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June 15, 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: June 2 and 3, 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 June 2 and 3, 2016, are presented in this report. Bi-weekly readings currently include instruments at I/P-001-13, I/P-002-13, I/P-003-10, I/P-004-13, I/P-009-13, B-101, B-102, B-105A, B-05-A-03, B-05-04, B-05-A-11, P-1, P-9N, TGR I-2, and TGR I-4. Changes reported for the individual instruments are for the previous two-week period unless noted otherwise.

Piezometer Readings

P-002-13, P-003-10, P-009-13, B-105-A, B-05-04, B-05-A-11 – Pore pressure readings at these locations show virtually no change in total head.

P-001-13 – At this location, pore pressure readings indicate an increase in total head of about 0.5 feet in the piezometers at 86 feet and 116 feet. The remaining piezometers showed virtually no change.

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

B-05-A-03 – Pore pressure readings at this location indicate a decrease in total head of about 0.5 feet in both piezometers.

Inclinometer Readings

Inclinometer readings at I-001-13, I-003-10, I-009-13, B-105A, B-05-04, B-05-A-11, P-1, P-9N, and TGR I-4 showed virtually no movement. Displacement at the top of some slope tubes is due to construction disturbance or flexing of the inclinometer tube as readings were taken where the protective covers have not been concreted in place because of the ongoing construction activity.

I-002-13 – Inclinometer readings at this location show additional large displacements in the top 4 feet of the casing. This is due to the grading work in the surrounding area.

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

B-101 – The inclinometer casing at this location is covered and inaccessible.

B-102 – At this location, slight movement is indicated in the negative A-axis direction from the surface to about 30 feet.

B-05-03A – The cumulative displacement plot for the upper 98 feet of casing is attached. No movement is shown except for some small displacements in the top 4 feet.

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,

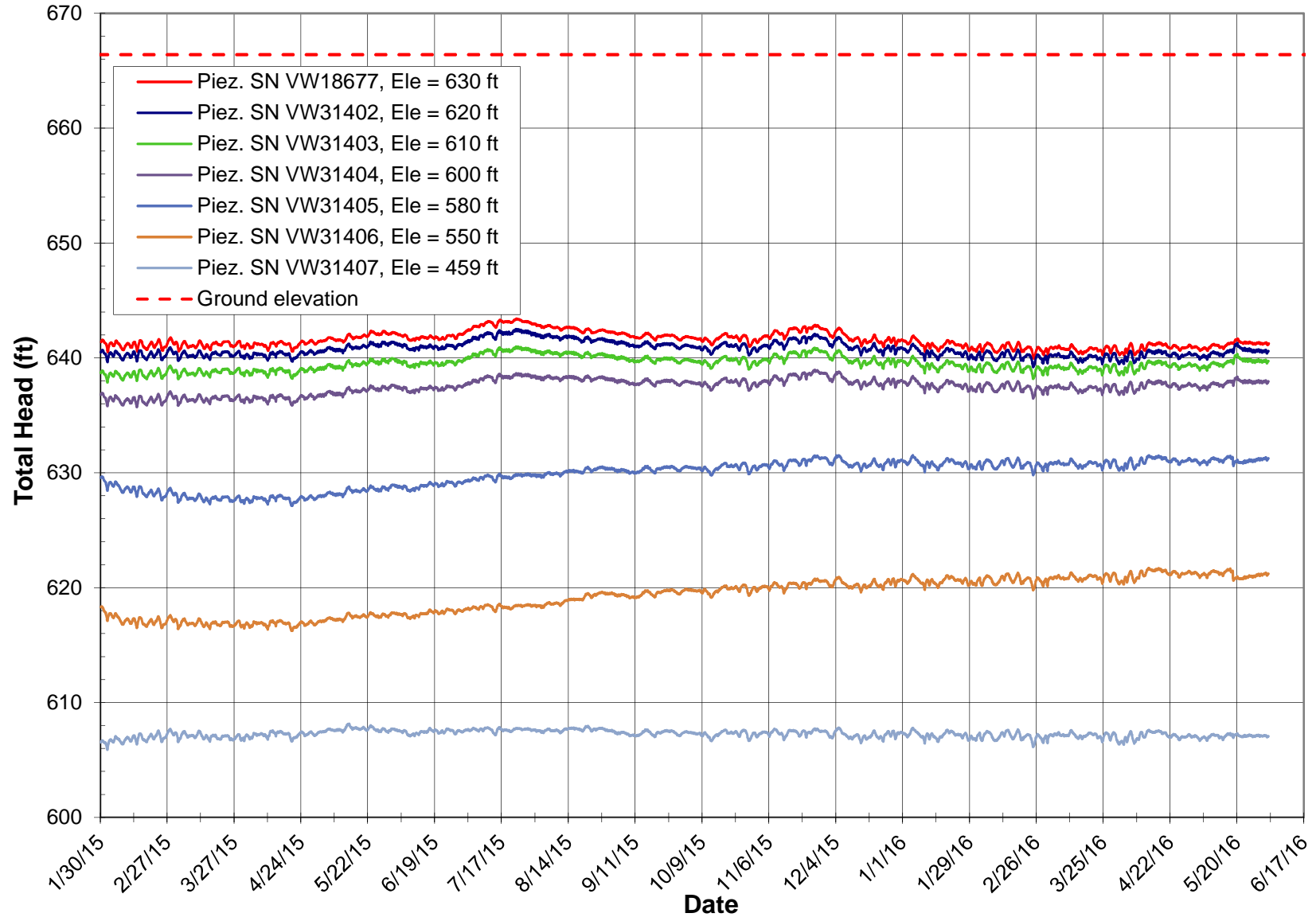
SME

Brendan P. Lieske, P.E.
Senior Staff Engineer

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

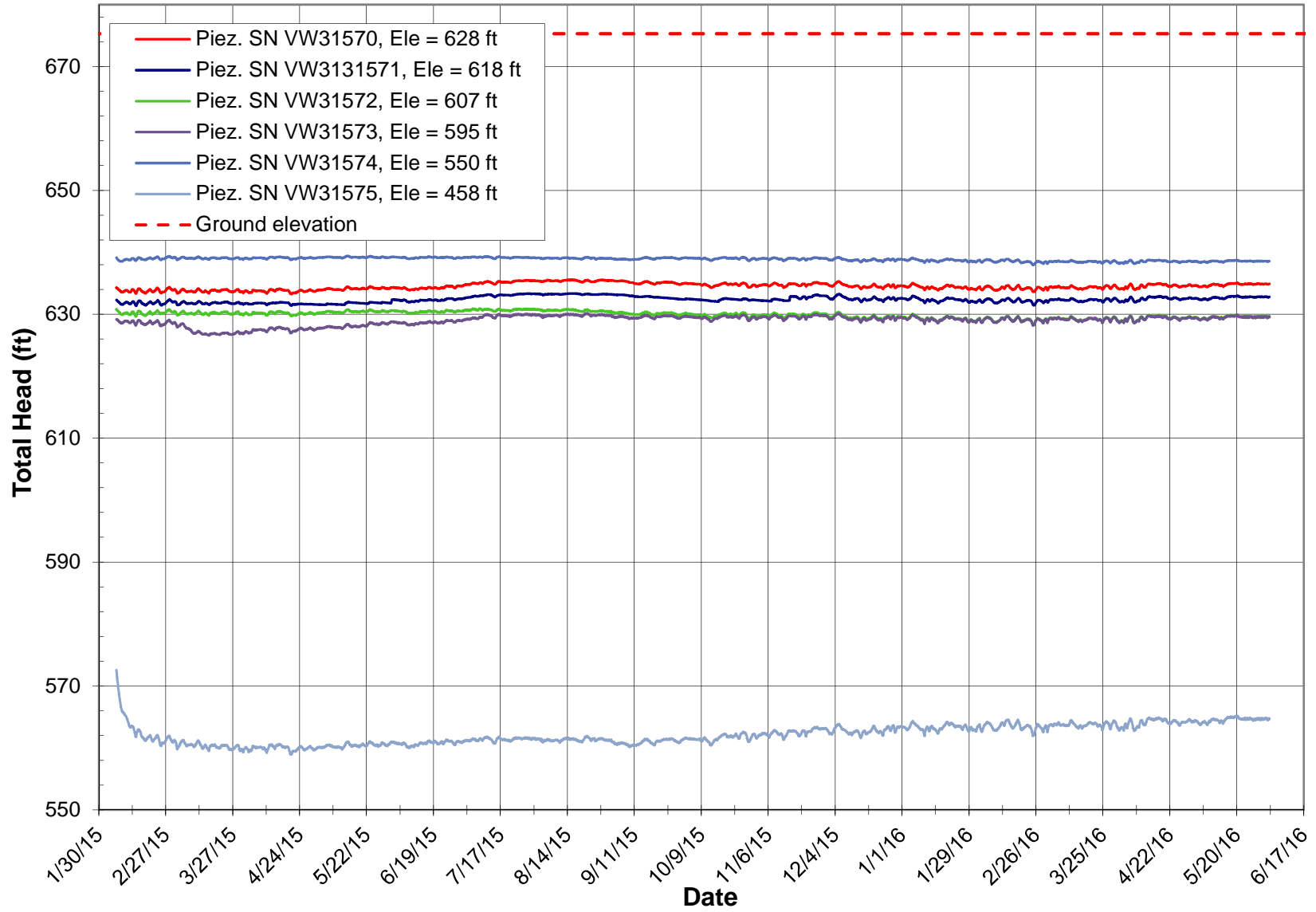
P-001-13 VW Piezometer Readings

Ground surface elevation = 666.4 ft



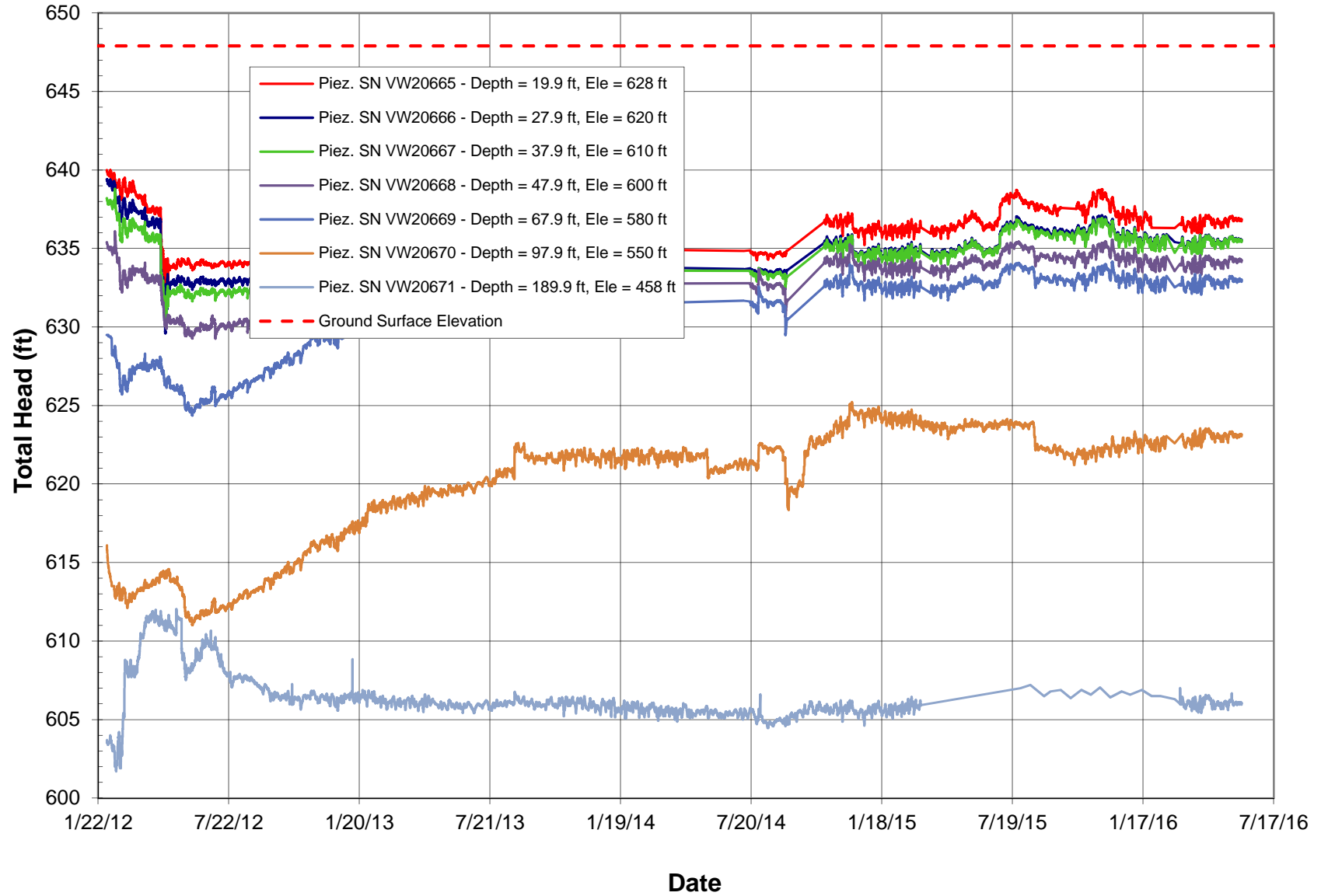
P-002-13 VW Piezometer Readings

Ground surface elevation = 675.29 ft



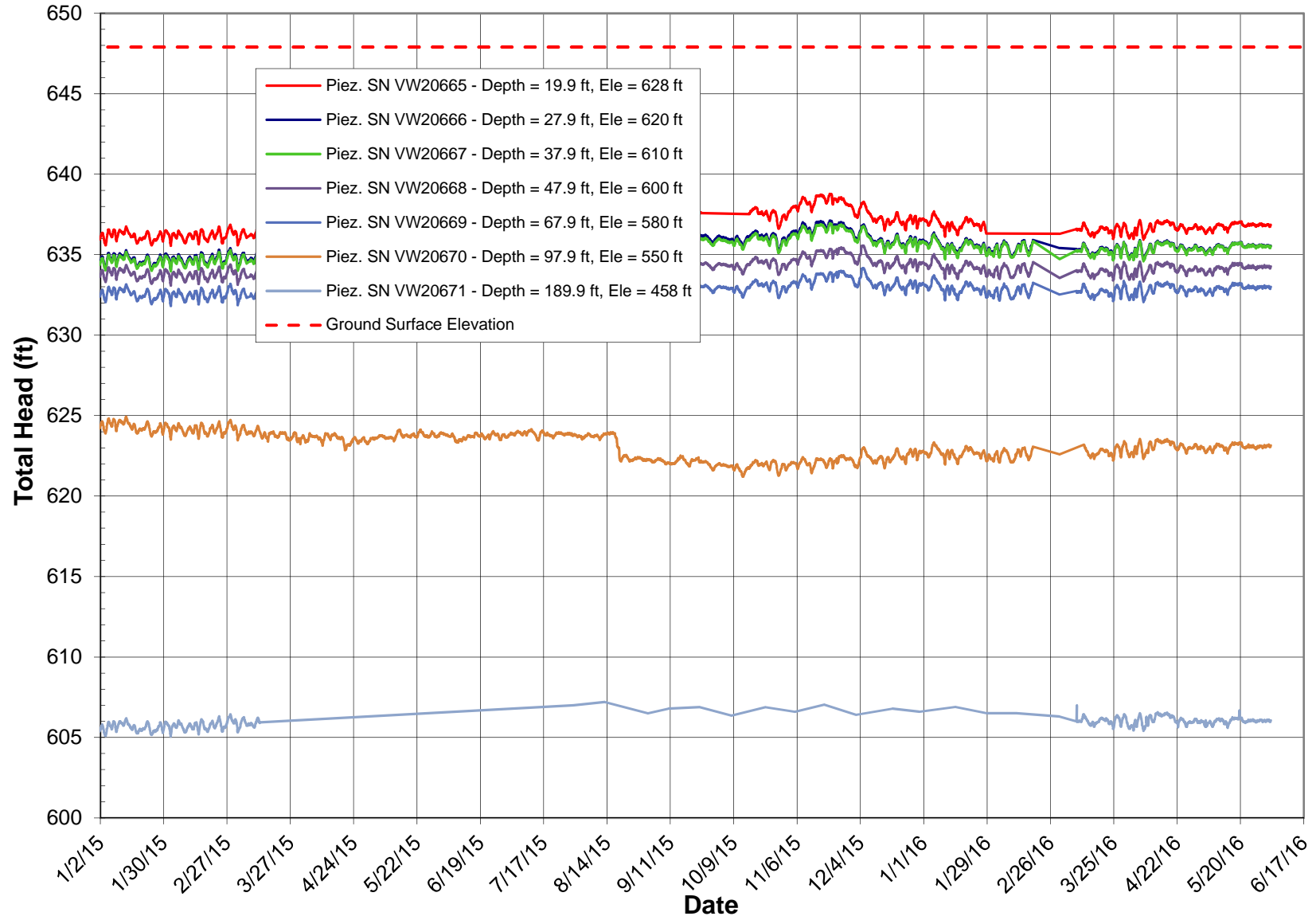
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



