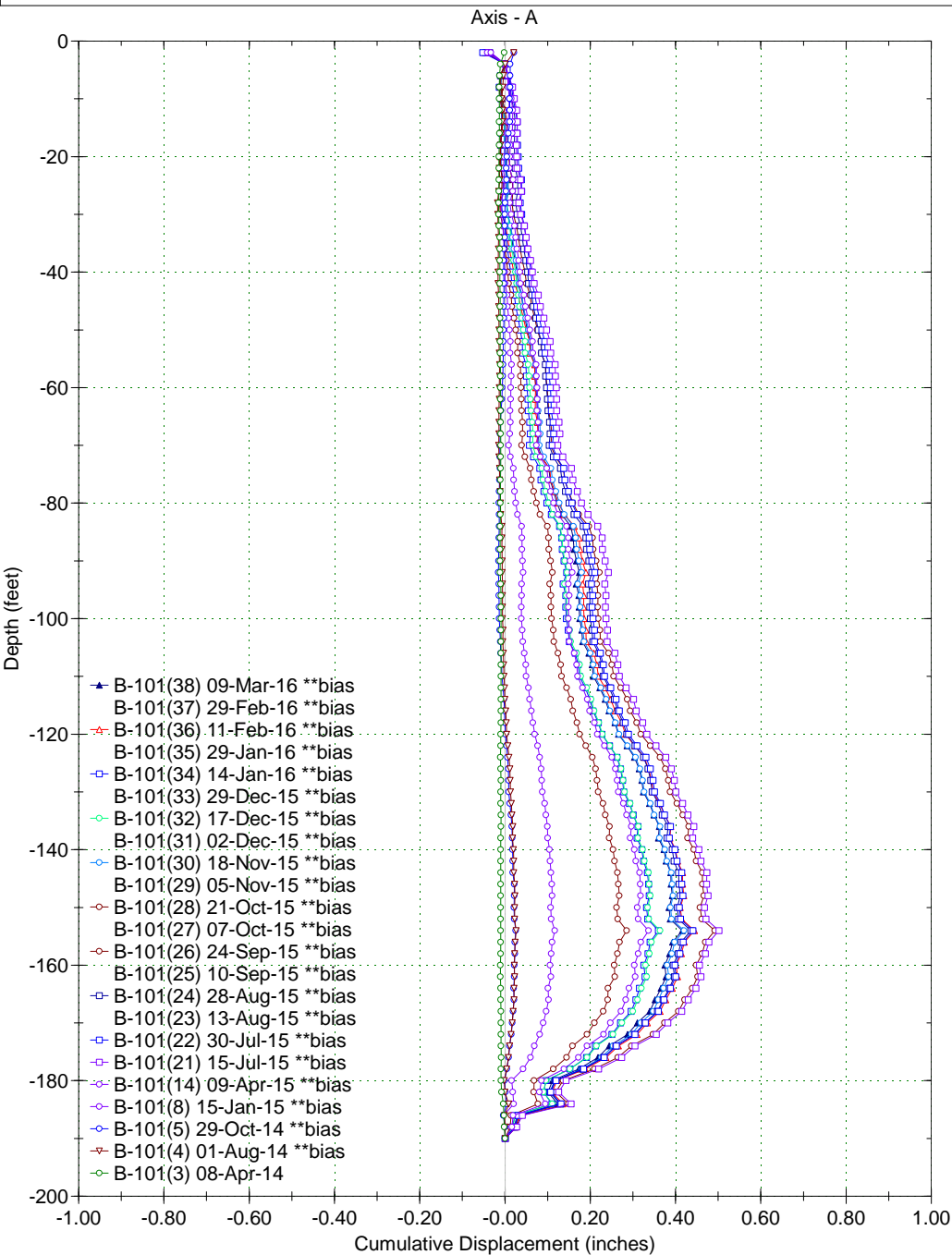
Spiral Correction : N/A
Collar Elevation : 4.5 feet
Borehole Total Depth : 158.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 18 15:56
Applied Azimuth : 0.0 degrees



Borehole : B-101
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 15+06.50
 Easting : 120.7' Rt of CL
 Collar :



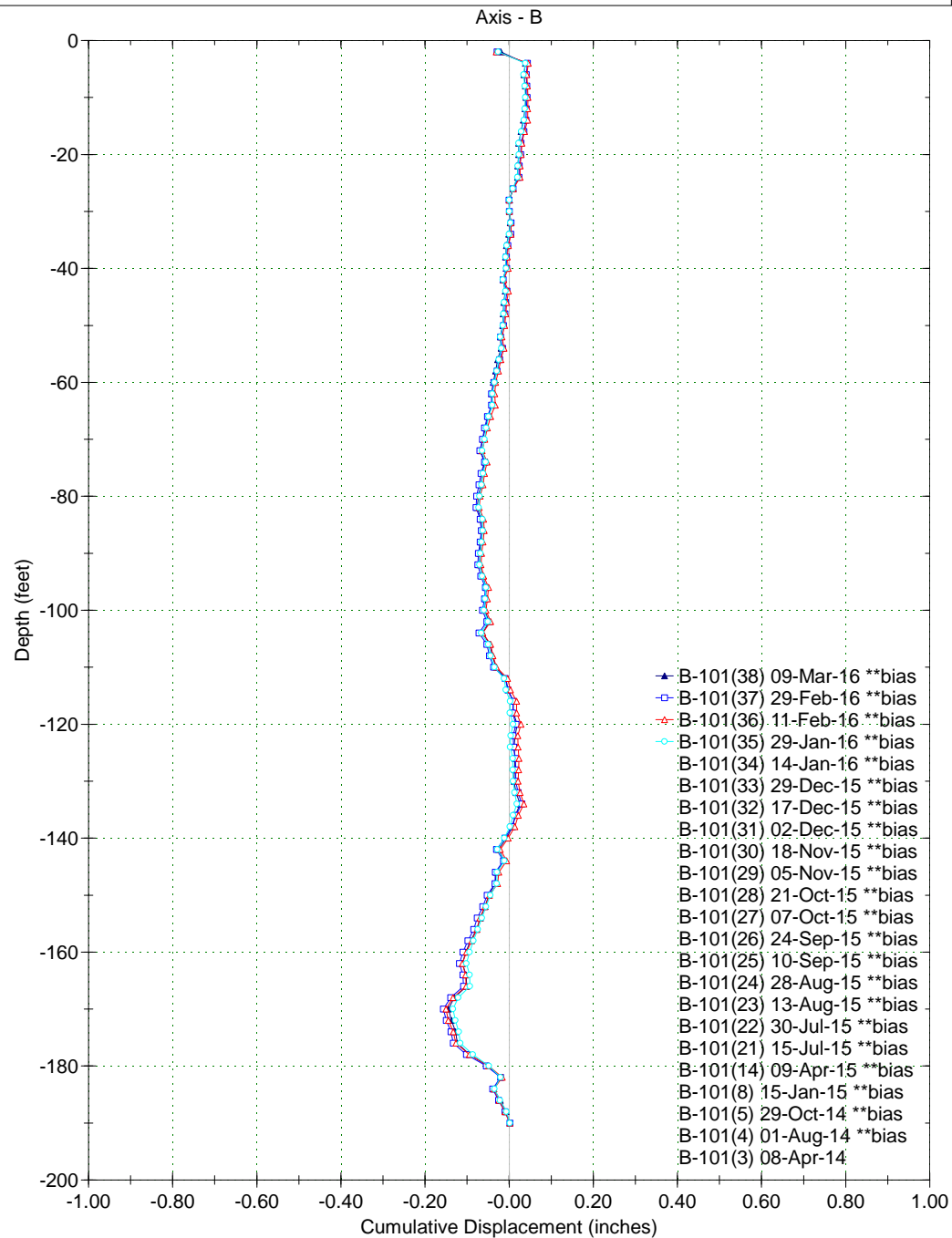
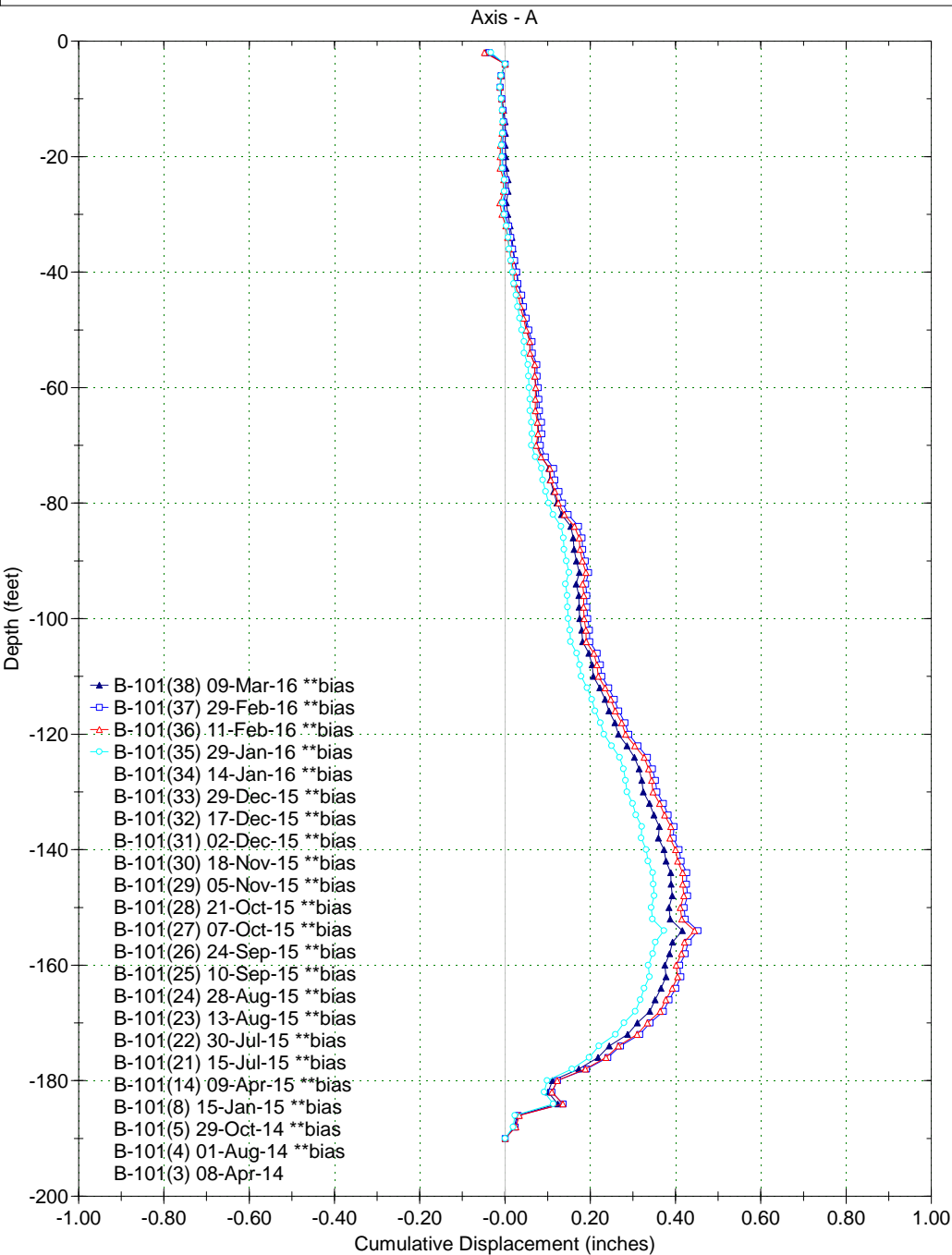
Spiral Correction : N/A
 Collar Elevation : 0.0 feet
 Borehole Total Depth : 190.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 22 09:01
 Applied Azimuth : 0.0 degrees



