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August 10, 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: August 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 August 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-05-02, 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-001-13, P-002-13, P-003-10, P-009-13, B-05-02, B-05-A-03, B-05-04 – Pore pressure readings at these locations fluctuated by less than 0.5 feet, but show virtually no net change in total head.

P-004-13 – The dataloggers at this location were recently uncovered. The last set of readings were downloaded on February 11, 2016. Pore pressure readings indicate that the total head in the shallow piezometer decreased by about 1.5 feet during February 2016. On March 18, 2016, the total head in this piezometer increased by about 2 feet. During the following month, until about mid-April 2016, the total head fluctuated by less than 1 foot with a net increase of about 0.5 feet. Since mid-April 2016, there has been virtually no net change in total head in this piezometer. Total head in the deep piezometer has remained virtually constant since these piezometers were installed.

B-105-A – The total head in the shallow piezometer at this location has increased by about 1.5 feet since June 17, 2016. Total head in the deep piezometer has decreased by about 0.3 feet since June 3, 2016.

B-05-A-11 – The instruments at this location are currently inaccessible due to a fall hazard.

Inclinometer Readings

Inclinometer readings at I-001-13, I-002-13, I-009-13, B-101, B-102, B-105A, B-05-02, B-05-A-03, B-05-04, 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-003-10 – The inclinometer readings at this location indicate an additional small amount of displacement in the negative B-axis direction from about 60 to 180 feet. Movement in the A-axis direction is negligible.

I-004-13 – The inclinometer casing at this location is still inaccessible, however, the corrugated pipe that was installed to protect this instrument has been uncovered. We will cut this pipe down and take readings during our next visit to the site.

B-05-A-11 – This location is currently inaccessible.

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

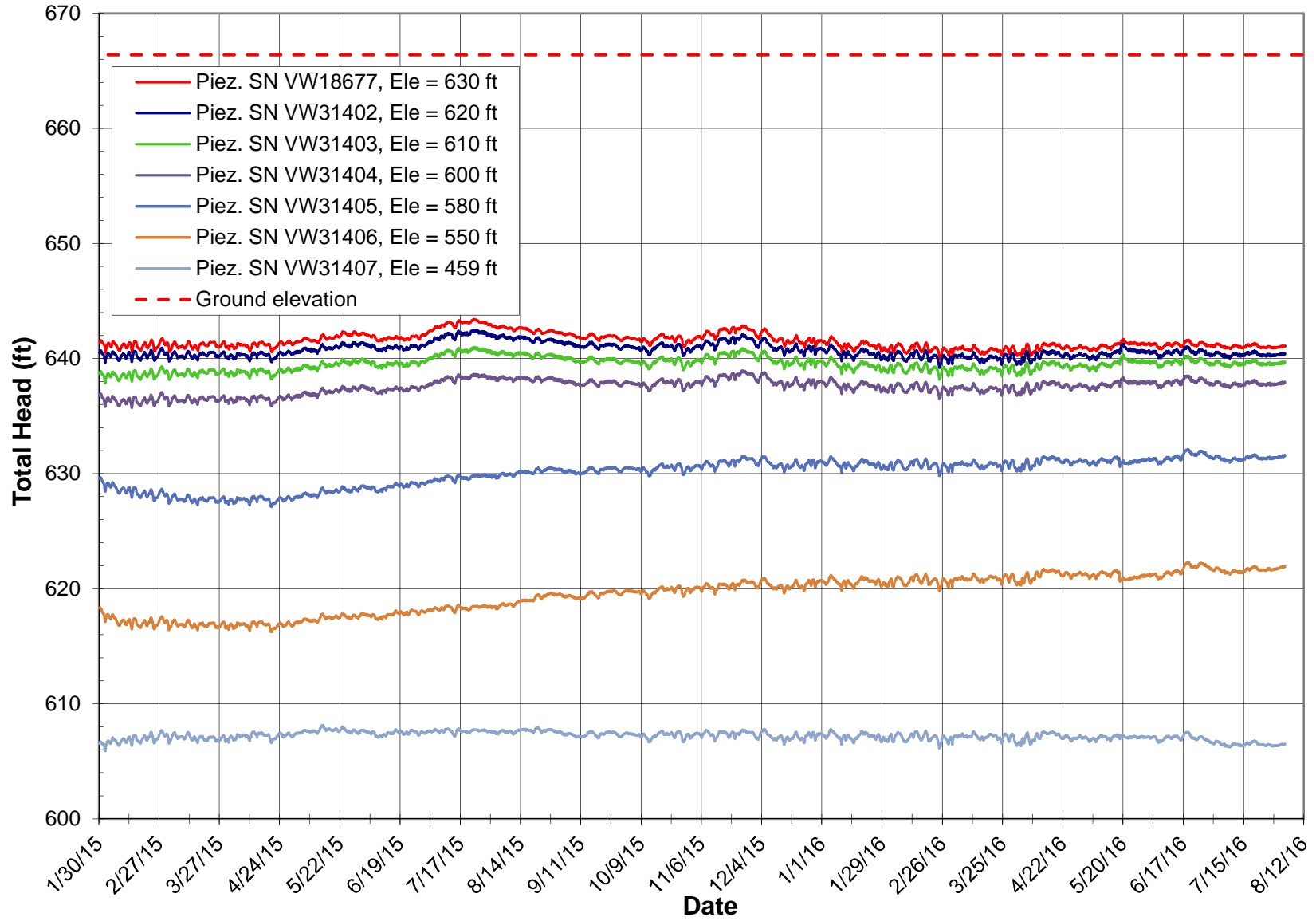
Brendan P. Lieske, P.E.
Senior Staff Engineer

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

Copied to distribution list.