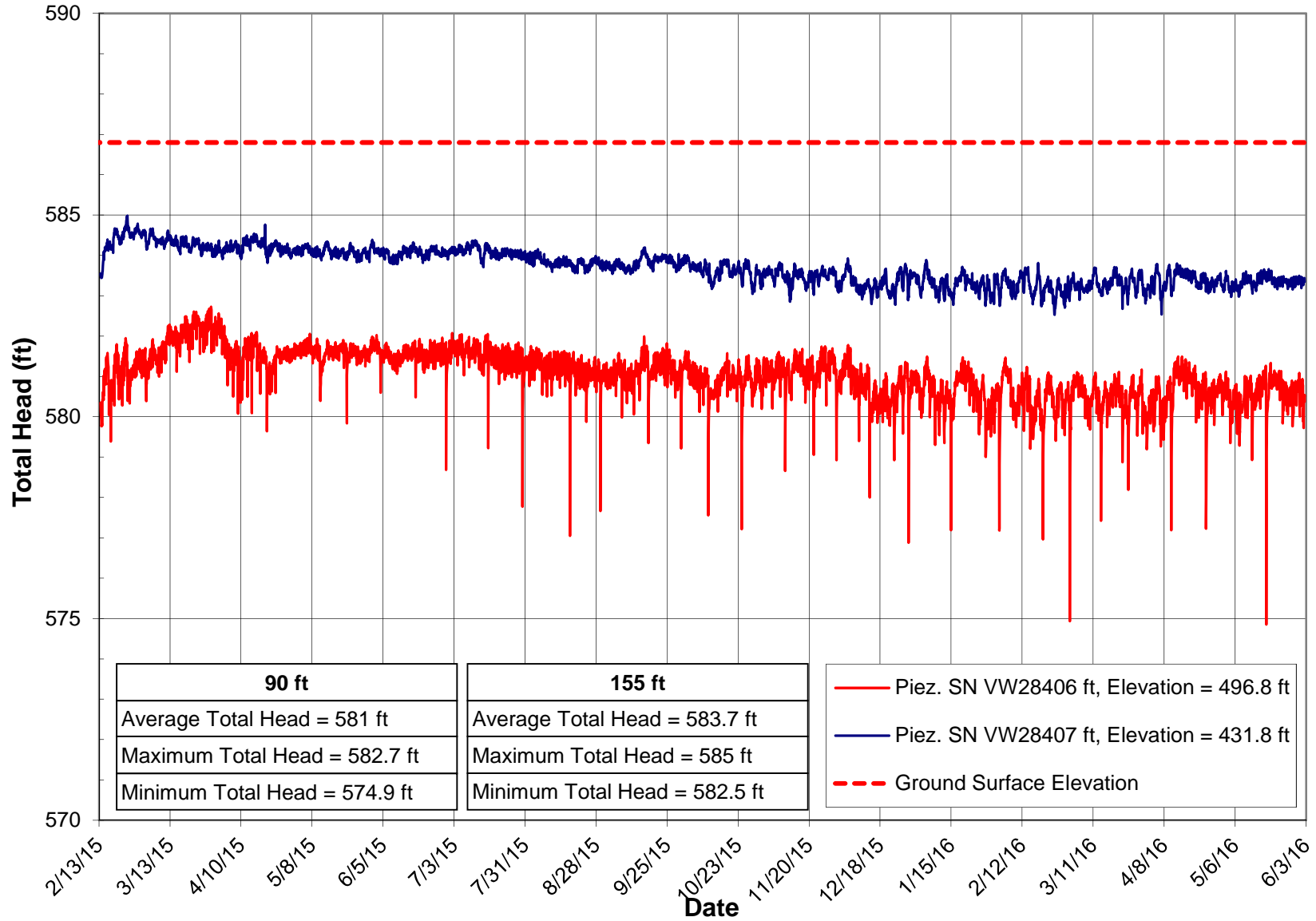
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



