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March 5, 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: February 29 and March 1, 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 February 29 and March 1, 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 a decrease in total head of about 0.5 feet over the past two weeks.

P-002-13 – Pore pressure readings at this location indicate a decrease in total head of about 0.5 feet in the five shallowest piezometers and about 1 foot in the deepest piezometer.

P-003-10 – We temporarily removed the data loggers at this location and spliced an extension onto each piezometer cable to route the piezometers cables under and behind the gabion baskets that are being installed in this area. When the gabion wall is completed and backfill, we will install a protective cover and reattach the data loggers. For the interim we will be taking manual readings. Readings this period indicate a decrease in total head of 0.5 feet in the piezometer at 38 feet. The remaining piezometers show no change.

P-004-13 –TGR placed a concrete casing over the dataloggers and then buried this location to allow the construction of a haul road over the instruments. This haul road is needed to bring in backfill for the bulkheads.

P-009-13 – Pore pressure readings in both piezometers at this location fluctuated throughout the past two weeks, but show virtually no net change.

B-05-04 – Bi-weekly readings at this location show decreases in total head of about 1 foot in the shallow piezometer and about 0.5 feet in the deep piezometer.

B-05-A-11 – Pore pressure readings at this location indicate a decrease in total head of about 0.6 feet in both piezometers during the past two weeks.

Inclinometer Readings

Inclinometer readings at I-001-13, I-002-13, I-009-13, B-101, 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 – The negative B-axis displacement in the top 10 feet of the inclinometer casing at this location was likely caused by the adjacent construction work on the gabion wall. No other significant movement was observed at this location.

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

B-102 – Inclinometer readings for this location indicate slight displacement in the positive A-axis direction between 120 and 200 feet.

B-105A – Inclinometer readings for this location, indicate slight positive A-axis and negative B-axis displacements from the surface to about 50 feet. TGR is currently in the process of backfilling the area surrounding this inclinometer. We have extended the inclinometer casing and asked TGR to take special care when compacting fill near this instrument.

B-05-04 – The cumulative resultant displacement zone plot between 115 and 123 feet indicates an increase of about 0.02 inches over the past two weeks. The cumulative displacement plot shows that this positive A-axis displacement which is occurring between about 50 and 120 feet.

P-1 – Inclinometer readings for this location indicate an increase in negative A-axis and positive B-axis displacement between about 120 and 140 feet. The cumulative resultant displacement zone plot at 132 feet indicates a slight increase.

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,

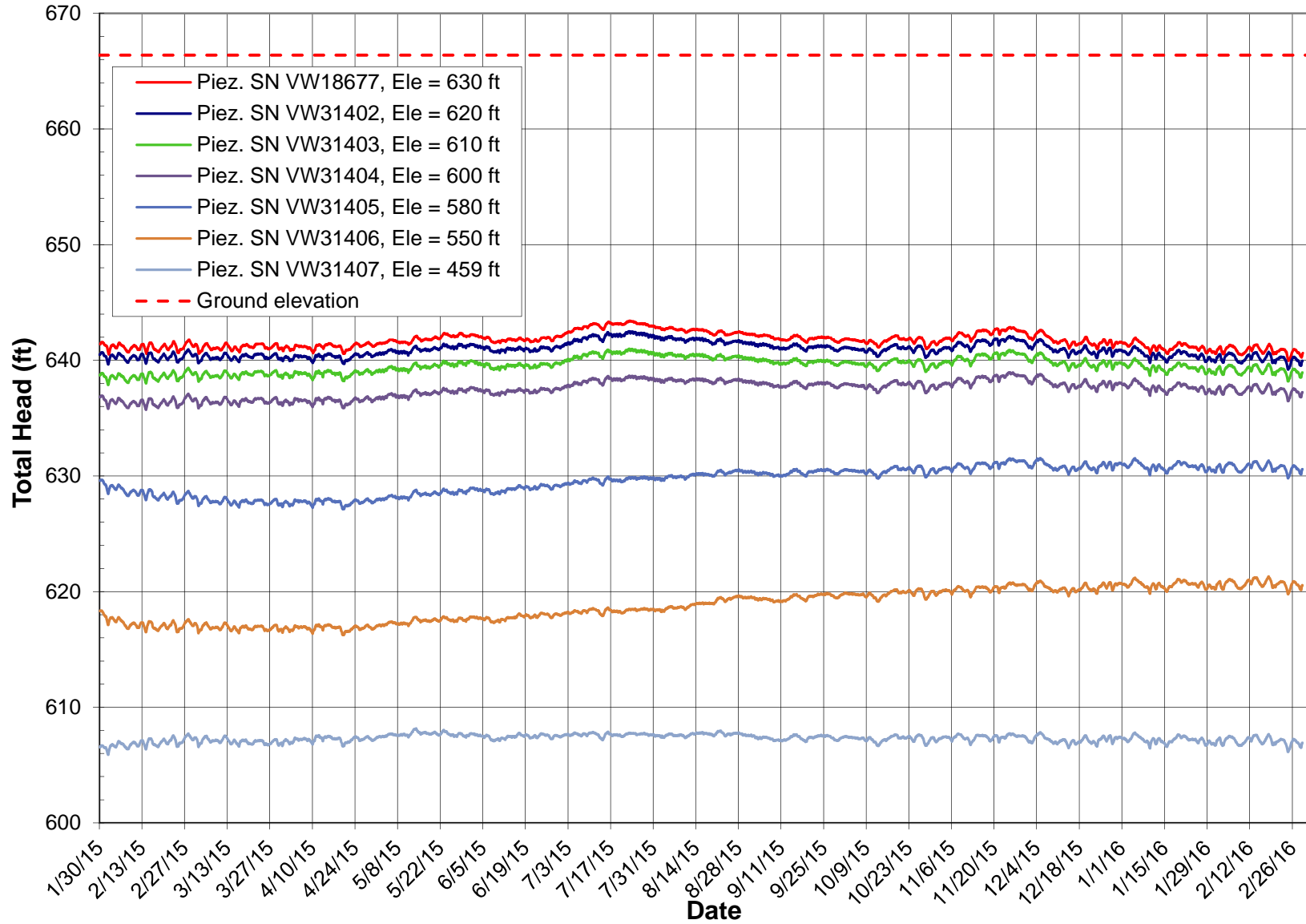
SME

Brendan P. Lieske, E.I.
Staff Engineer

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

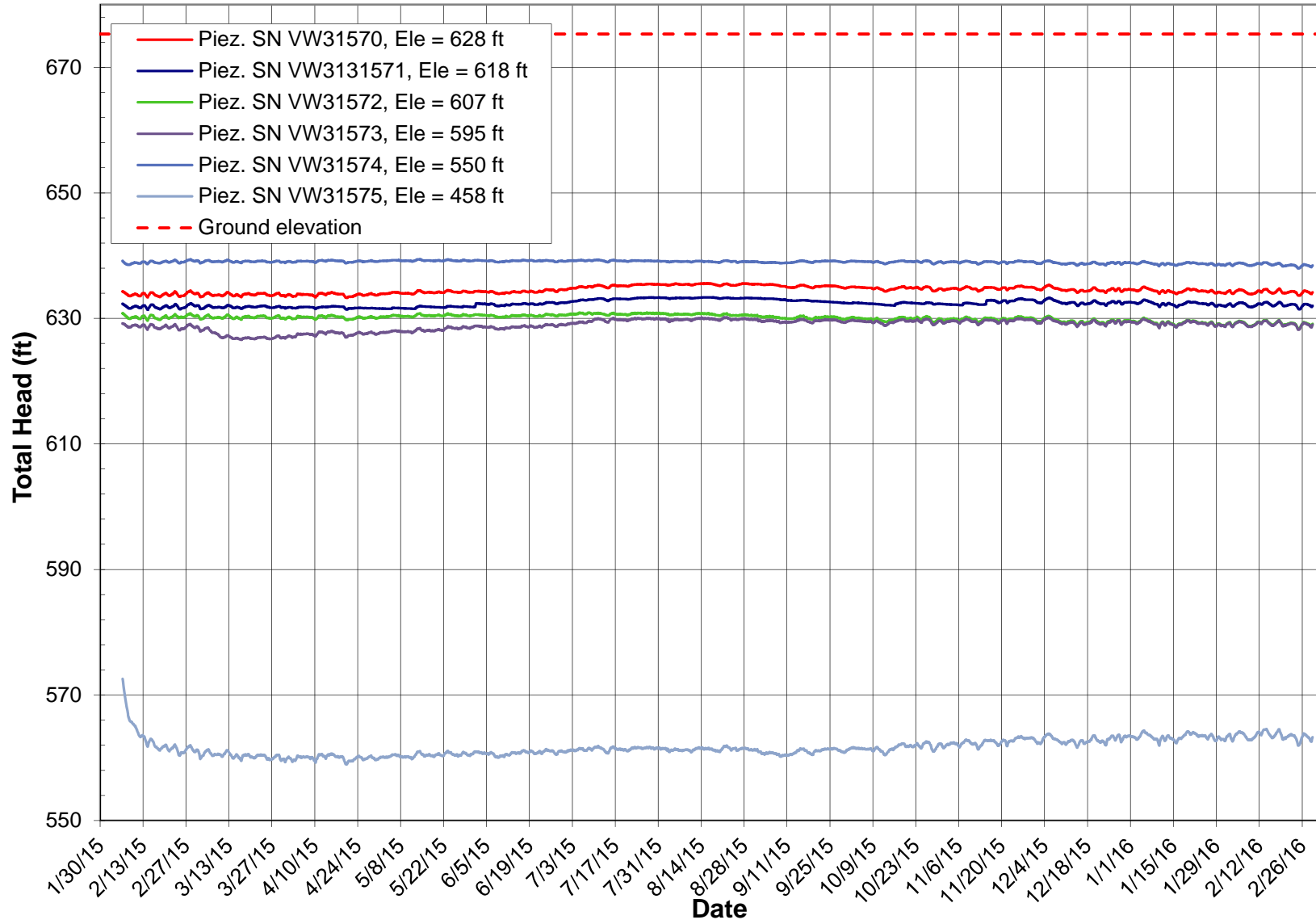
P-001-13 VW Piezometer Readings

Ground surface elevation = 666.4 ft



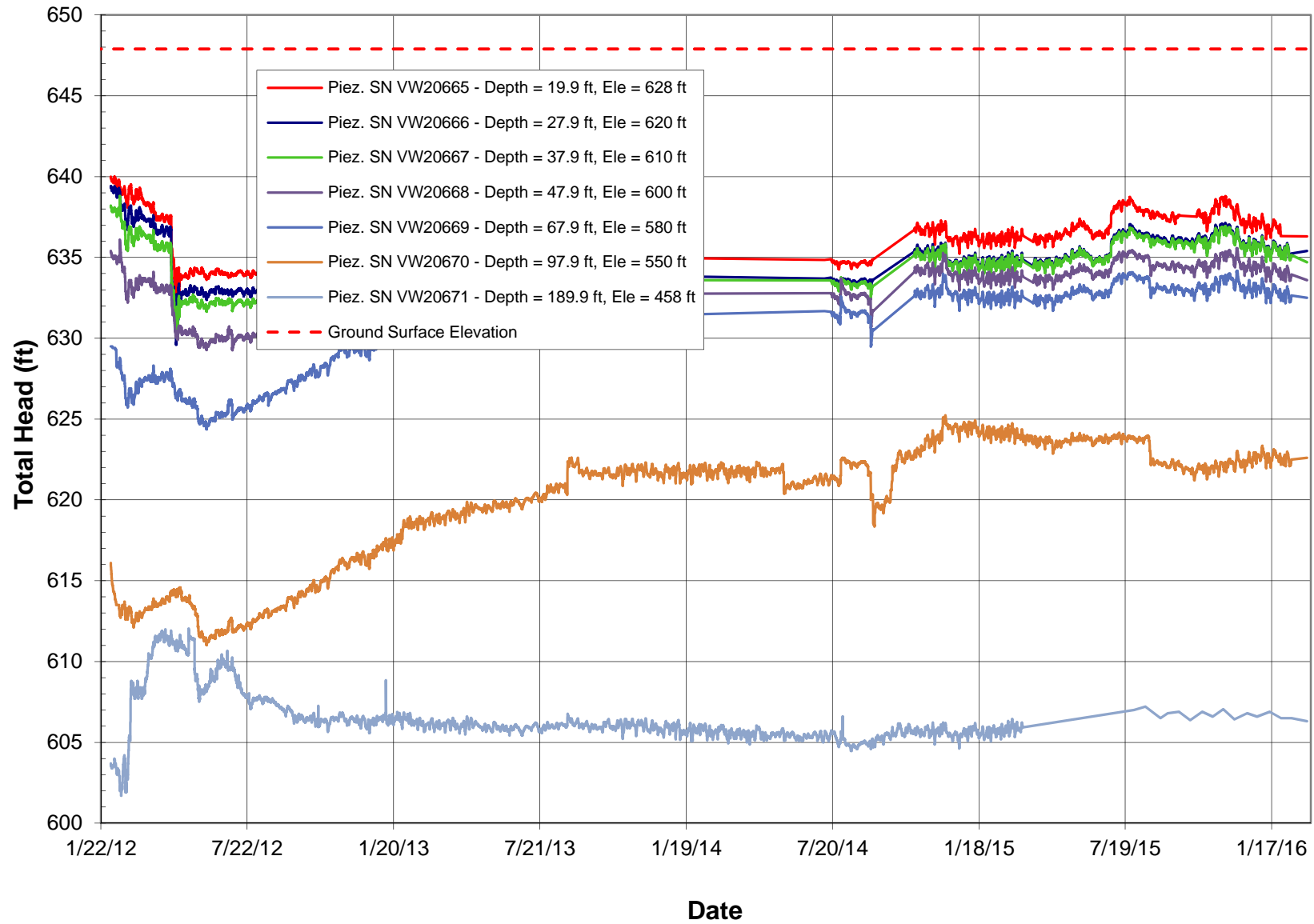
P-002-13 VW Piezometer Readings

Ground surface elevation = 675.29 ft



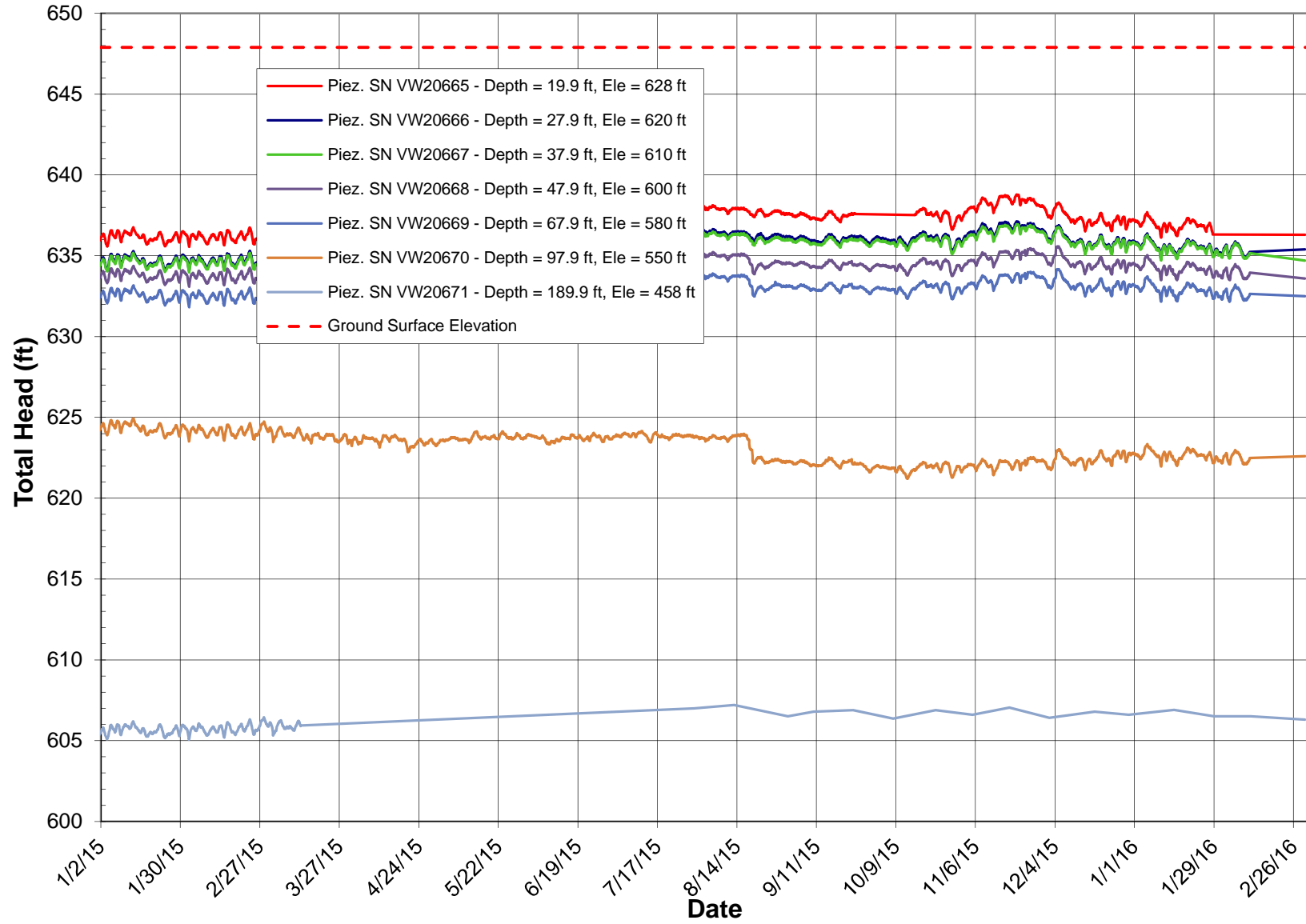
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