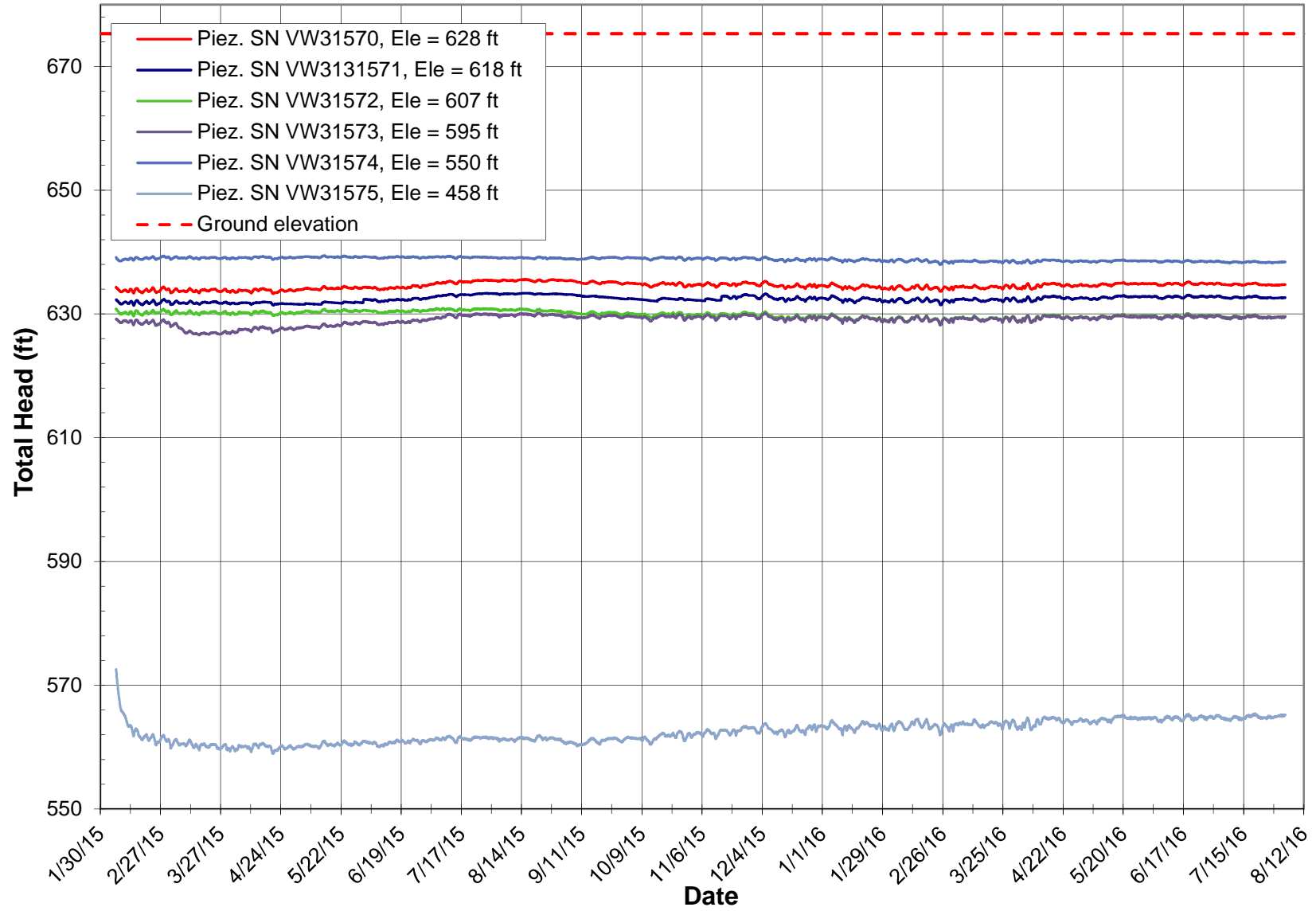
P-001-13 VW Piezometer Readings

Ground surface elevation = 666.4 ft



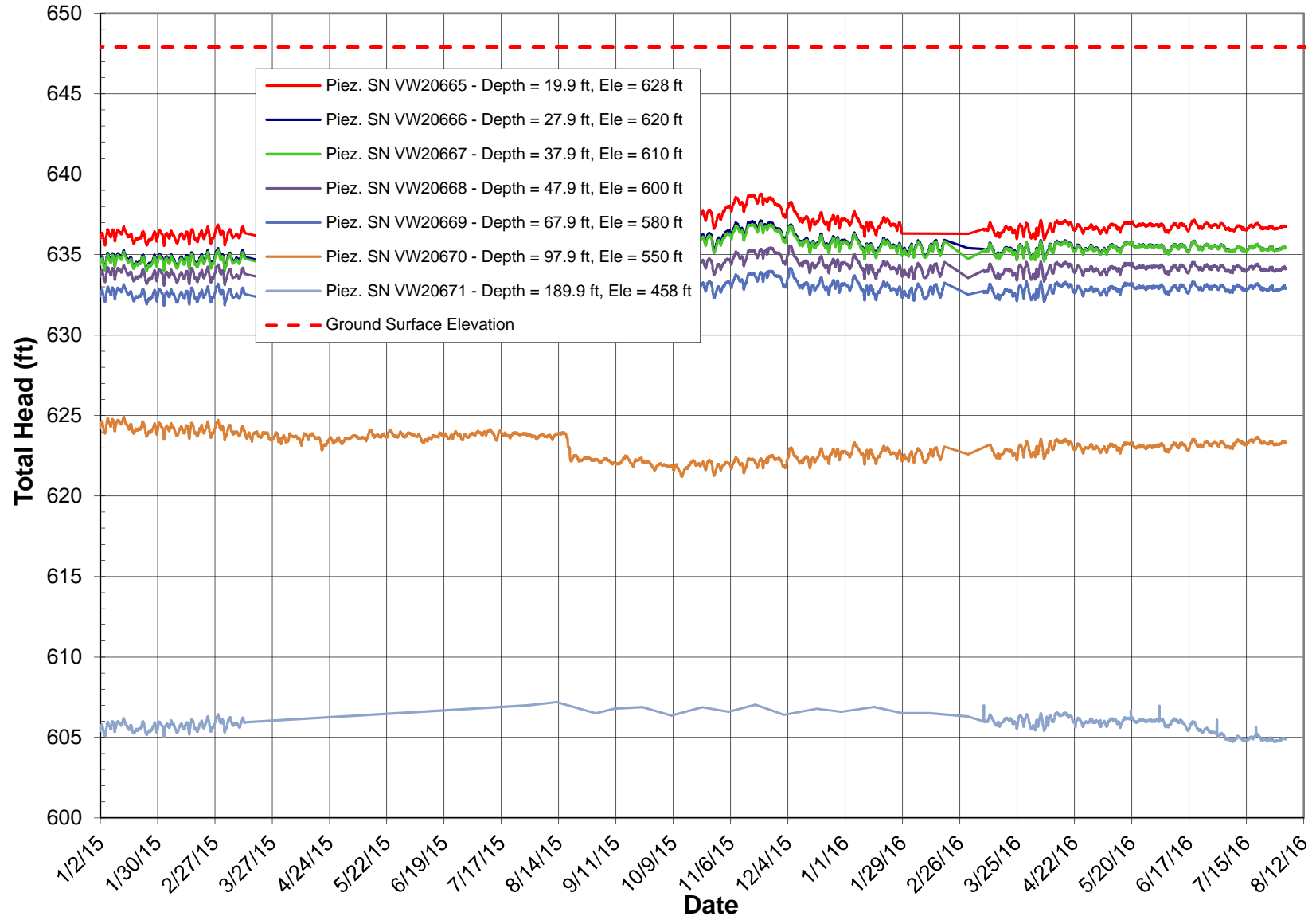
P-002-13 VW Piezometer Readings

Ground surface elevation = 675.29 ft



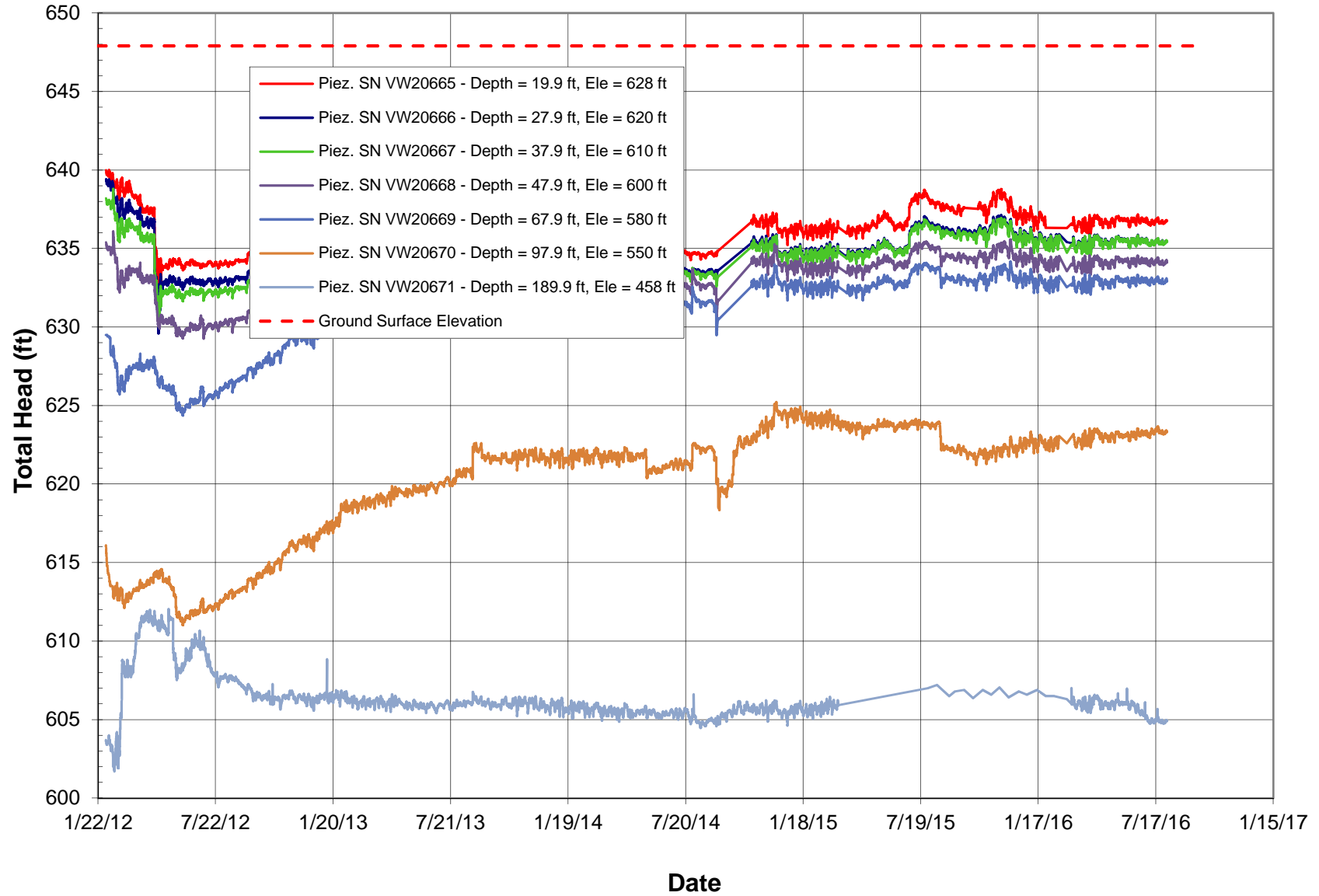
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