Borehole : B-101
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing : Sta. 15+06.50
Easting : 120.7' Rt of CL
Collar :



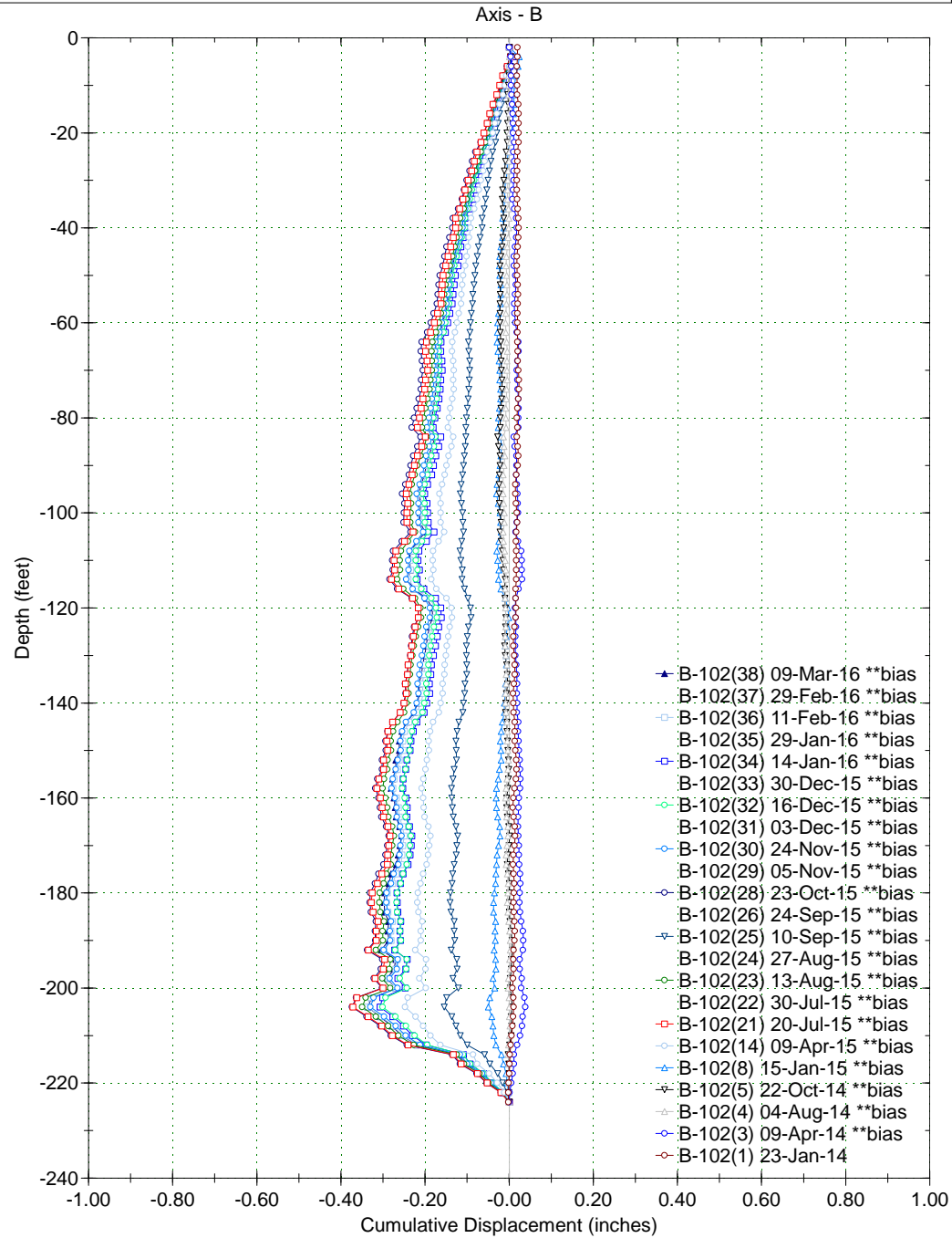
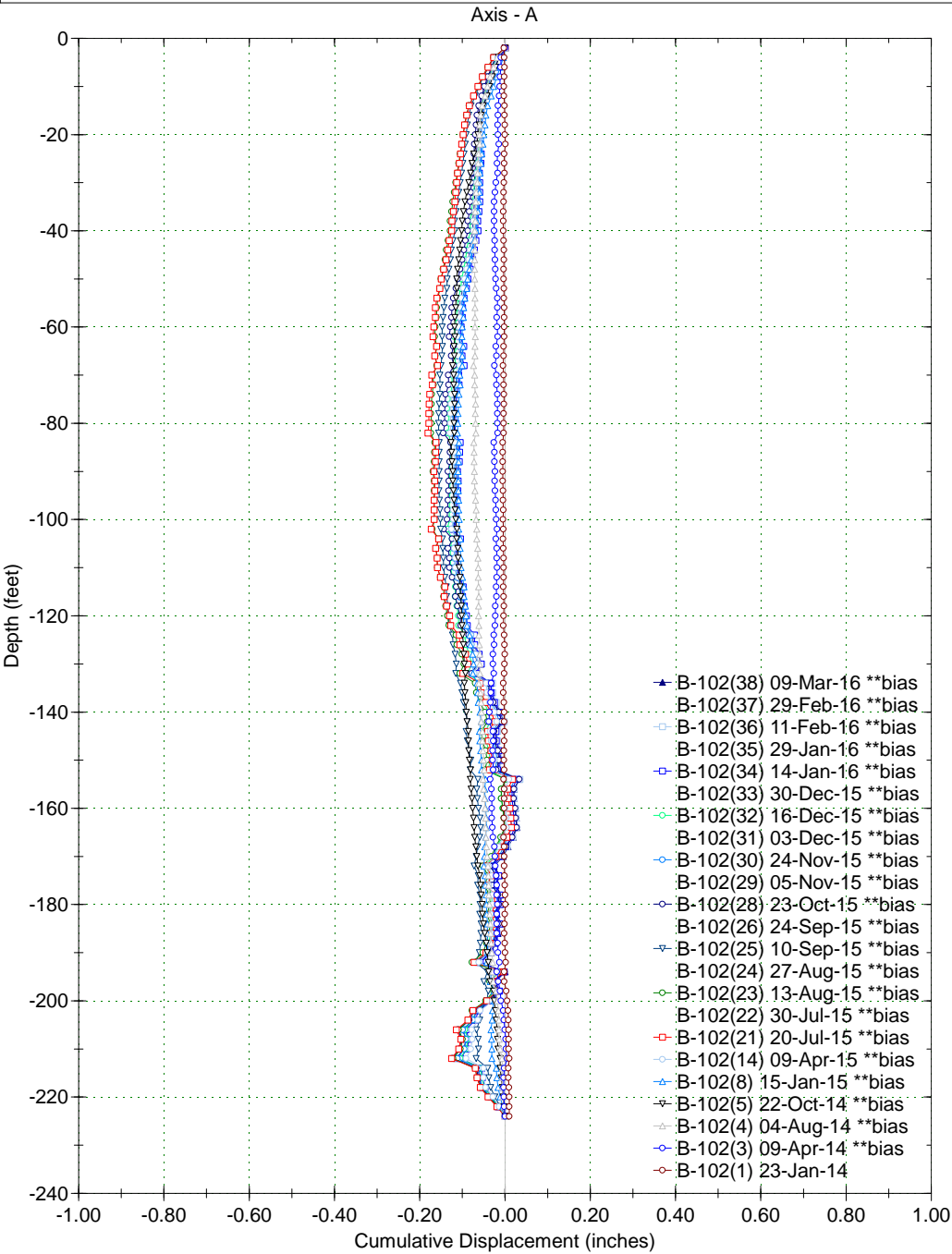
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 190.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 09:01
Applied Azimuth : 0.0 degrees