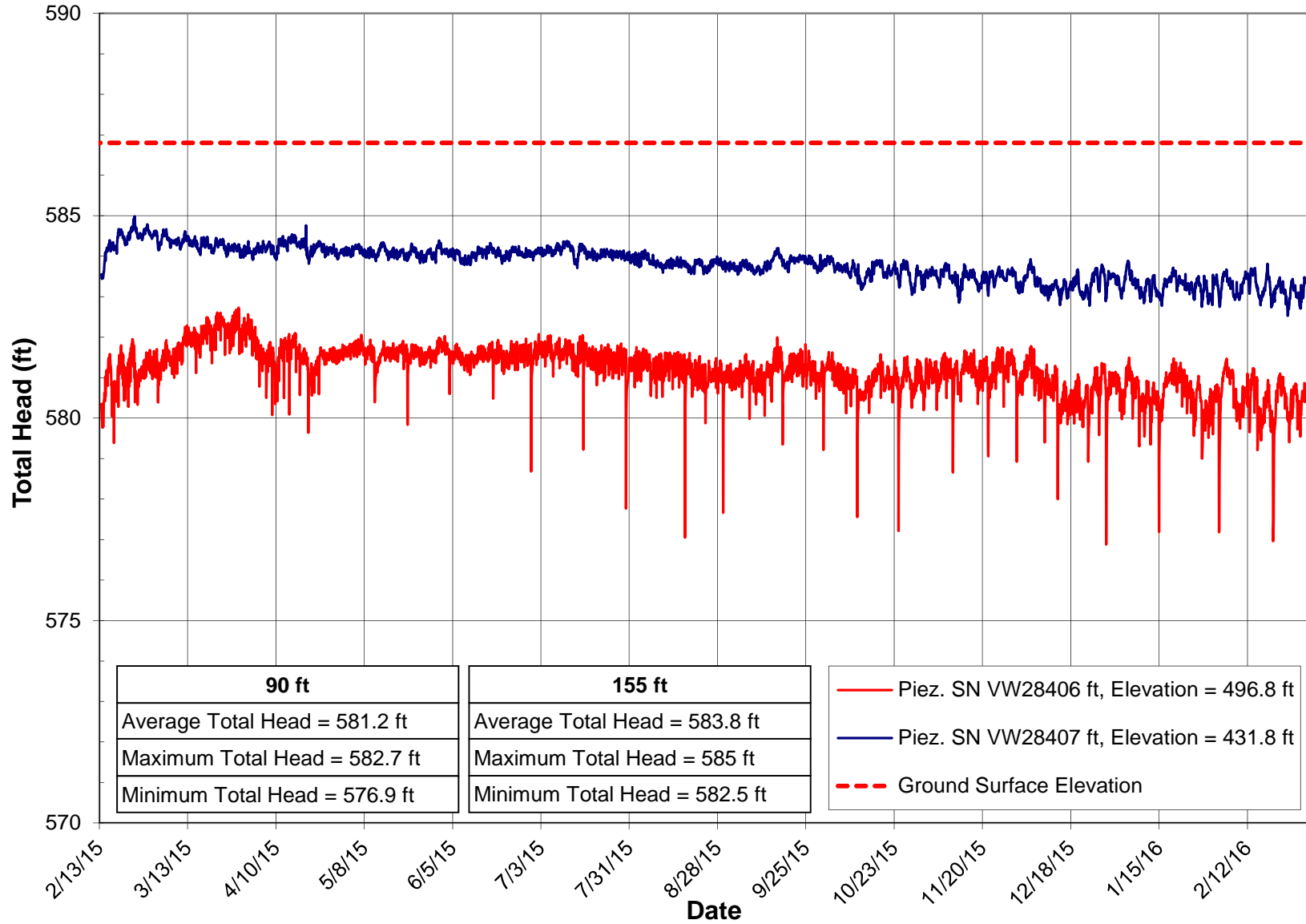
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



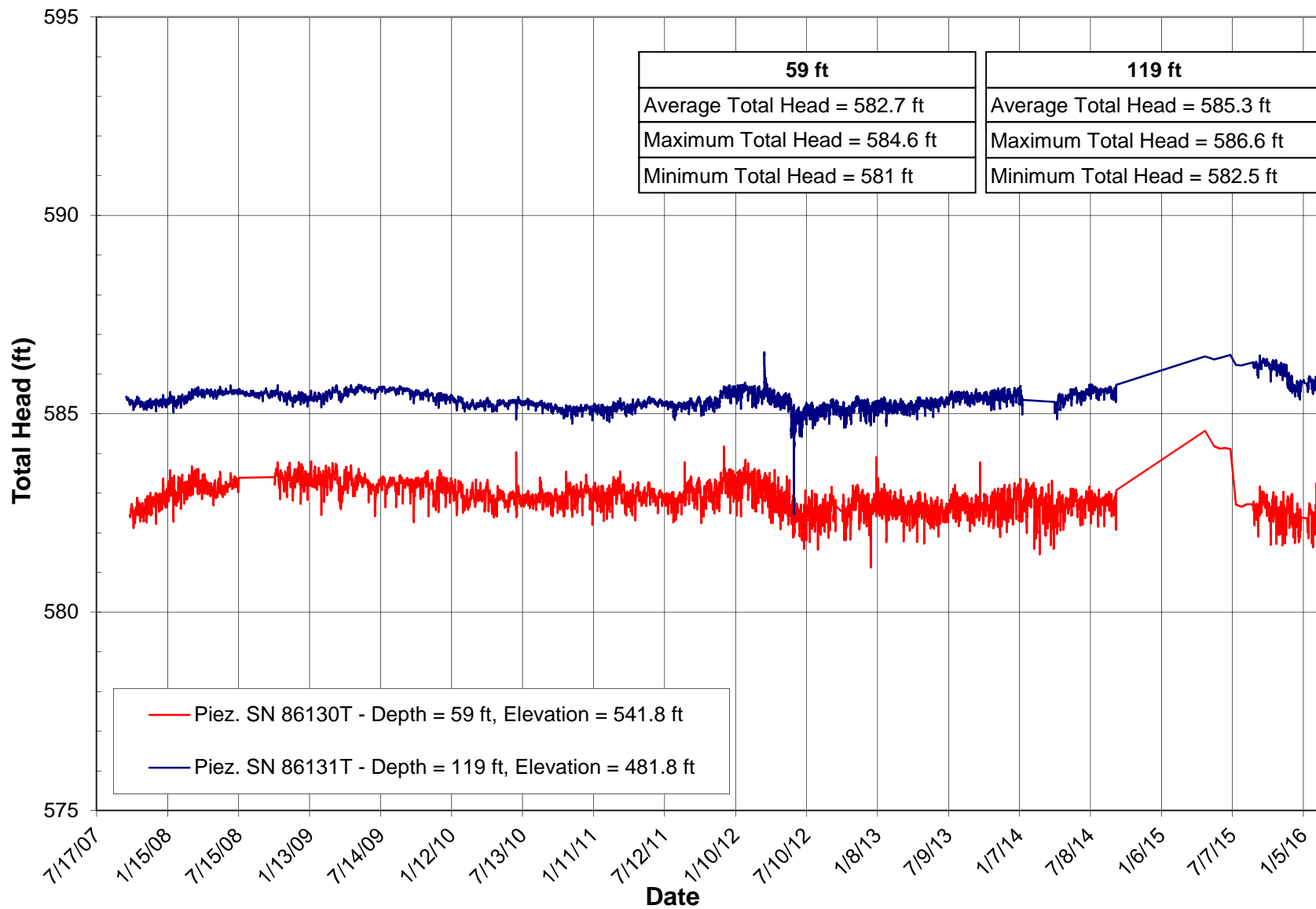
P-009-13 VW Piezometer Readings

Ground surface elevation = 586.6 ft



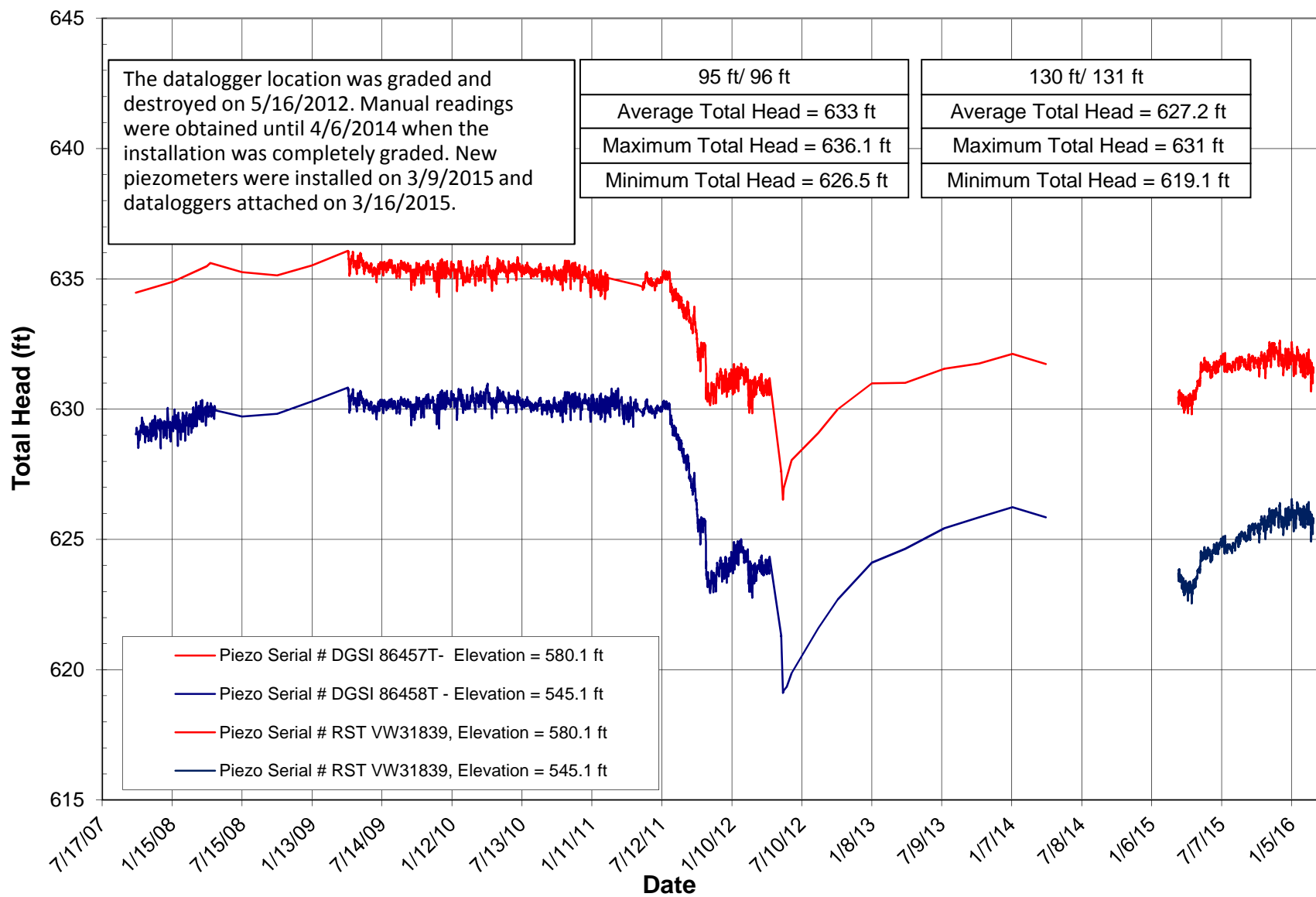
B-05-04 VW Piezometer Readings

Ground surface elevation = 600.8 ft



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

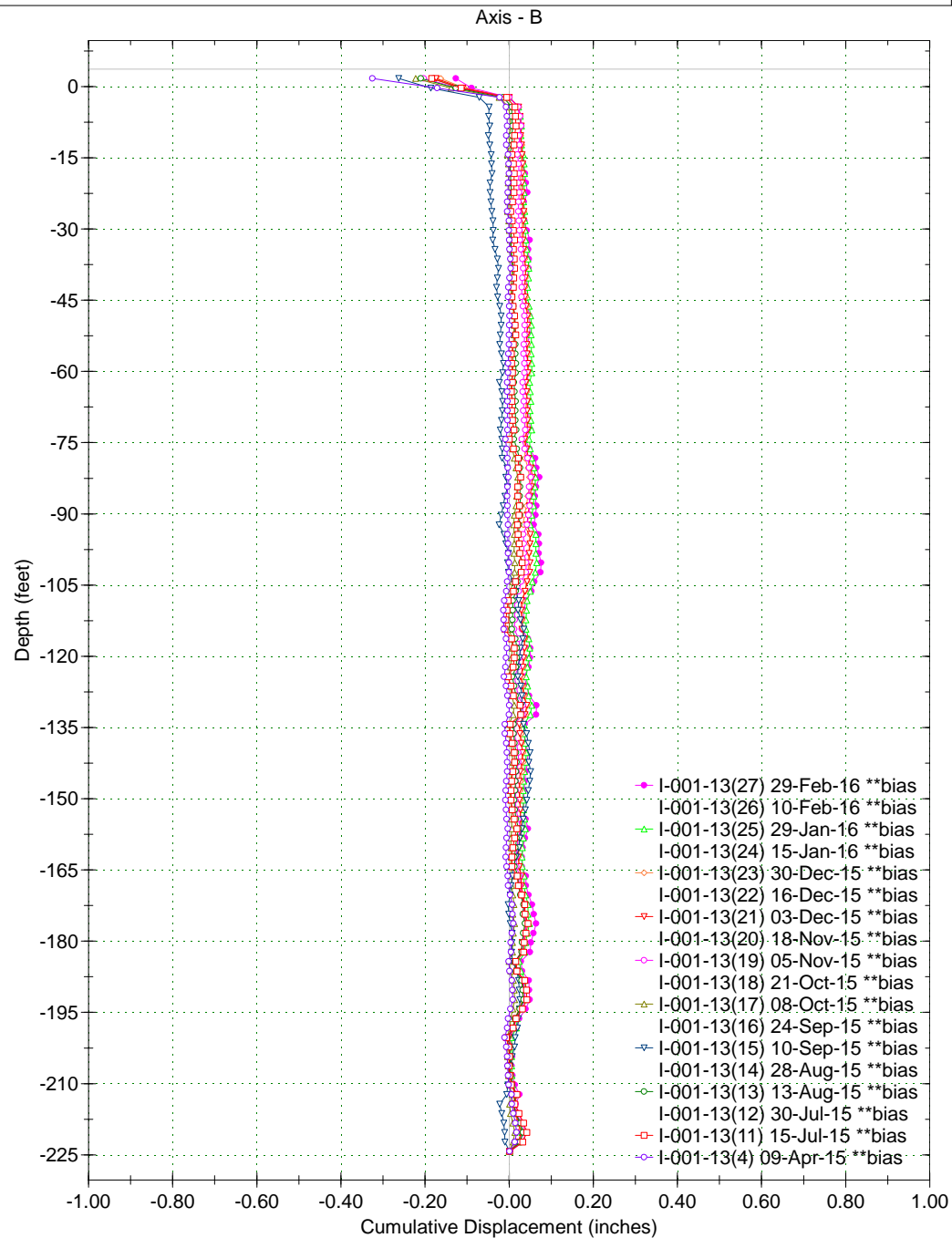
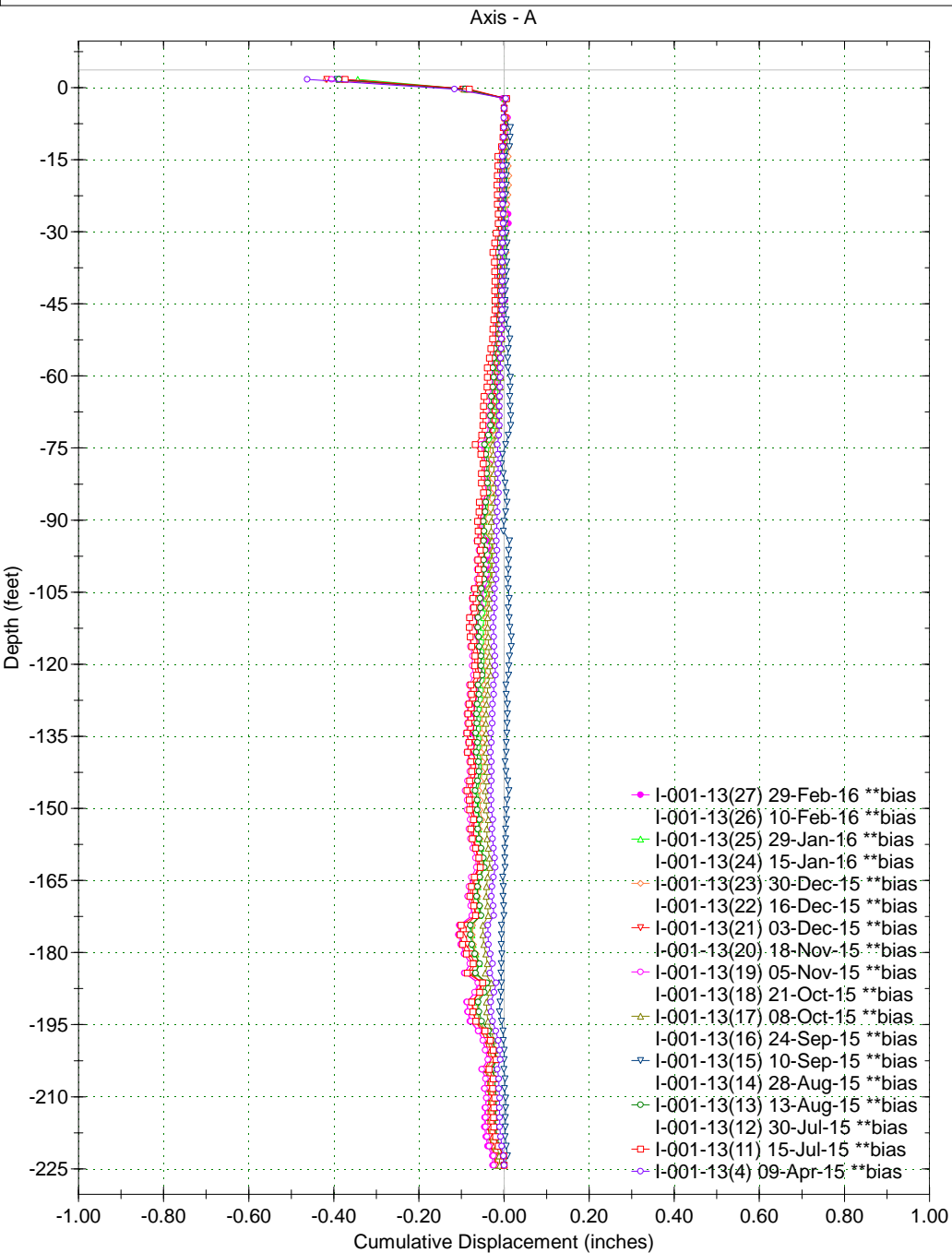
Ground surface elevation = 675.1 ft (B-05-11) / 676.1 ft (B-05-A-11)