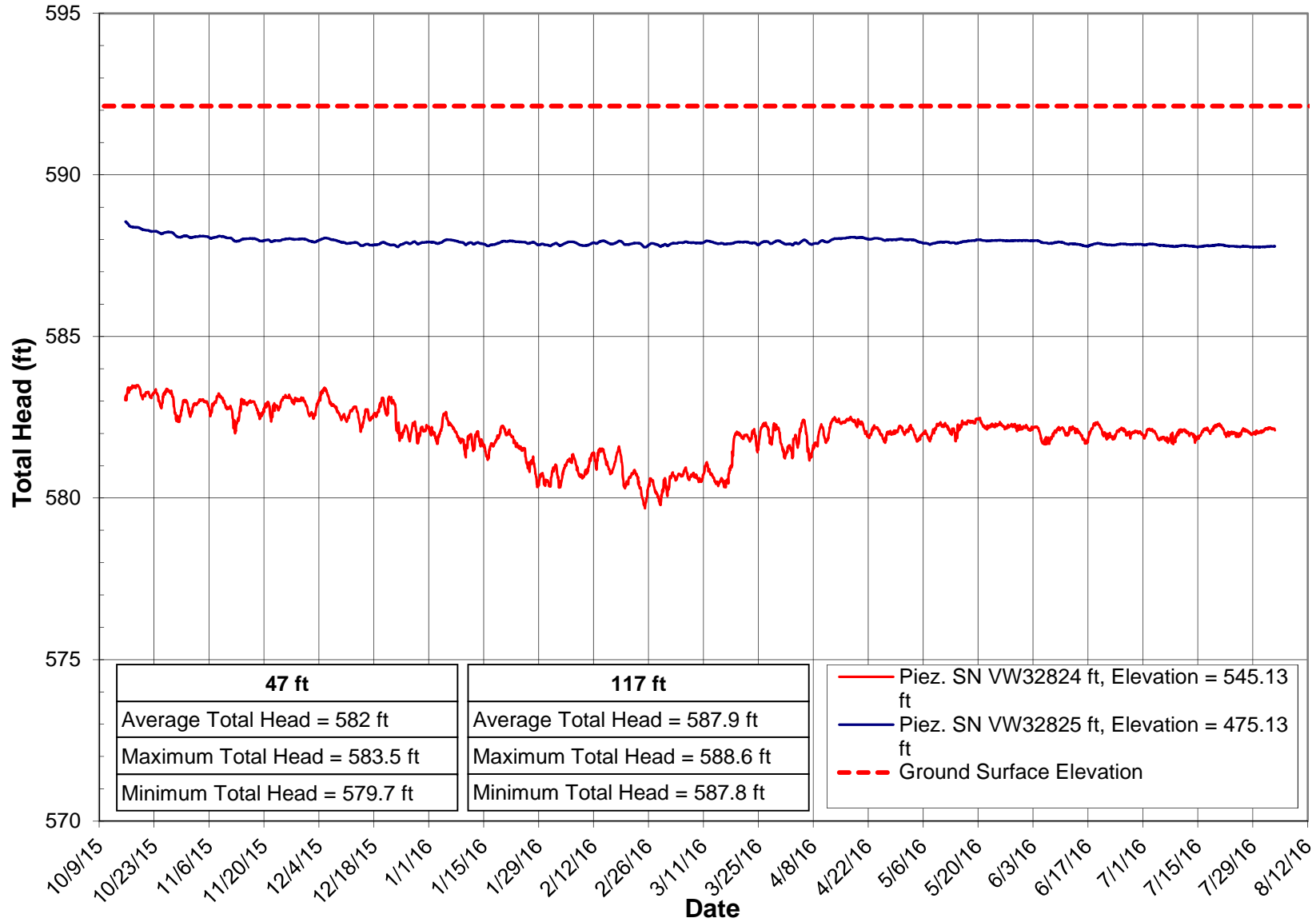
P-003-10 VW Piezometer Readings

Ground surface elevation = 647.9 ft



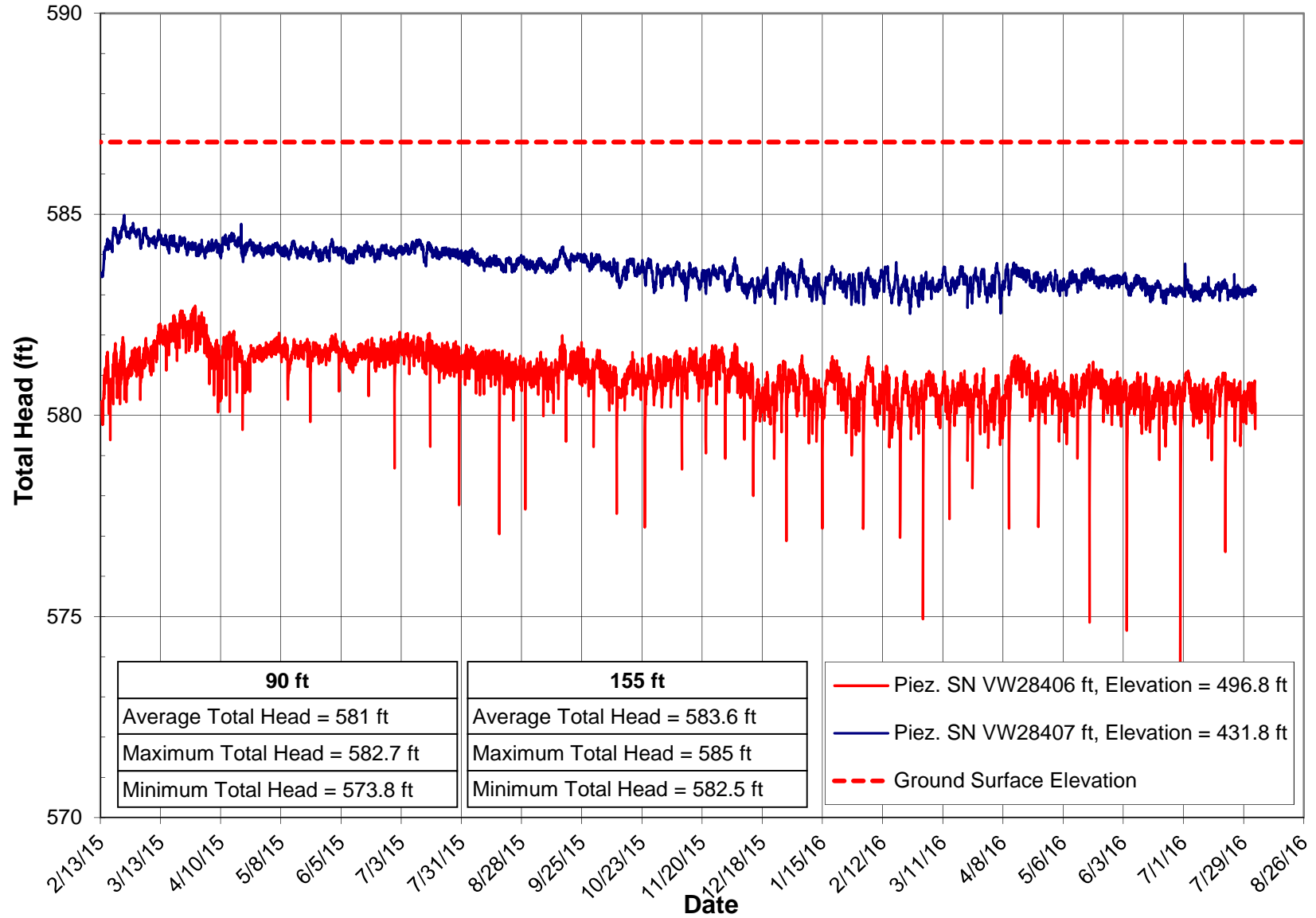
P-004-13 VW Piezometer Readings

Ground surface elevation = 592.13 ft



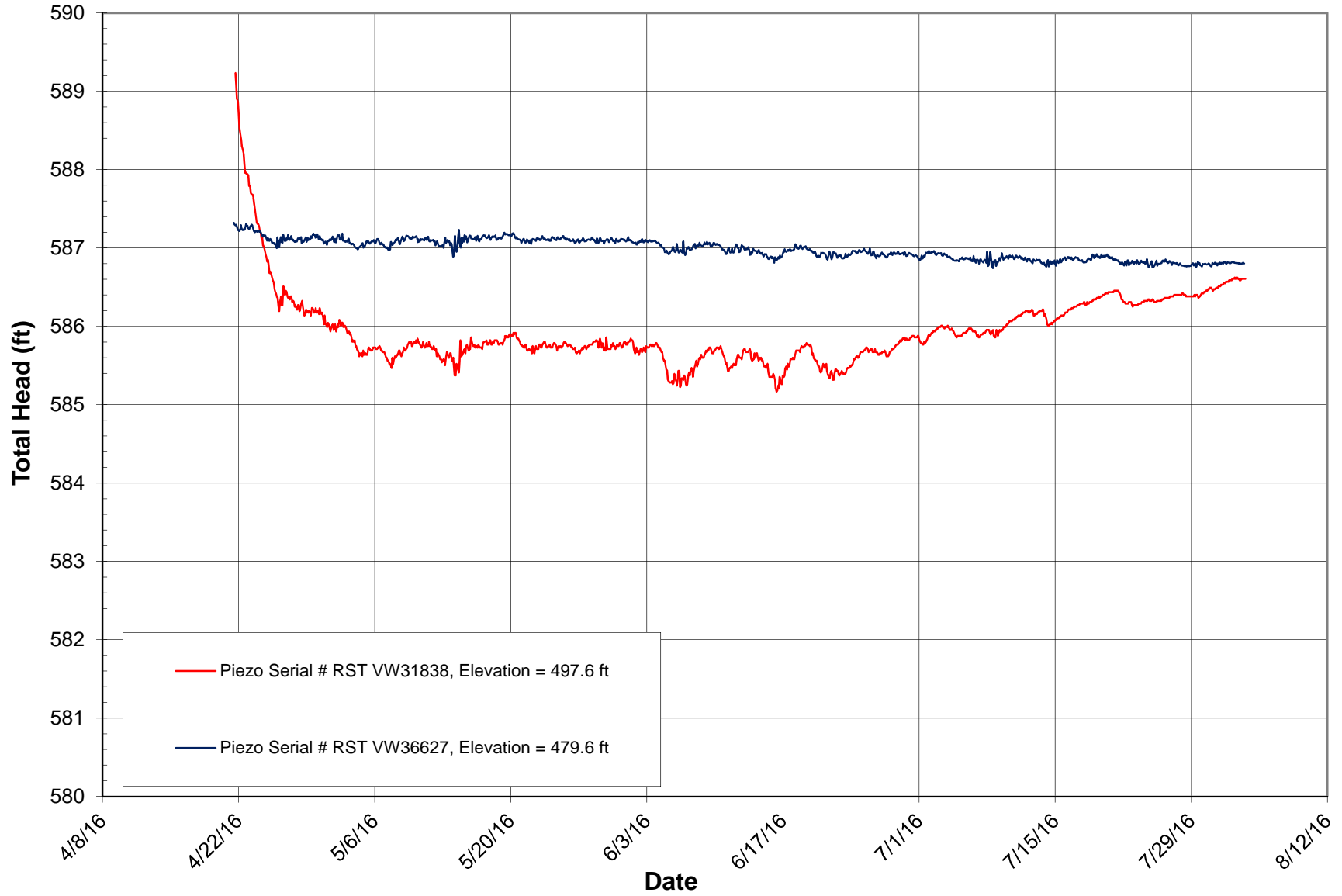
P-009-13 VW Piezometer Readings

Ground surface elevation = 586.6 ft



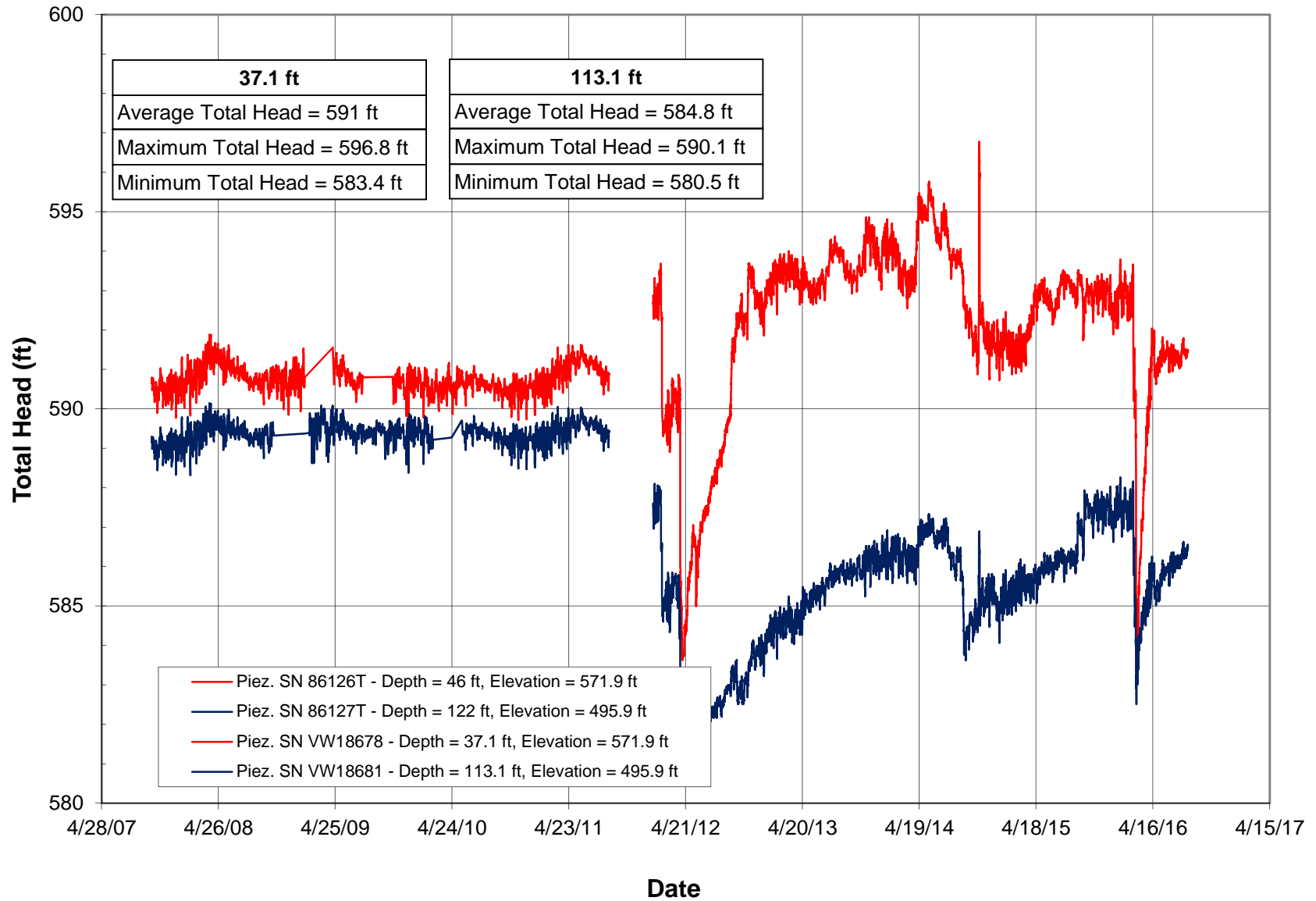
B-105A VW Piezometer Readings