Borehole : B-102
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 15+95.34
 Easting : 134.7' Rt of CL
 Collar :



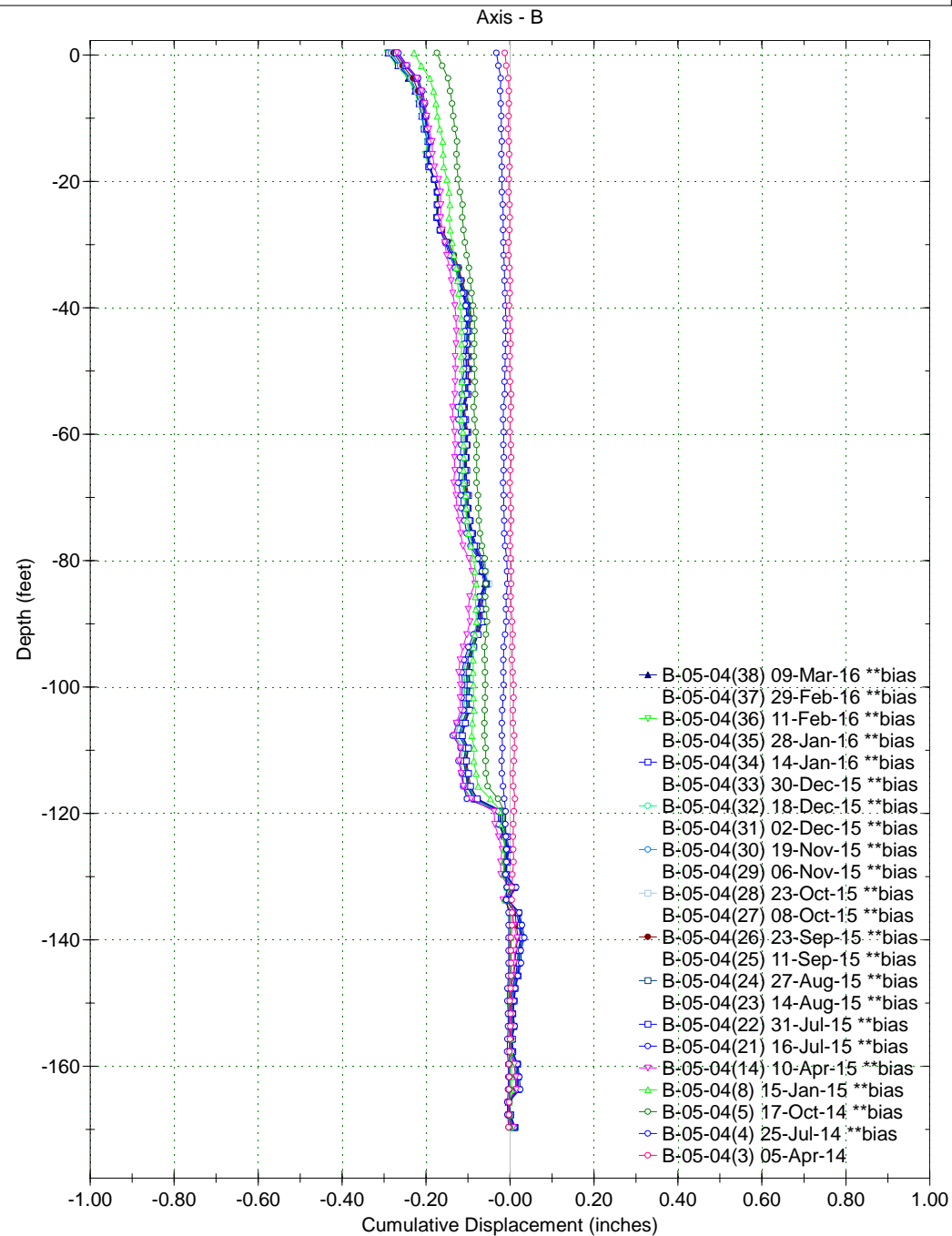
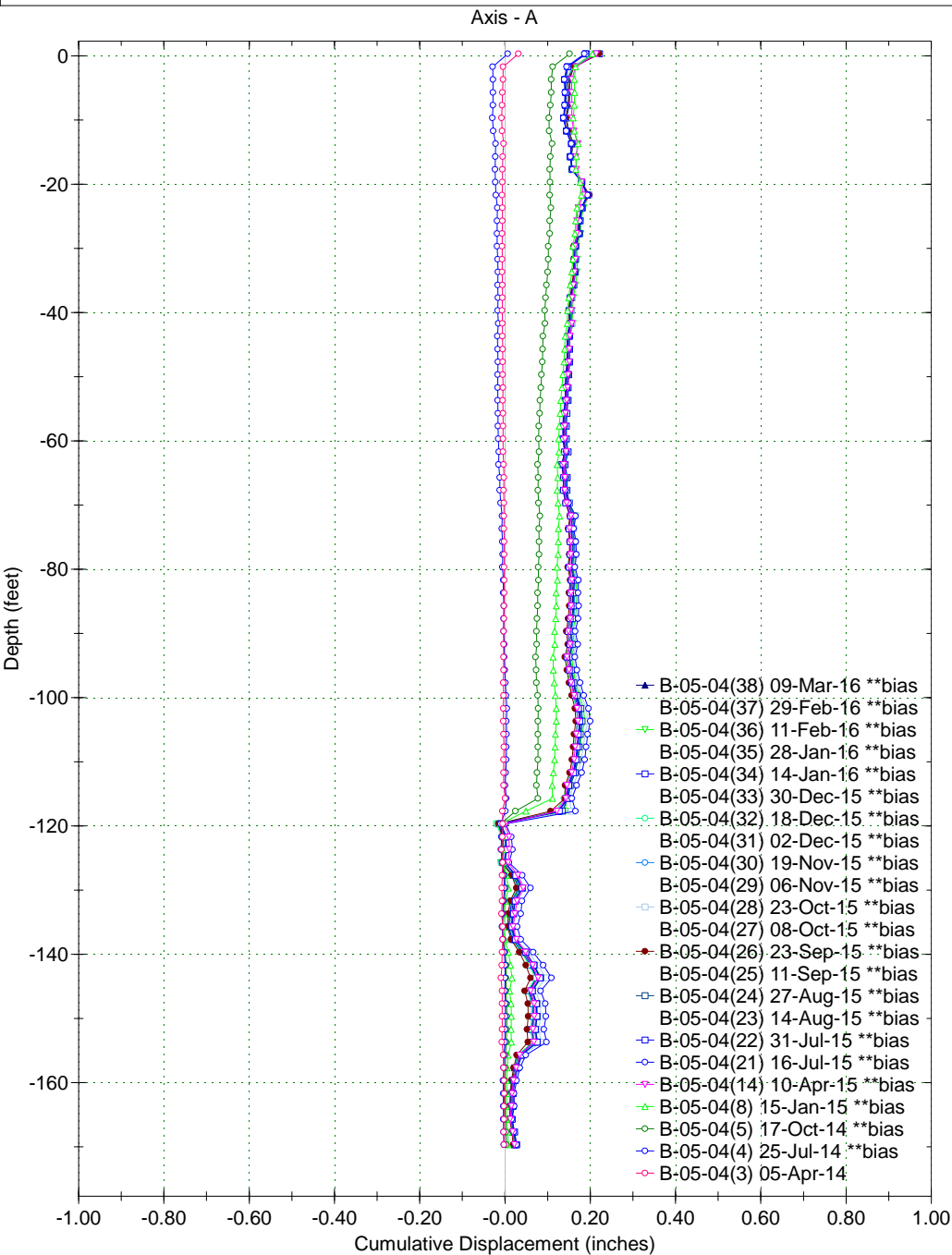
Spiral Correction : N/A
 Collar Elevation : 0.0 feet
 Borehole Total Depth : 224.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 23 08:21
 Applied Azimuth : 0.0 degrees