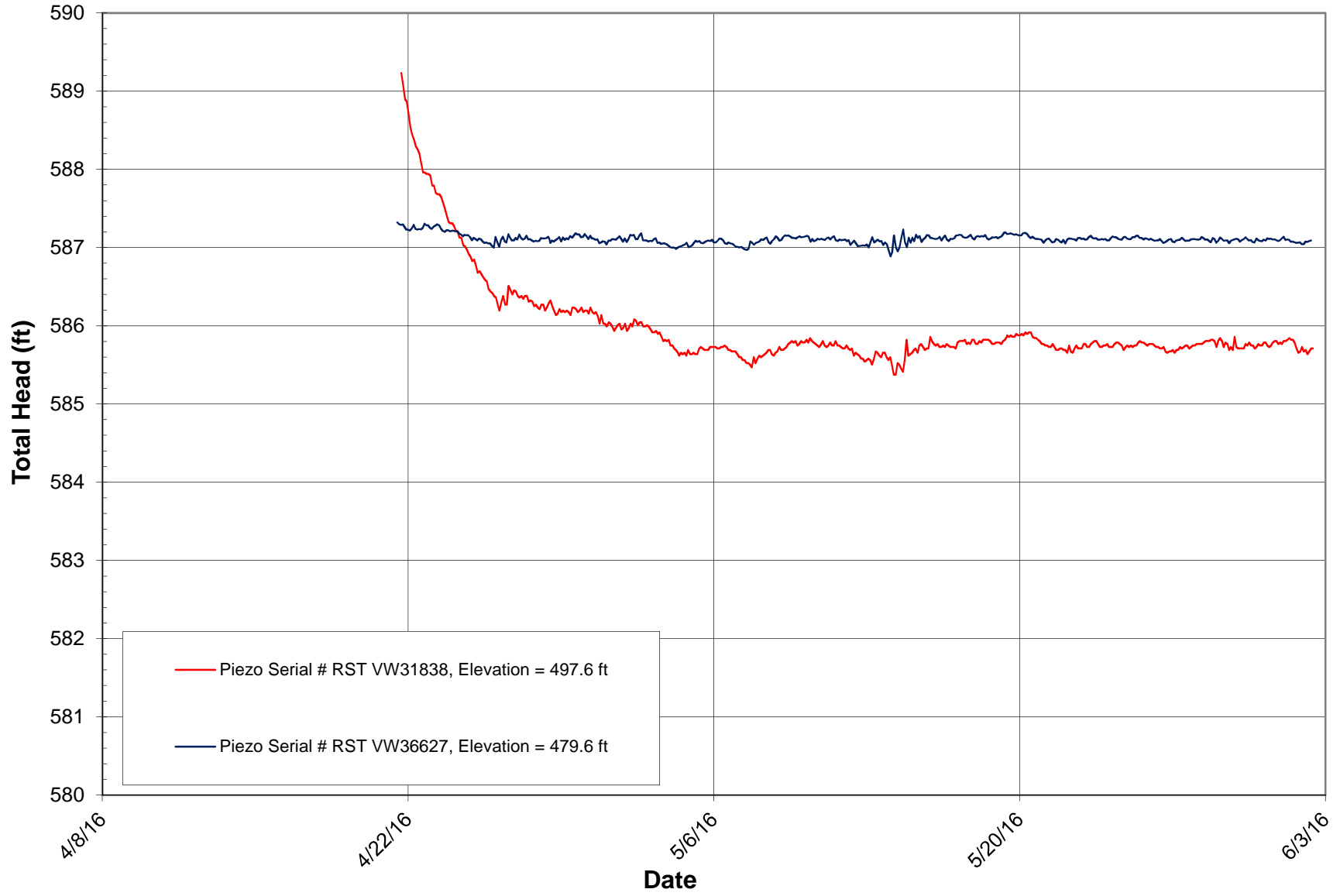
P-009-13 VW Piezometer Readings

Ground surface elevation = 586.6 ft



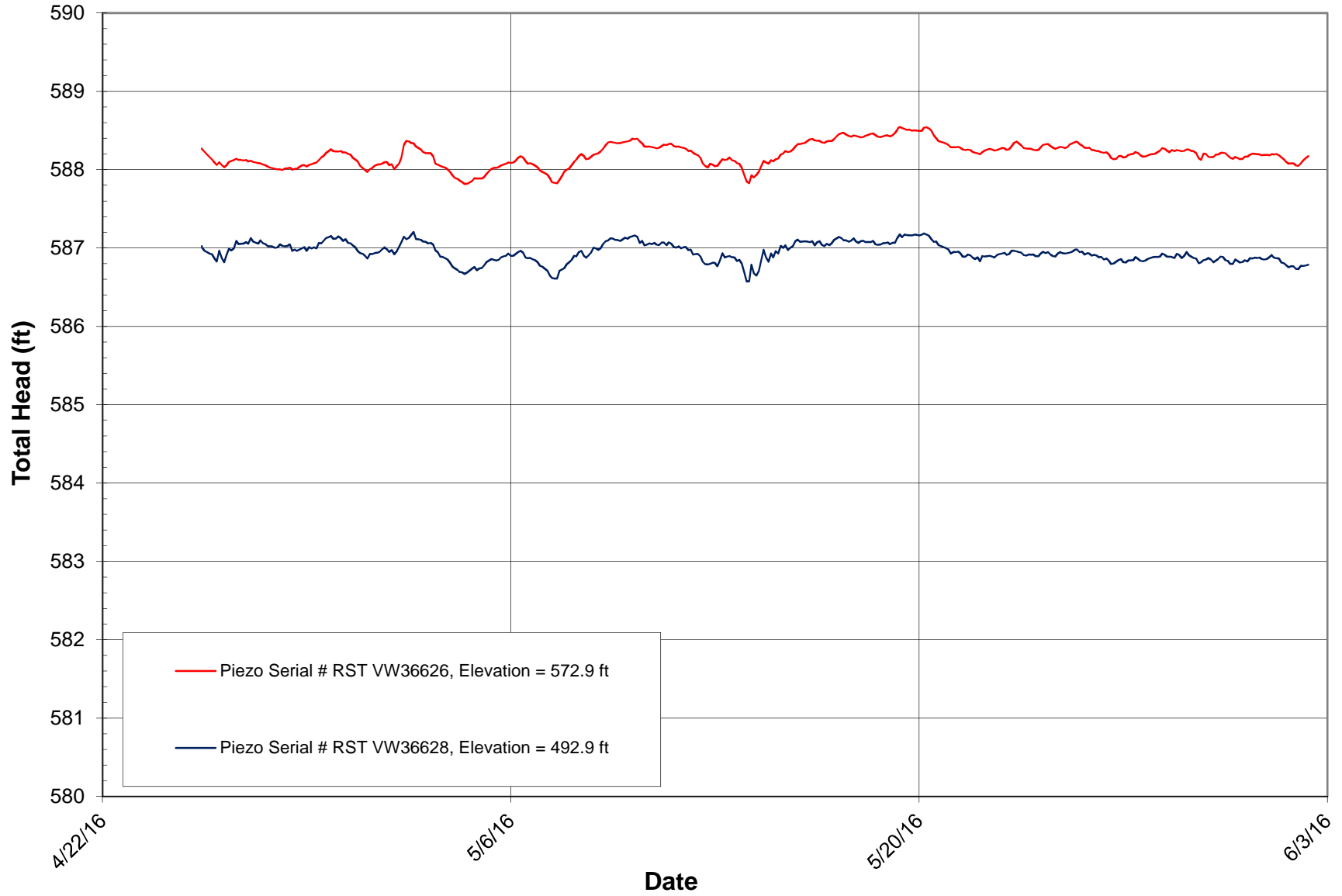
B-105A VW Piezometer Readings

Ground surface elevation = 585.6 ft



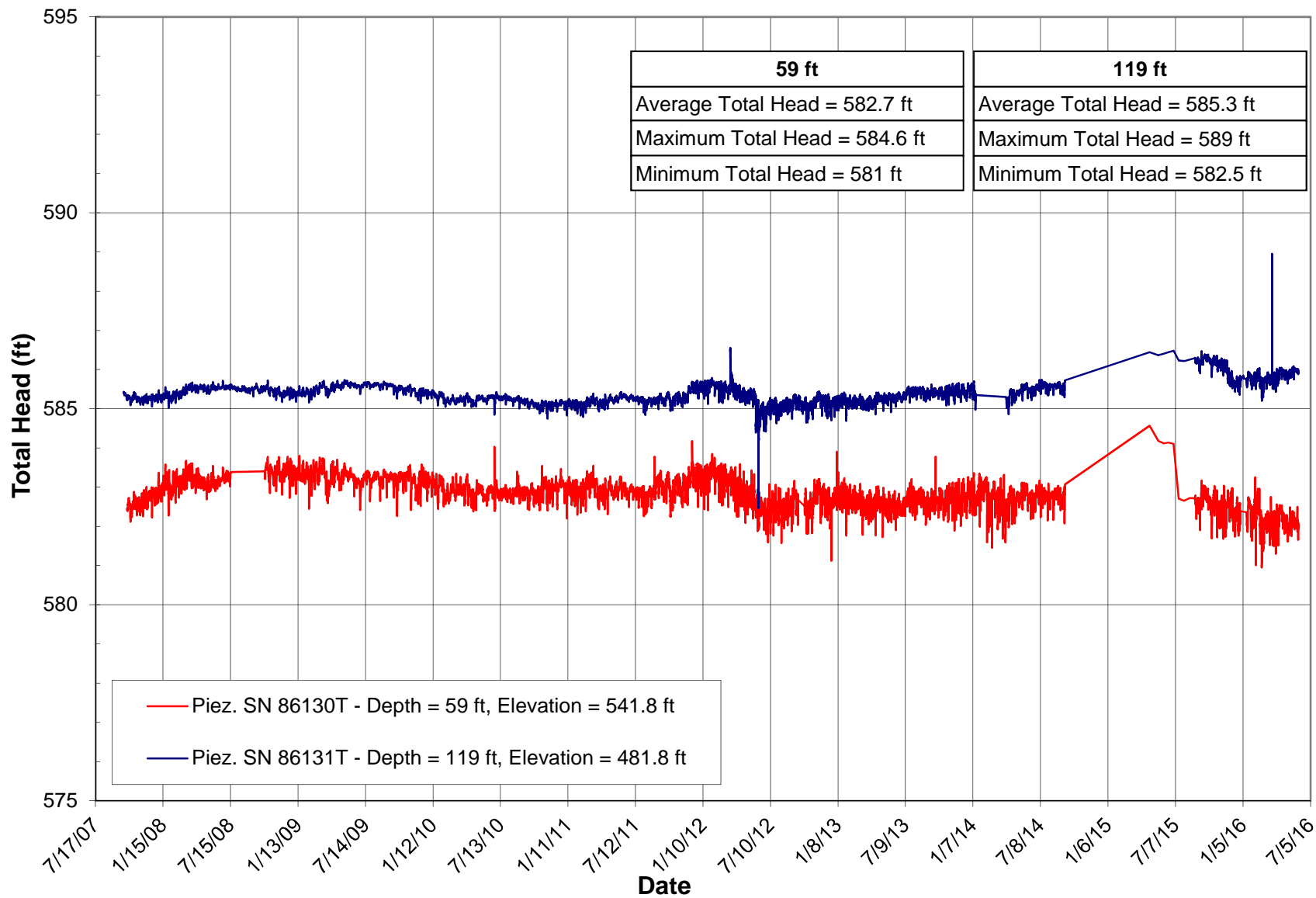
B-05-A-03 VW Piezometer Readings

Ground surface elevation = 599.9 ft



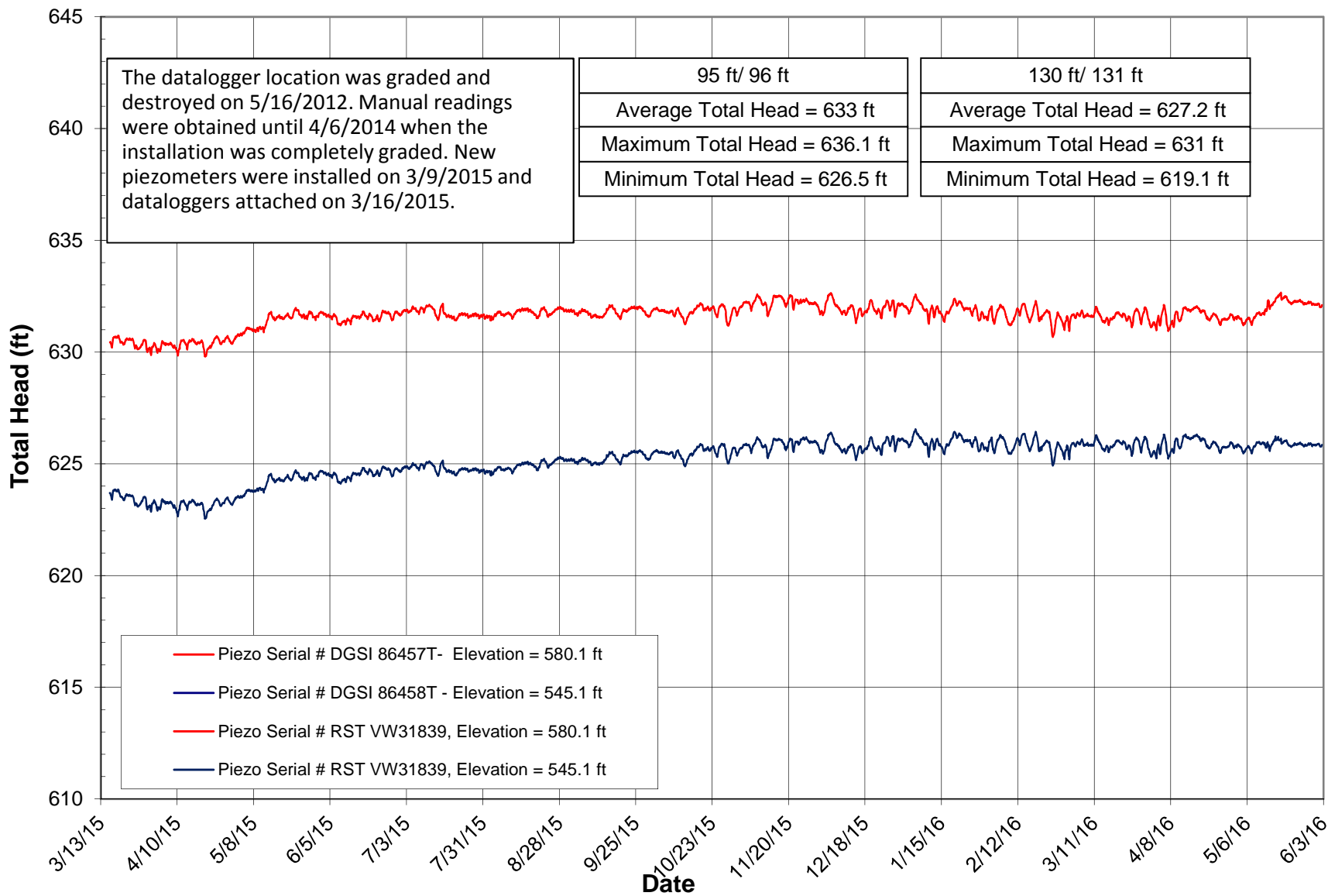
B-05-04 VW Piezometer Readings

Ground surface elevation = 600.8 ft



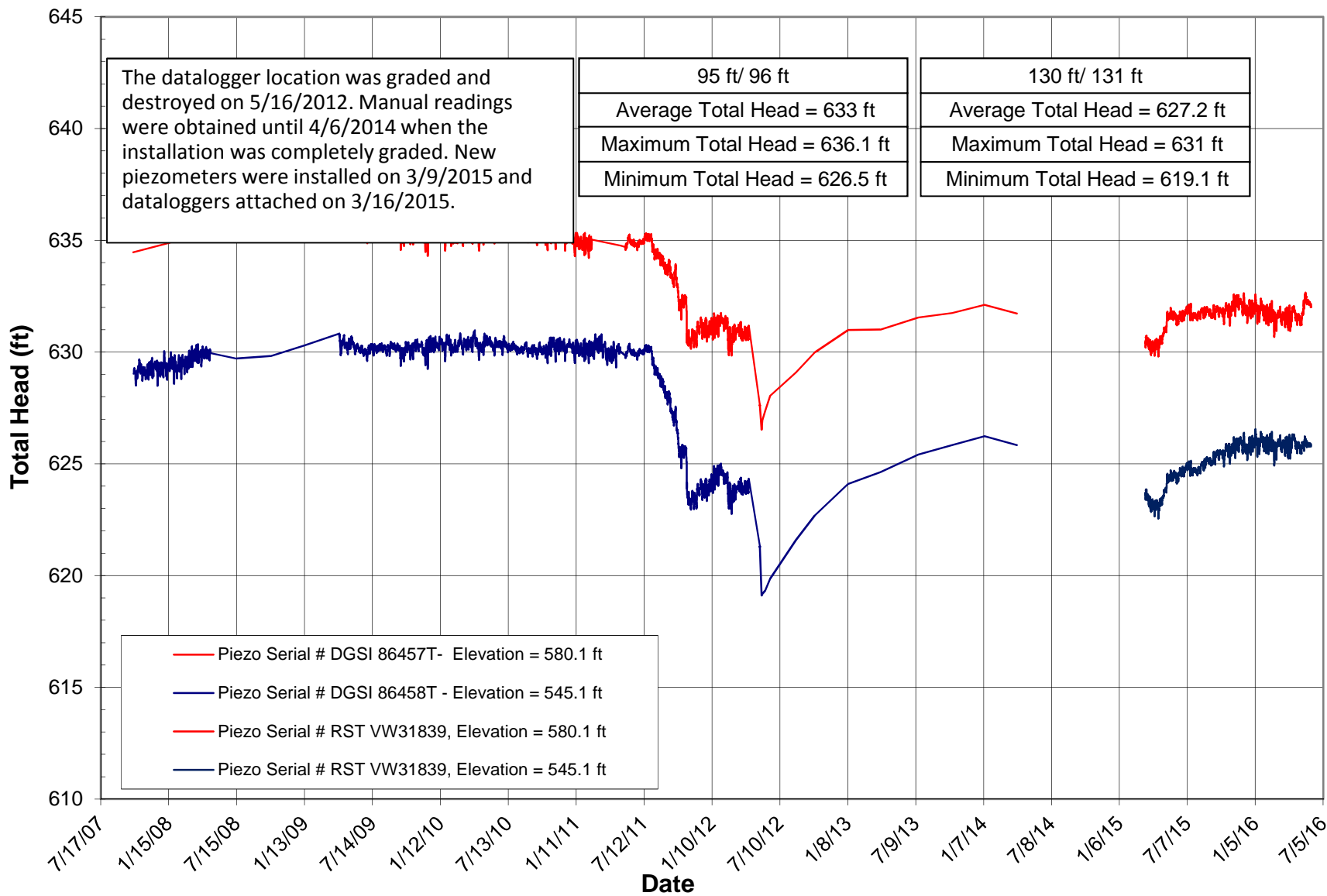
B-05-11/B-05-A-11 VW Piezometer Readings

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)

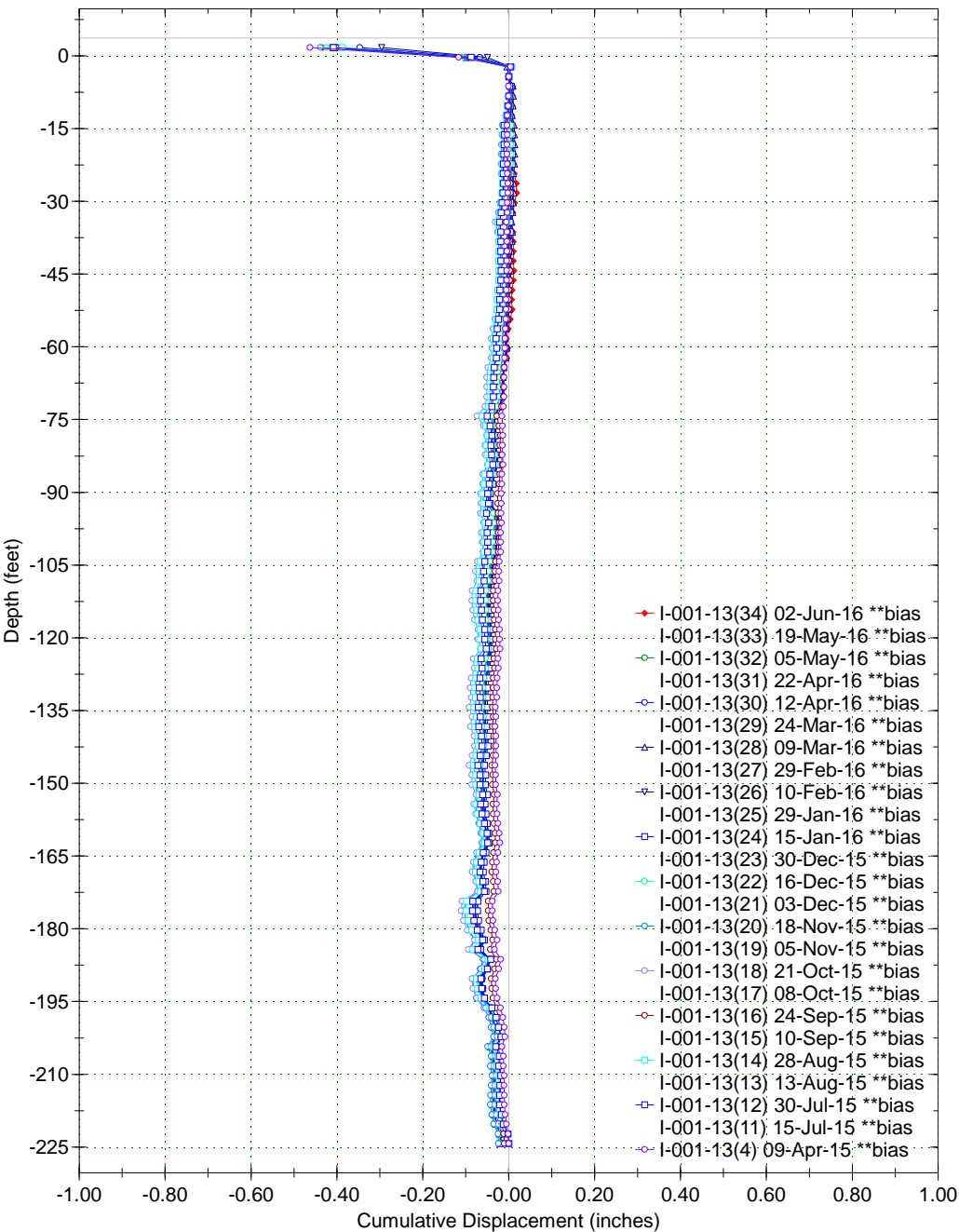


Borehole : I-001-13
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing :
Easting :
Collar :

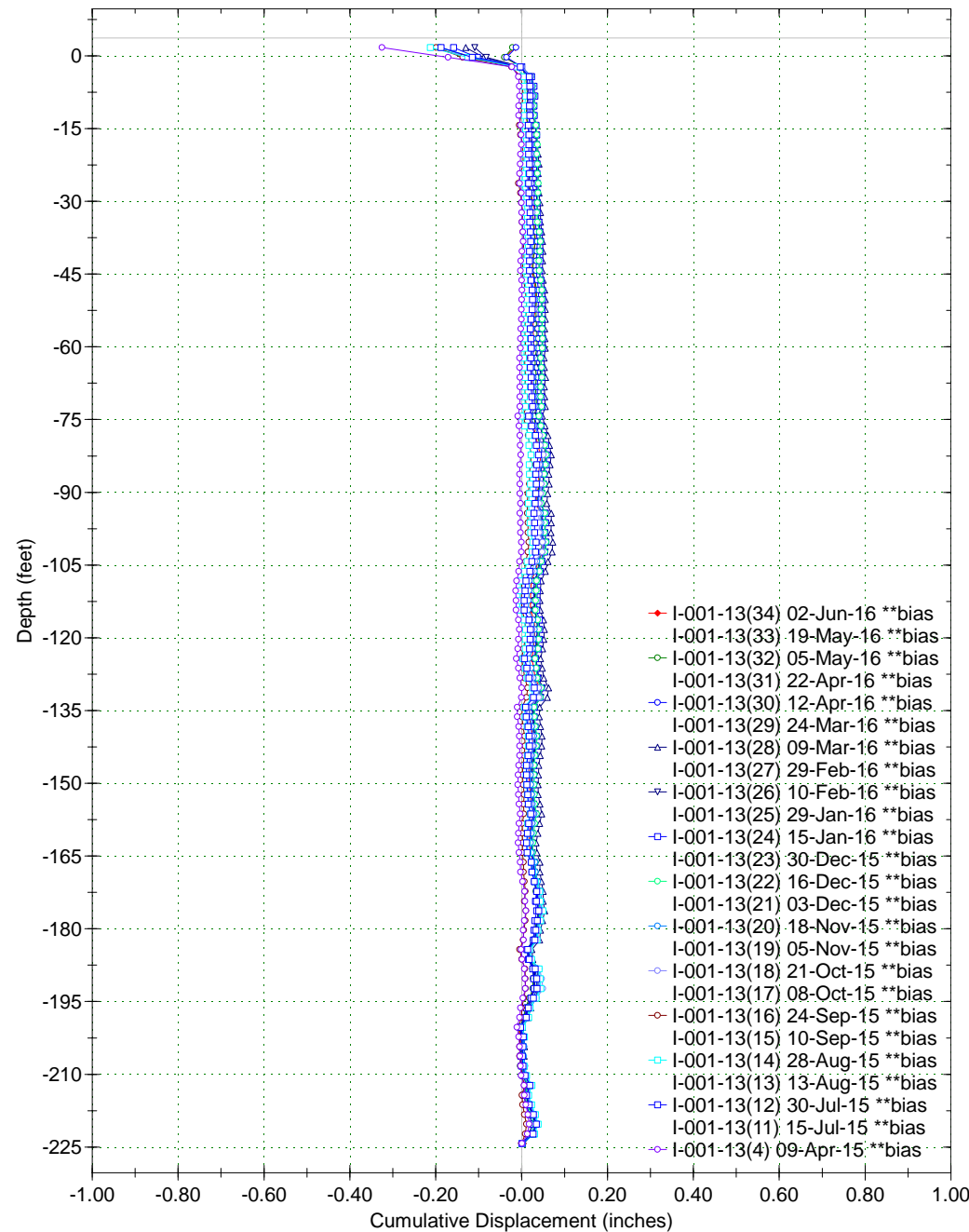


Spiral Correction : N/A
Collar Elevation : 3.7 feet
Borehole Total Depth : 228.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 03 11:14
Applied Azimuth : 0.0 degrees

Axis - A



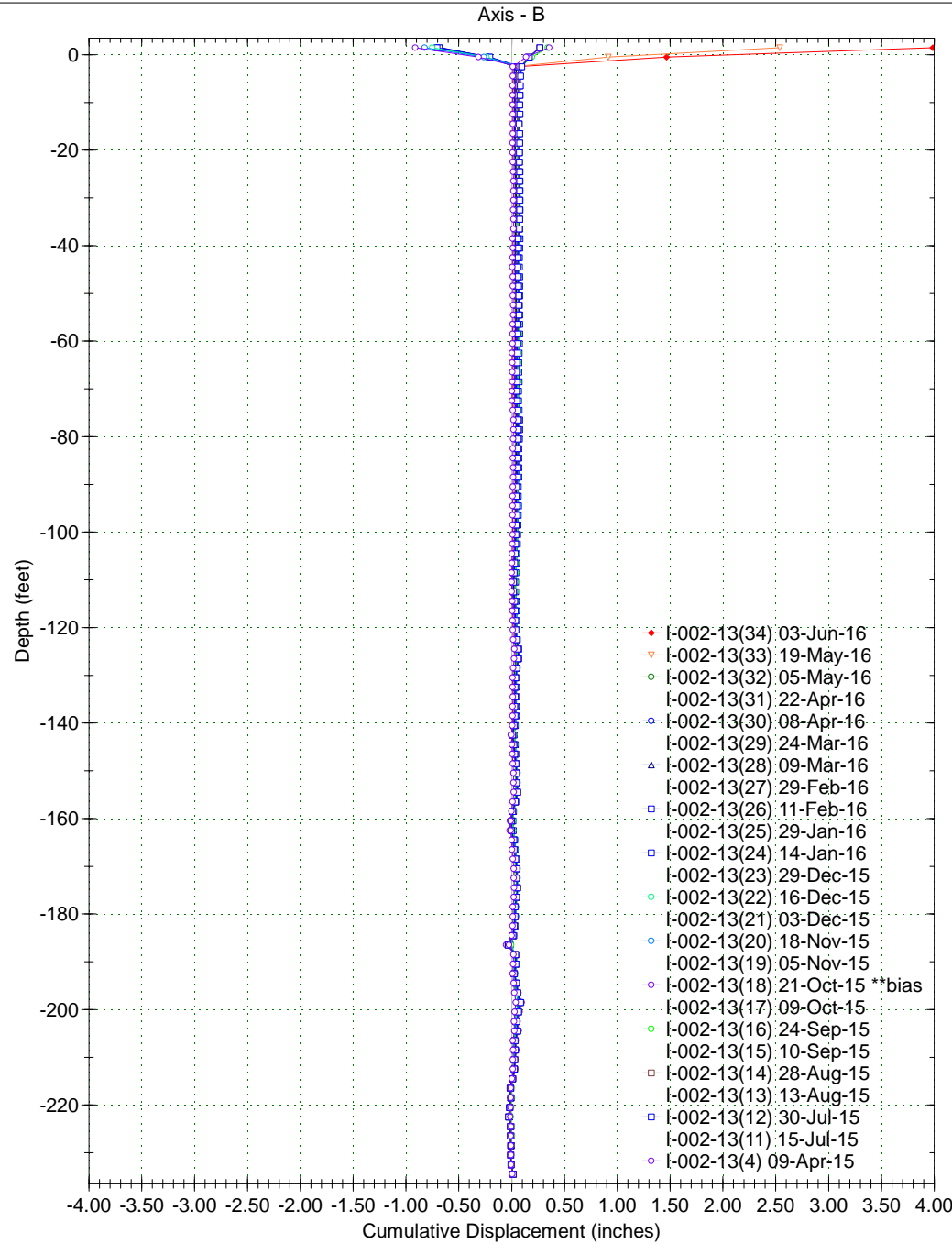
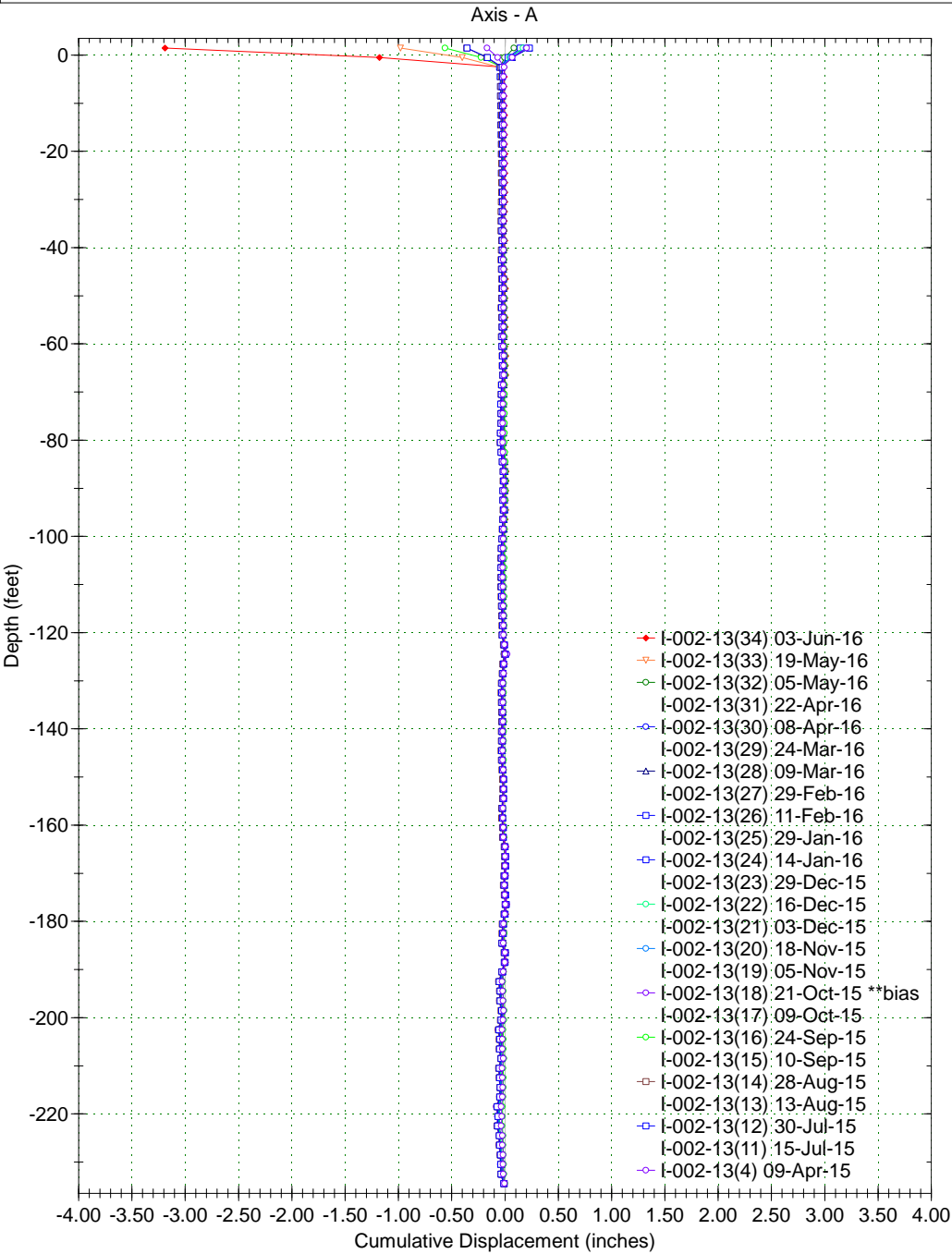
Axis - B