Ground surface elevation = 585.6 ft



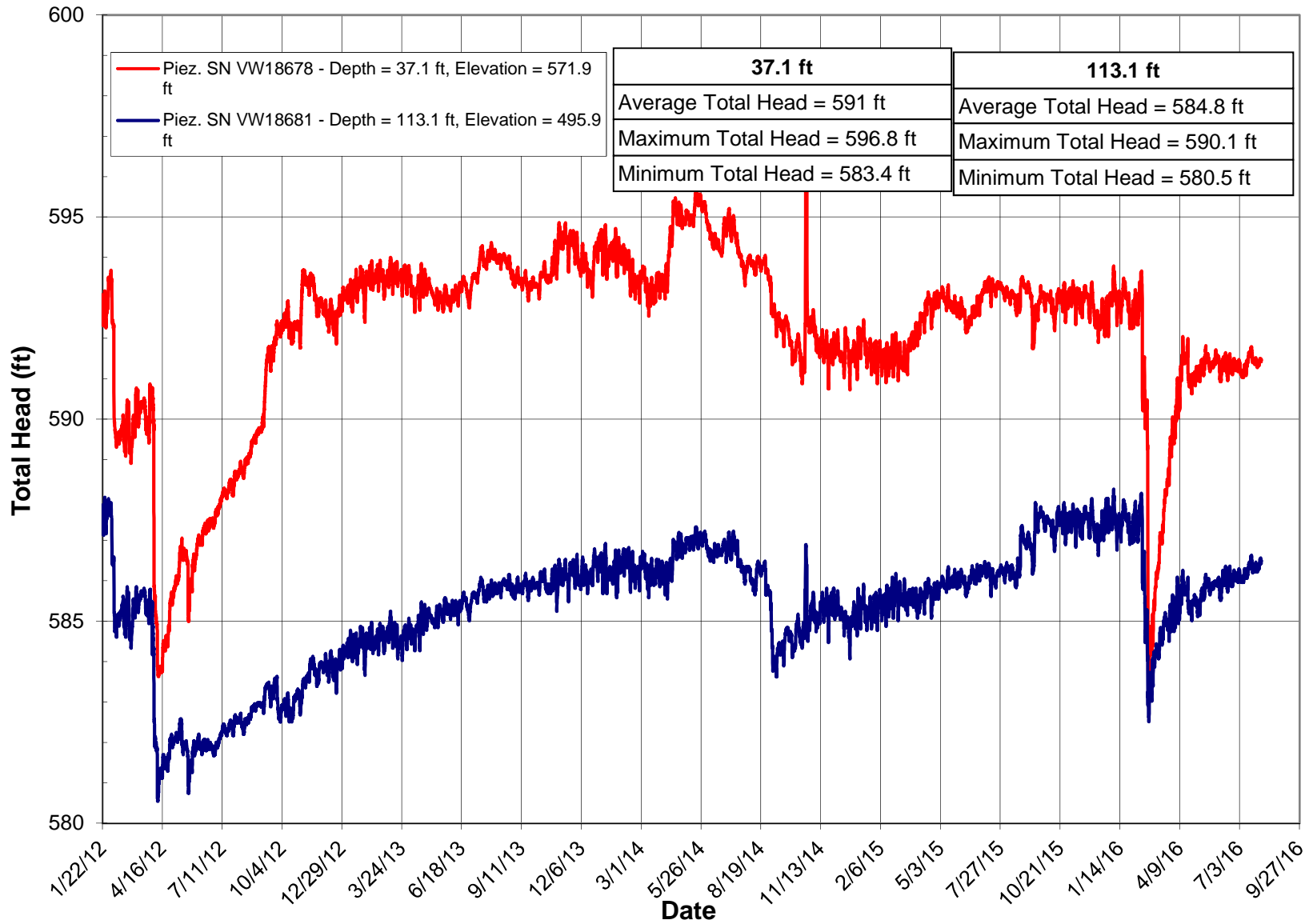
B-05-02 VW Piezometer Readings

Ground surface elevation = approx 609.0 ft



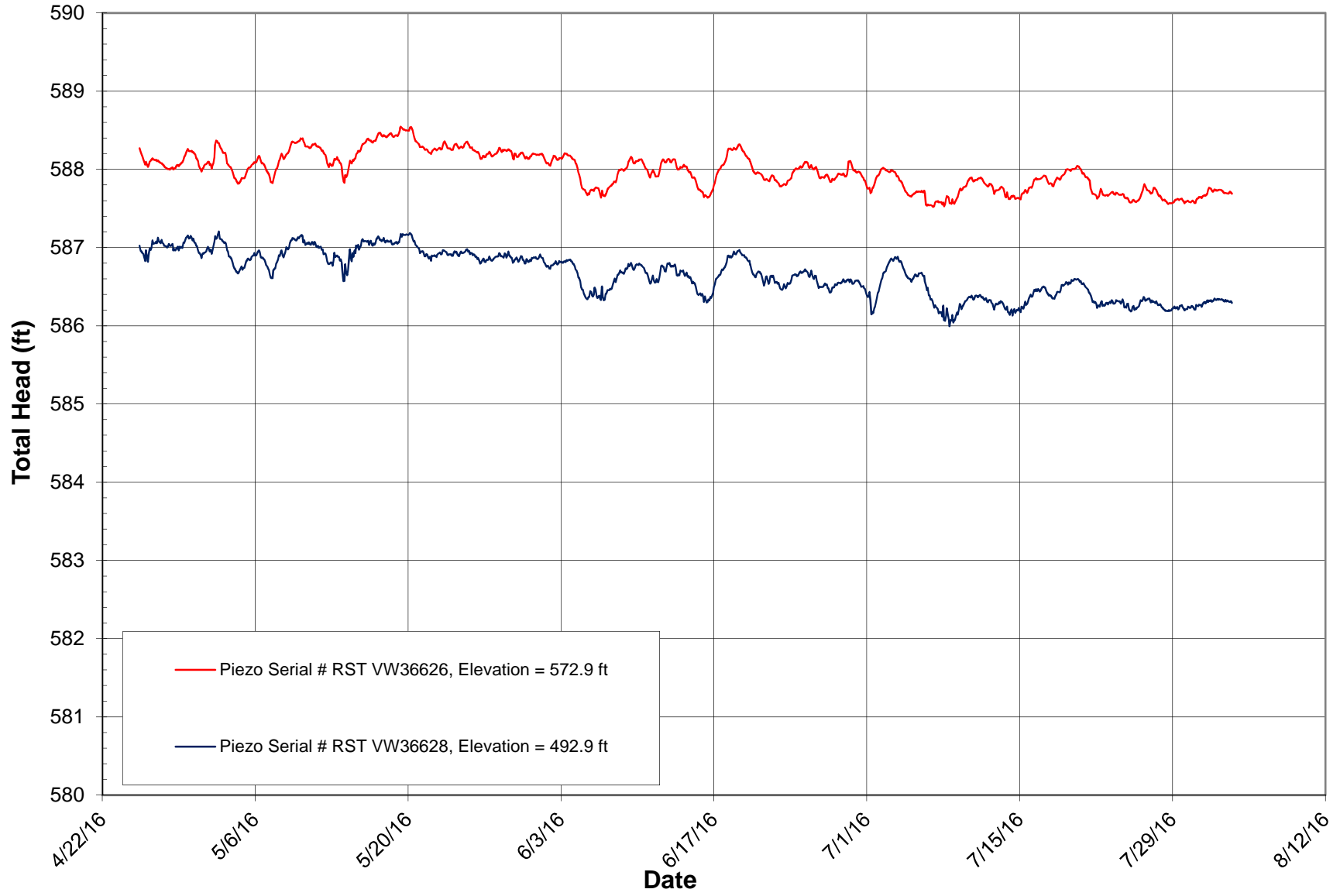
B-05-02 VW Piezometer Readings

Ground surface elevation = approx 609.0 ft



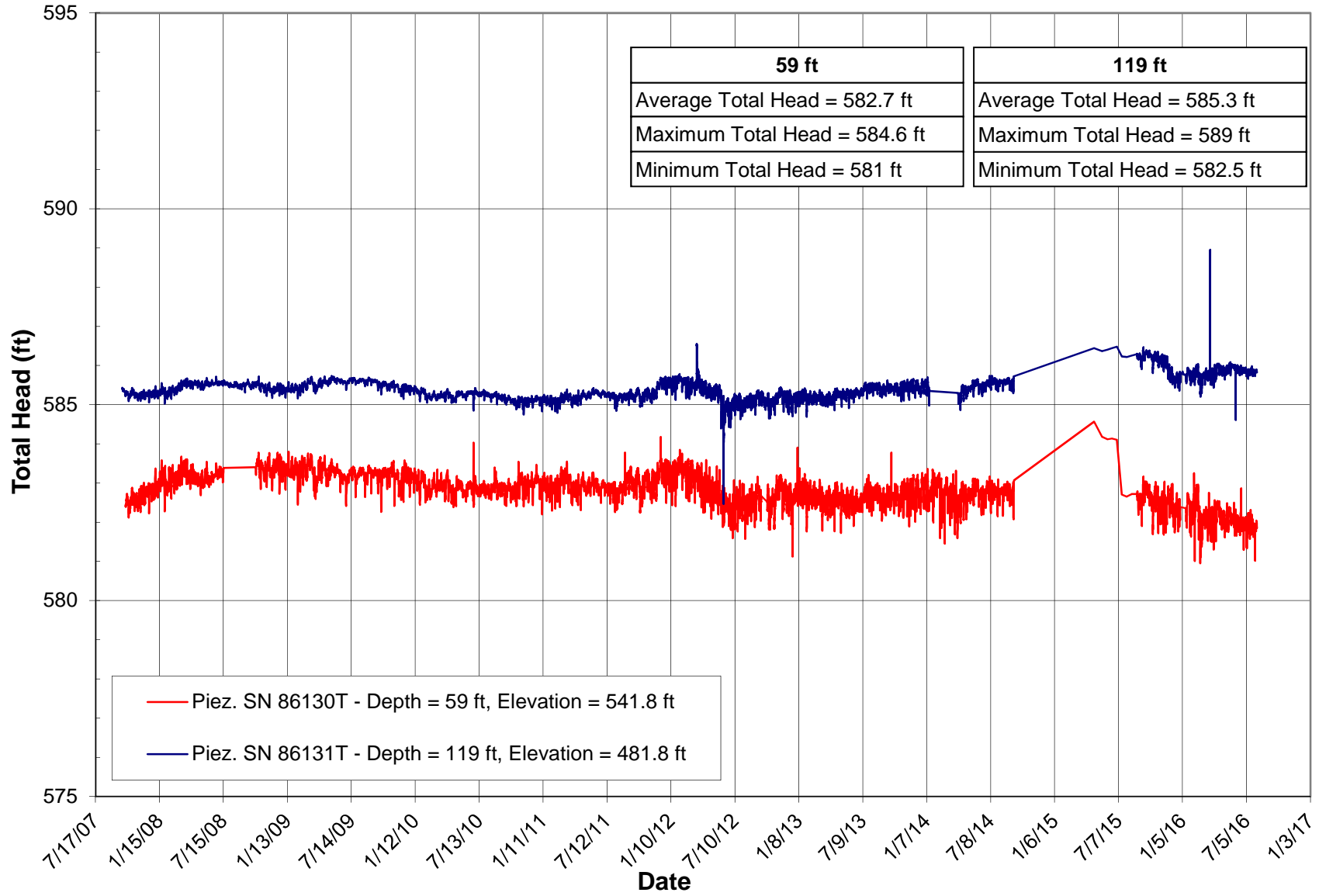
B-05-A-03 VW Piezometer Readings

Ground surface elevation = 599.9 ft



B-05-04 VW Piezometer Readings