Borehole : B-05-04
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing : Sta. 133+51.67
Easting : 242.09' Rt of CL
Collar :

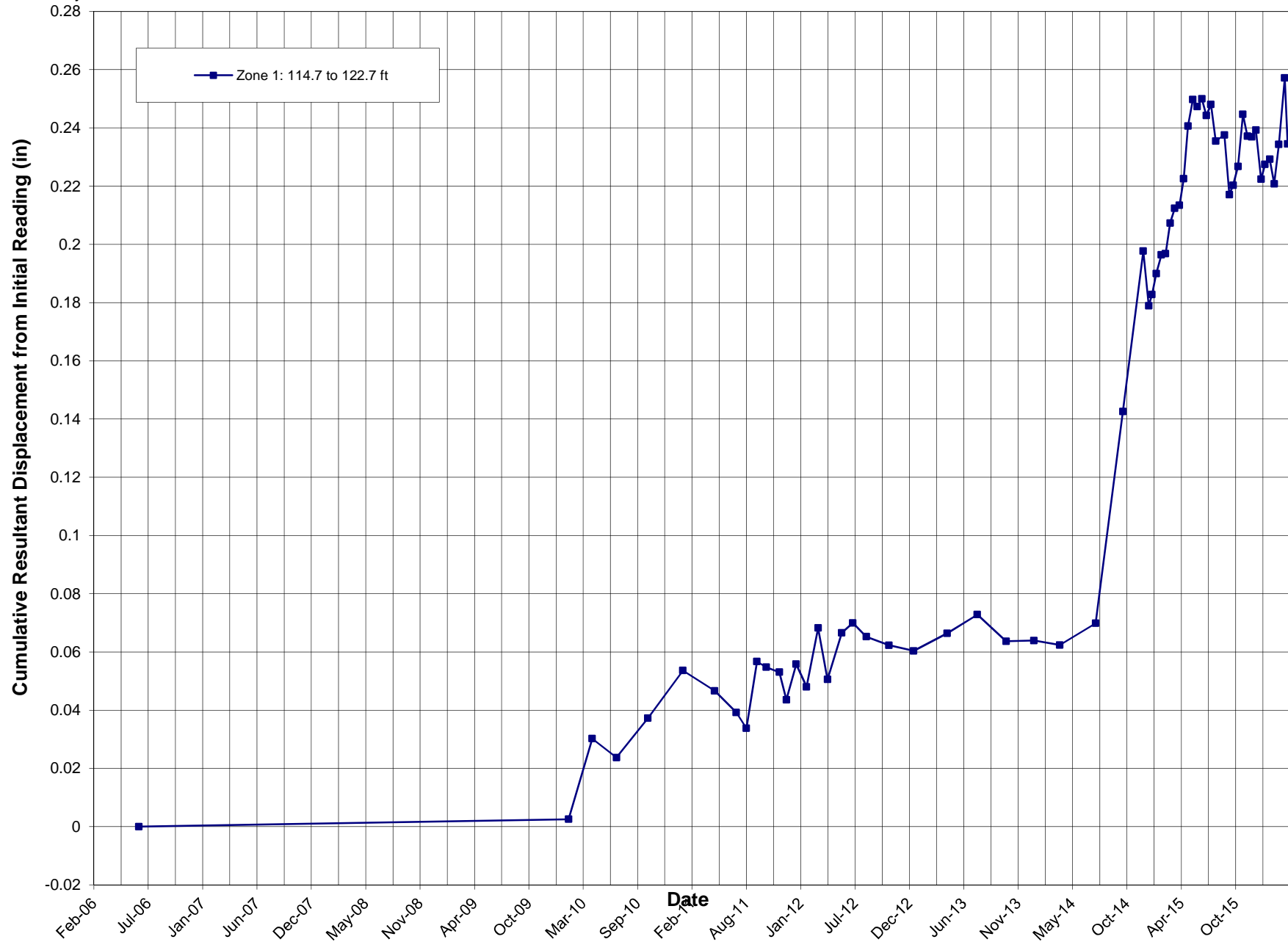


Spiral Correction : N/A
Collar Elevation : 2.3 feet
Borehole Total Depth : 172.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 12:30
Applied Azimuth : 0.0 degrees