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



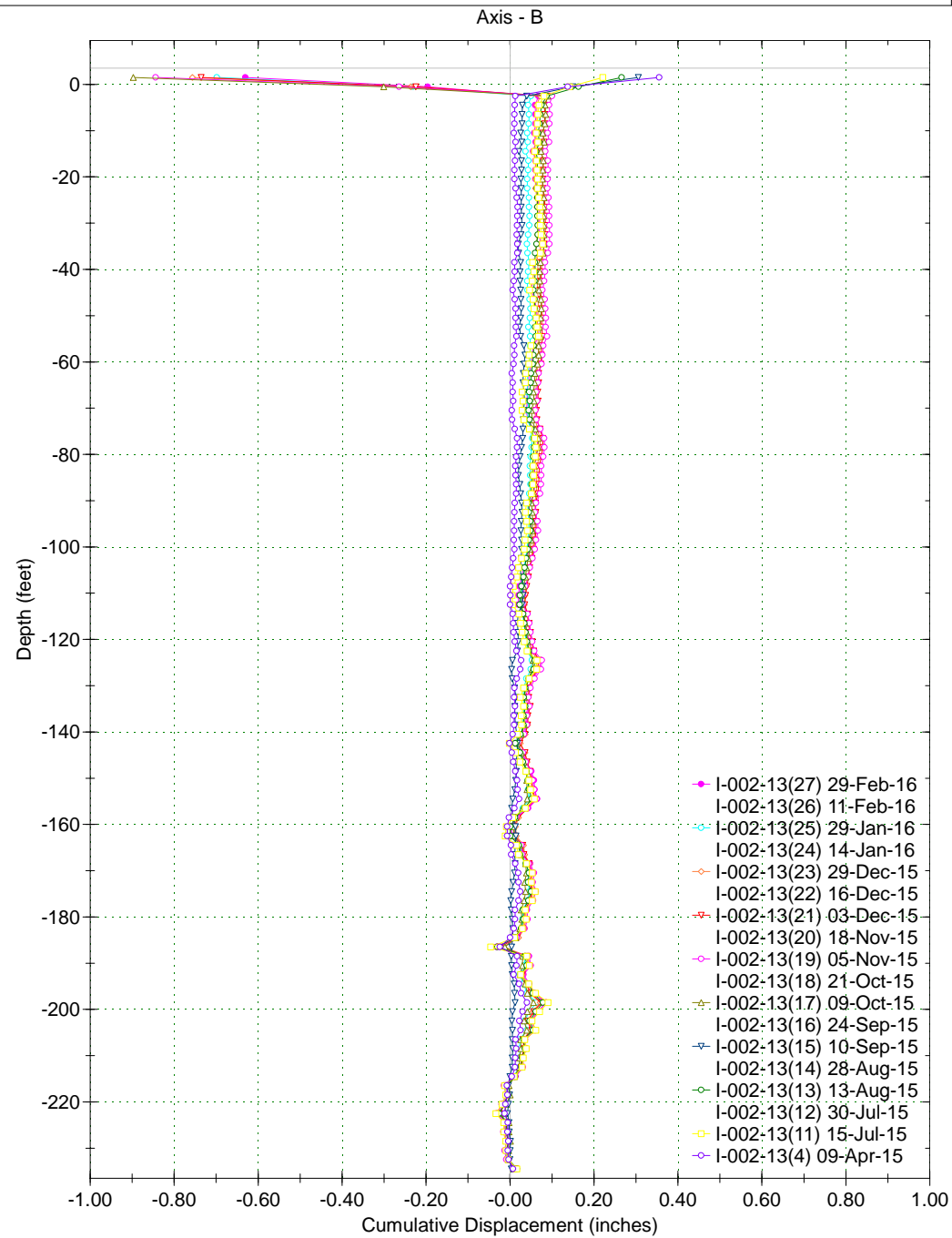
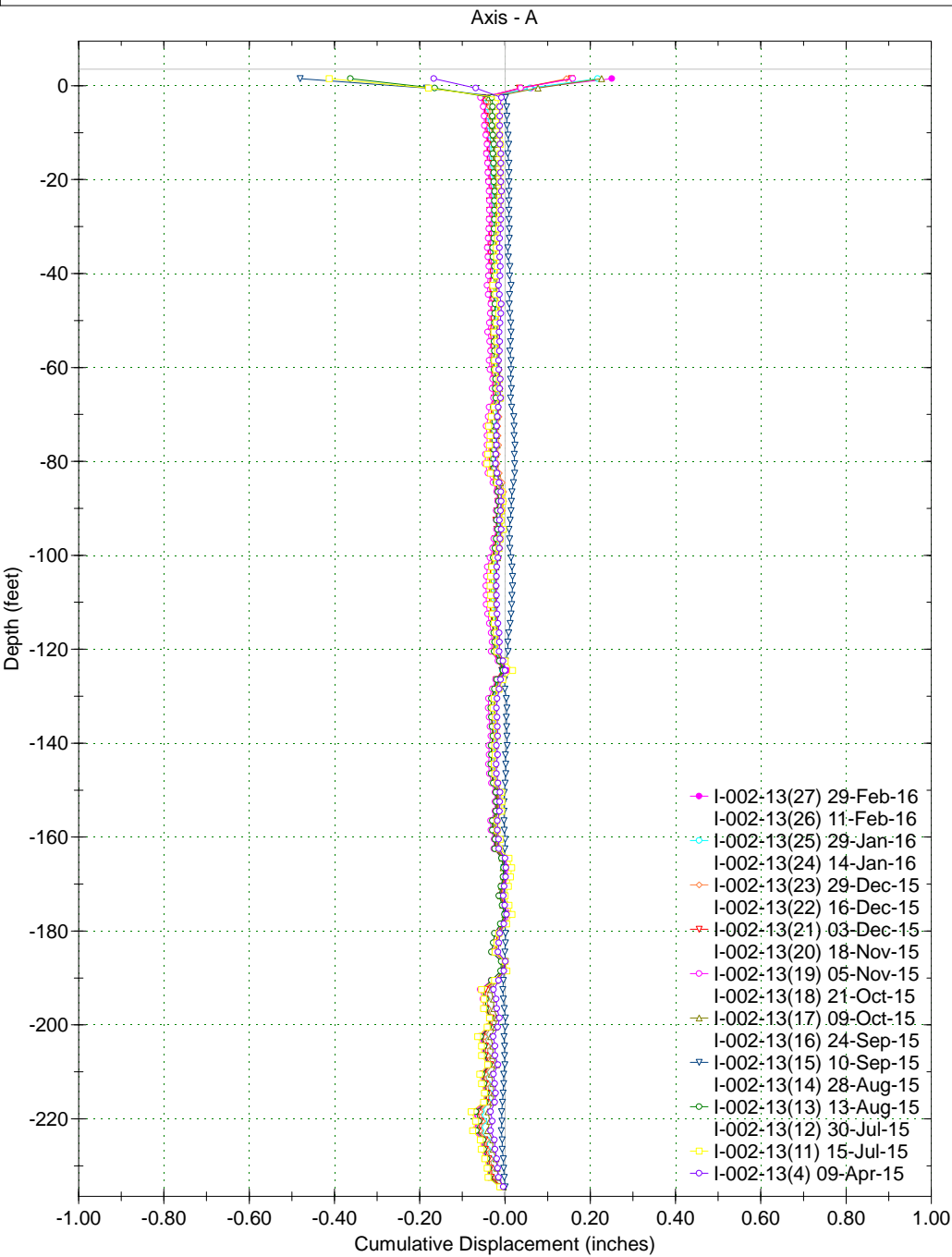
Spiral Correction : N/A
 Collar Elevation : 3.7 feet
 Borehole Total Depth : 228.0 feet
 A+ Groove Azimuth :
 Base Reading : 2015 Mar 03 11:14
 Applied Azimuth : 0.0 degrees



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



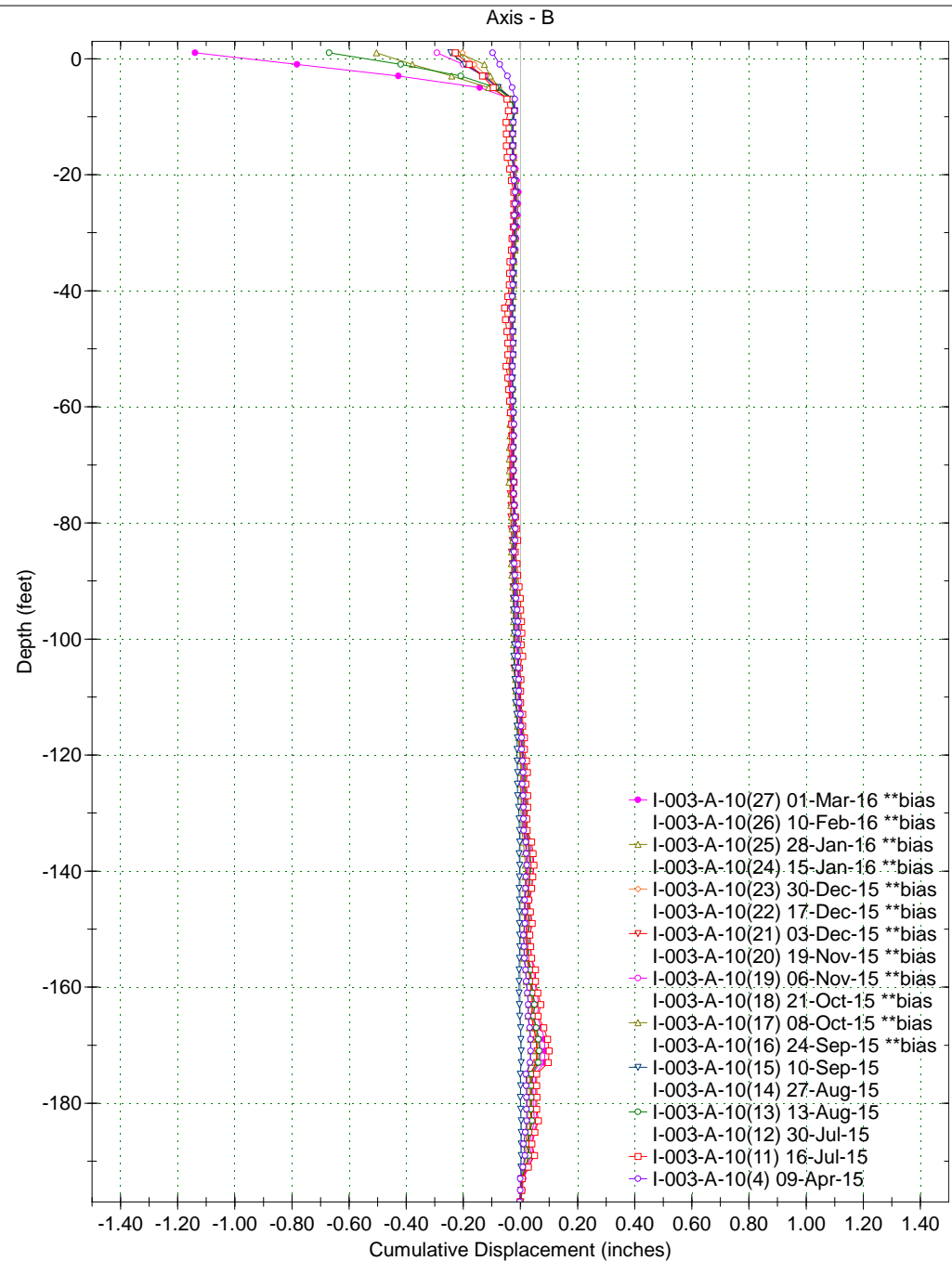
Spiral Correction : N/A
Collar Elevation : 3.5 feet
Borehole Total Depth : 238.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 03 10:04
Applied Azimuth : 0.0 degrees