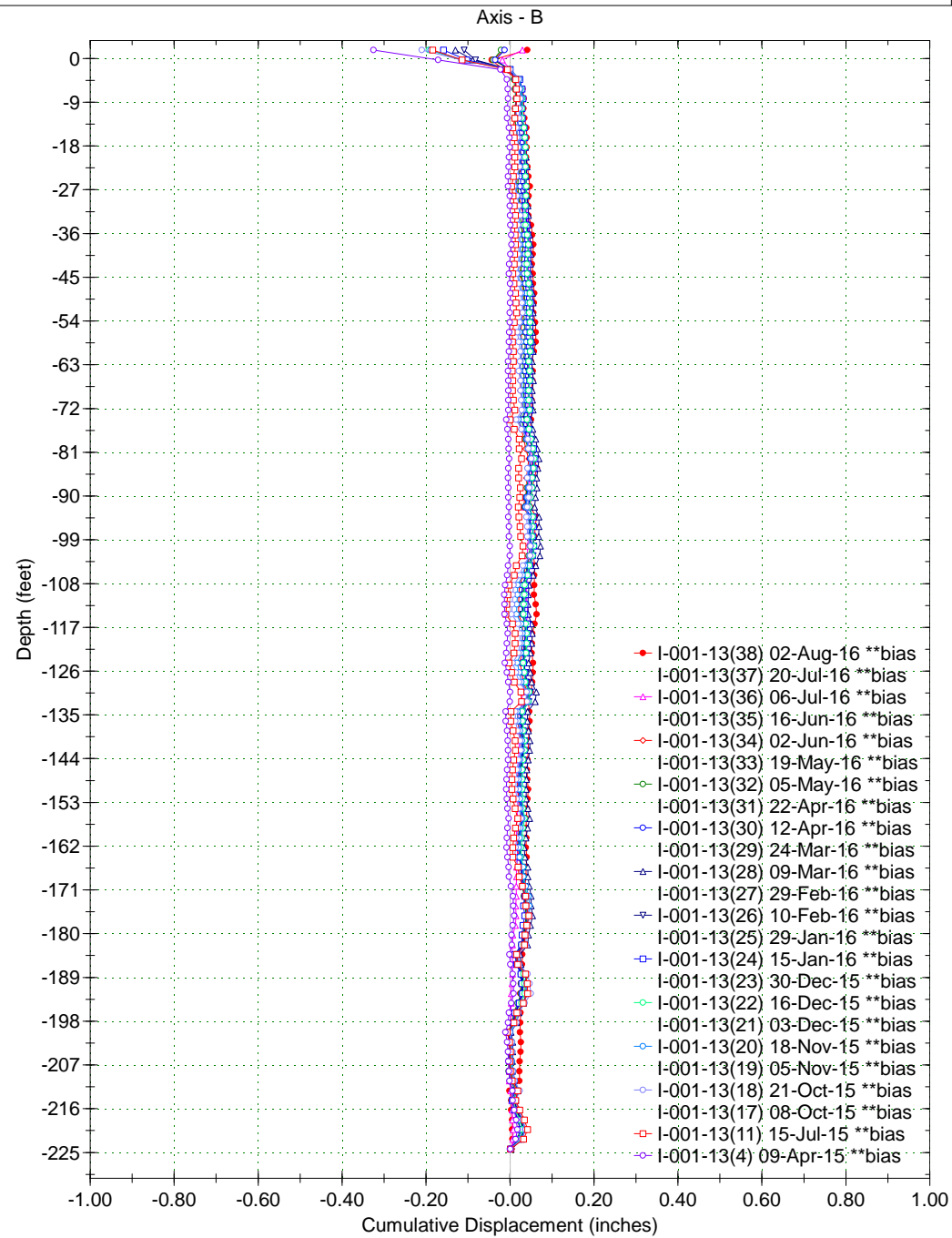
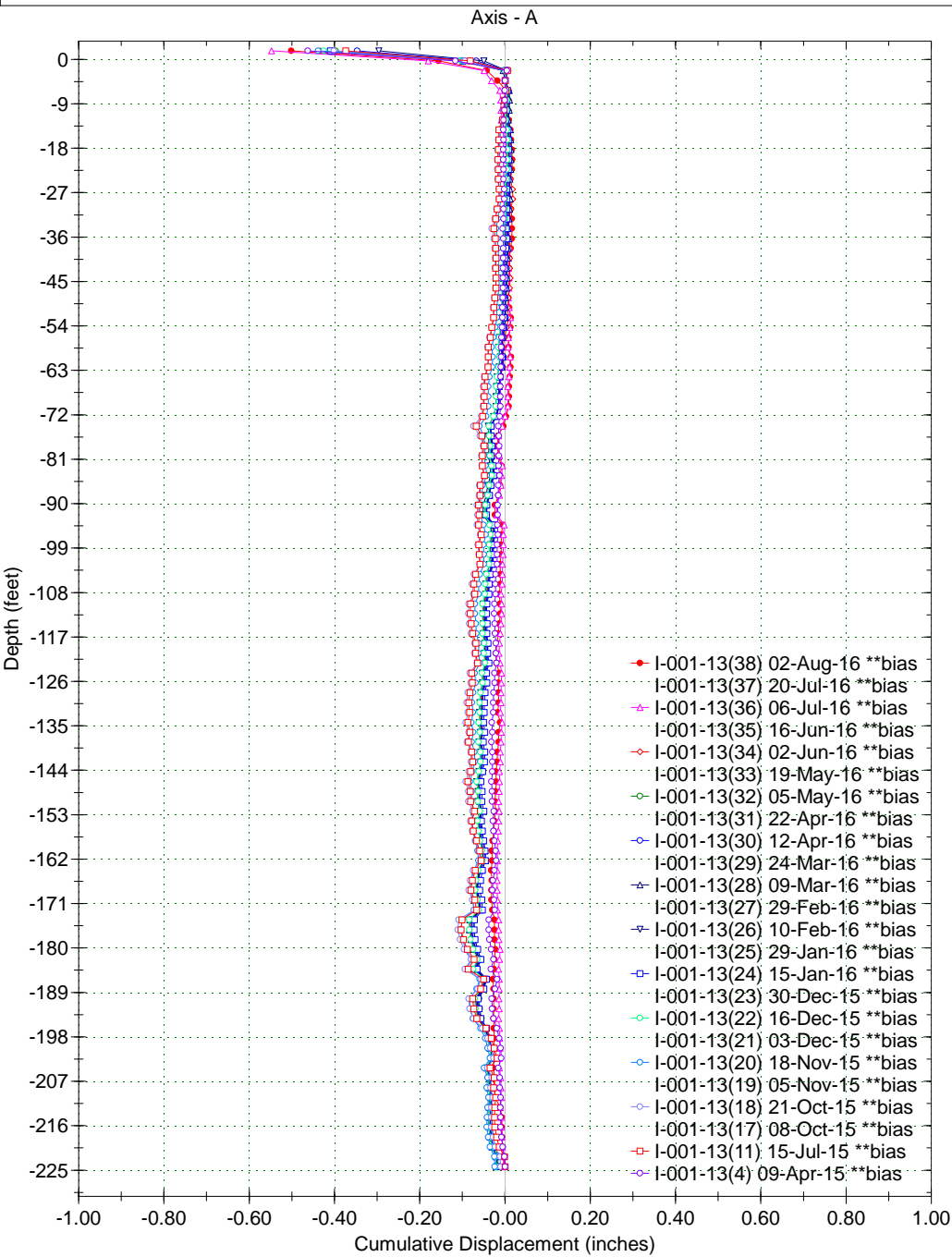
Ground surface elevation = 600.8 ft



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



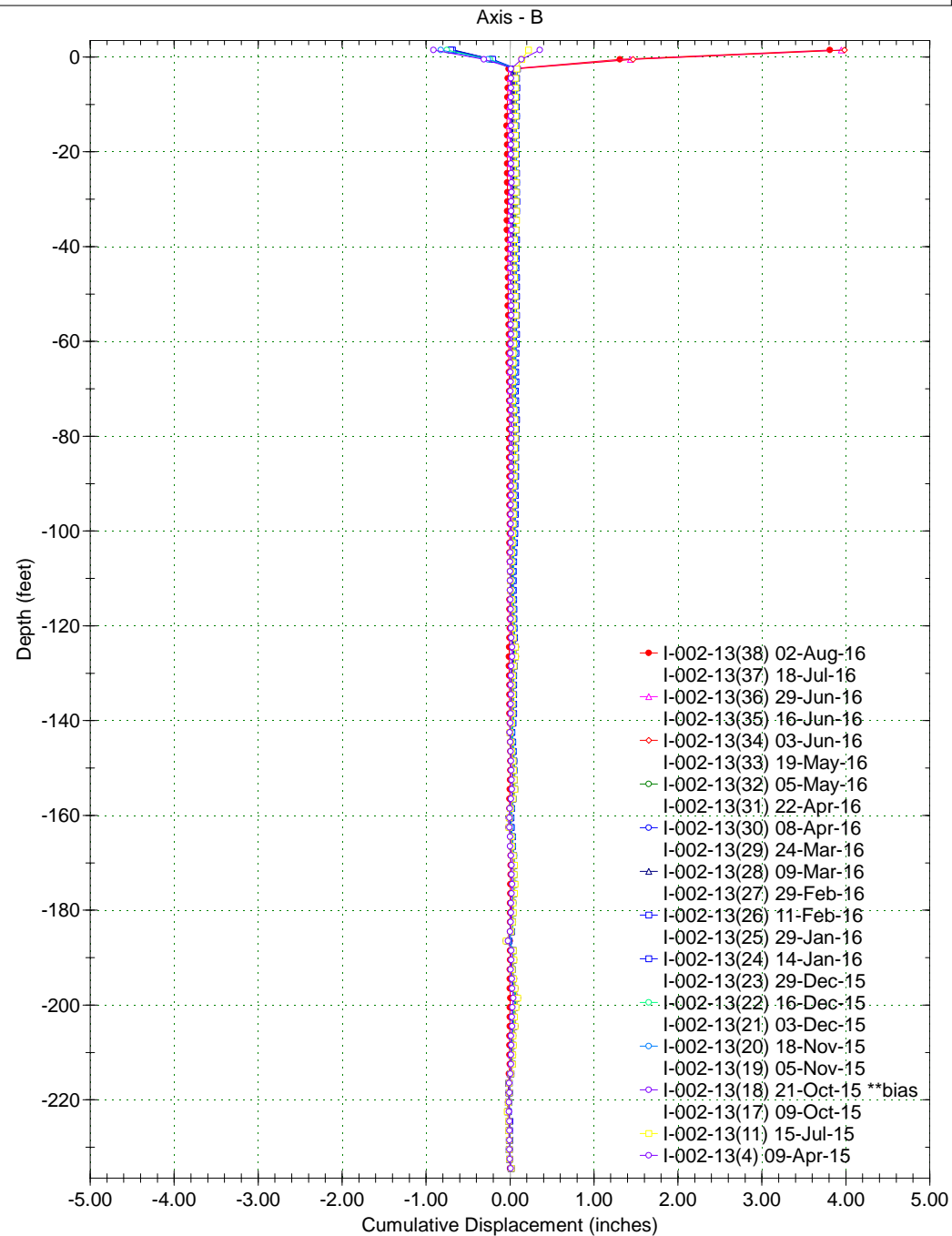
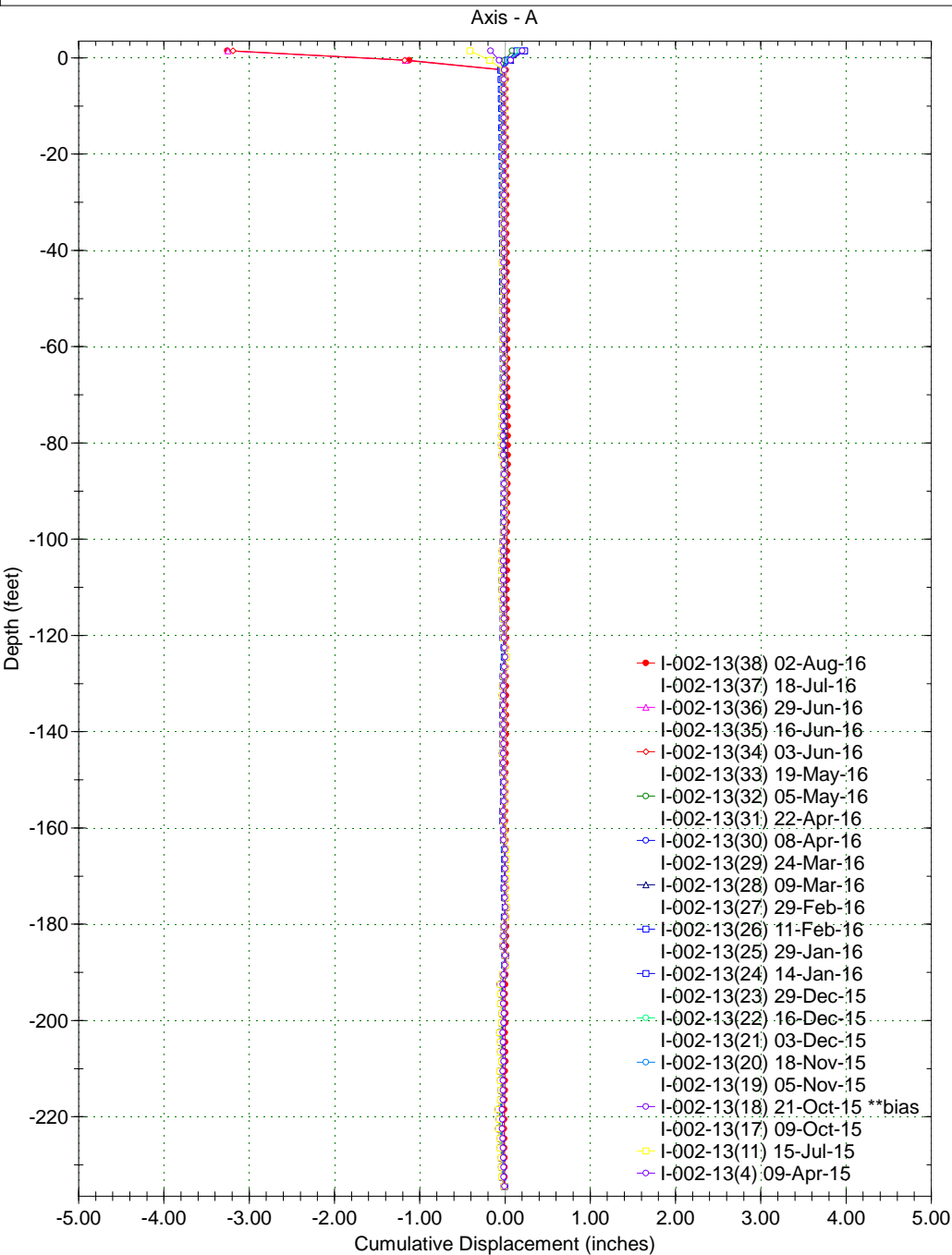
Spiral Correction : N/A
Collar Elevation : 3.7 feet
Borehole Total Depth : 228.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 03 11:14
Applied Azimuth : 0.0 degrees