CUY-90-15.24
PID 96504
SME Project#: 069032.00

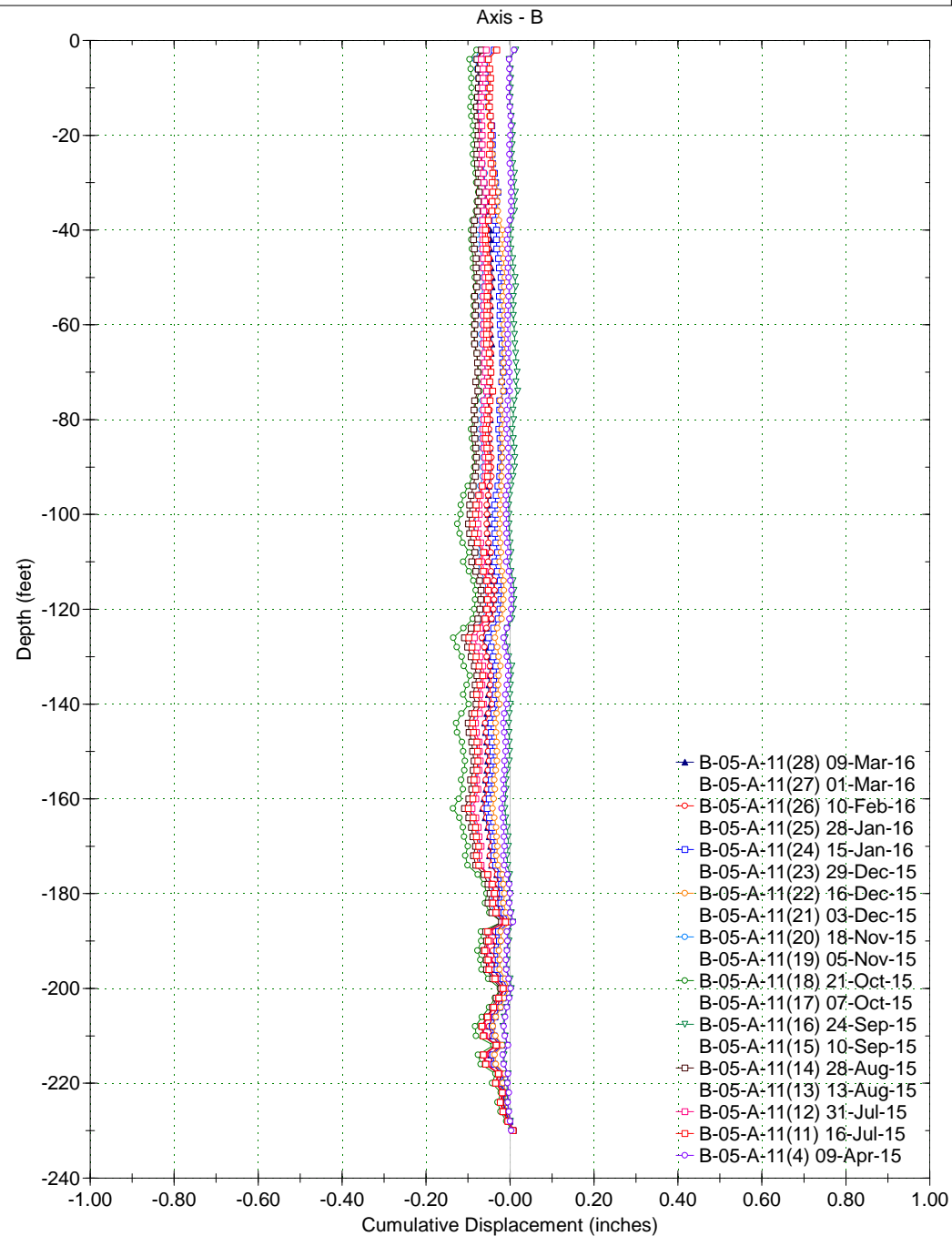
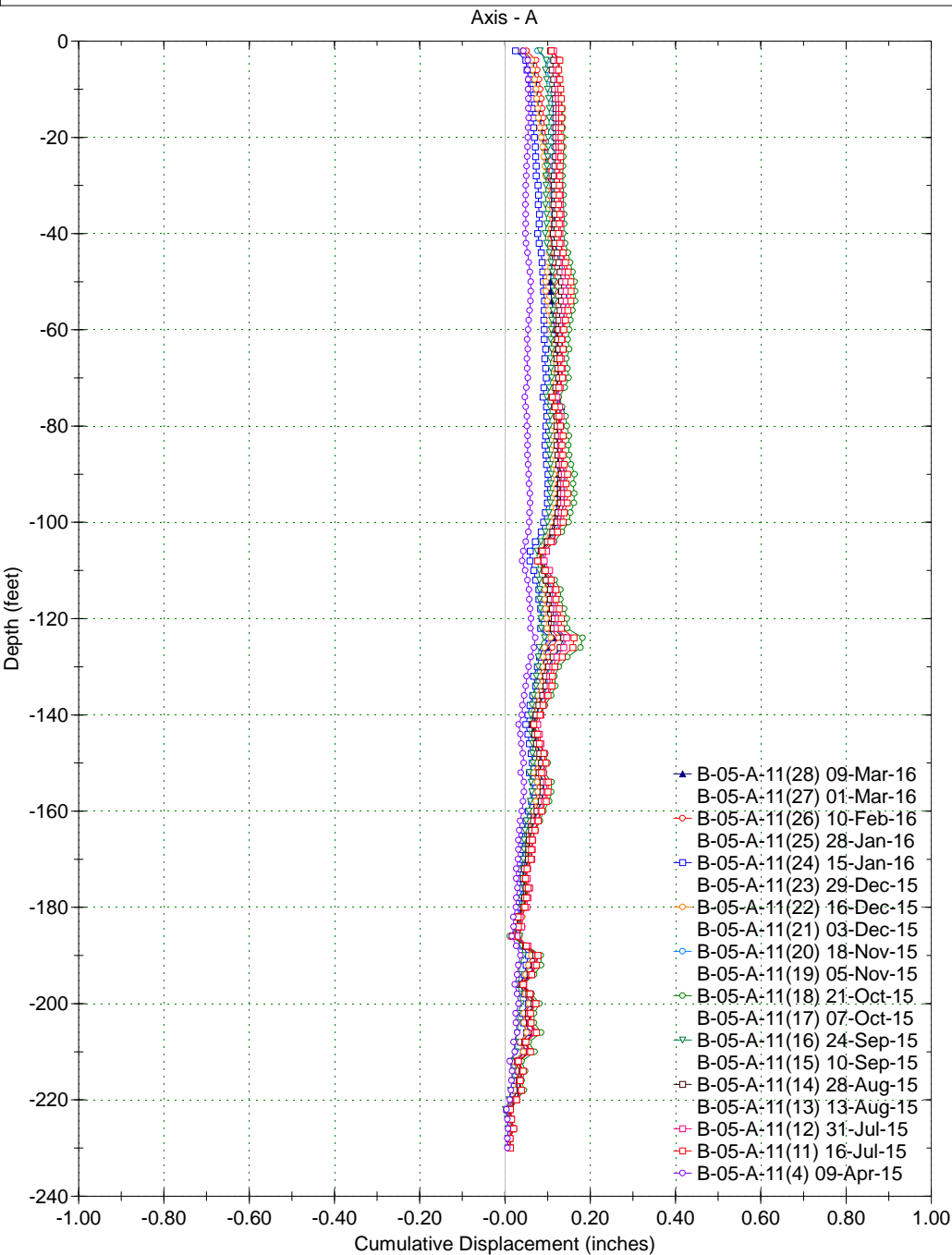
B-05-04



Borehole : B-05-A-11
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :