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



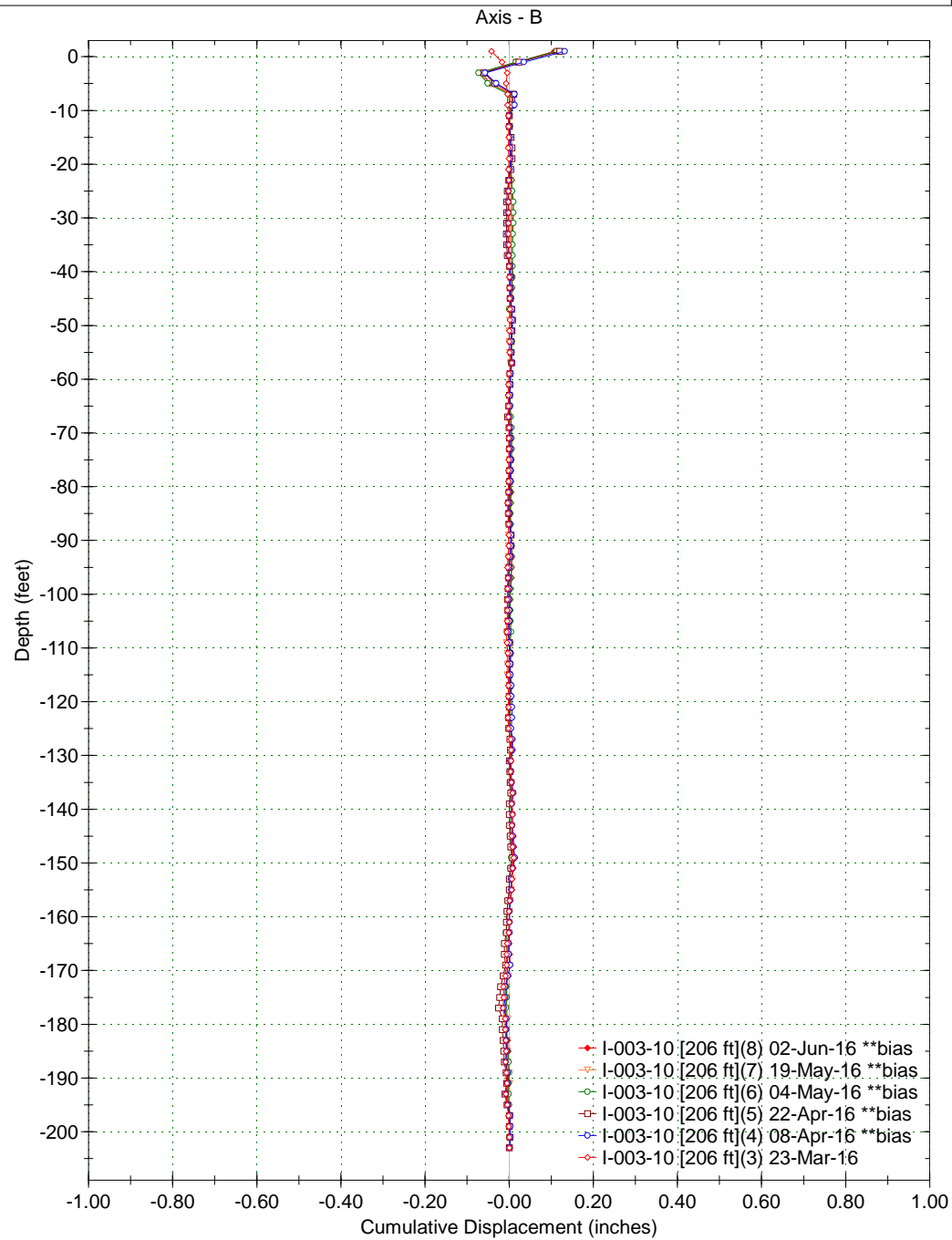
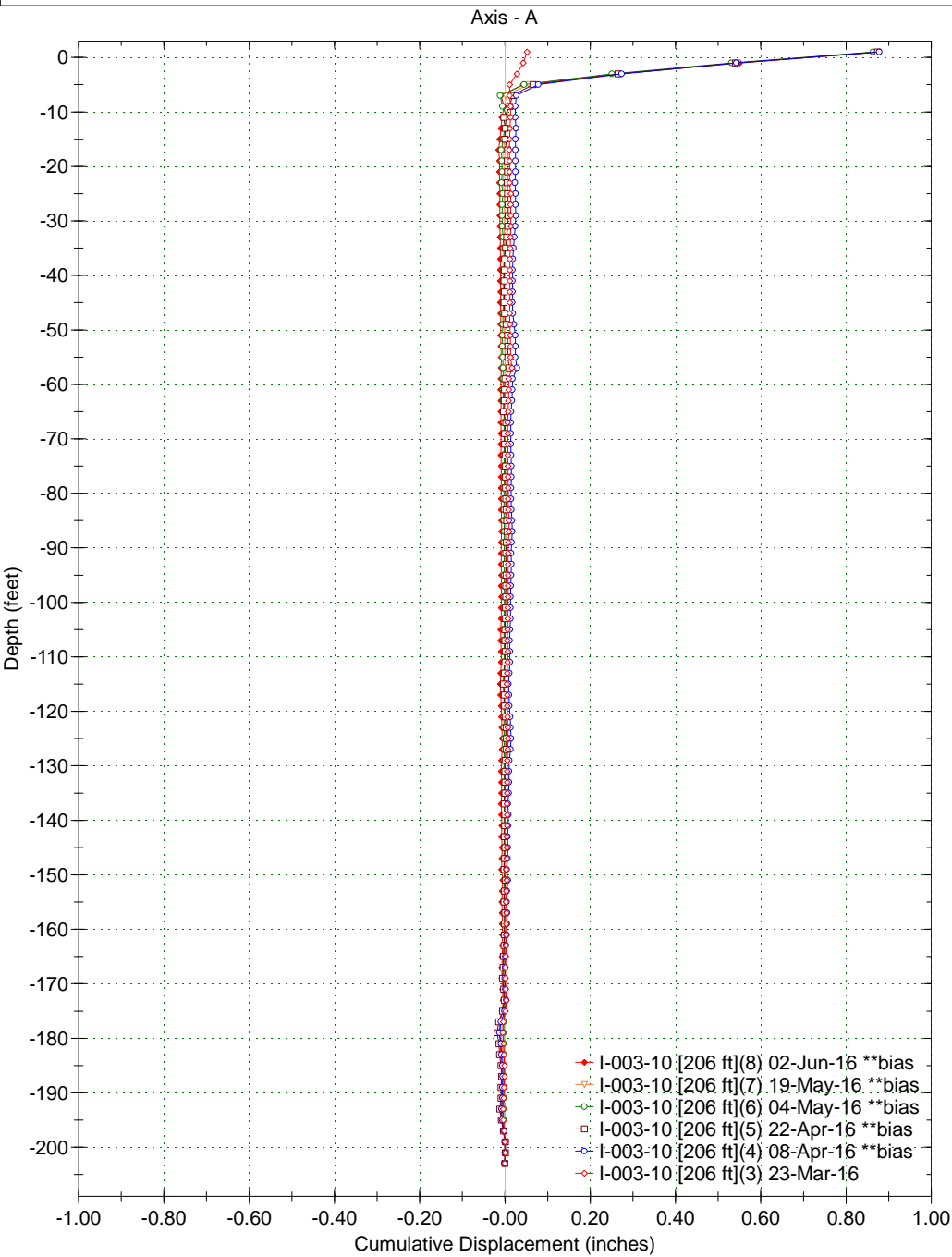
Spiral Correction : N/A
 Collar Elevation : 3.5 feet
 Borehole Total Depth : 238.0 feet
 A+ Groove Azimuth :
 Base Reading : 2015 Mar 03 10:04
 Applied Azimuth : 0.0 degrees



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



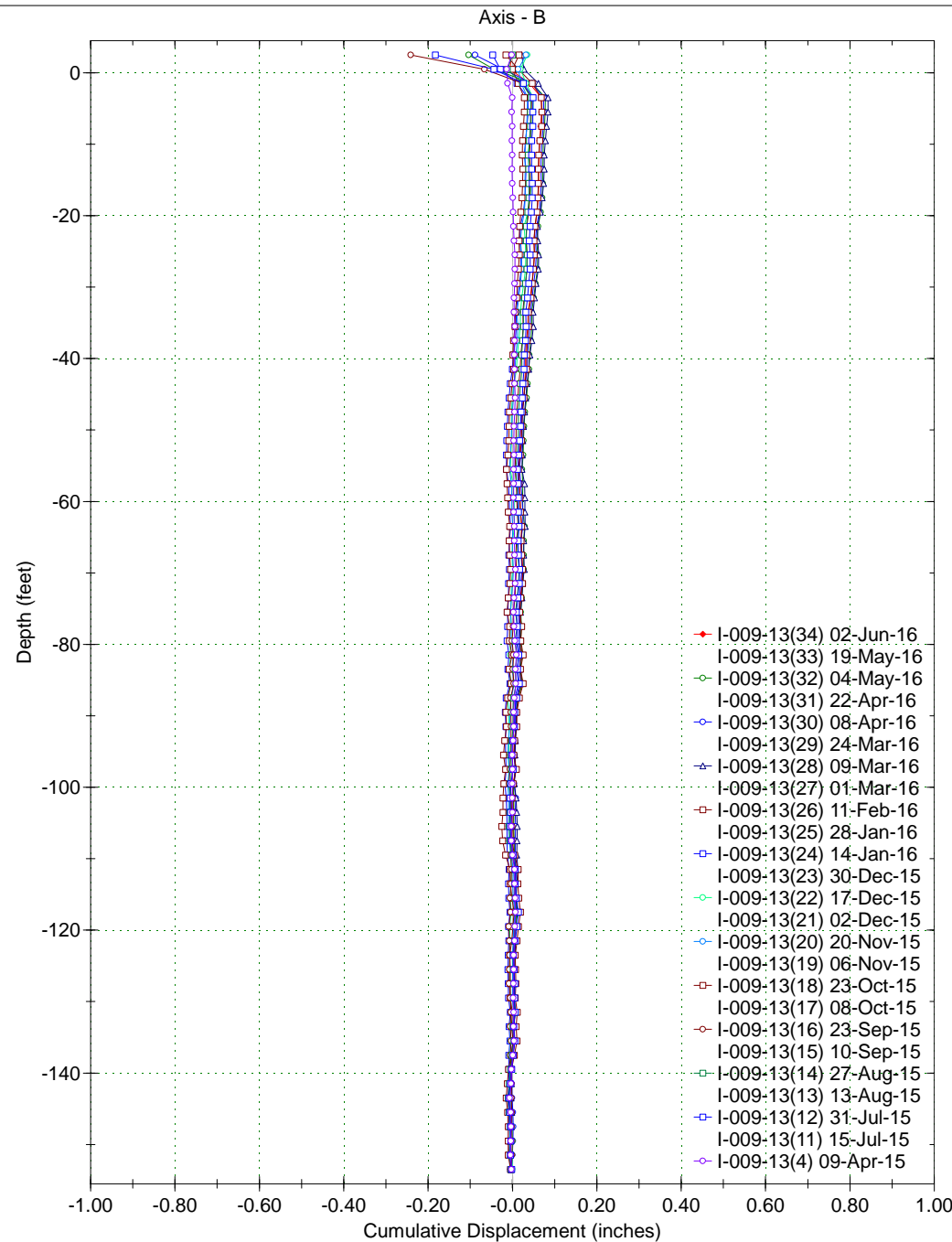
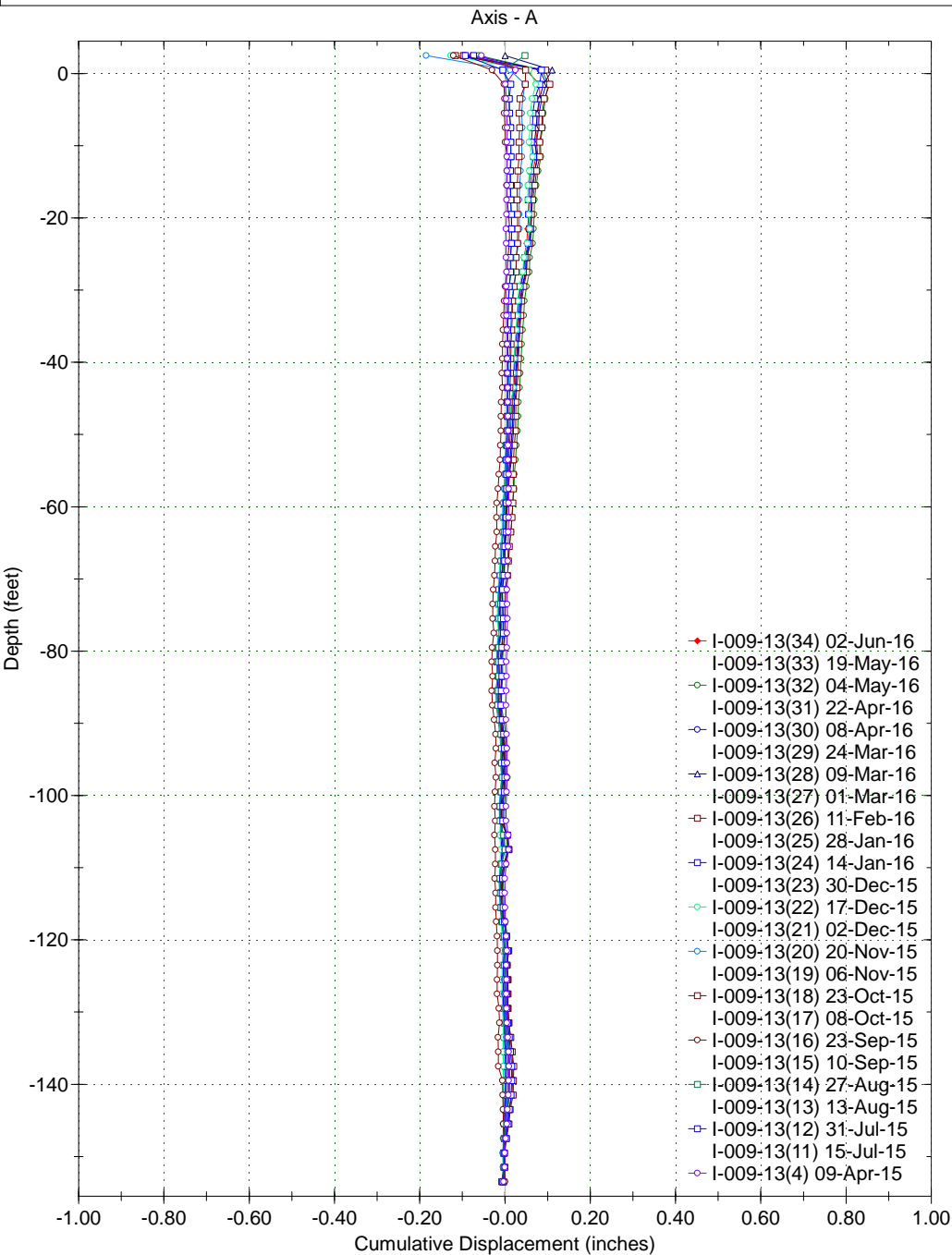
Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 206.0 feet
A+ Groove Azimuth :
Base Reading : 2016 Mar 08 15:42
Applied Azimuth : 0.0 degrees