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

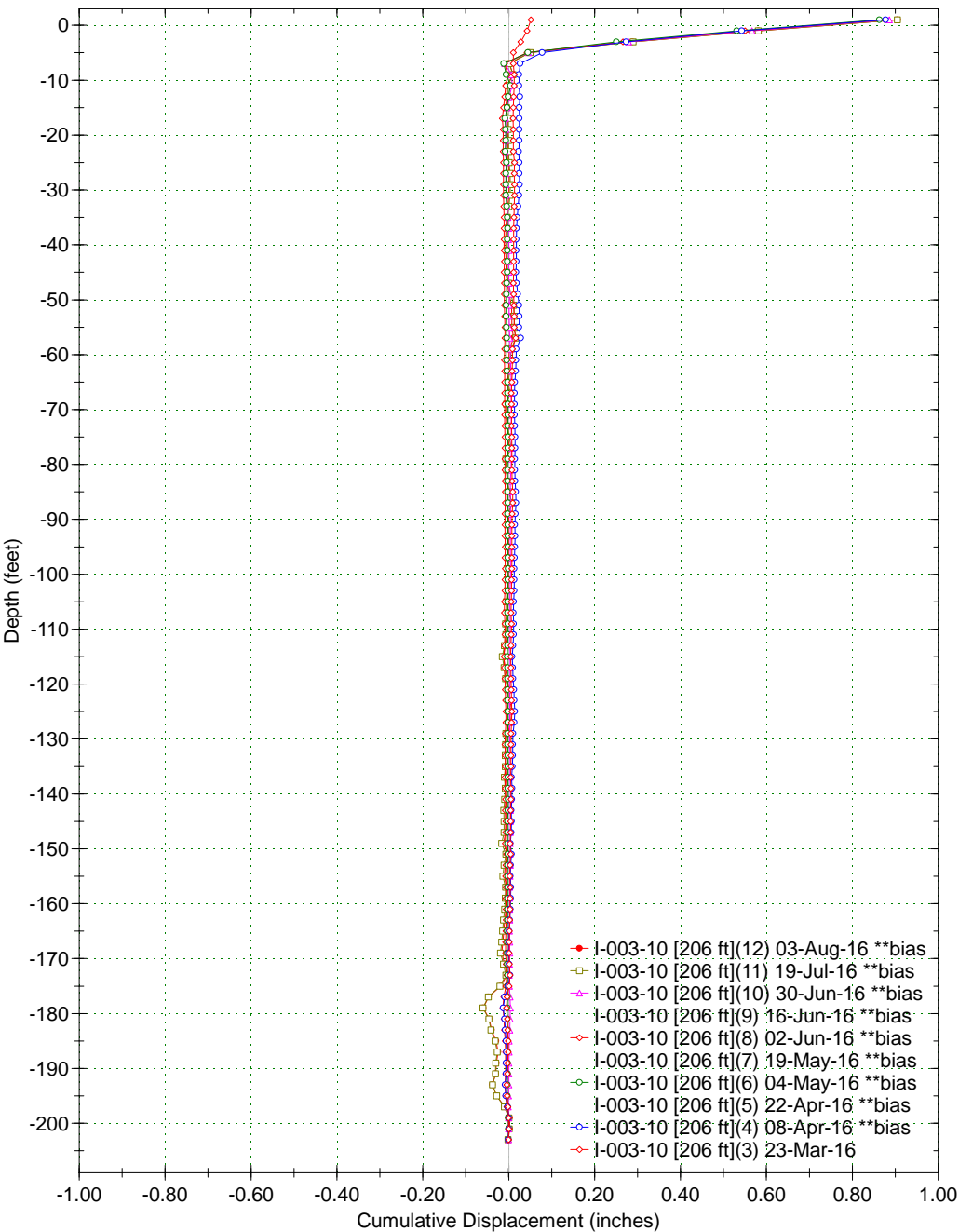


Borehole : I-003-10 [206 ft]
Project : CUY-90-15-24
Location :
Northing :
Easting :
Collar :

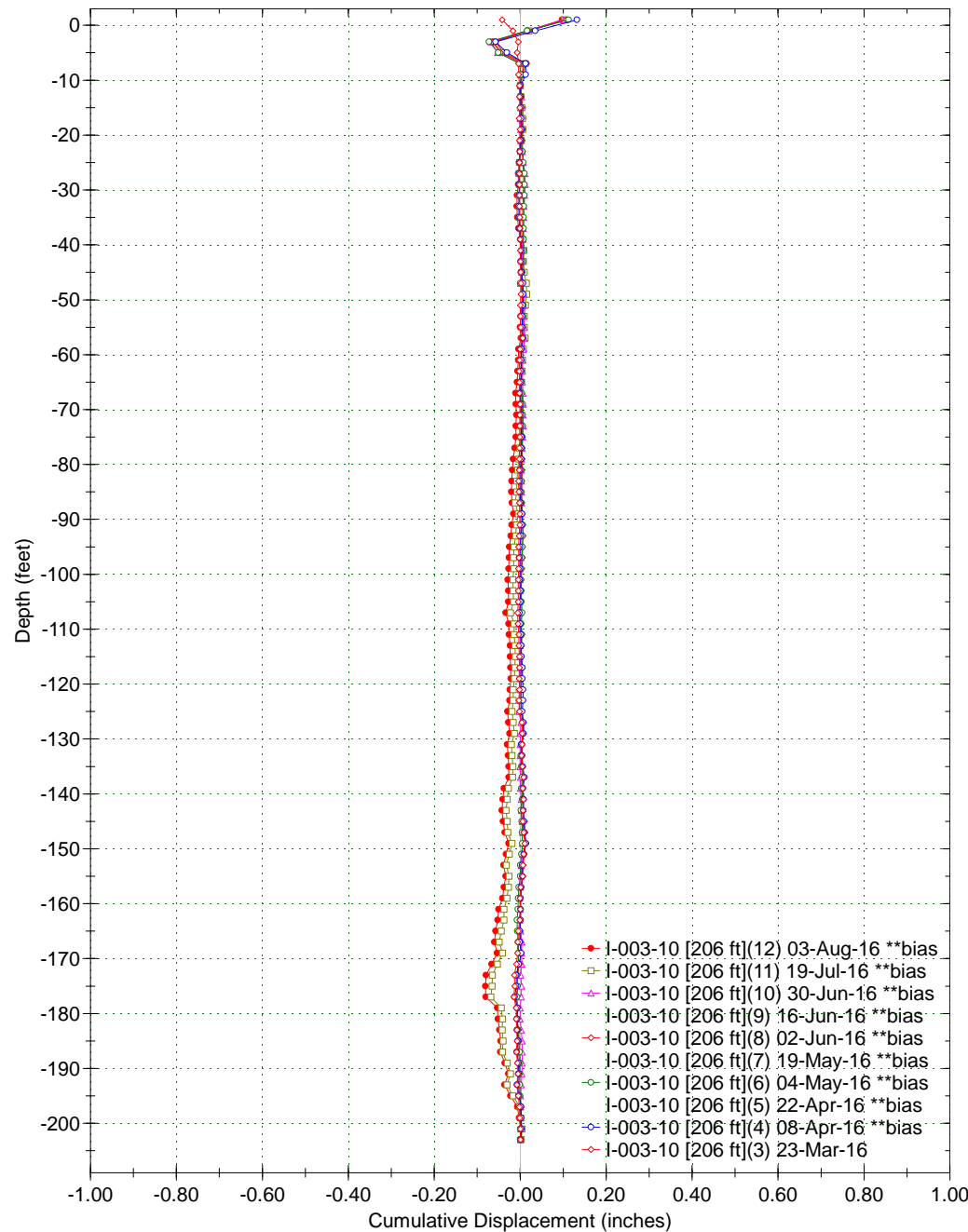


Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 206.0 feet
A+ Groove Azimuth :
Base Reading : 2016 Mar 08 15:42
Applied Azimuth : 0.0 degrees