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



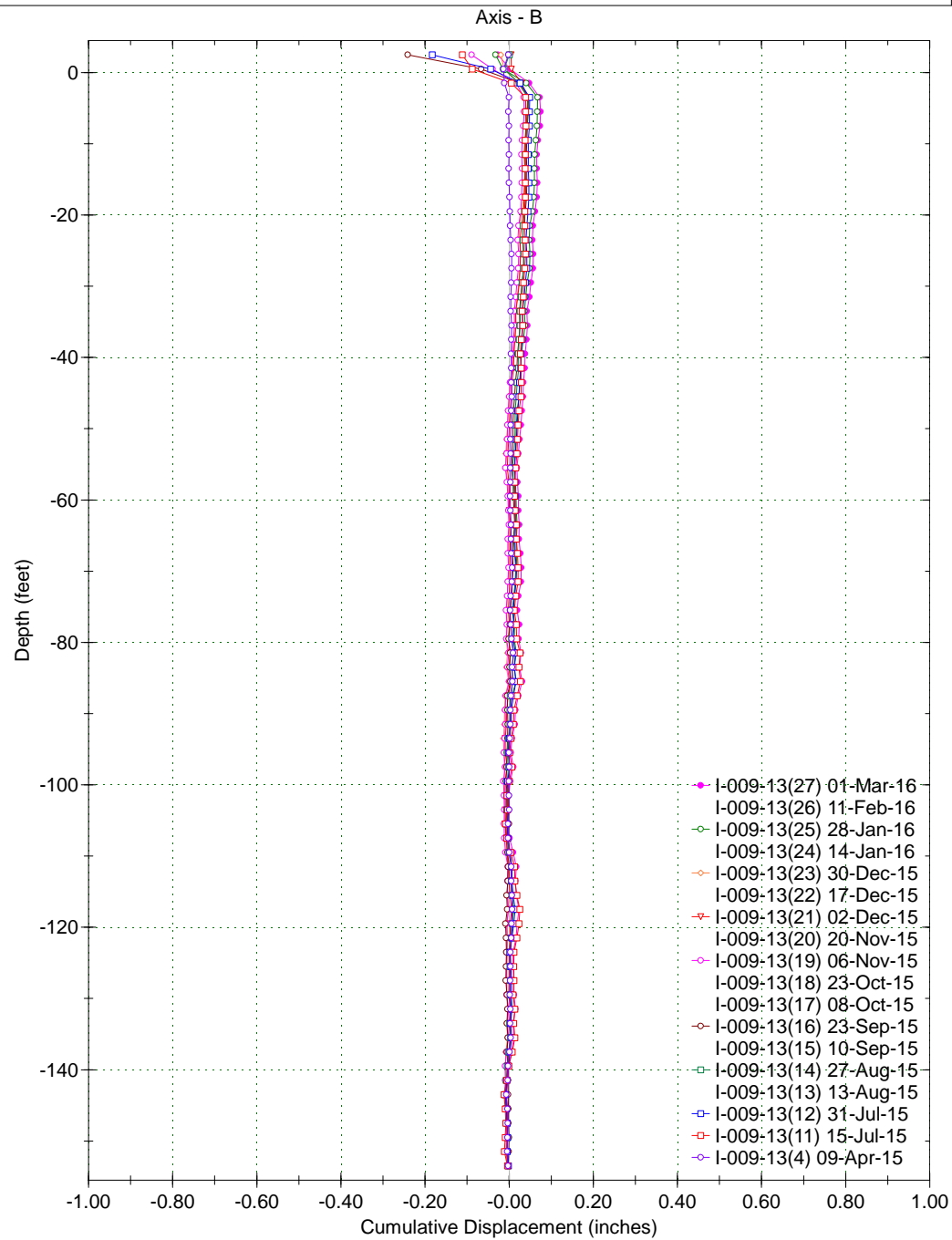
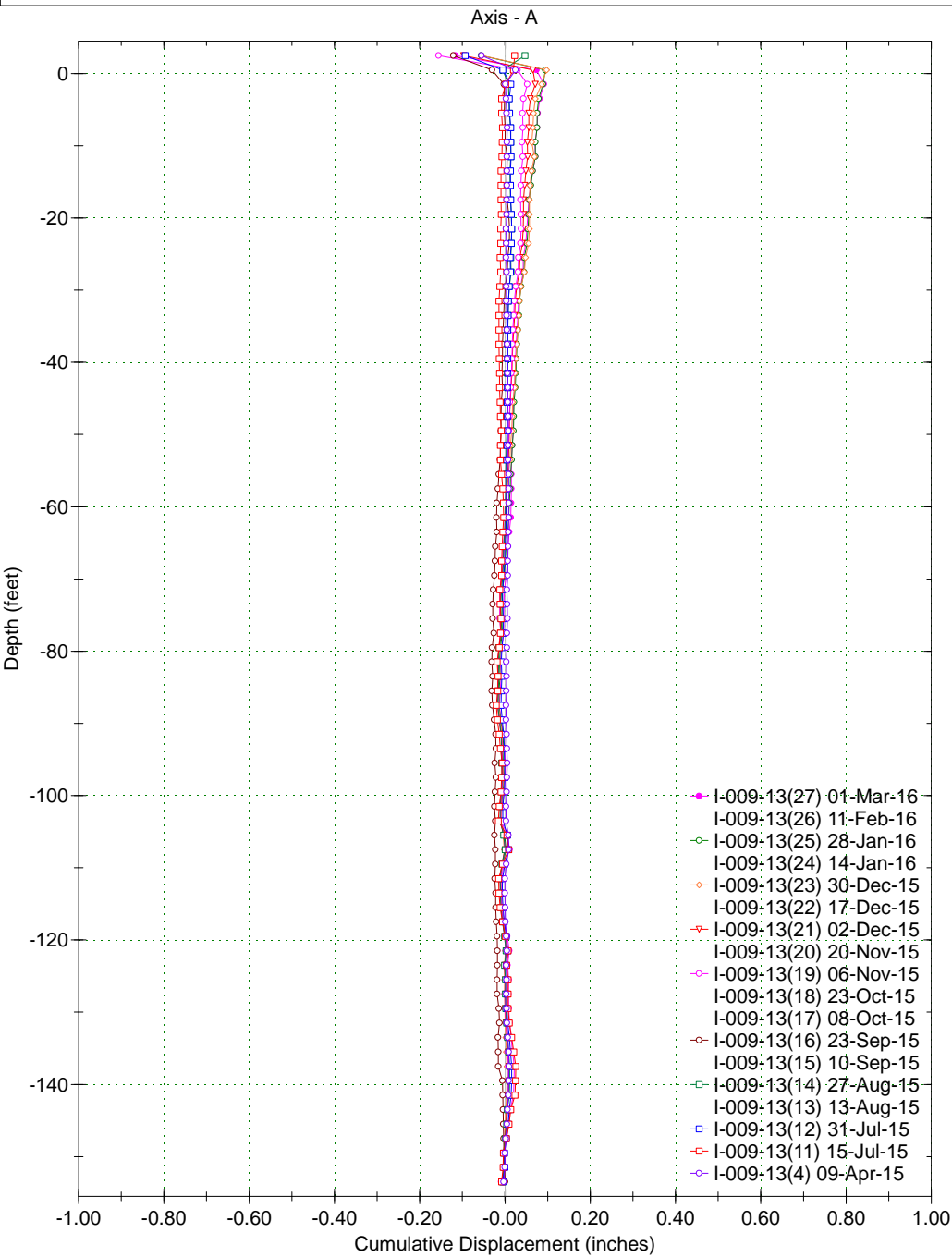
Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 202.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 19 11:00
Applied Azimuth : 0.0 degrees



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



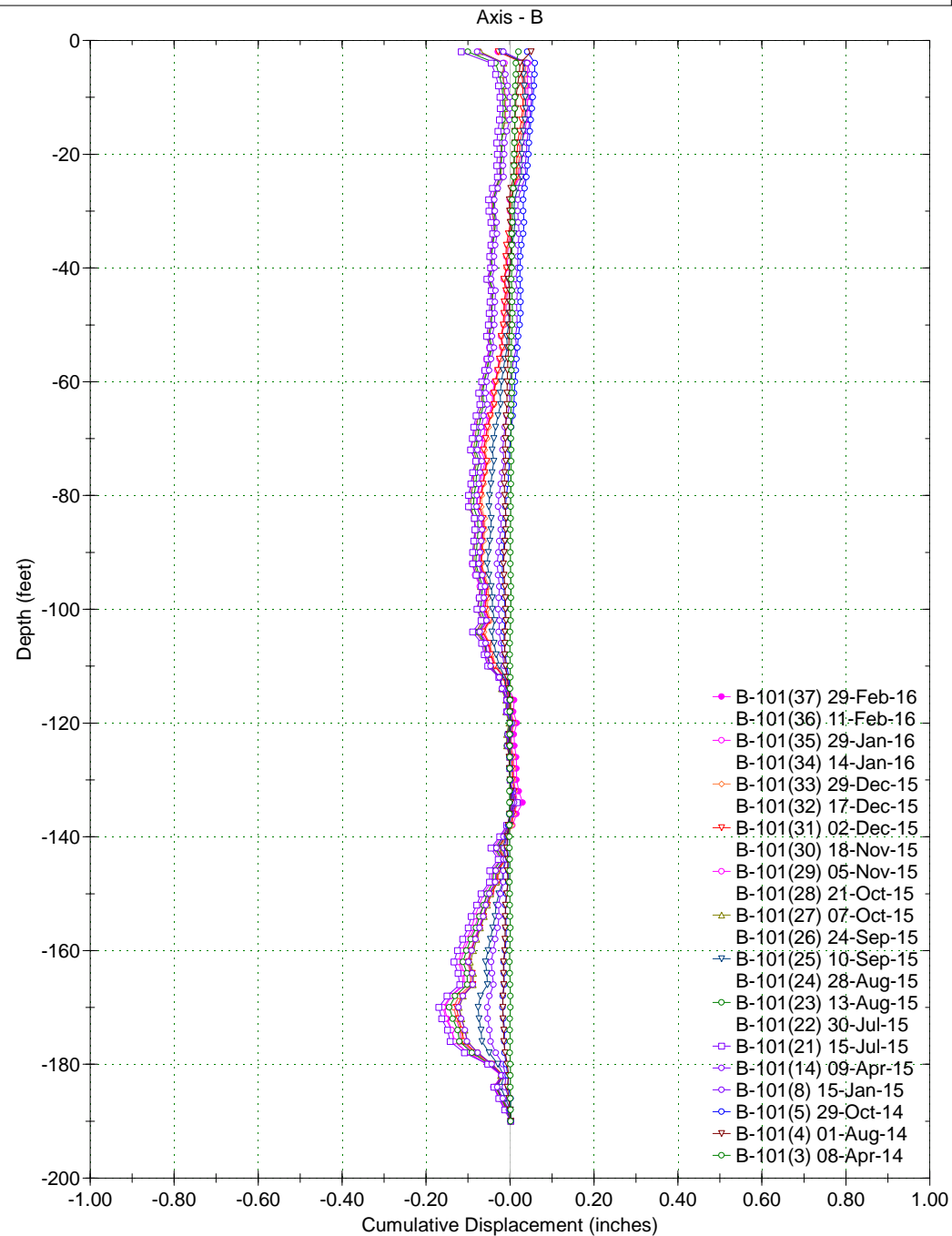
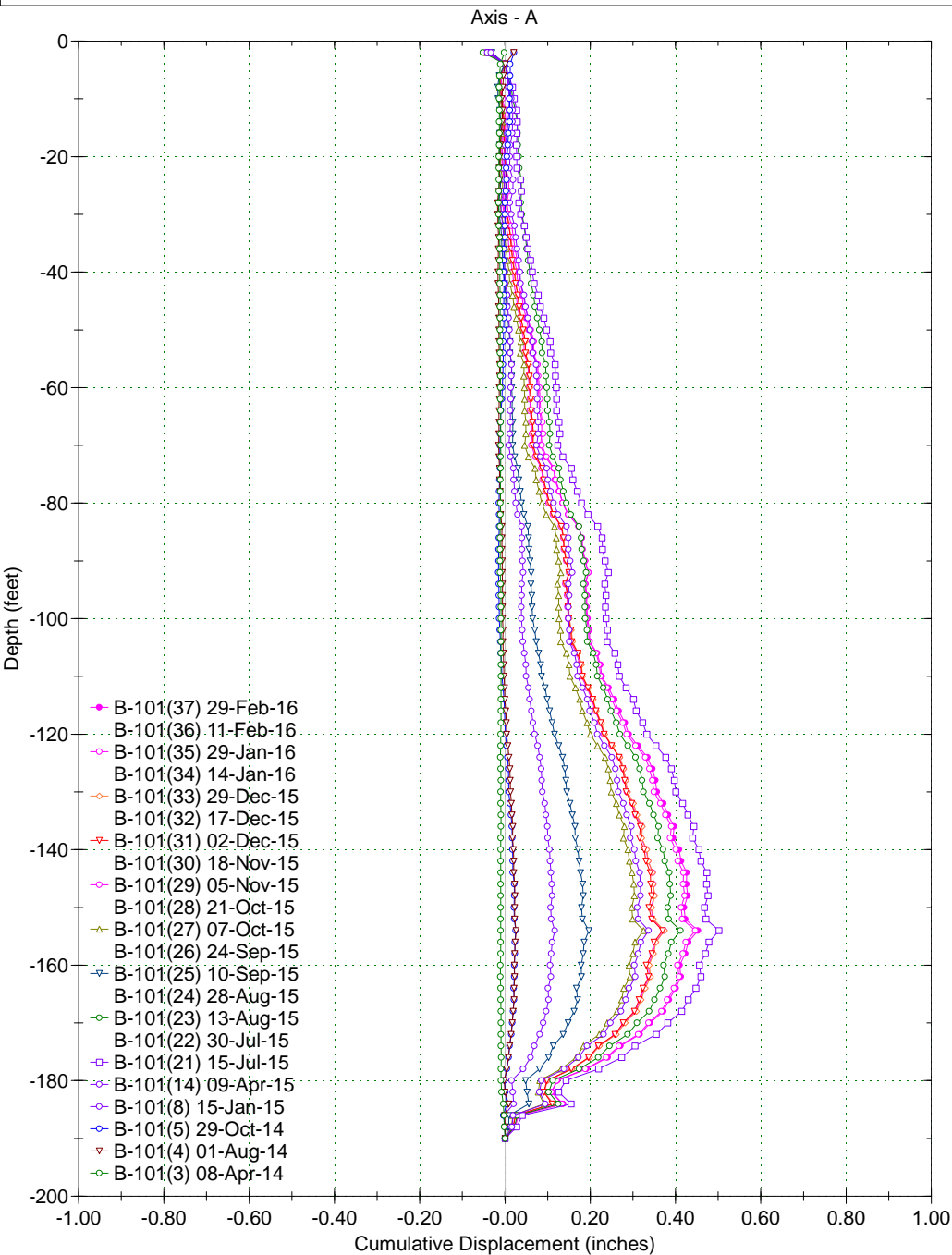
Spiral Correction : N/A
Collar Elevation : 4.5 feet
Borehole Total Depth : 158.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 18 15:56
Applied Azimuth : 0.0 degrees