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



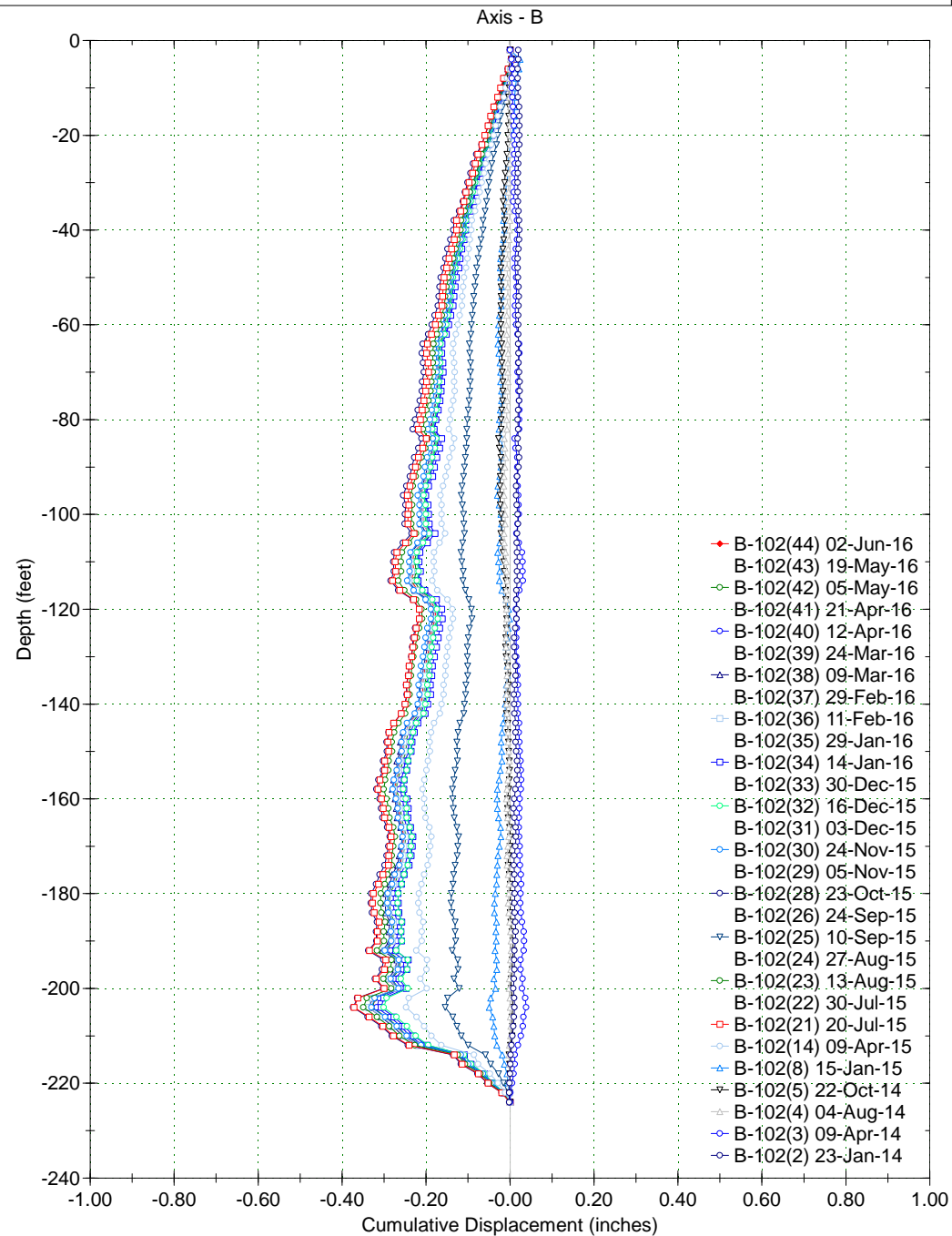
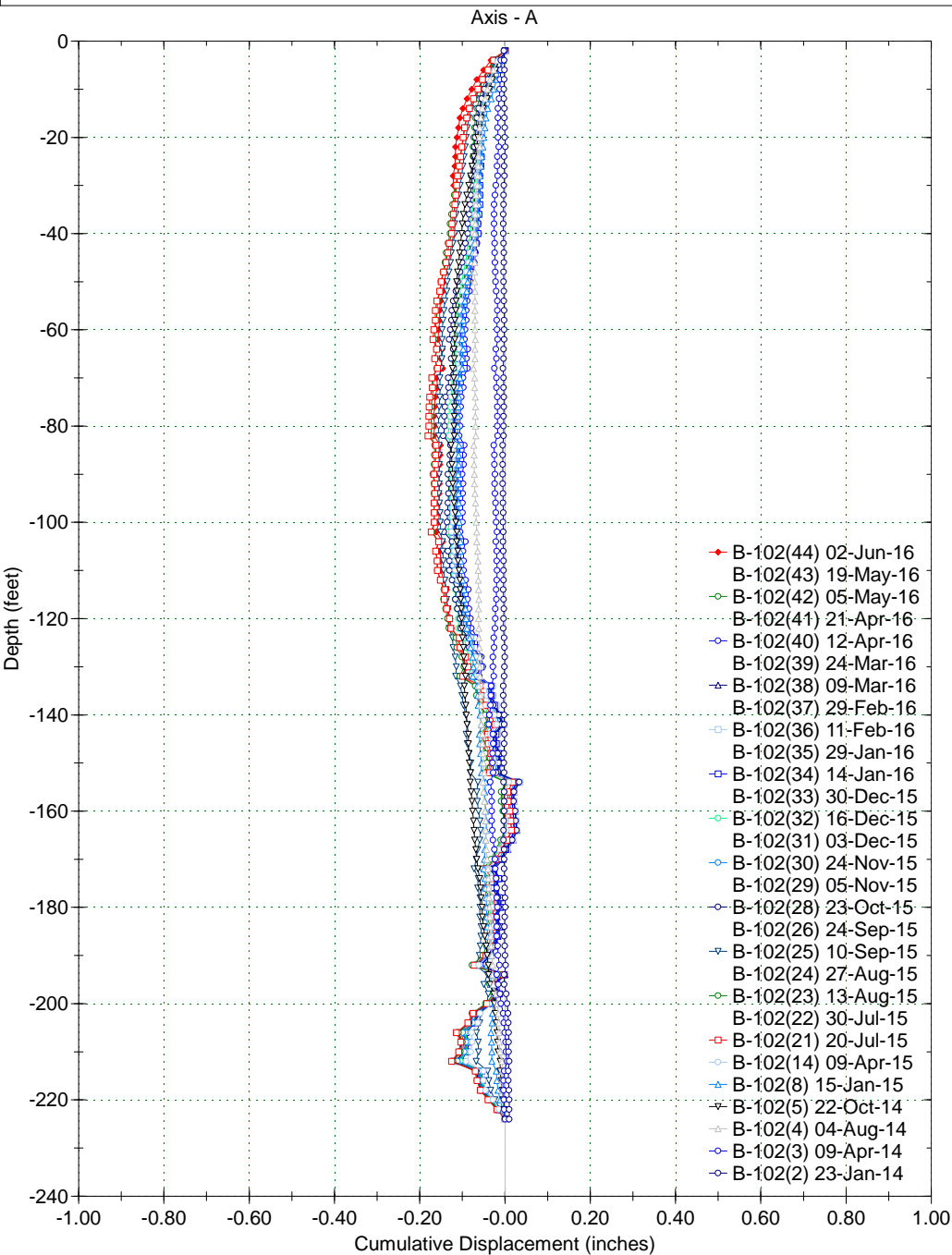
Spiral Correction : N/A
Collar Elevation : 4.5 feet
Borehole Total Depth : 158.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 18 15:56
Applied Azimuth : 0.0 degrees



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



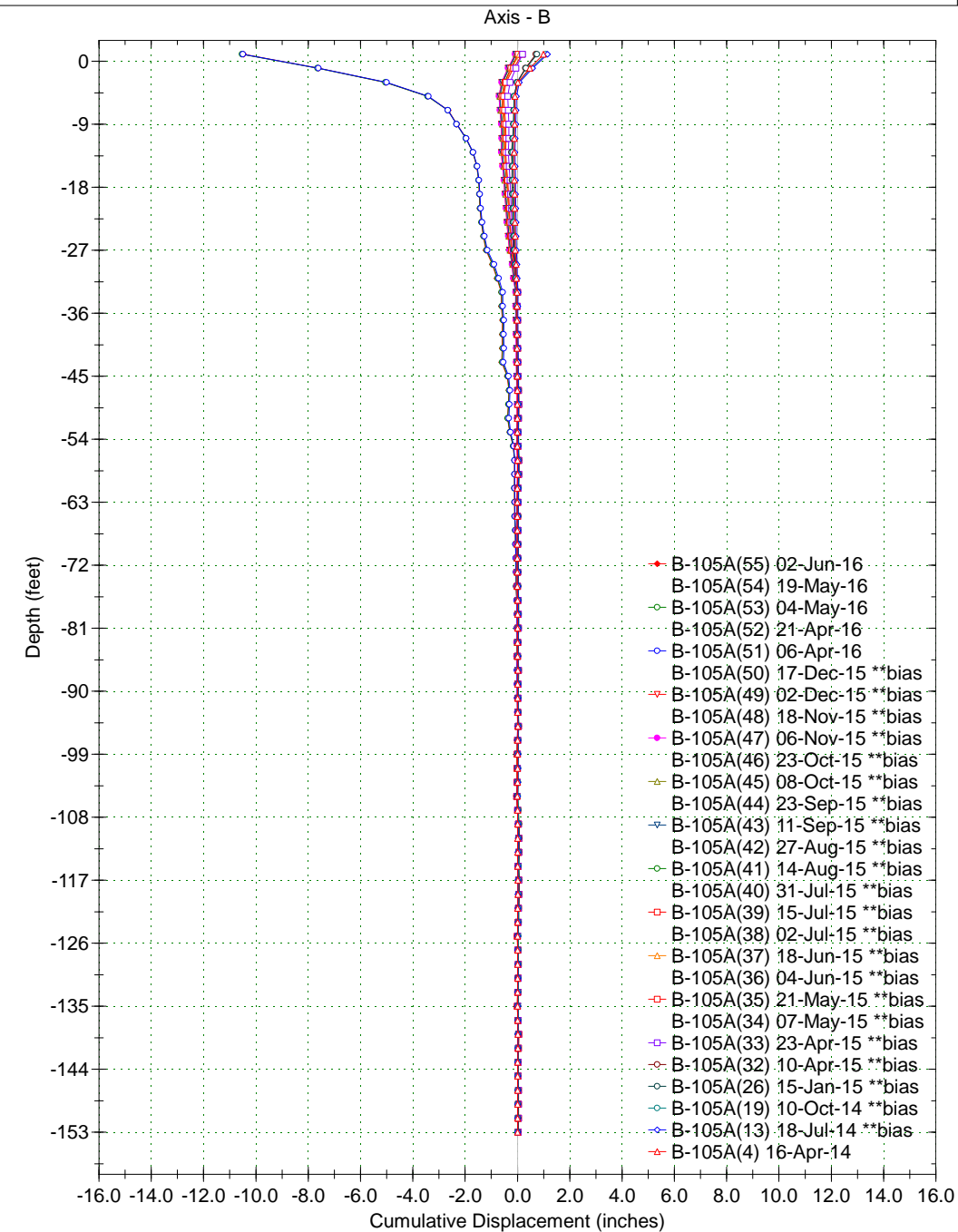
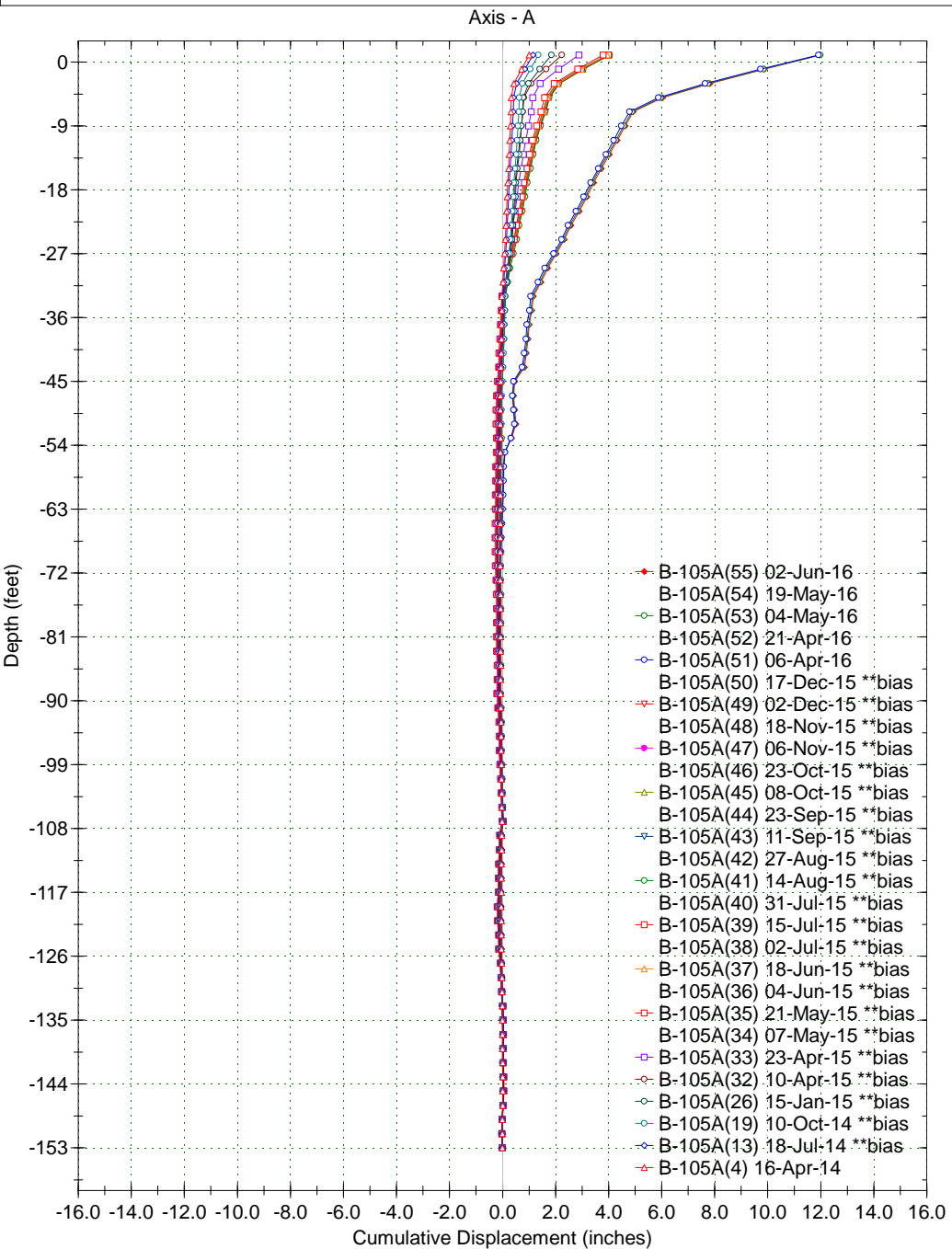
Spiral Correction : N/A
 Collar Elevation : 0.0 feet
 Borehole Total Depth : 224.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 23 08:21
 Applied Azimuth : 0.0 degrees