Axis - A



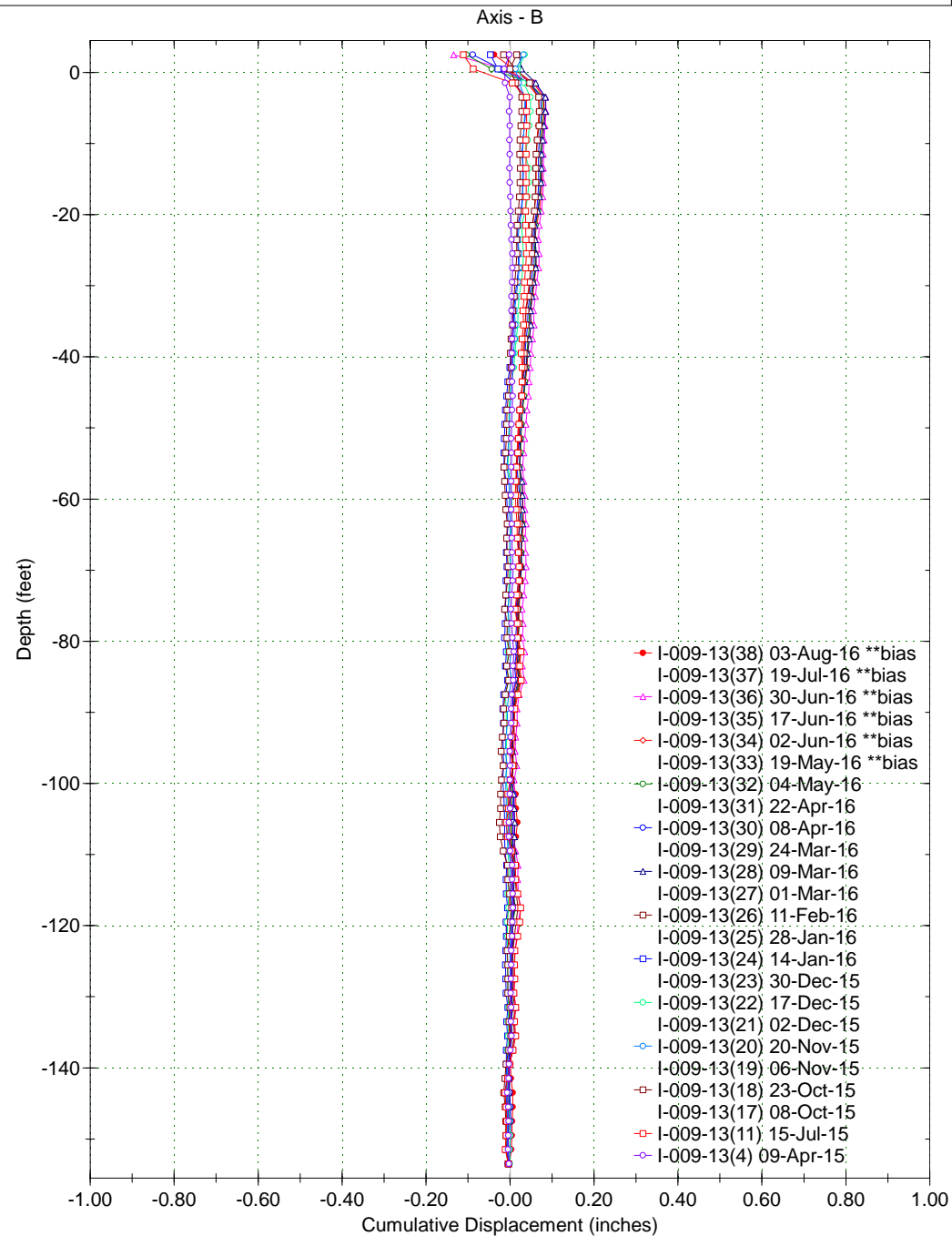
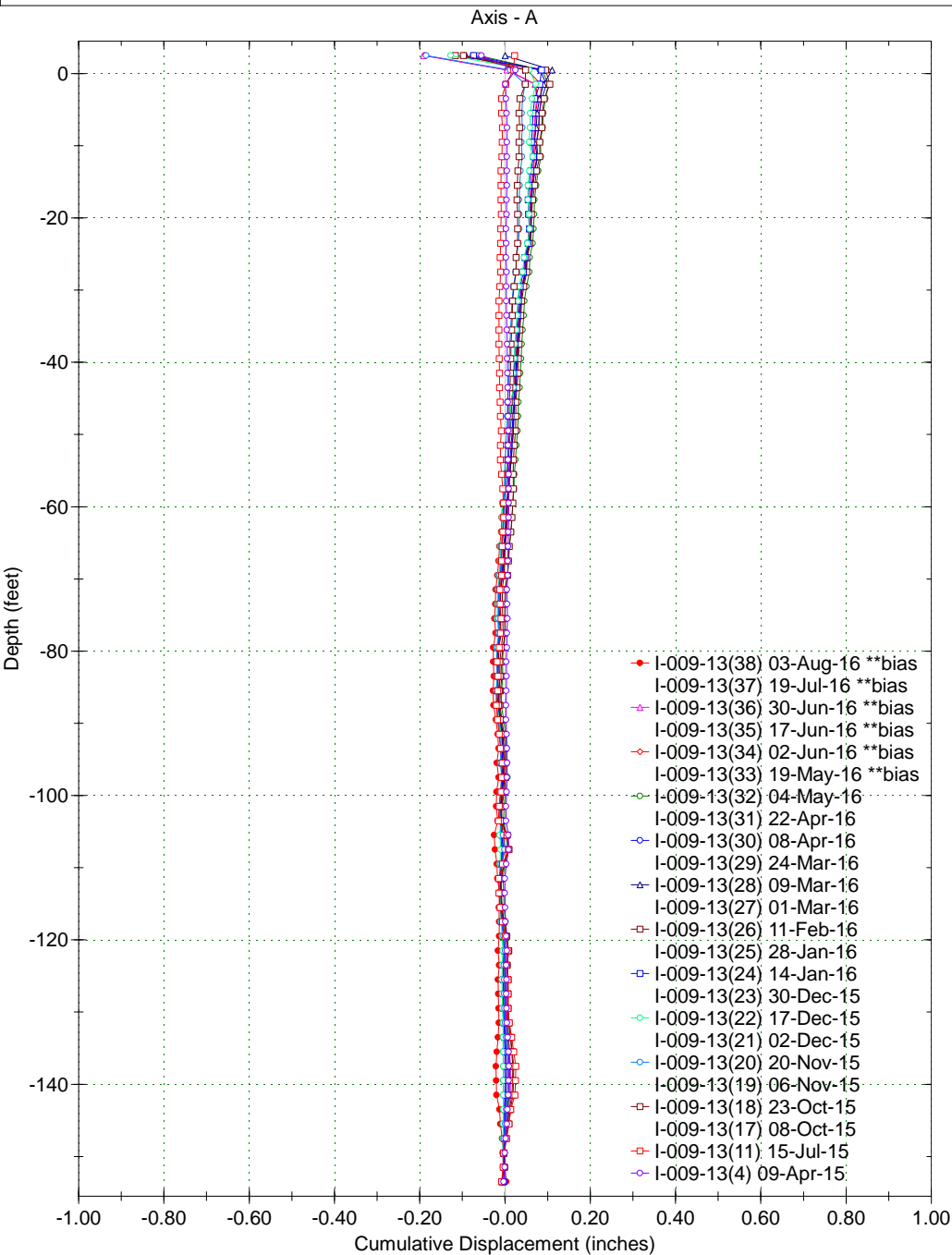
Axis - B



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



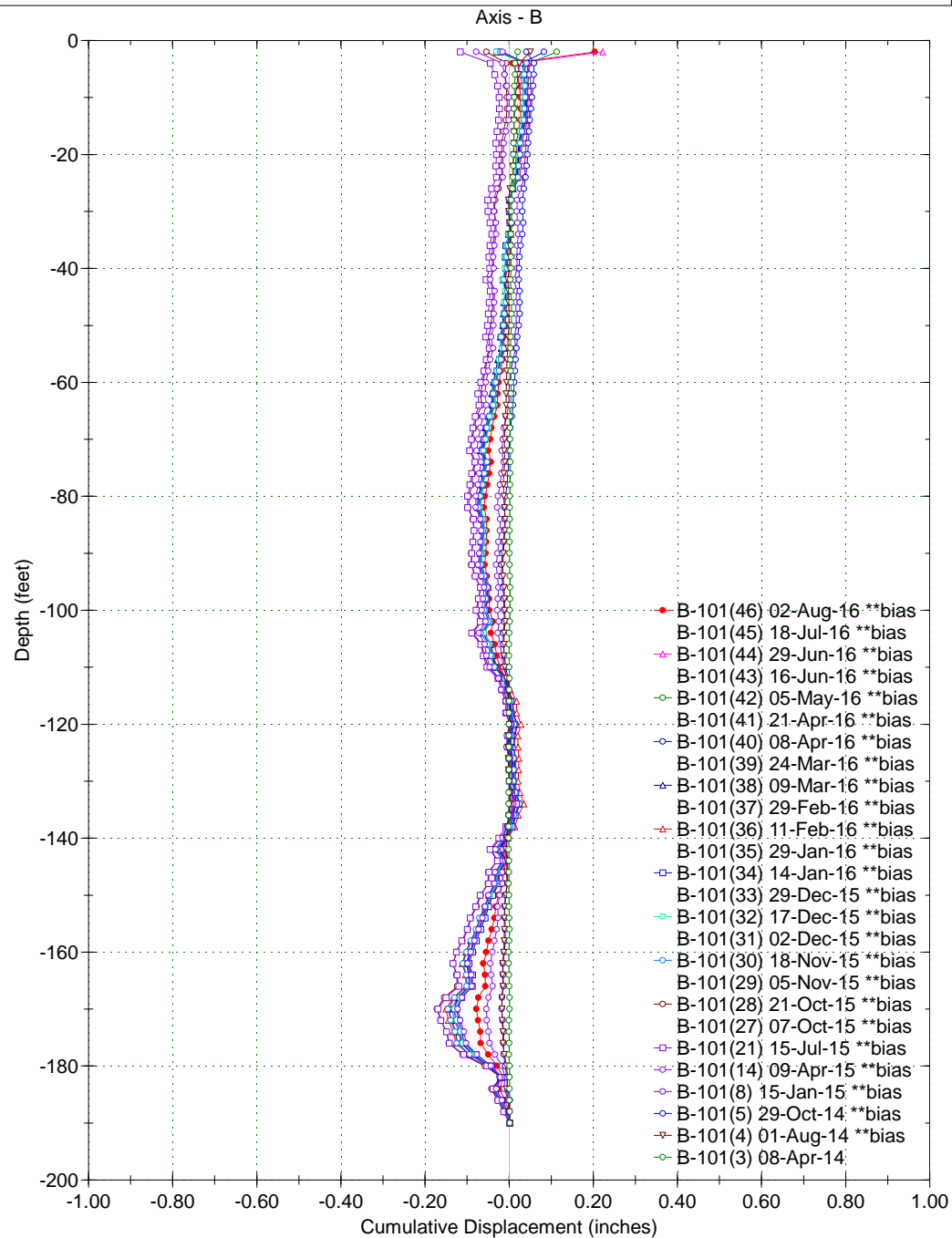
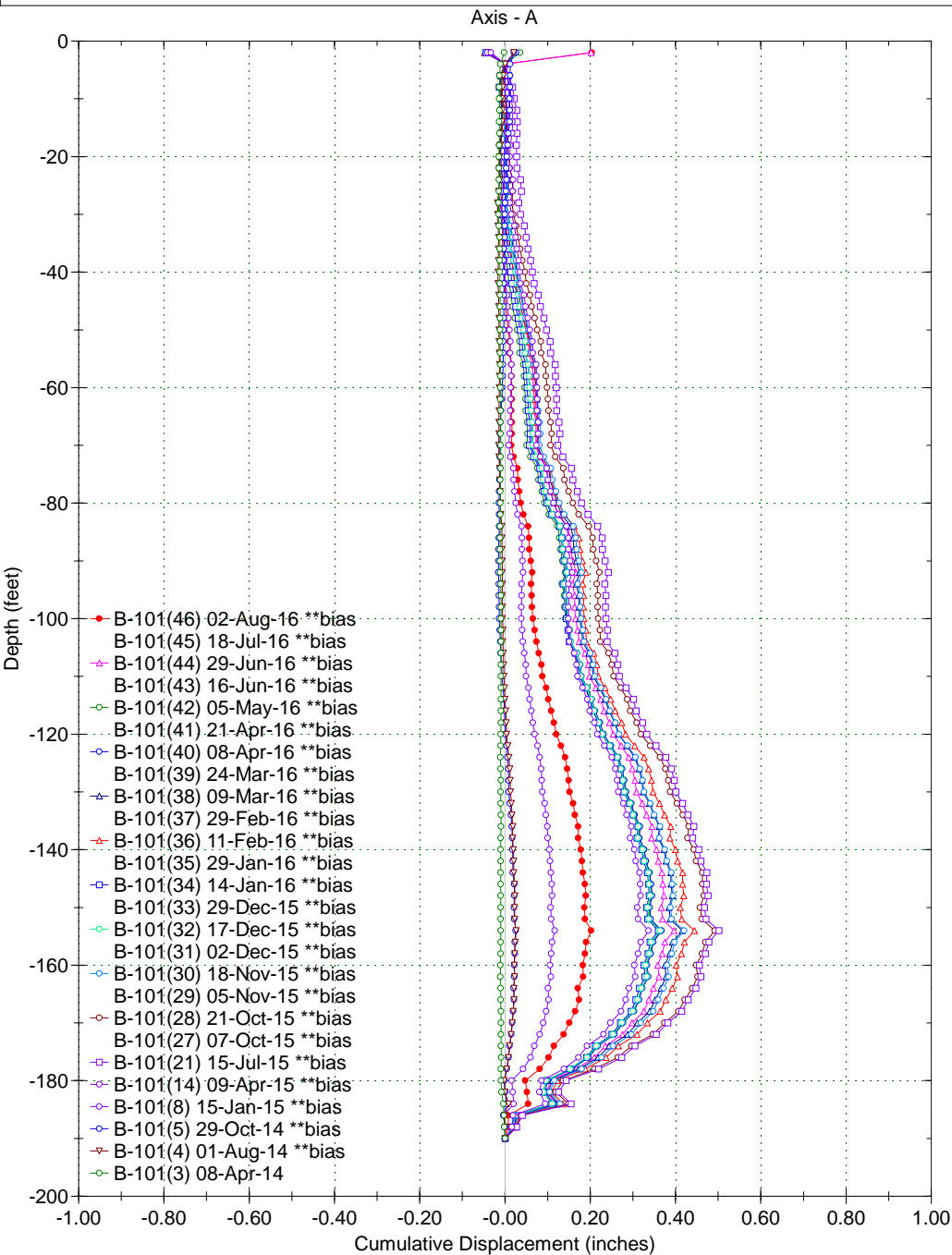
Spiral Correction : N/A
Collar Elevation : 4.5 feet
Borehole Total Depth : 158.0 feet
A+ Groove Azimuth :
Base Reading : 2015 Mar 18 15:56
Applied Azimuth : 0.0 degrees