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



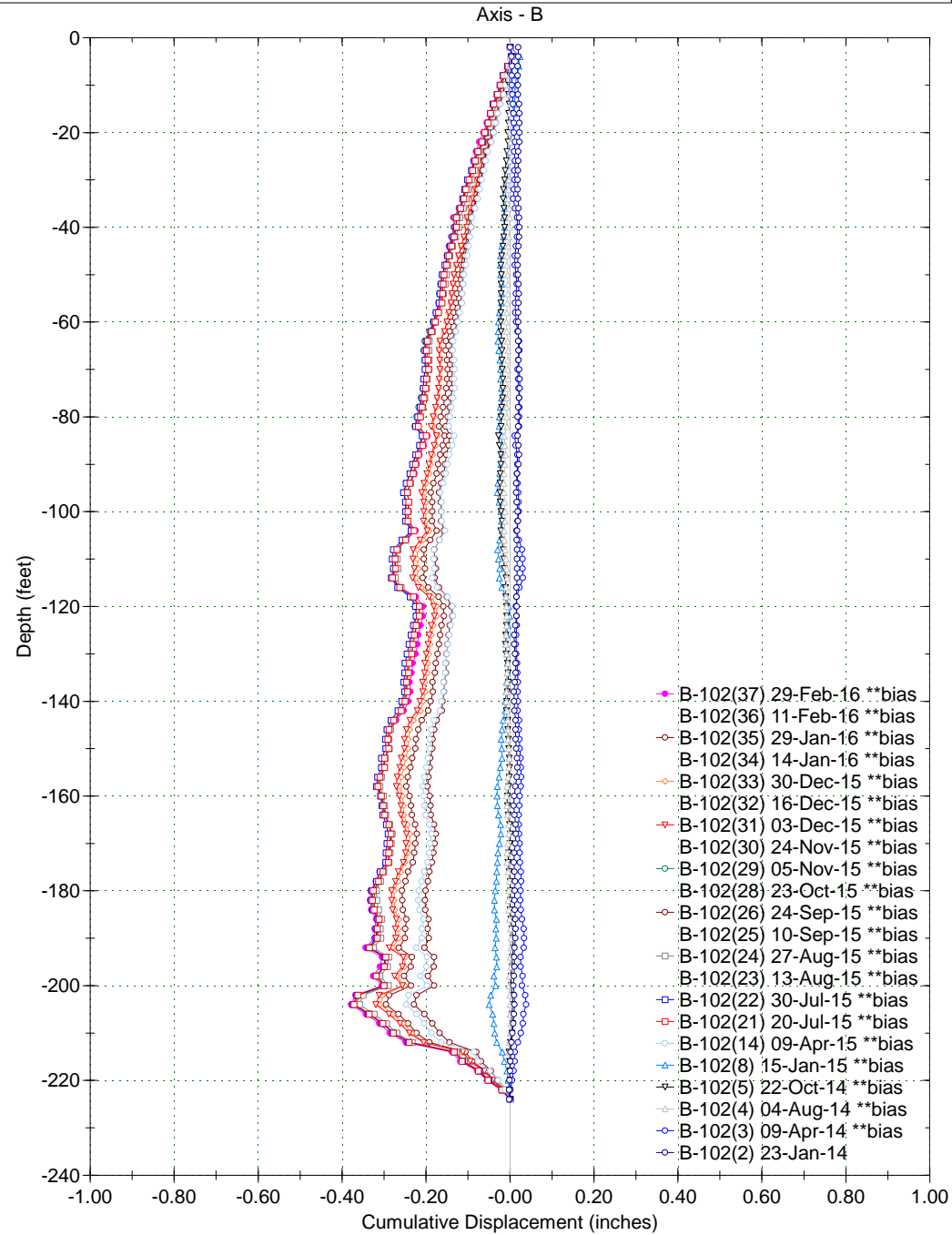
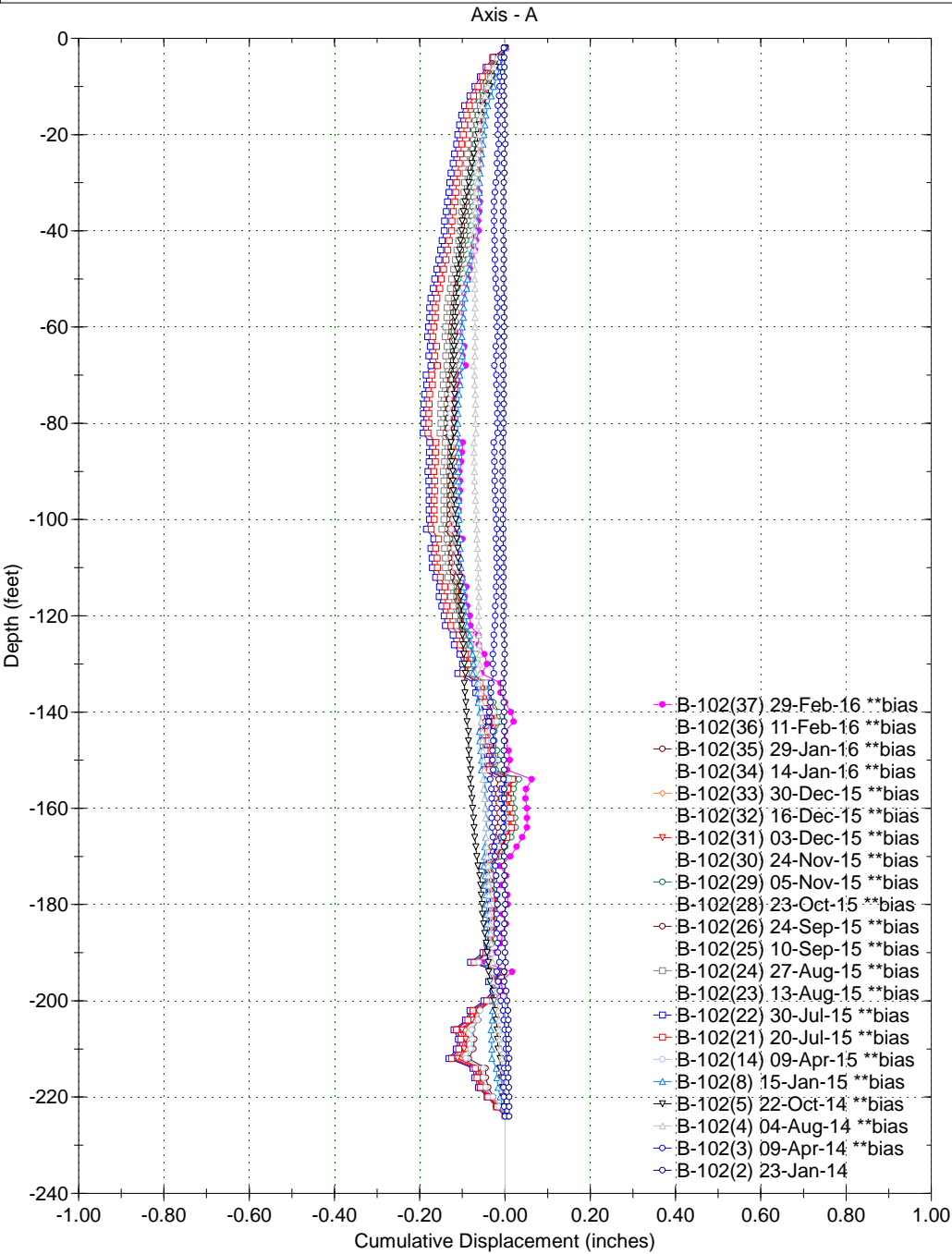
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 190.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 09:01
Applied Azimuth : 0.0 degrees



Borehole : B-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

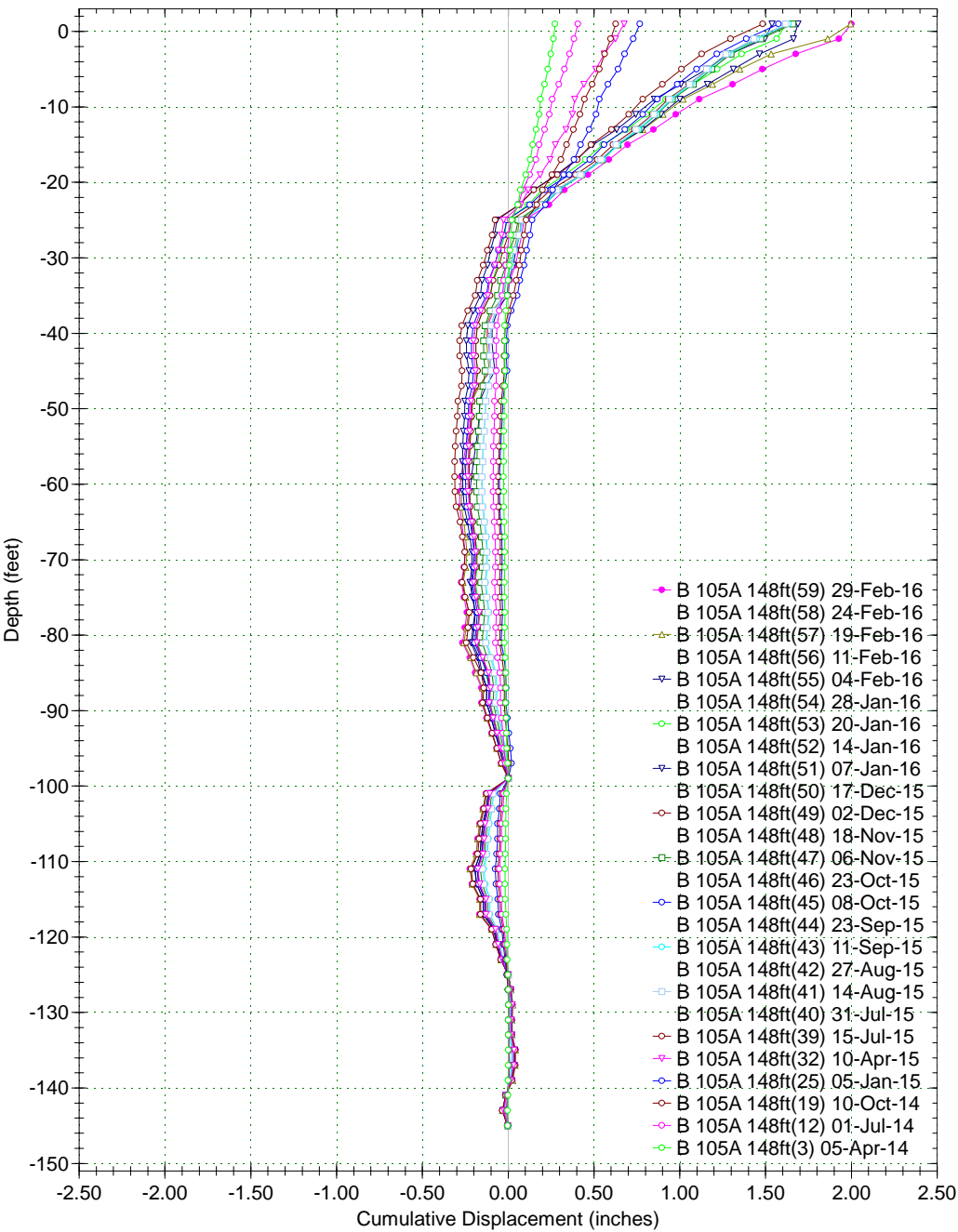


Borehole : B 105A 148ft
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 19+11.38
 Easting : 90.9' Rt of CL
 Collar :

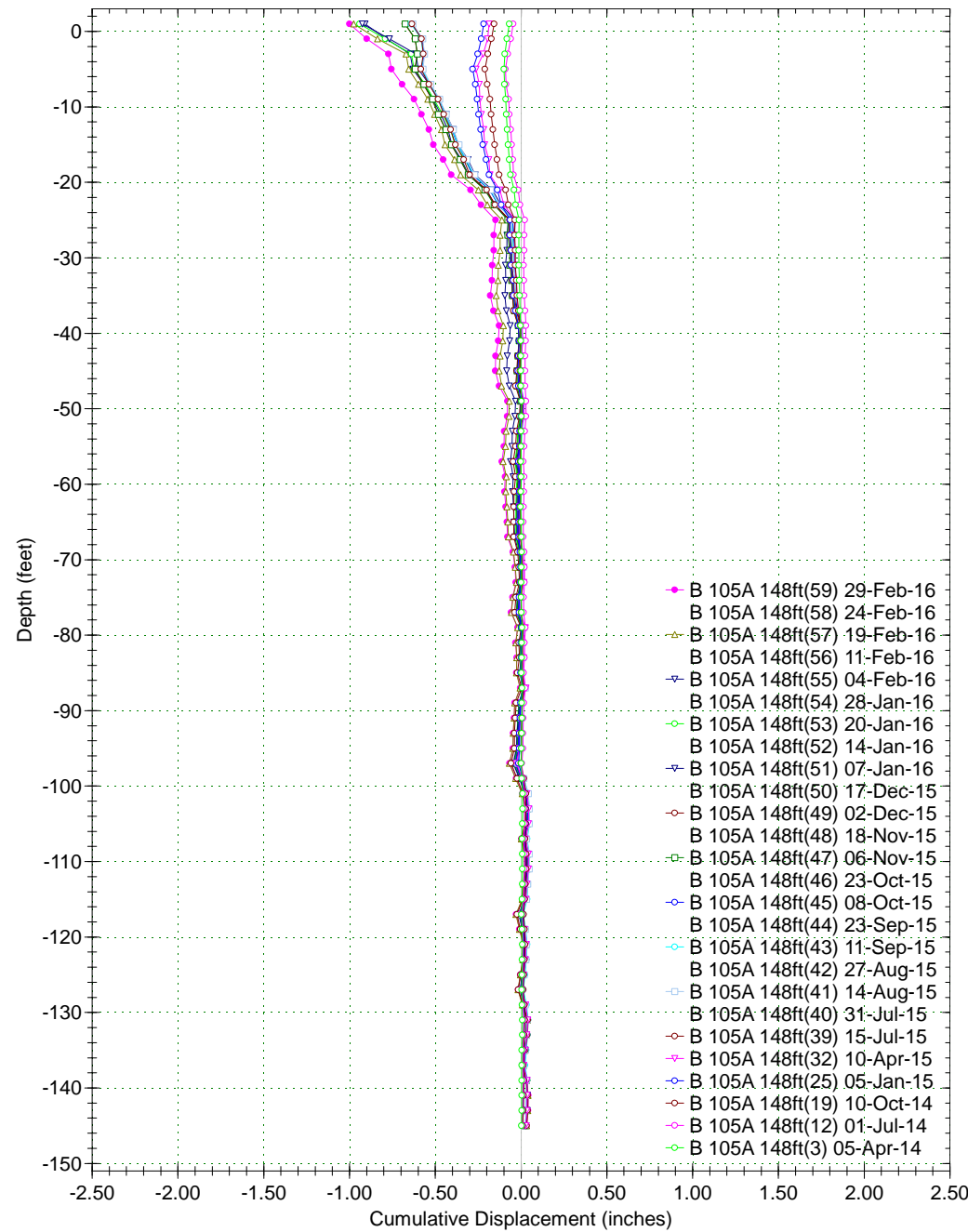


Spiral Correction : N/A
 Collar Elevation : 3.0 feet
 Borehole Total Depth : 148.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 15 09:19
 Applied Azimuth : 0.0 degrees

Axis - A



Axis - B

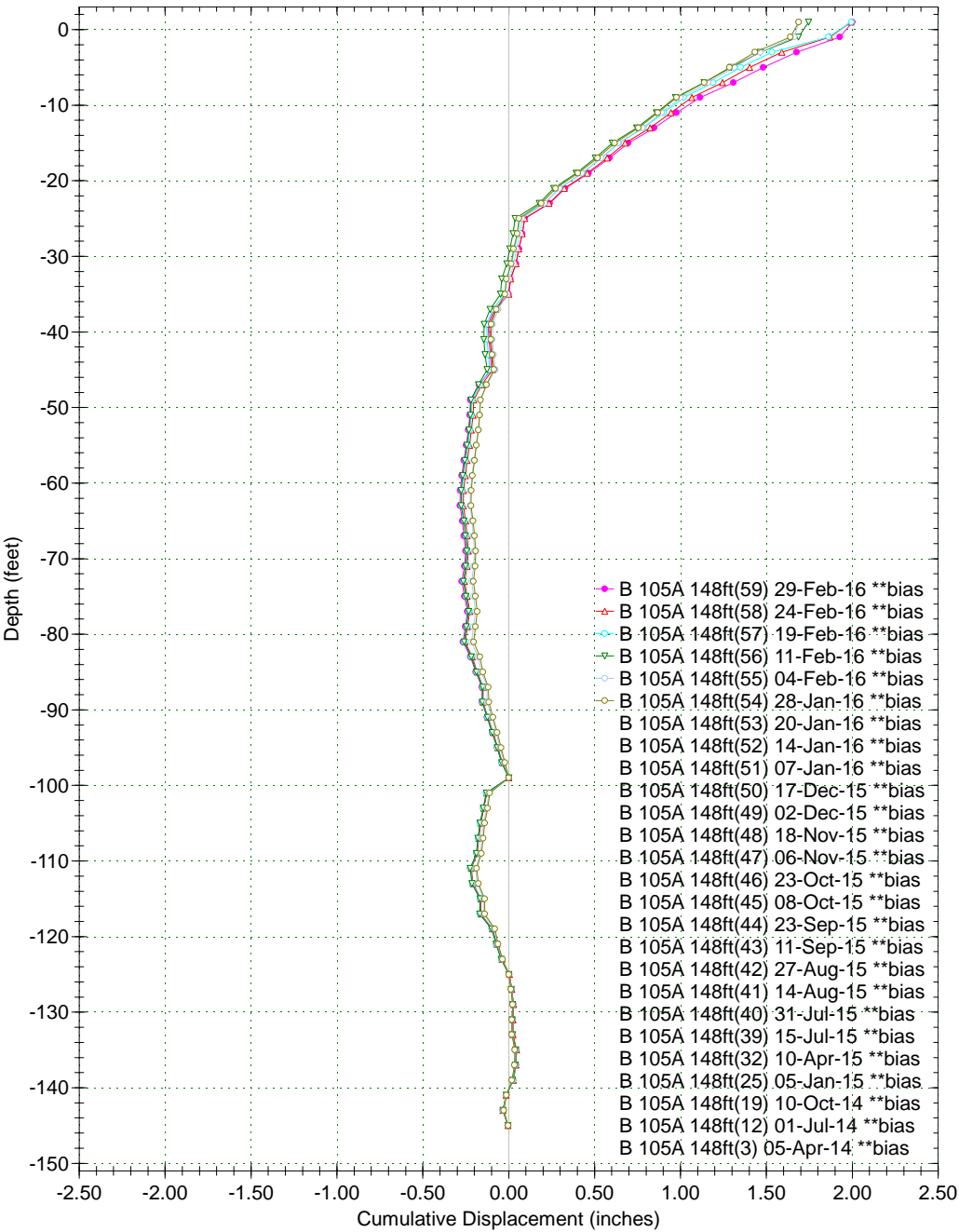


Borehole : B 105A 148ft
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 19+11.38
 Easting : 90.9' Rt of CL
 Collar :