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

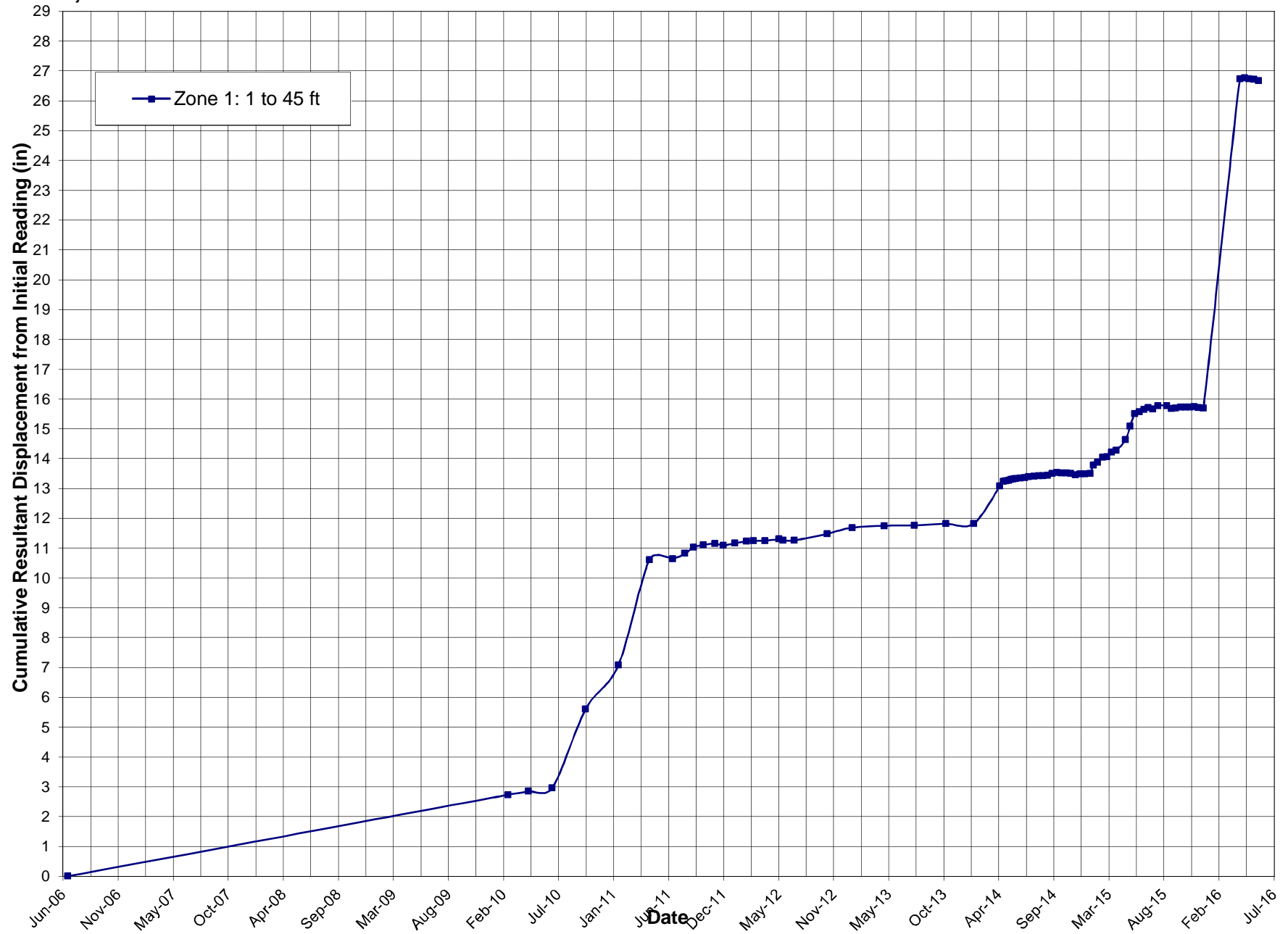


Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 156.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 15 09:19
Applied Azimuth : 0.0 degrees



CUY-90-15.24
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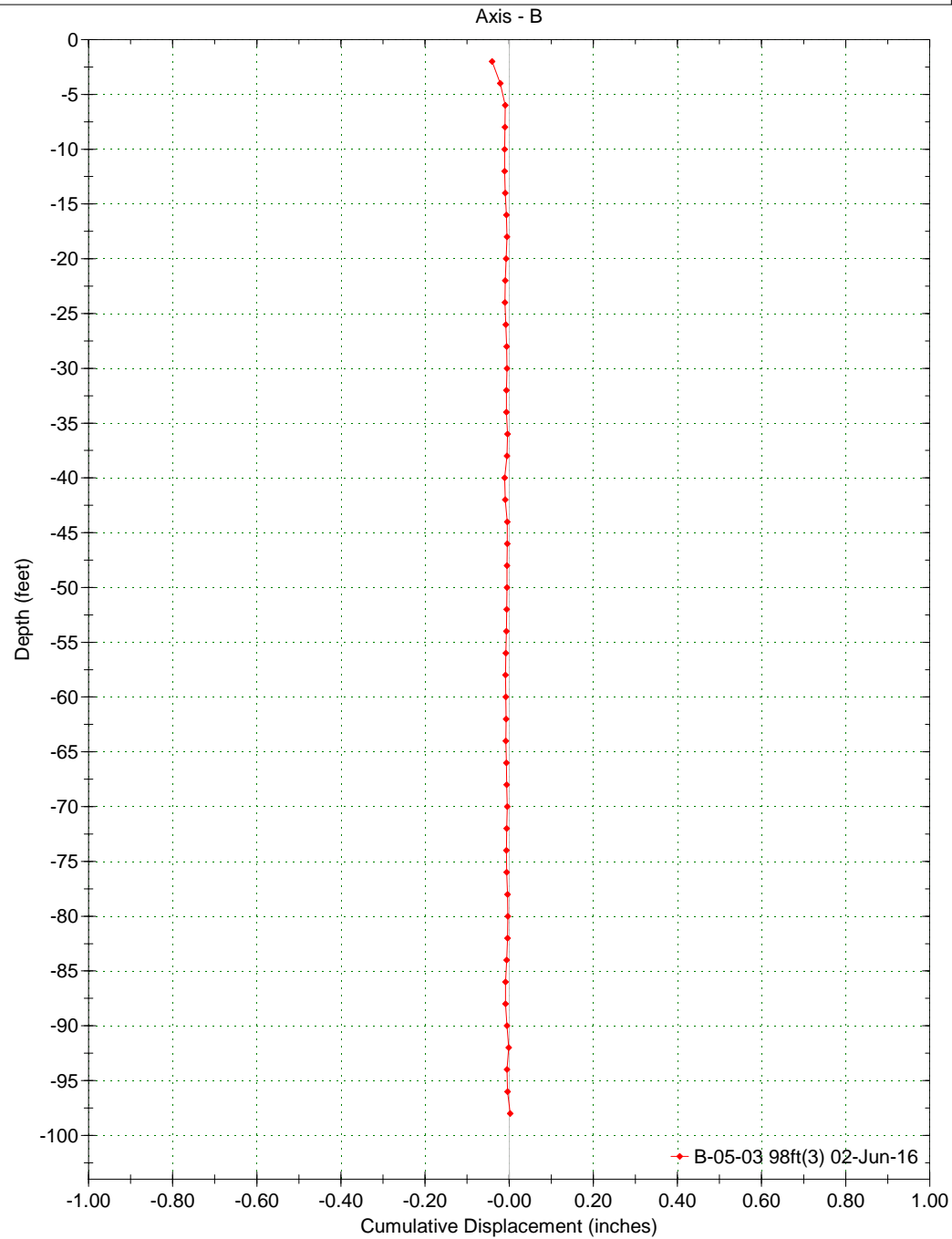
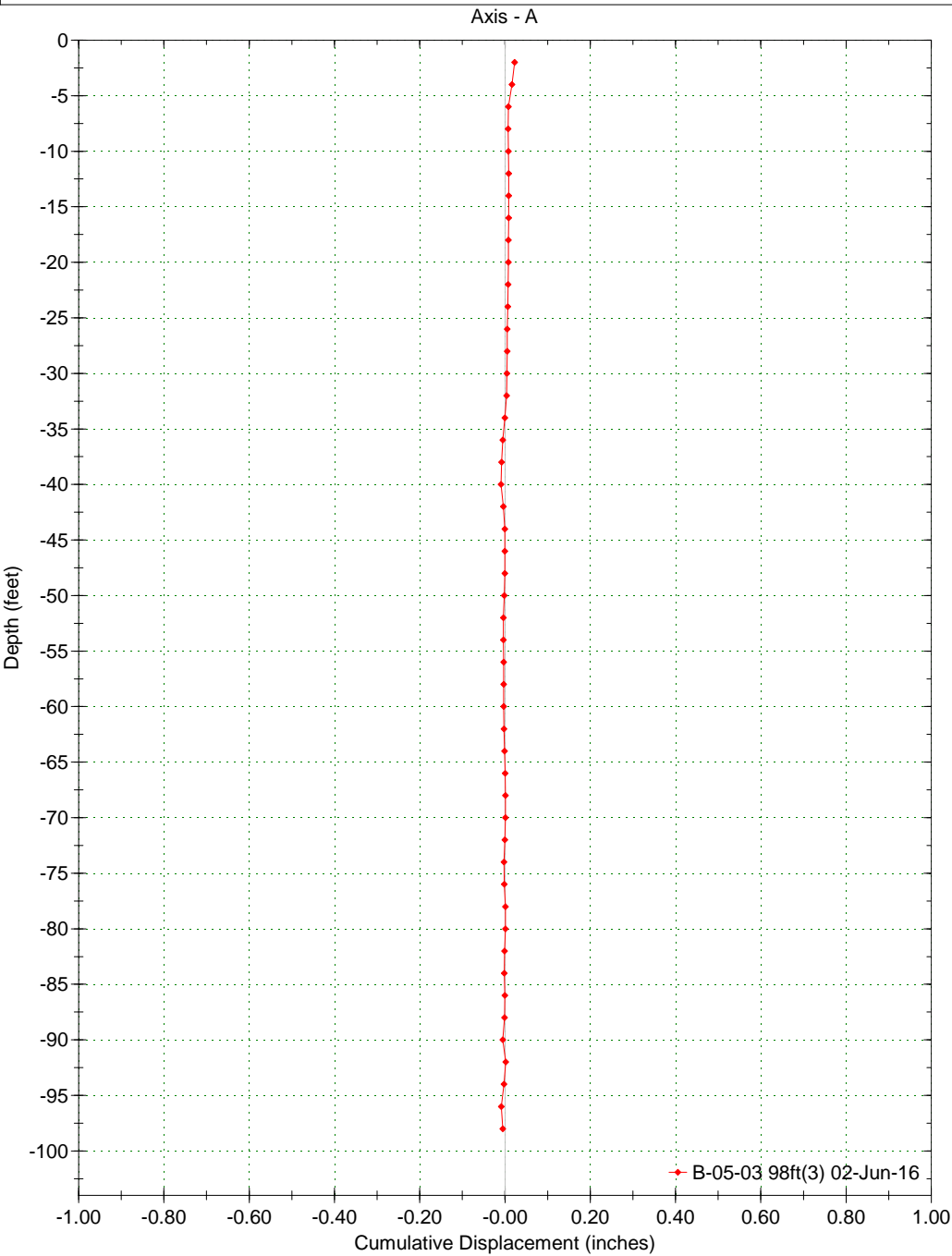
B-105A



Borehole : B-05-A-03 [98 ft]
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :



Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 98.0 feet
A+ Groove Azimuth :
Base Reading : 2016 May 19 17:14
Applied Azimuth : 0.0 degrees



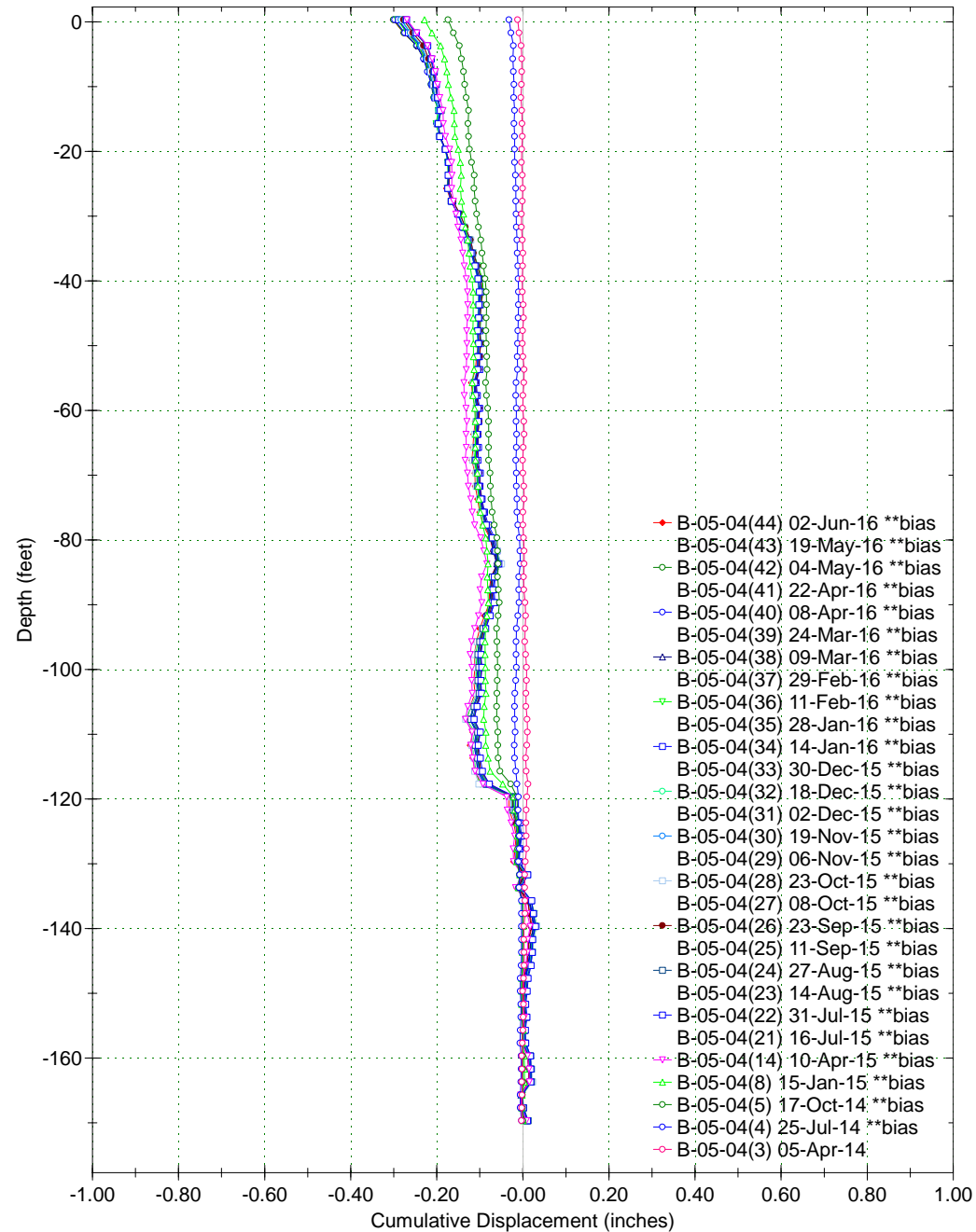
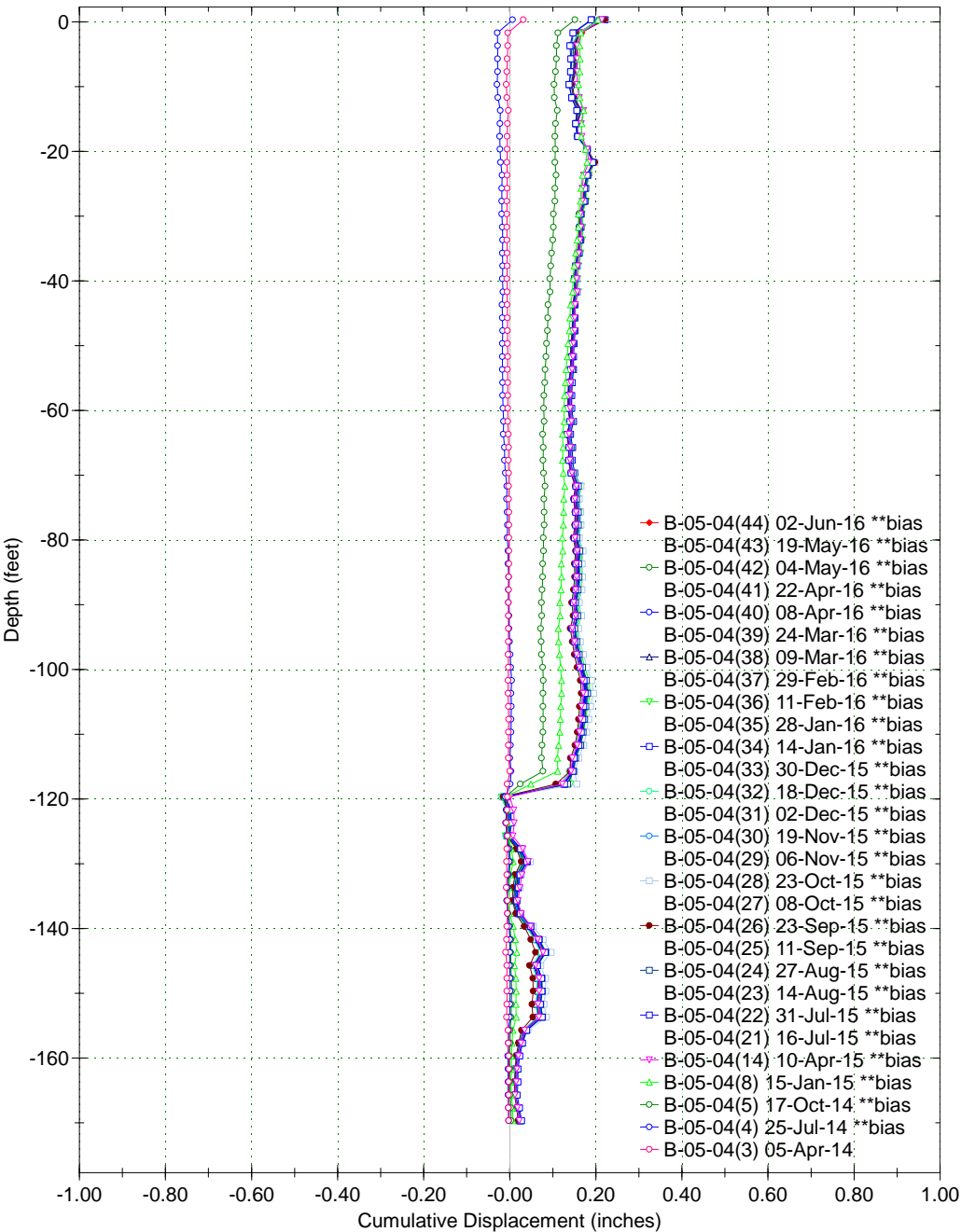
Borehole : B-05-04
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 133+51.67
 Easting : 242.09' Rt of CL
 Collar :