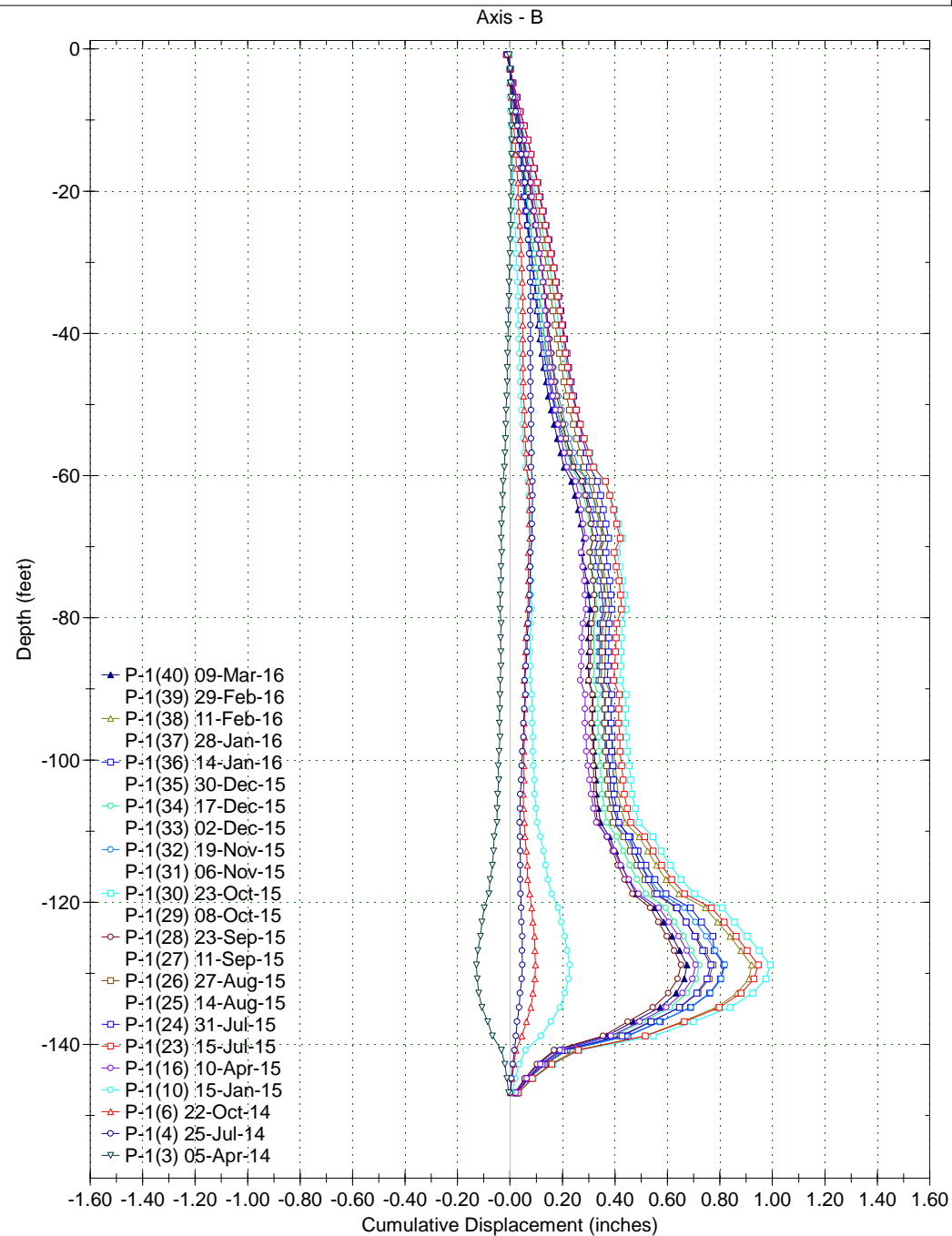
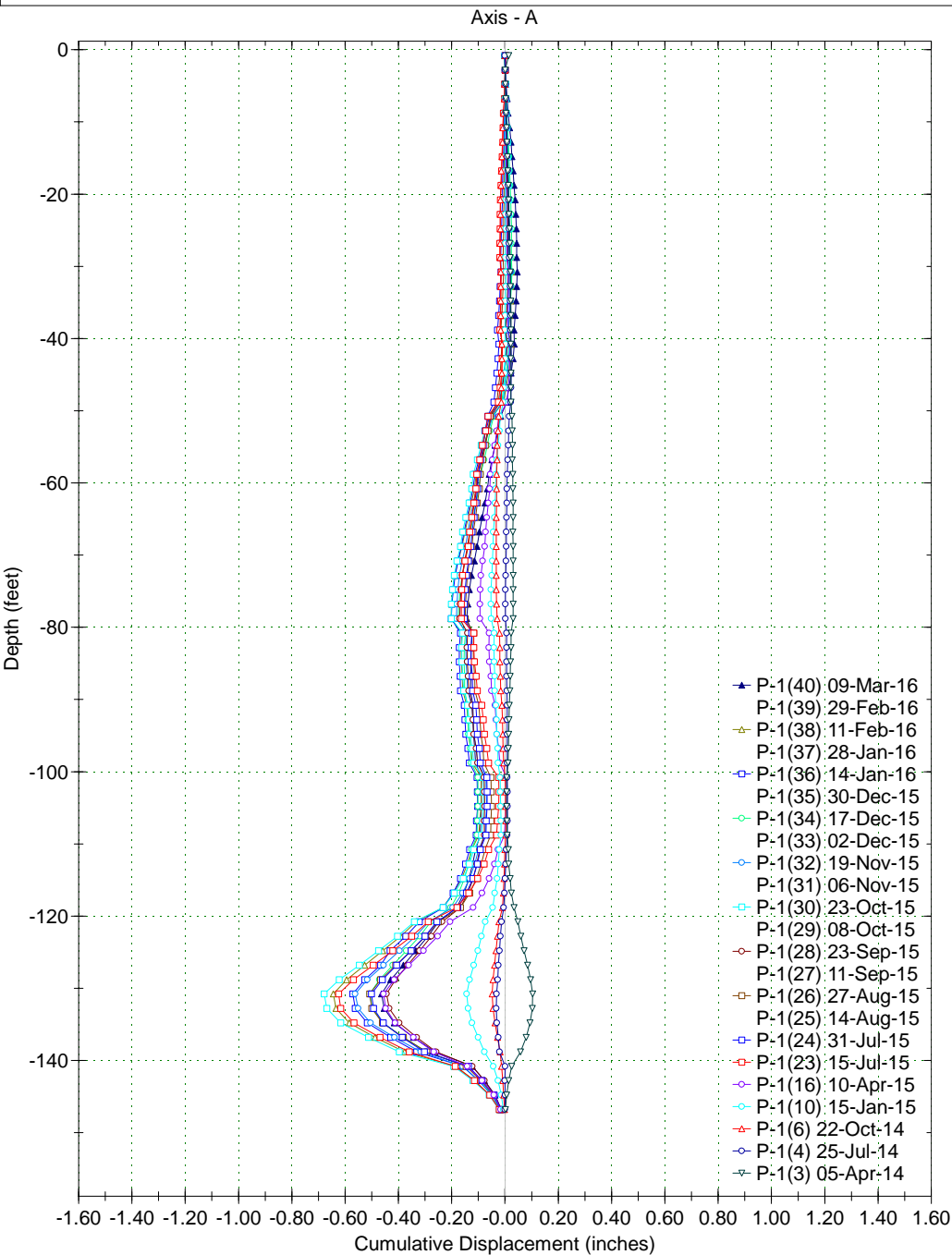
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 230.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 19 09:08
Applied Azimuth : 0.0 degrees



Borehole : P-1
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing :
 Easting :
 Collar :