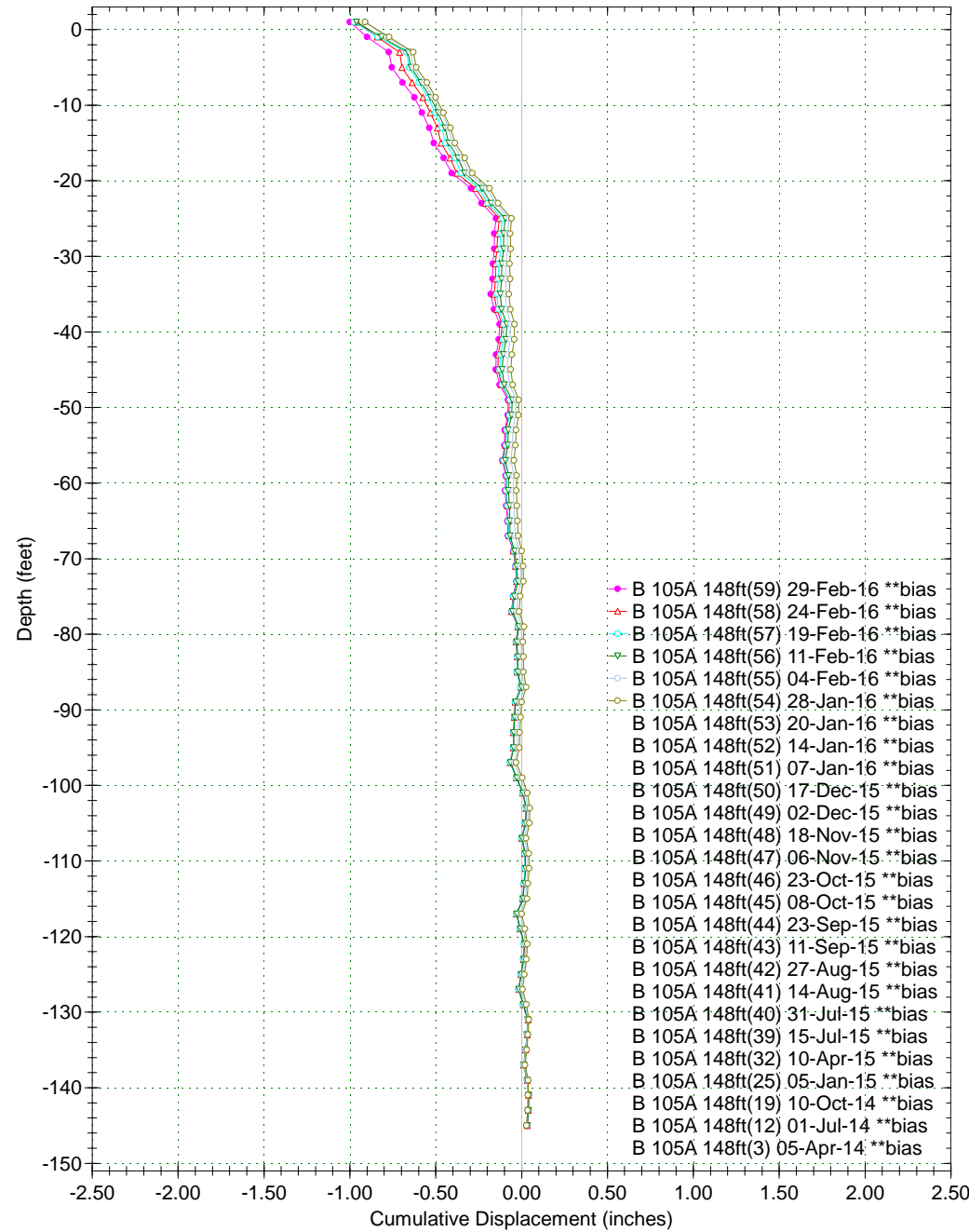


Spiral Correction : N/A
 Collar Elevation : 3.0 feet
 Borehole Total Depth : 148.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 15 09:19
 Applied Azimuth : 0.0 degrees

Axis - A



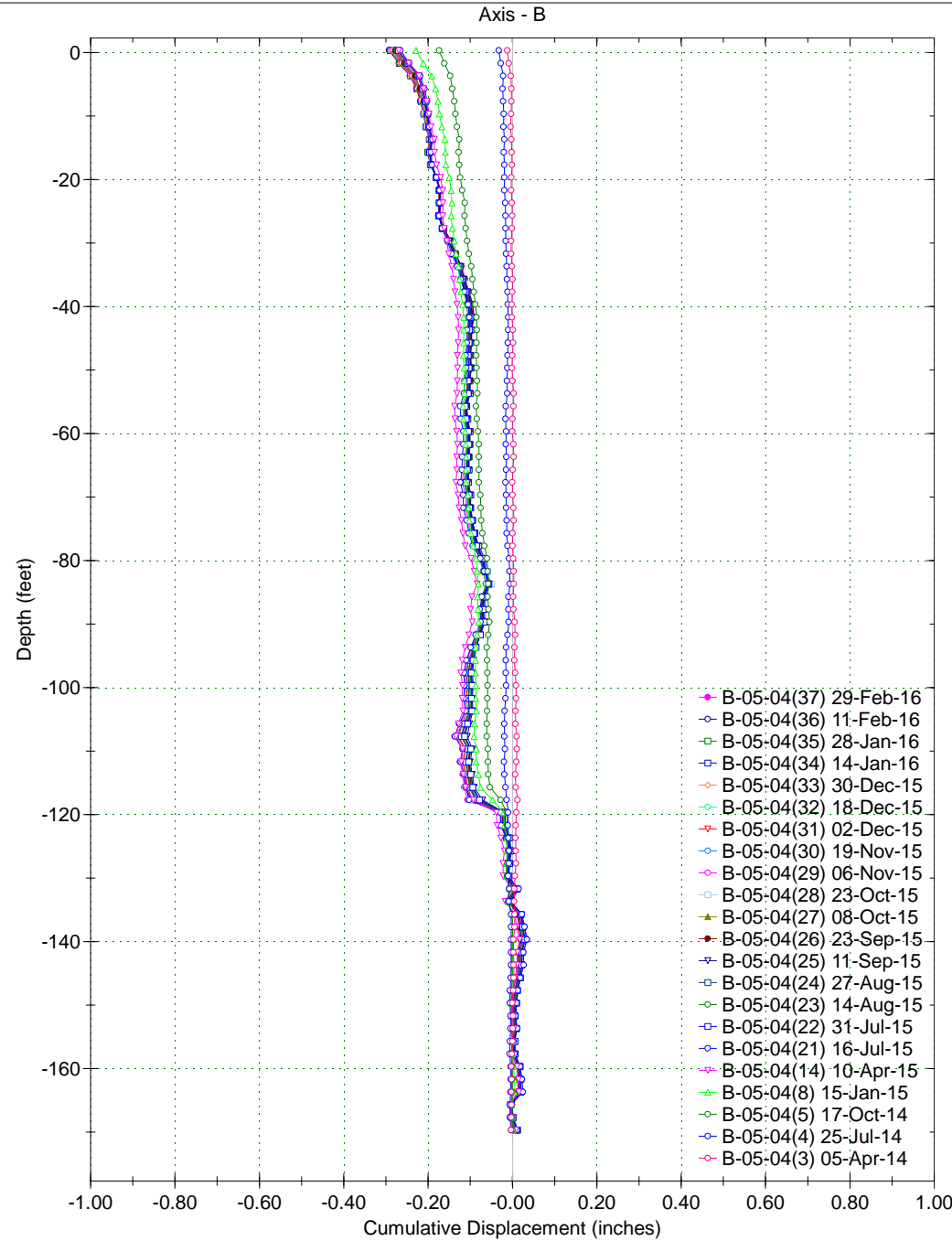
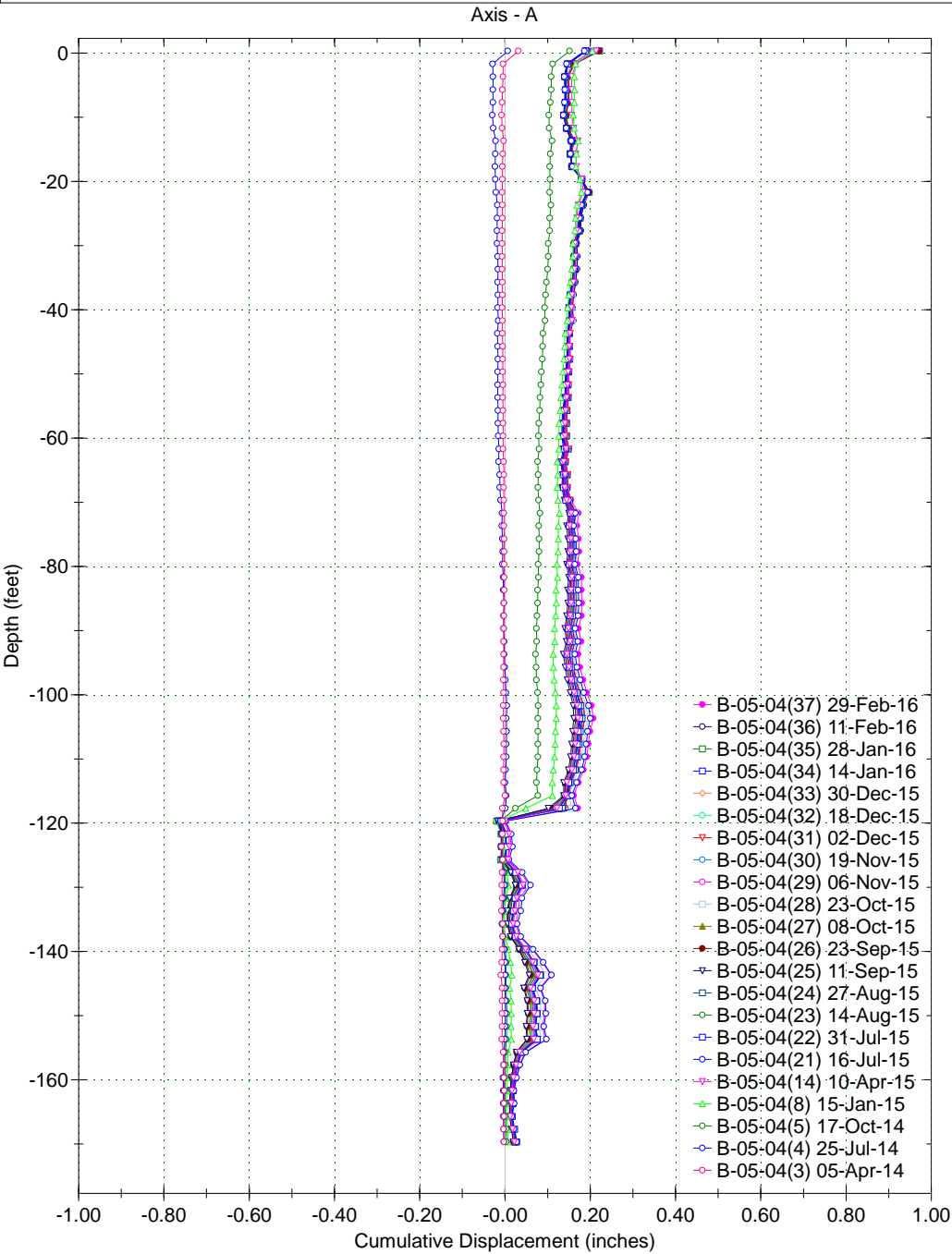
Axis - B



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

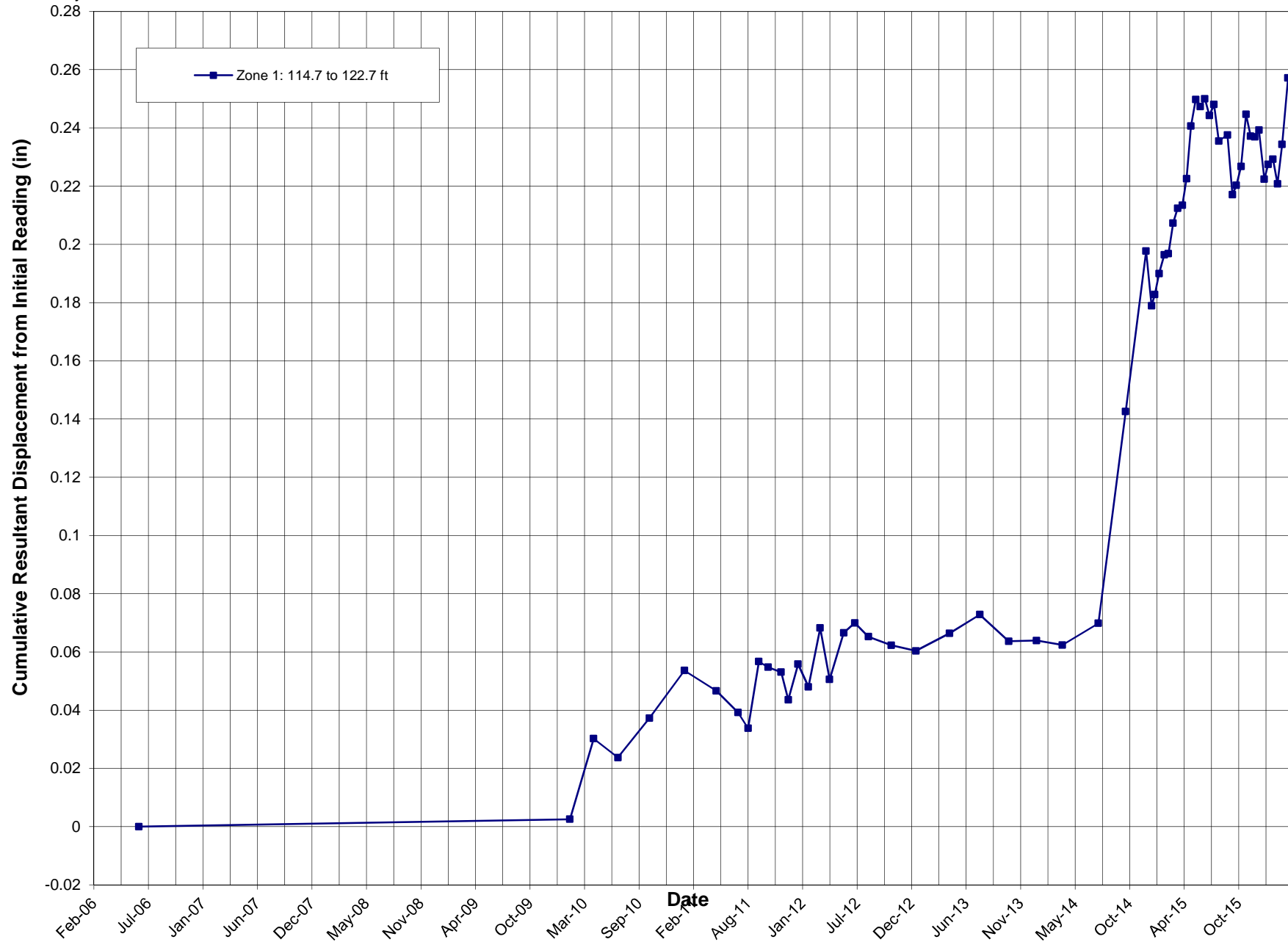


Spiral Correction : N/A
Collar Elevation : 2.3 feet
Borehole Total Depth : 172.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 12:30
Applied Azimuth : 0.0 degrees