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

Axis - A

Axis - B

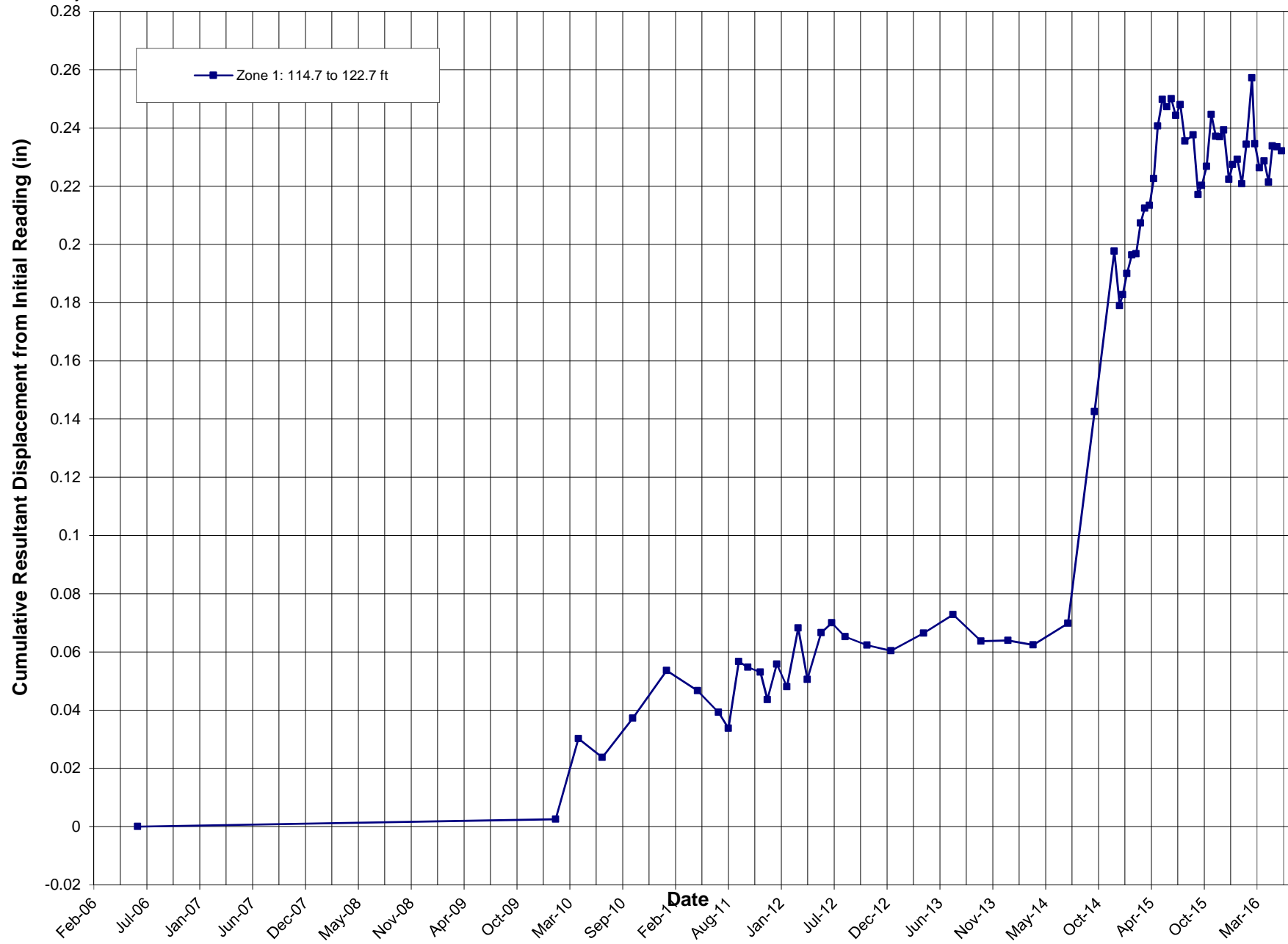


- ◆ B-05-04(44) 02-Jun-16 **bias
- ◆ B-05-04(43) 19-May-16 **bias
- ◇ B-05-04(42) 04-May-16 **bias
- ◇ B-05-04(41) 22-Apr-16 **bias
- ◇ B-05-04(40) 08-Apr-16 **bias
- ◇ B-05-04(39) 24-Mar-16 **bias
- ◇ B-05-04(38) 09-Mar-16 **bias
- ◇ B-05-04(37) 29-Feb-16 **bias
- ◇ B-05-04(36) 11-Feb-16 **bias
- ◇ B-05-04(35) 28-Jan-16 **bias
- ◇ B-05-04(34) 14-Jan-16 **bias
- ◇ B-05-04(33) 30-Dec-15 **bias
- ◇ B-05-04(32) 18-Dec-15 **bias
- ◇ B-05-04(31) 02-Dec-15 **bias
- ◇ B-05-04(30) 19-Nov-15 **bias
- ◇ B-05-04(29) 06-Nov-15 **bias
- ◇ B-05-04(28) 23-Oct-15 **bias
- ◇ B-05-04(27) 08-Oct-15 **bias
- ◆ B-05-04(26) 23-Sep-15 **bias
- ◆ B-05-04(25) 11-Sep-15 **bias
- ◇ B-05-04(24) 27-Aug-15 **bias
- ◇ B-05-04(23) 14-Aug-15 **bias
- ◇ B-05-04(22) 31-Jul-15 **bias
- ◇ B-05-04(21) 16-Jul-15 **bias
- ◇ B-05-04(14) 10-Apr-15 **bias
- ◇ B-05-04(8) 15-Jan-15 **bias
- ◇ B-05-04(5) 17-Oct-14 **bias
- ◇ B-05-04(4) 25-Jul-14 **bias
- ◇ B-05-04(3) 05-Apr-14

- ◆ B-05-04(44) 02-Jun-16 **bias
- ◆ B-05-04(43) 19-May-16 **bias
- ◇ B-05-04(42) 04-May-16 **bias
- ◇ B-05-04(41) 22-Apr-16 **bias
- ◇ B-05-04(40) 08-Apr-16 **bias
- ◇ B-05-04(39) 24-Mar-16 **bias
- ◇ B-05-04(38) 09-Mar-16 **bias
- ◇ B-05-04(37) 29-Feb-16 **bias
- ◇ B-05-04(36) 11-Feb-16 **bias
- ◇ B-05-04(35) 28-Jan-16 **bias
- ◇ B-05-04(34) 14-Jan-16 **bias
- ◇ B-05-04(33) 30-Dec-15 **bias
- ◇ B-05-04(32) 18-Dec-15 **bias
- ◇ B-05-04(31) 02-Dec-15 **bias
- ◇ B-05-04(30) 19-Nov-15 **bias
- ◇ B-05-04(29) 06-Nov-15 **bias
- ◇ B-05-04(28) 23-Oct-15 **bias
- ◇ B-05-04(27) 08-Oct-15 **bias
- ◆ B-05-04(26) 23-Sep-15 **bias
- ◆ B-05-04(25) 11-Sep-15 **bias
- ◇ B-05-04(24) 27-Aug-15 **bias
- ◇ B-05-04(23) 14-Aug-15 **bias
- ◇ B-05-04(22) 31-Jul-15 **bias
- ◇ B-05-04(21) 16-Jul-15 **bias
- ◇ B-05-04(14) 10-Apr-15 **bias
- ◇ B-05-04(8) 15-Jan-15 **bias
- ◇ B-05-04(5) 17-Oct-14 **bias
- ◇ B-05-04(4) 25-Jul-14 **bias
- ◇ B-05-04(3) 05-Apr-14

CUY-90-15.24
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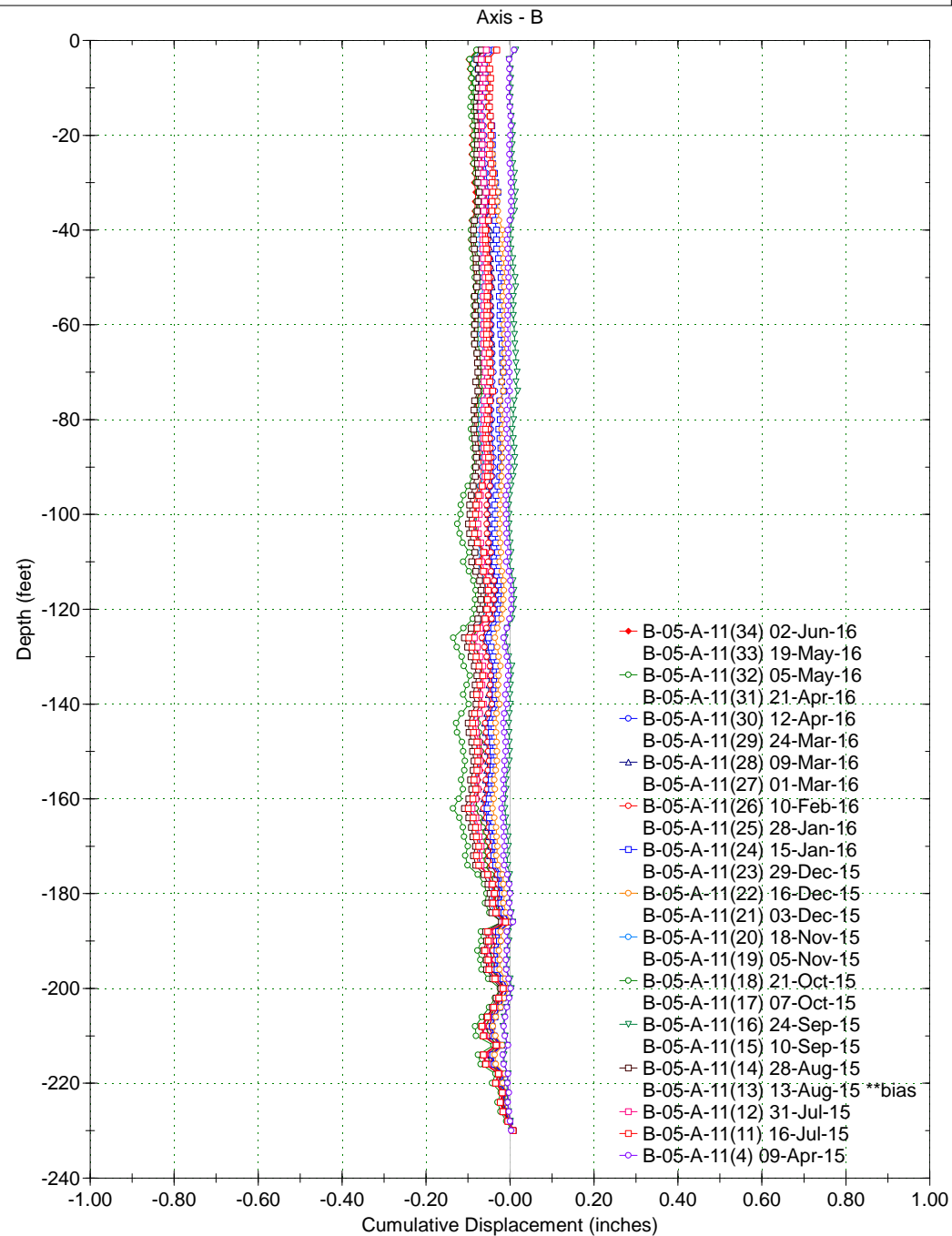
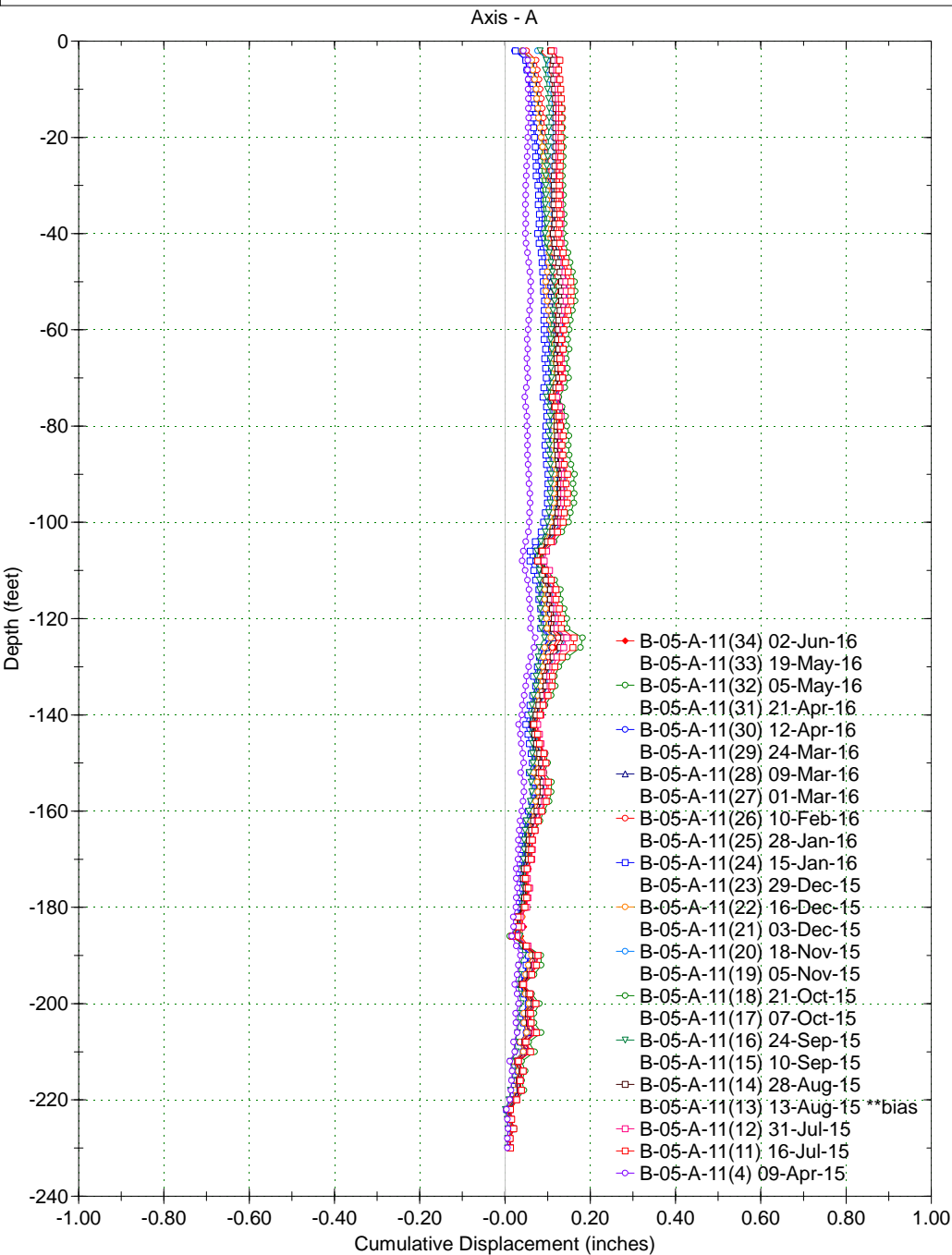
B-05-04