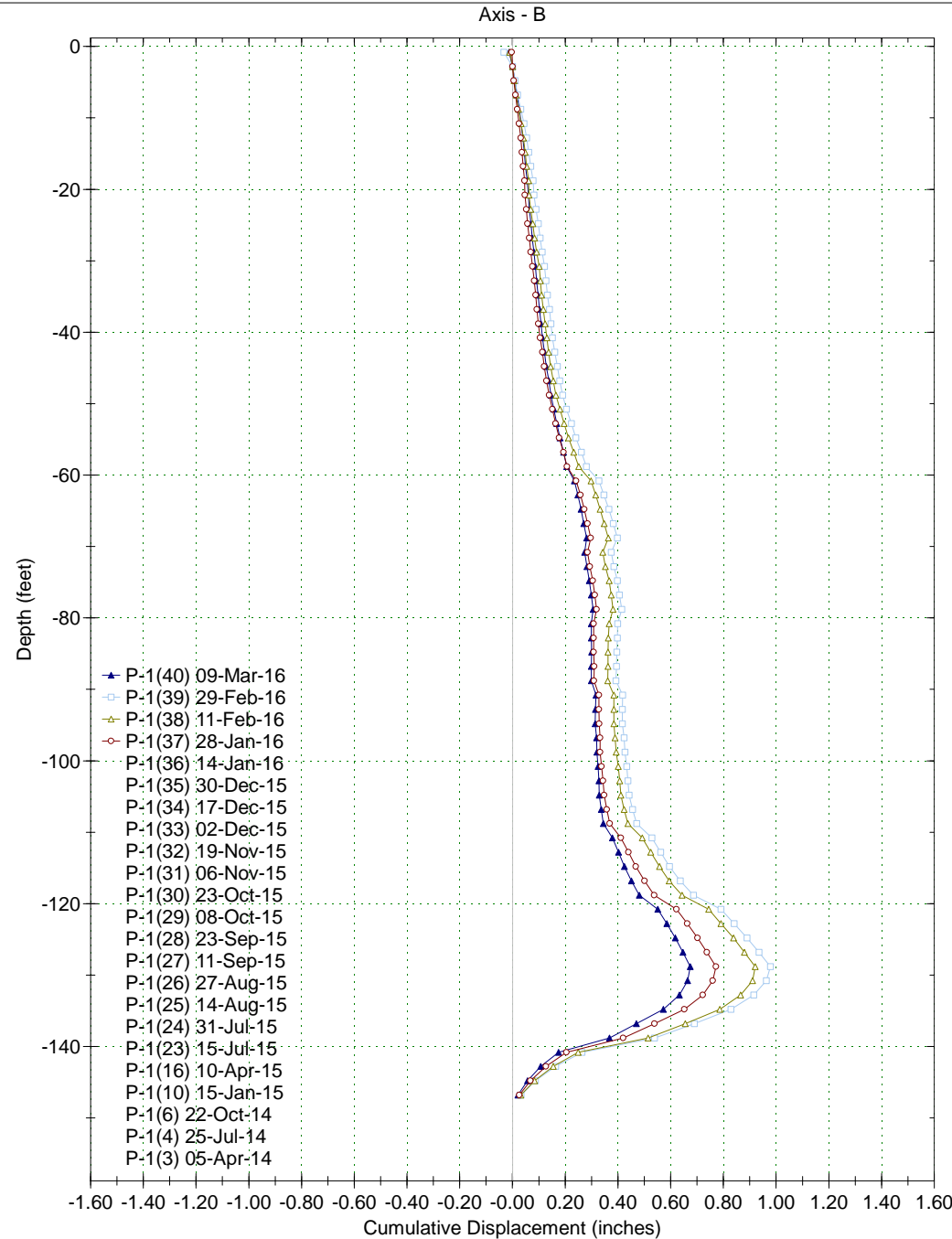
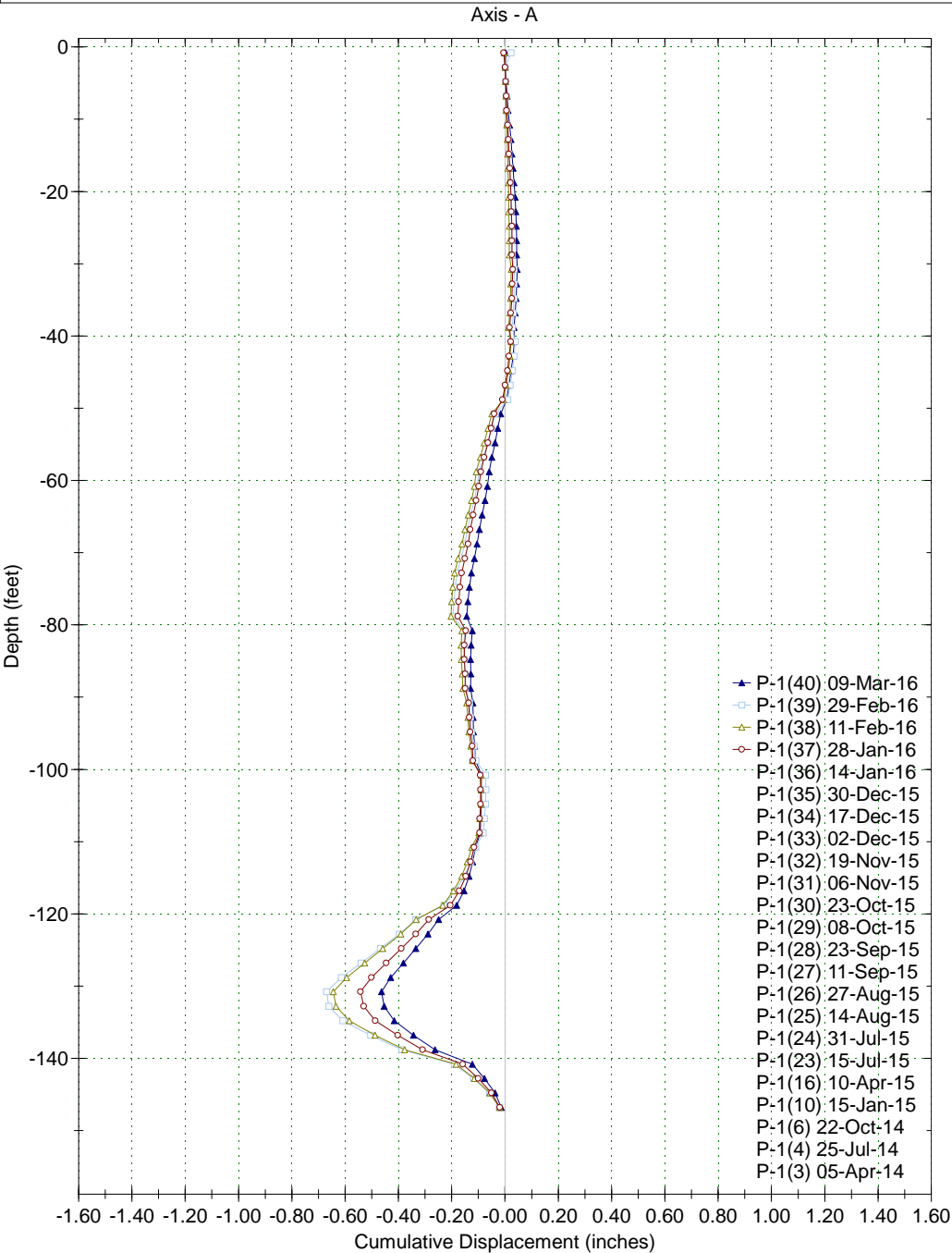
Spiral Correction : N/A
 Collar Elevation : 1.2 feet
 Borehole Total Depth : 148.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 22 10:47
 Applied Azimuth : 0.0 degrees



Borehole : P-1
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :

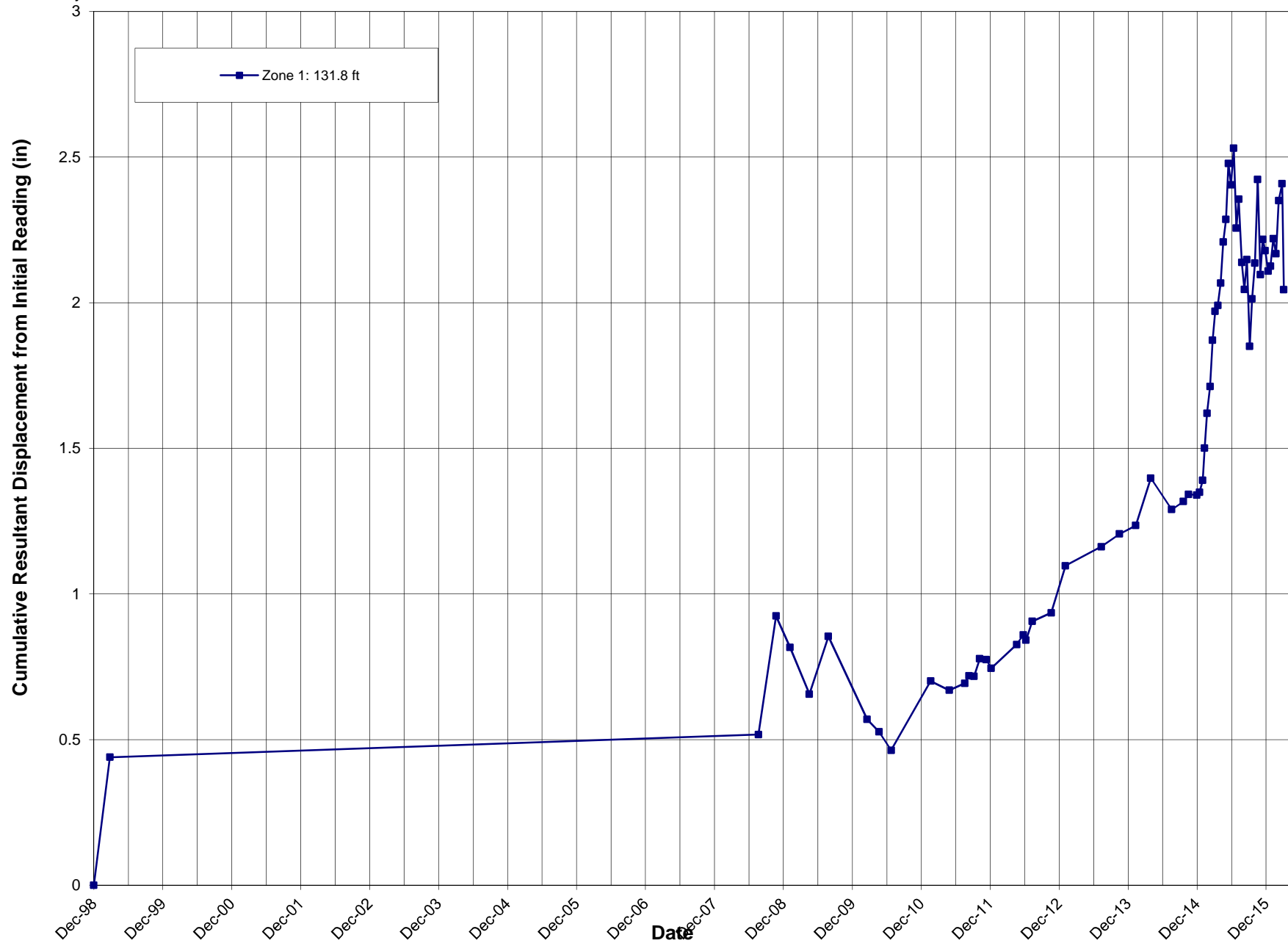


Spiral Correction : N/A
Collar Elevation : 1.2 feet
Borehole Total Depth : 148.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 10:47
Applied Azimuth : 0.0 degrees