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

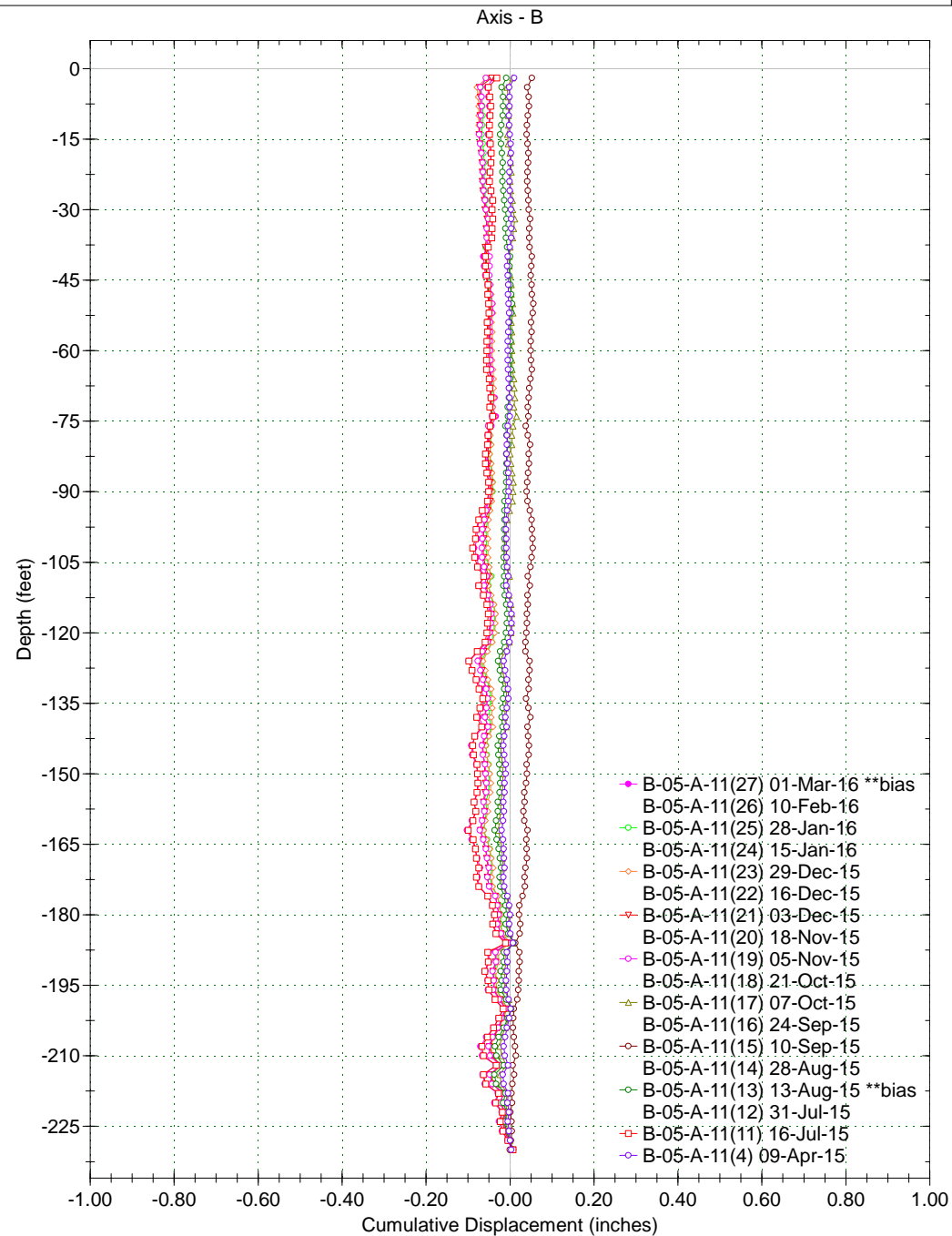
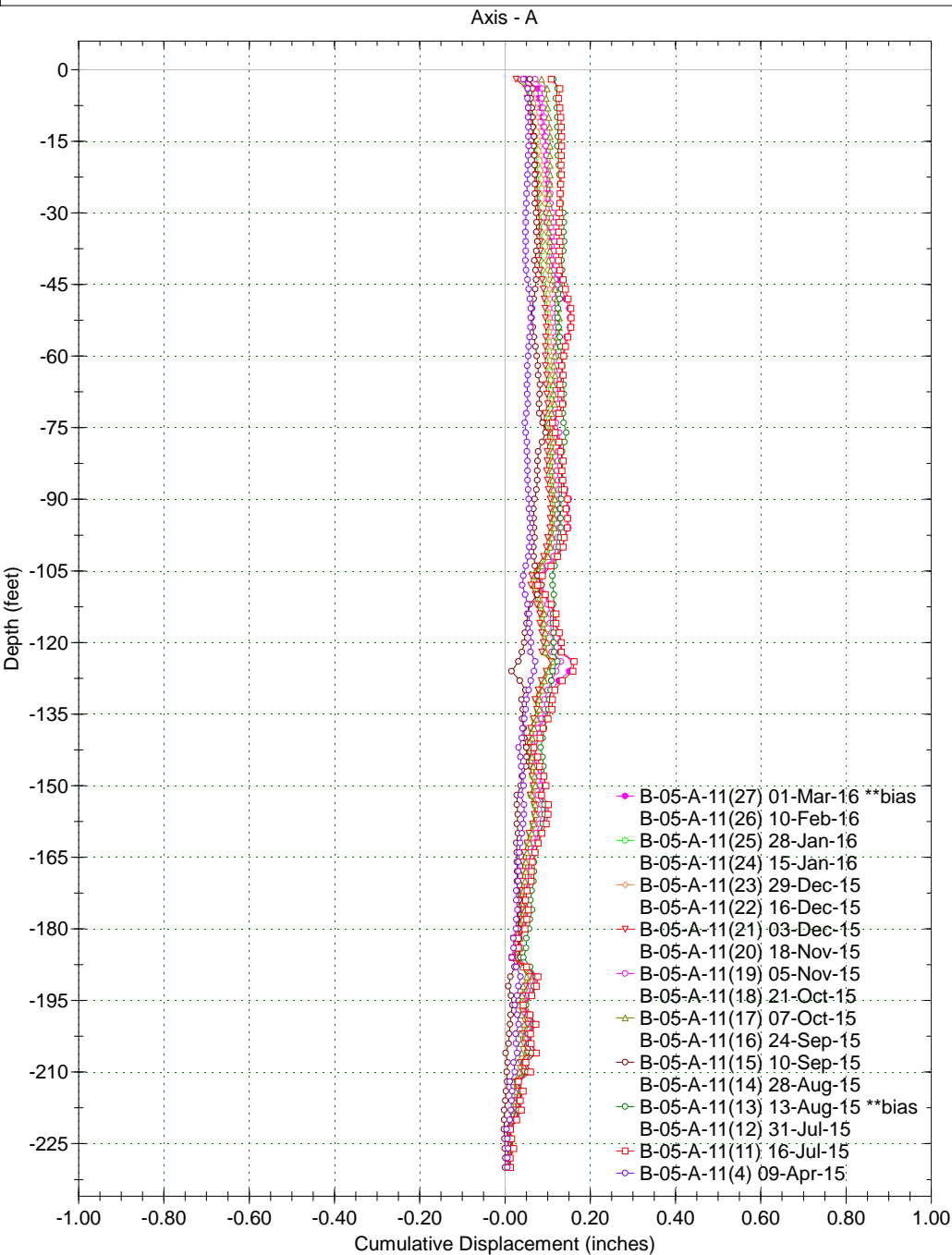
B-05-04



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



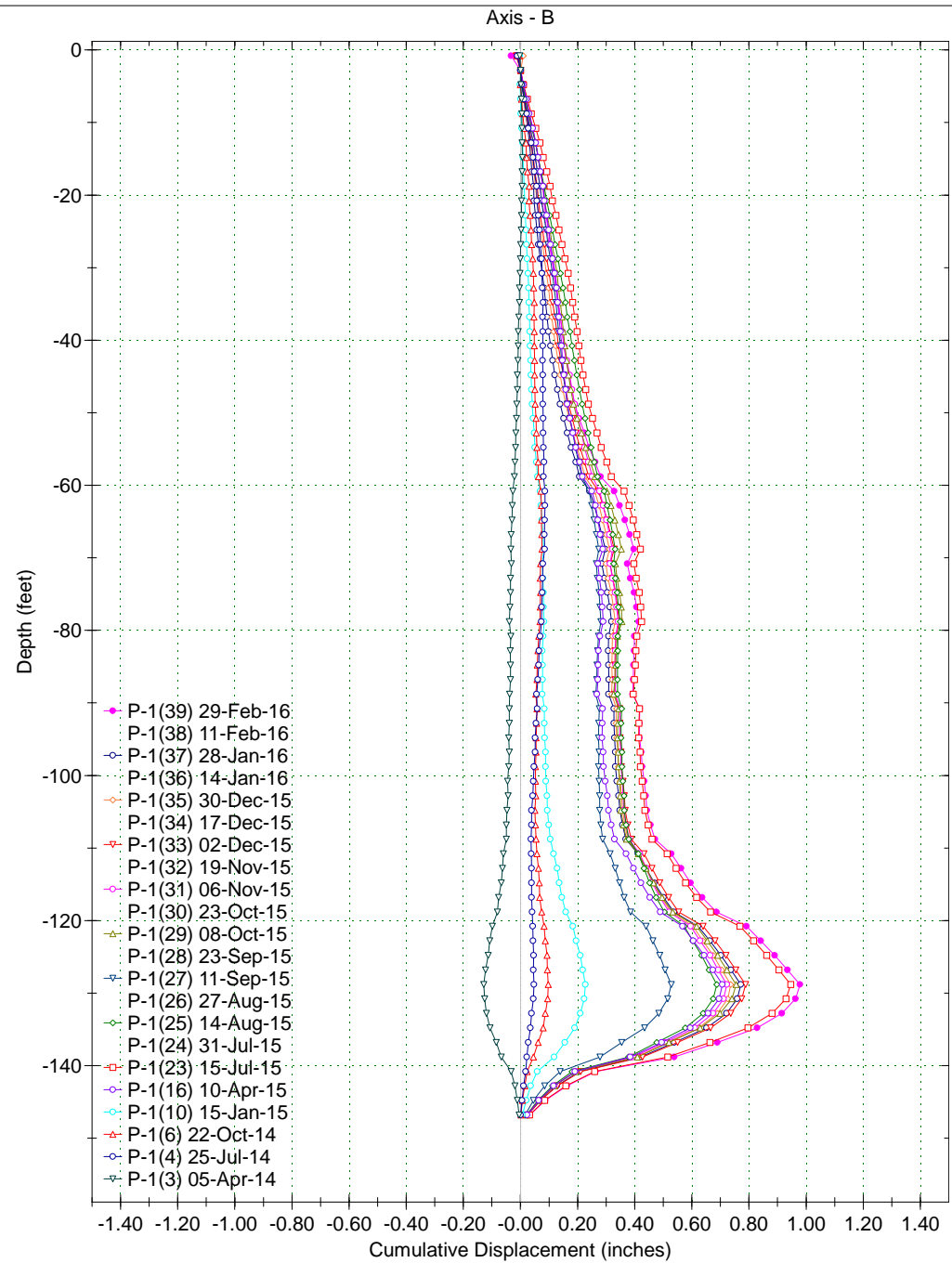
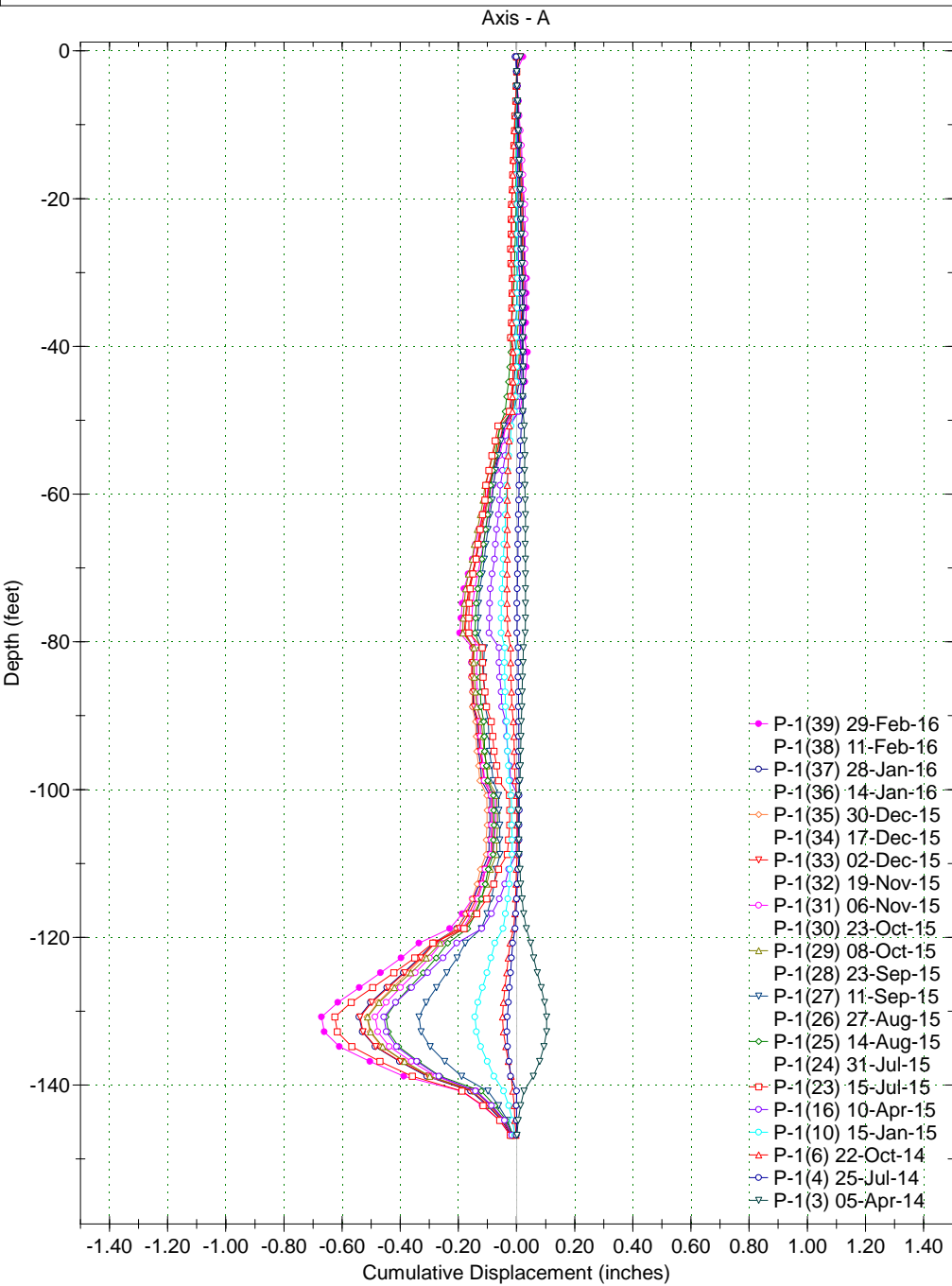
Spiral Correction : N/A
 Collar Elevation : 0.0 feet
 Borehole Total Depth : 230.0 feet
 A+ Groove Azimuth :
 Base Reading : 2015 Mar 19 09:08
 Applied Azimuth : 0.0 degrees