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



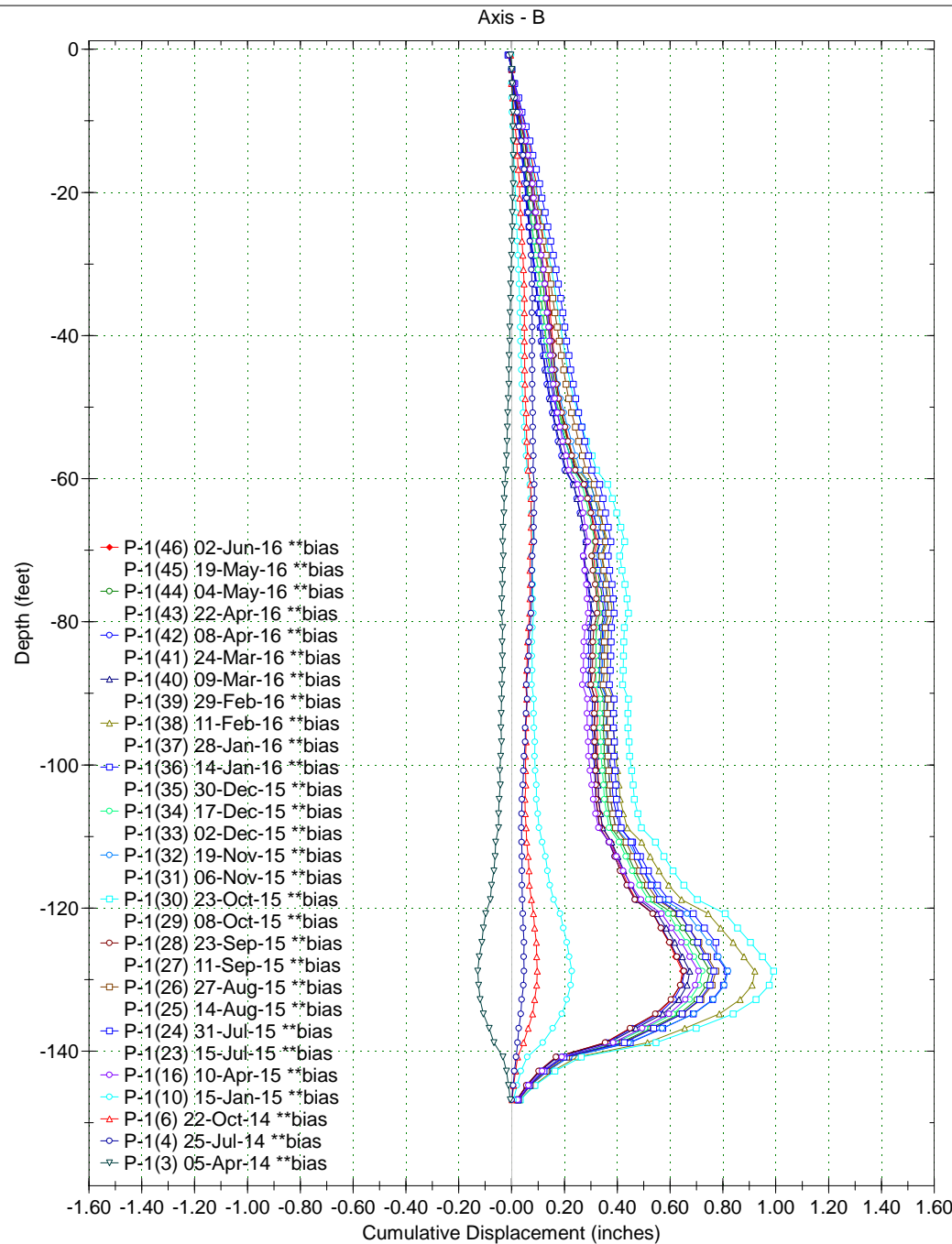
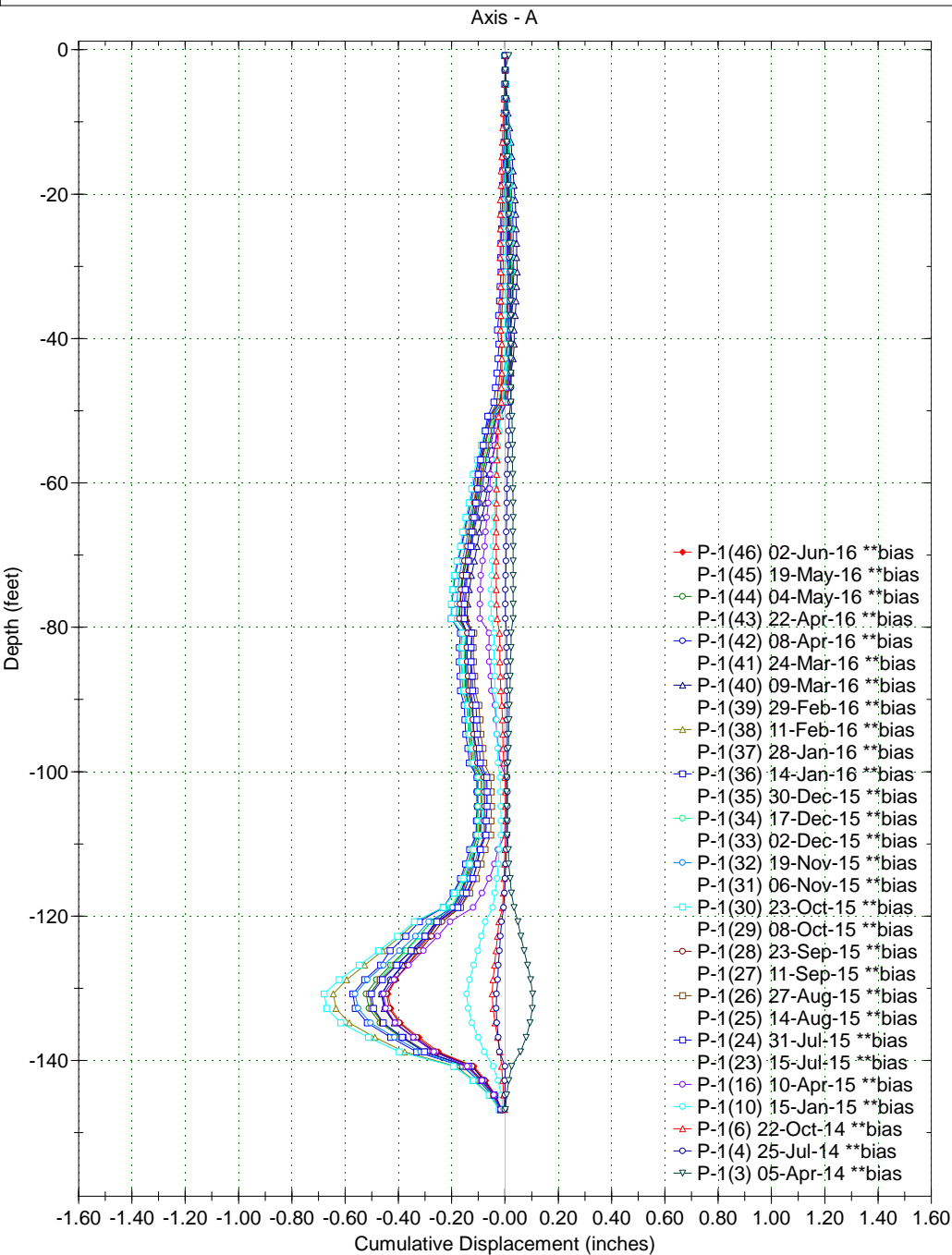
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 230.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 19 09:08
Applied Azimuth : 0.0 degrees



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

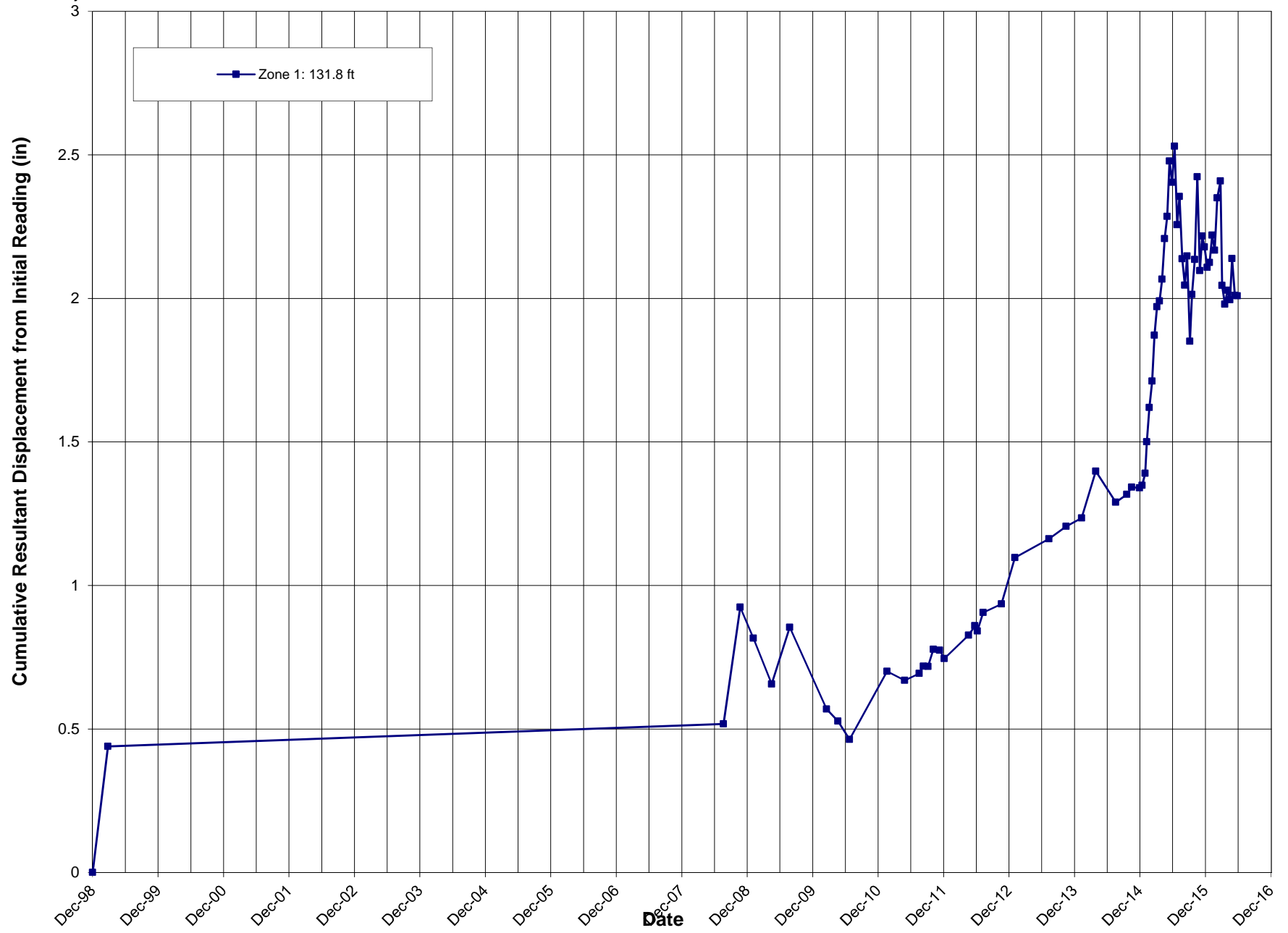


Spiral Correction : N/A
 Collar Elevation : 1.2 feet
 Borehole Total Depth : 148.0 feet
 A+ Groove Azimuth :
 Base Reading : 2014 Jan 22 10:47
 Applied Azimuth : 0.0 degrees



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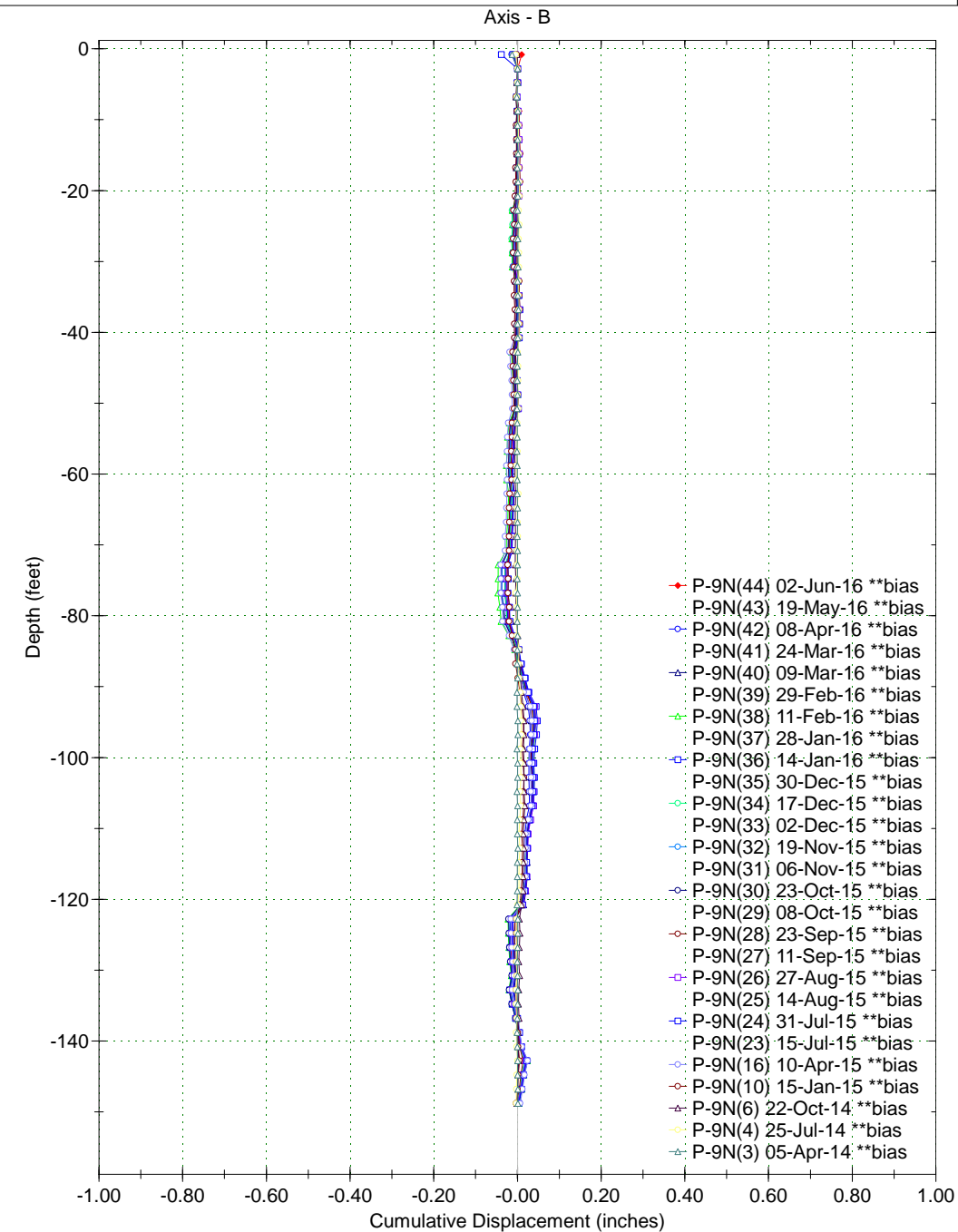
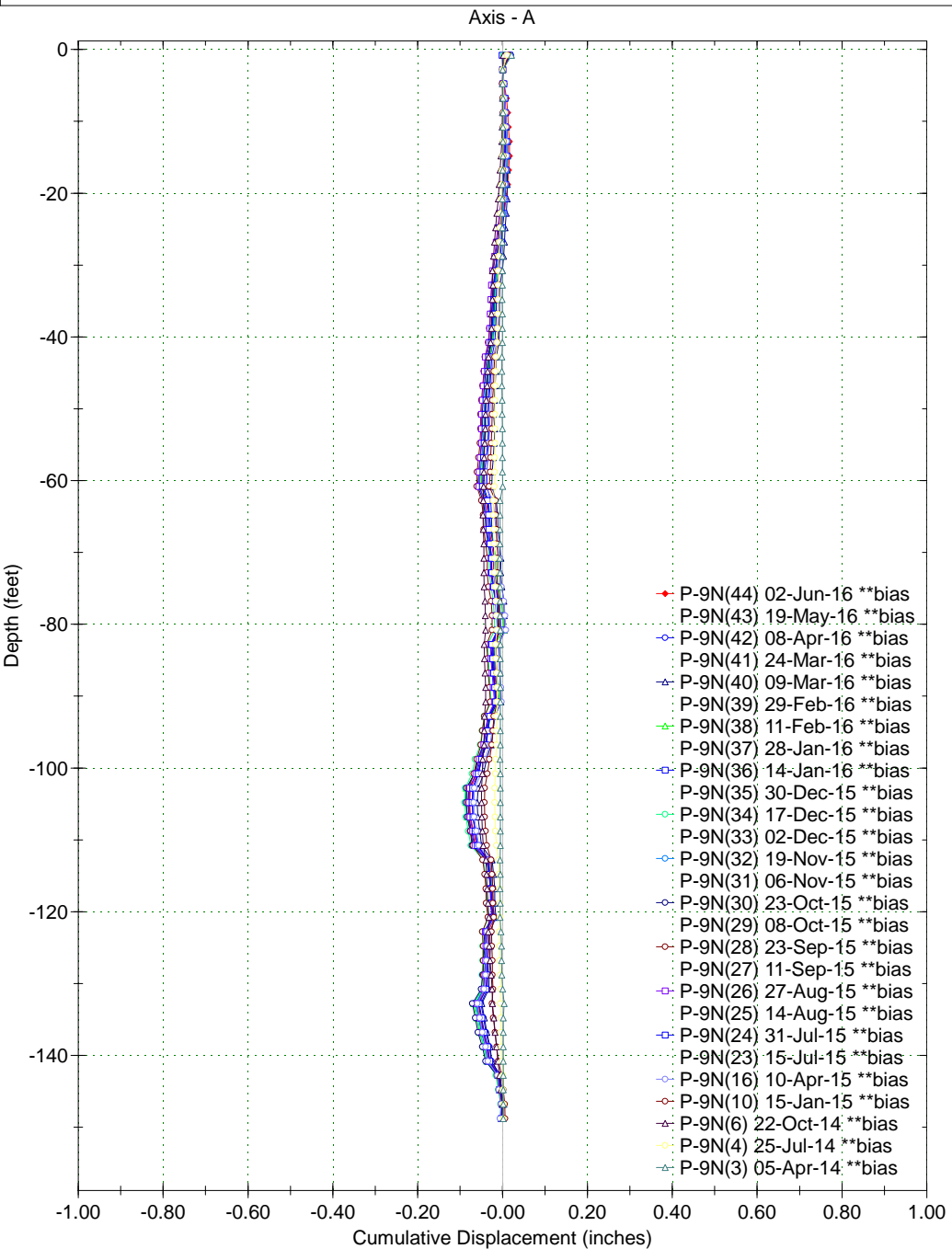
P-1



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

Axis - A

Axis - B