CUY-90-15.24
PID 96504
SME Project#: 069032.00

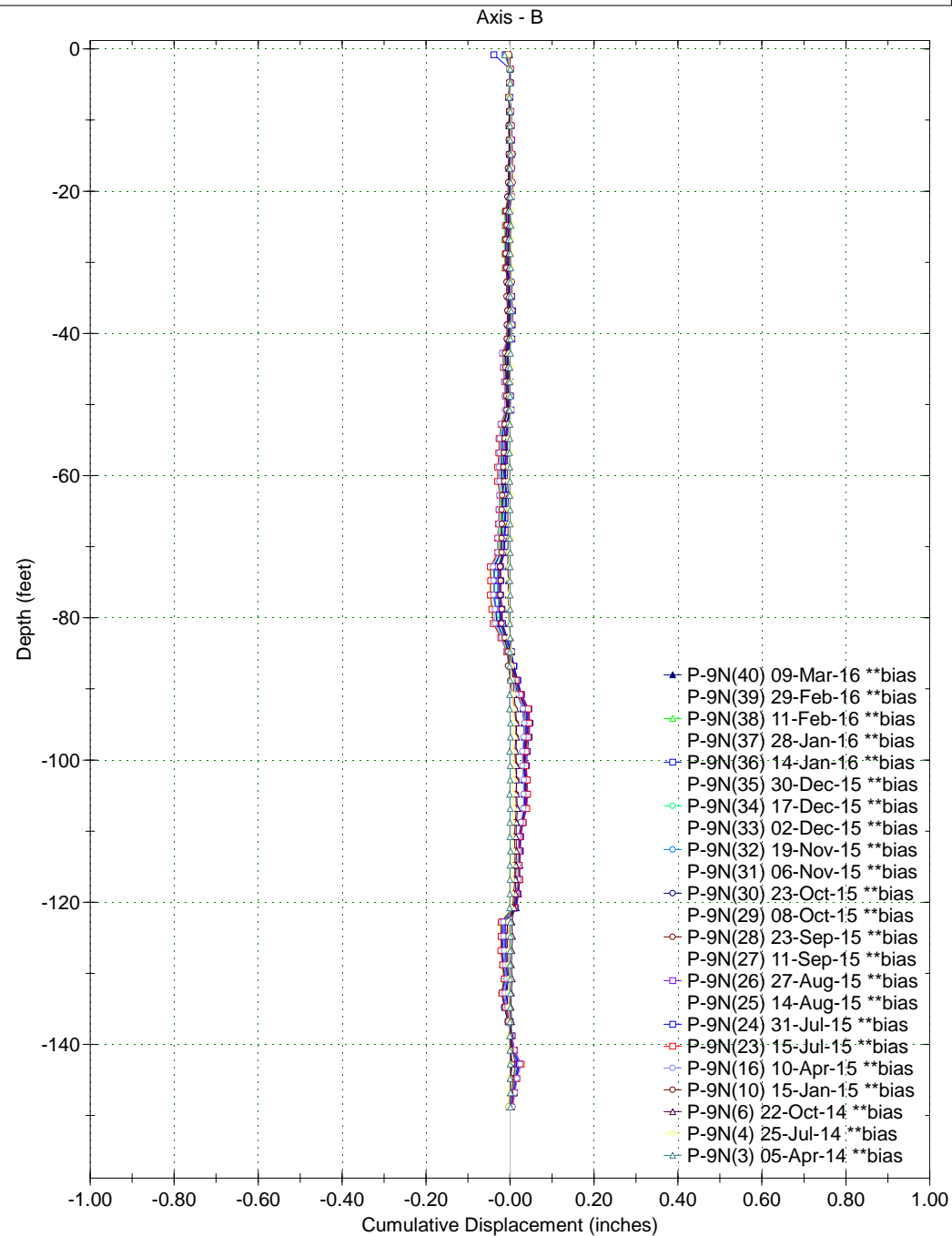
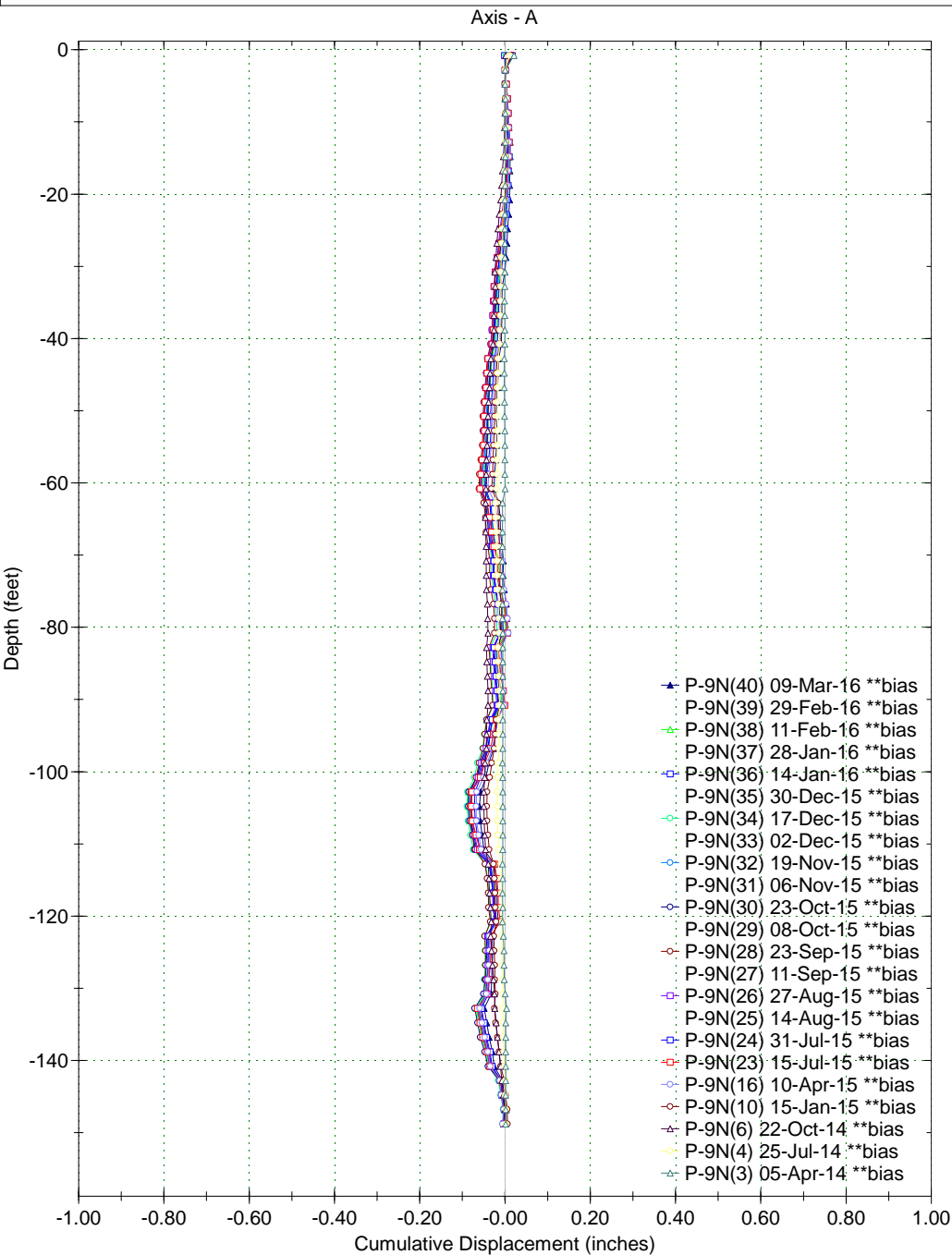
P-1



Borehole : P-9N
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :



Spiral Correction : N/A
Collar Elevation : 1.2 feet
Borehole Total Depth : 150.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 16 09:28
Applied Azimuth : 0.0 degrees



Borehole : TGR I-4
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :



Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 58.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Sep 23 10:39
Applied Azimuth : 0.0 degrees