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



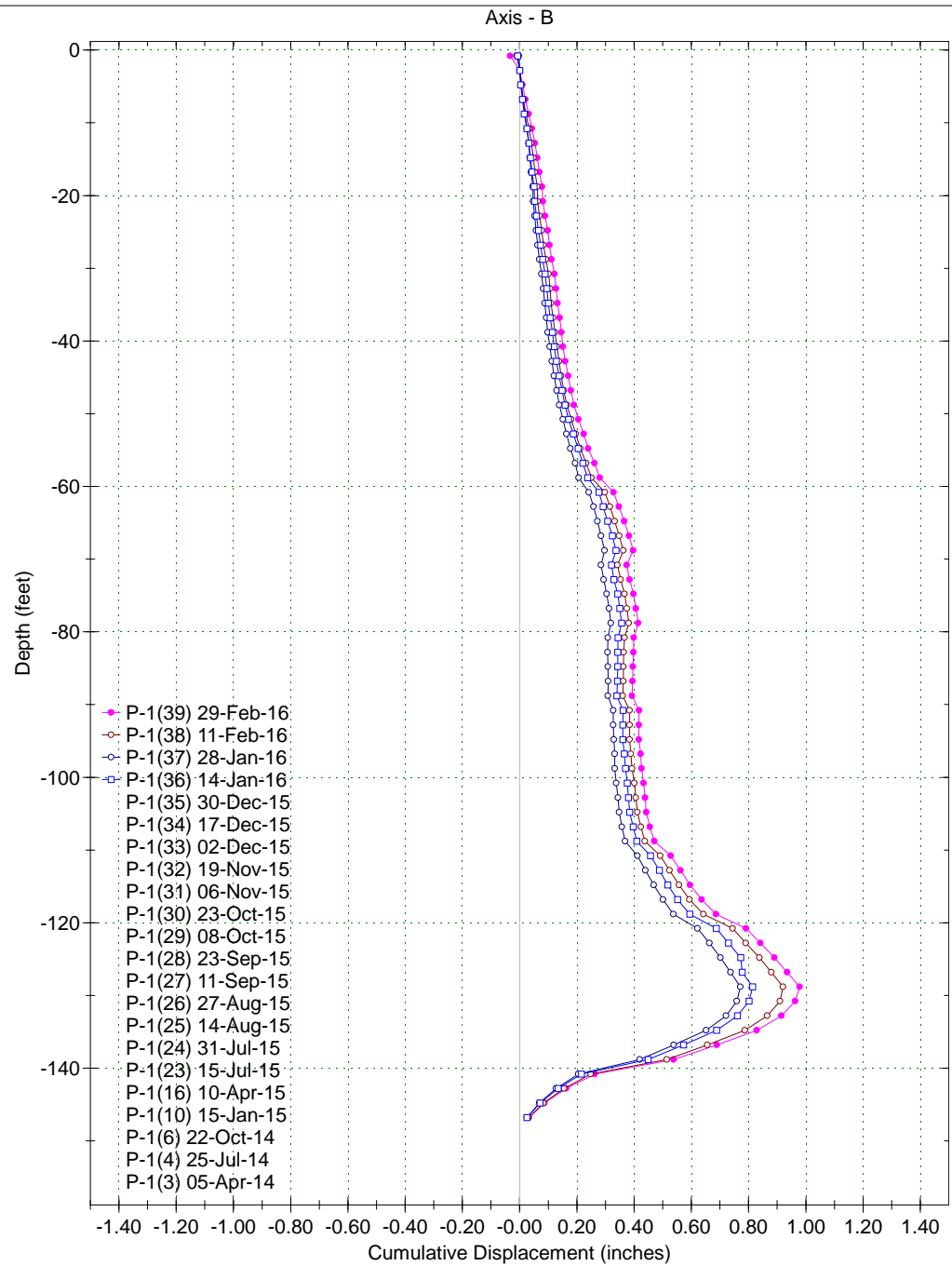
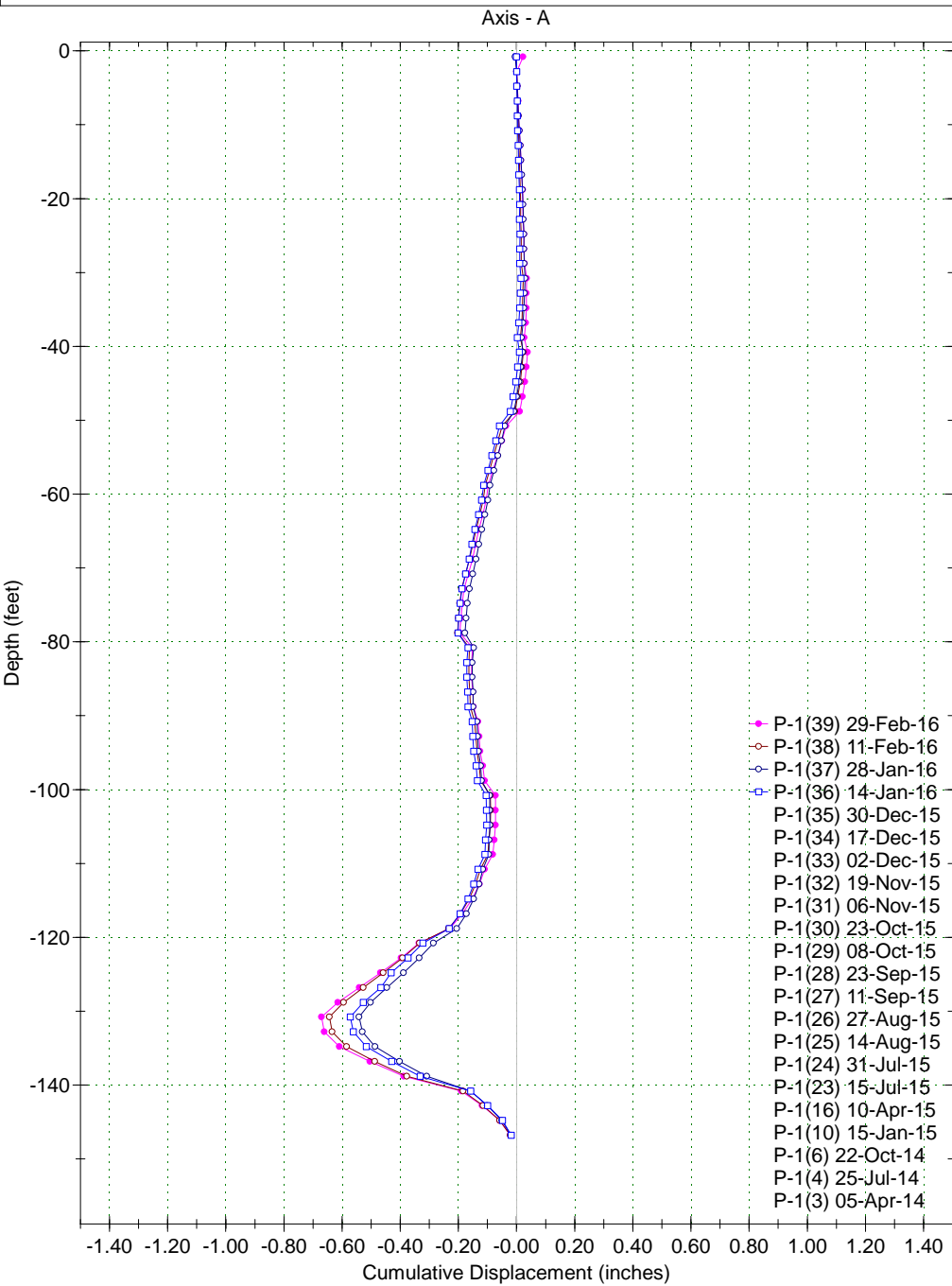
Spiral Correction : N/A
 Collar Elevation : 1.2 feet
 Borehole Total Depth : 148.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 22 10:47
 Applied Azimuth : 0.0 degrees



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

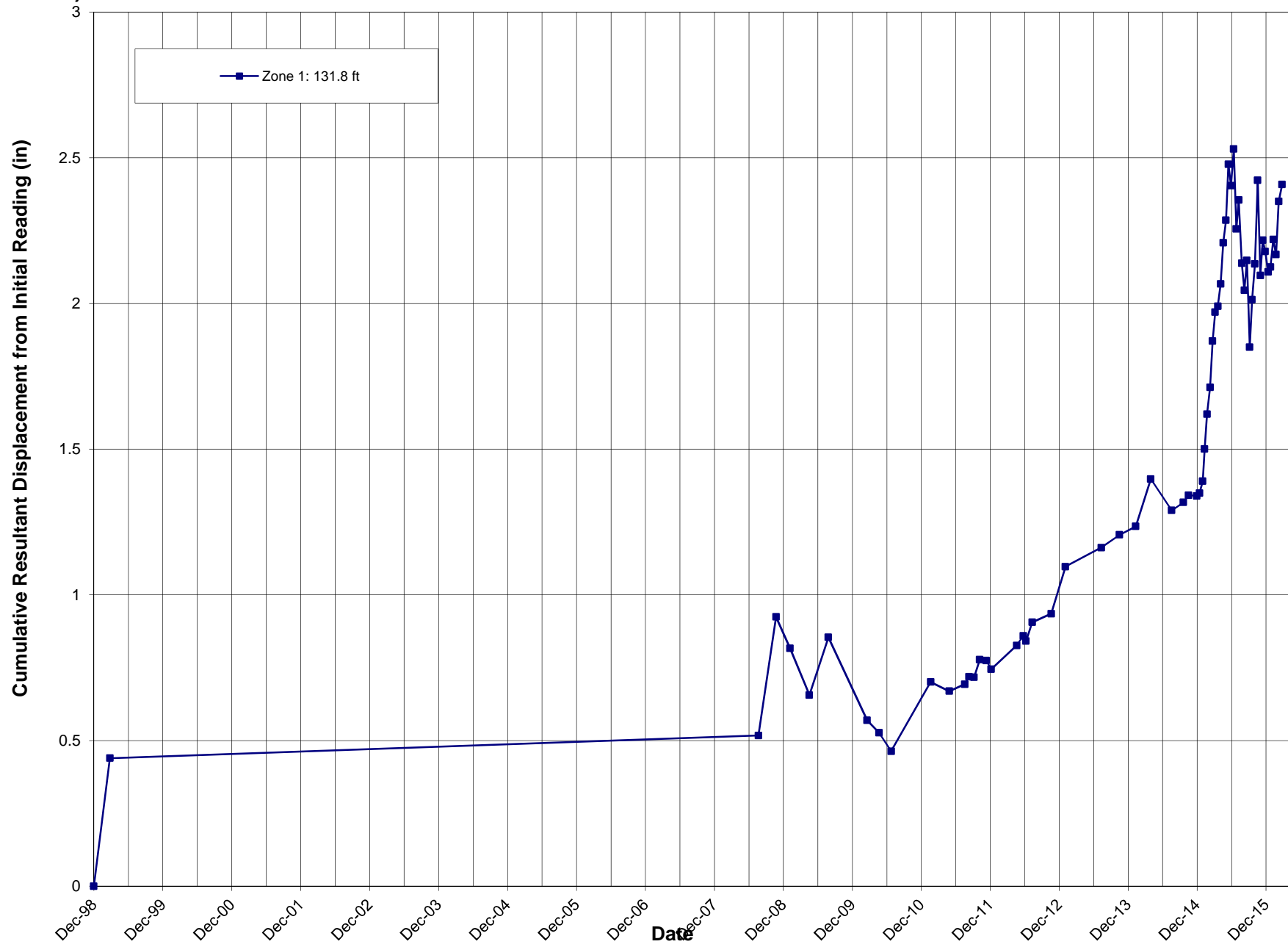


Spiral Correction : N/A
Collar Elevation : 1.2 feet
Borehole Total Depth : 148.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 10:47
Applied Azimuth : 0.0 degrees



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

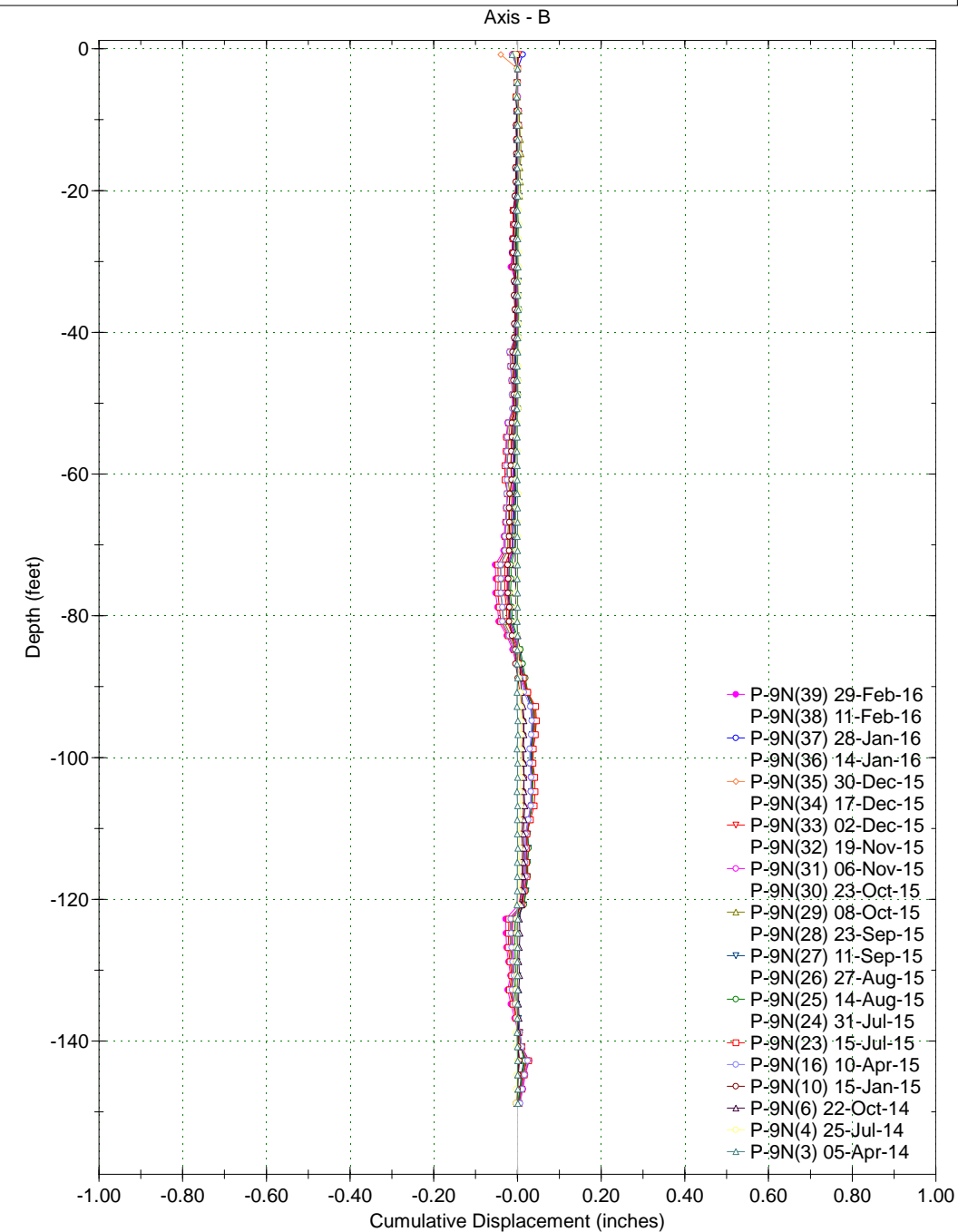
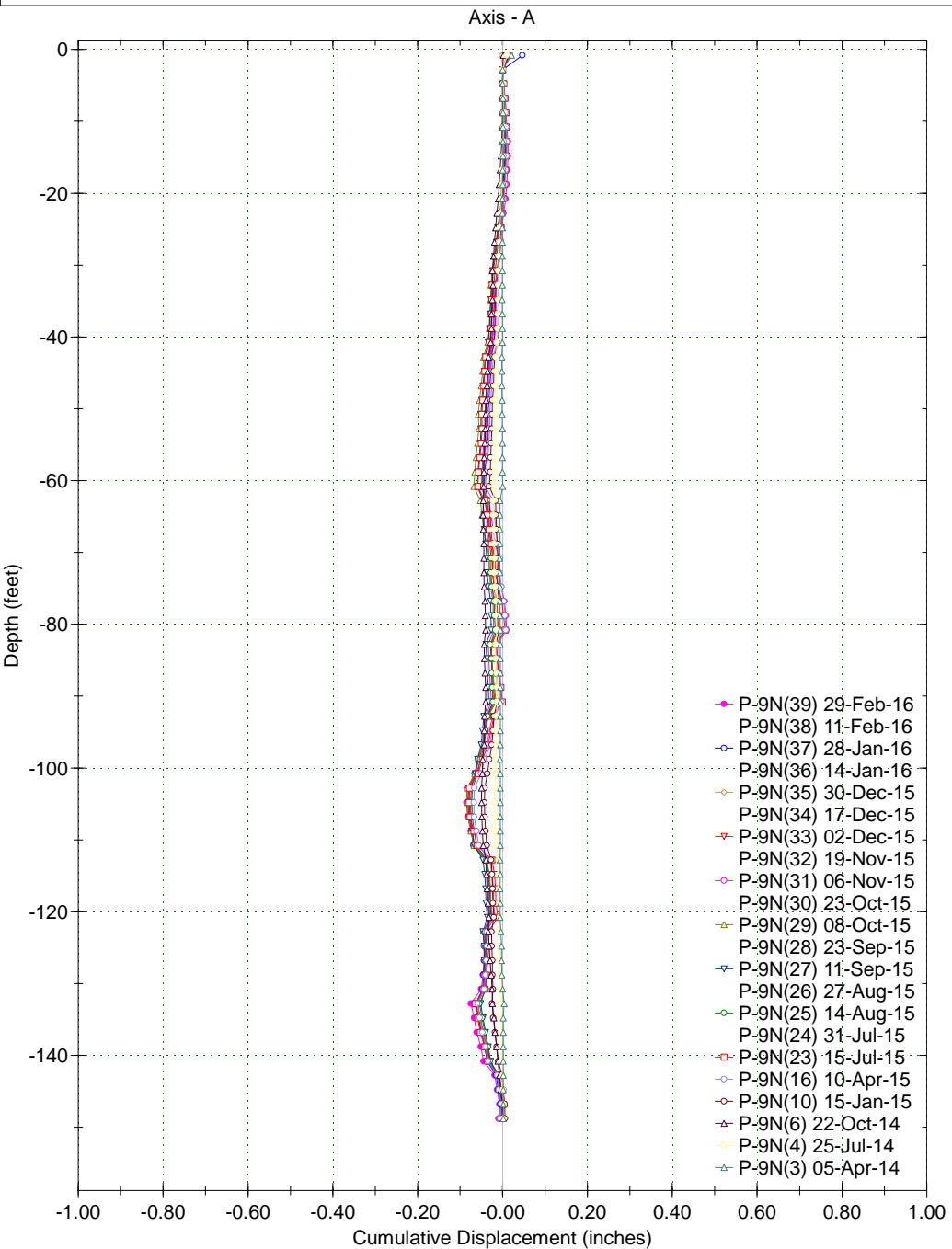
P-1



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