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



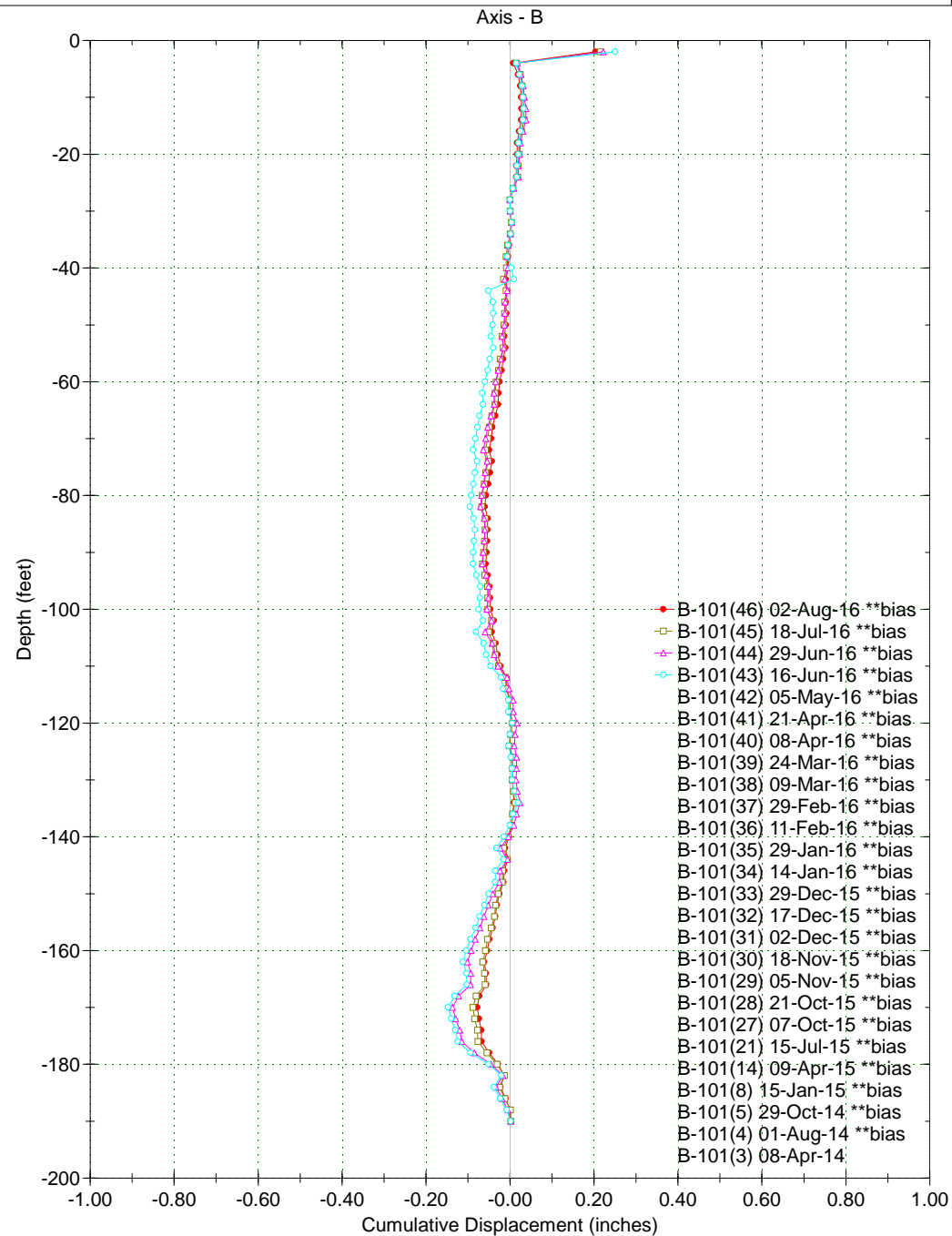
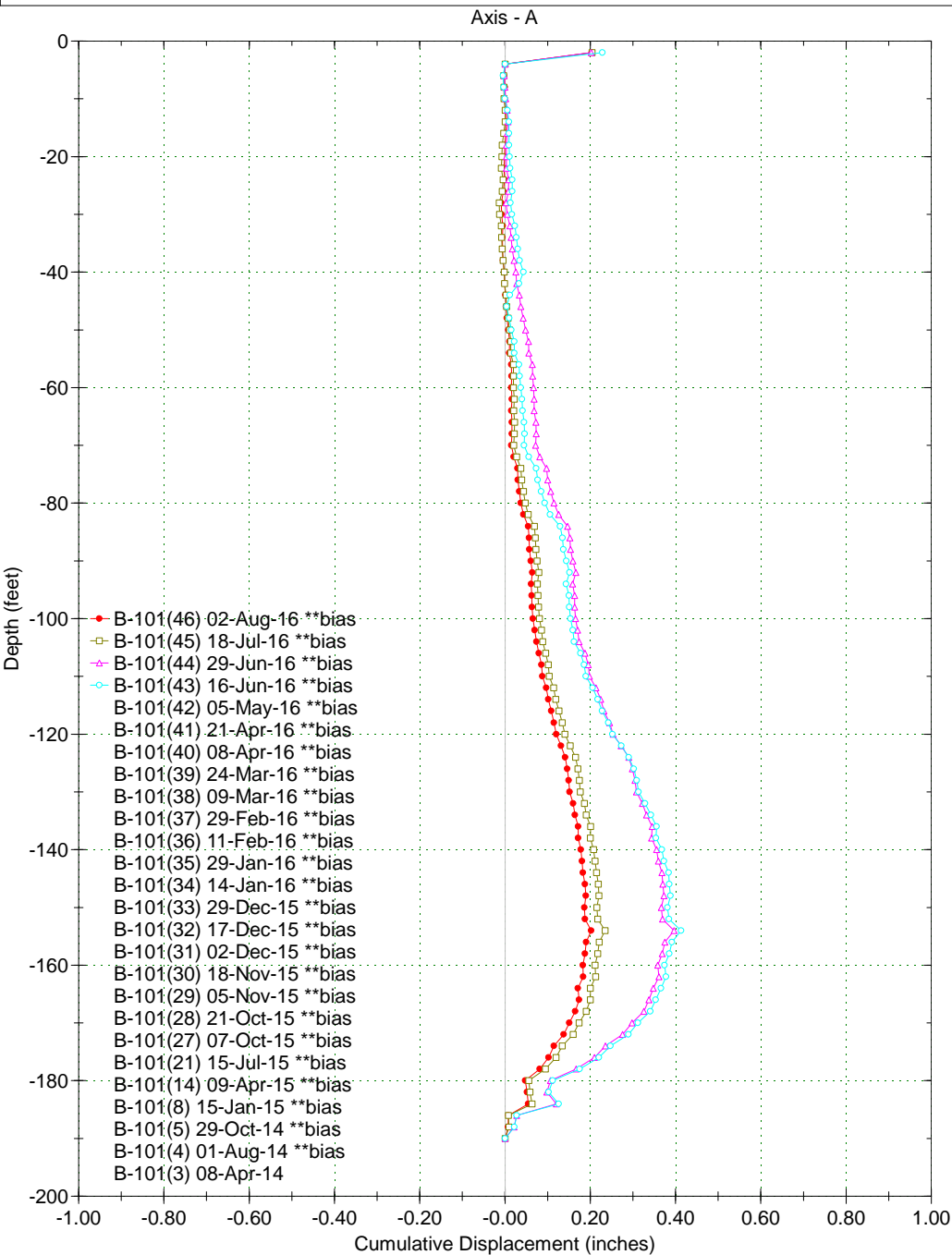
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 190.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 09:01
Applied Azimuth : 0.0 degrees



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



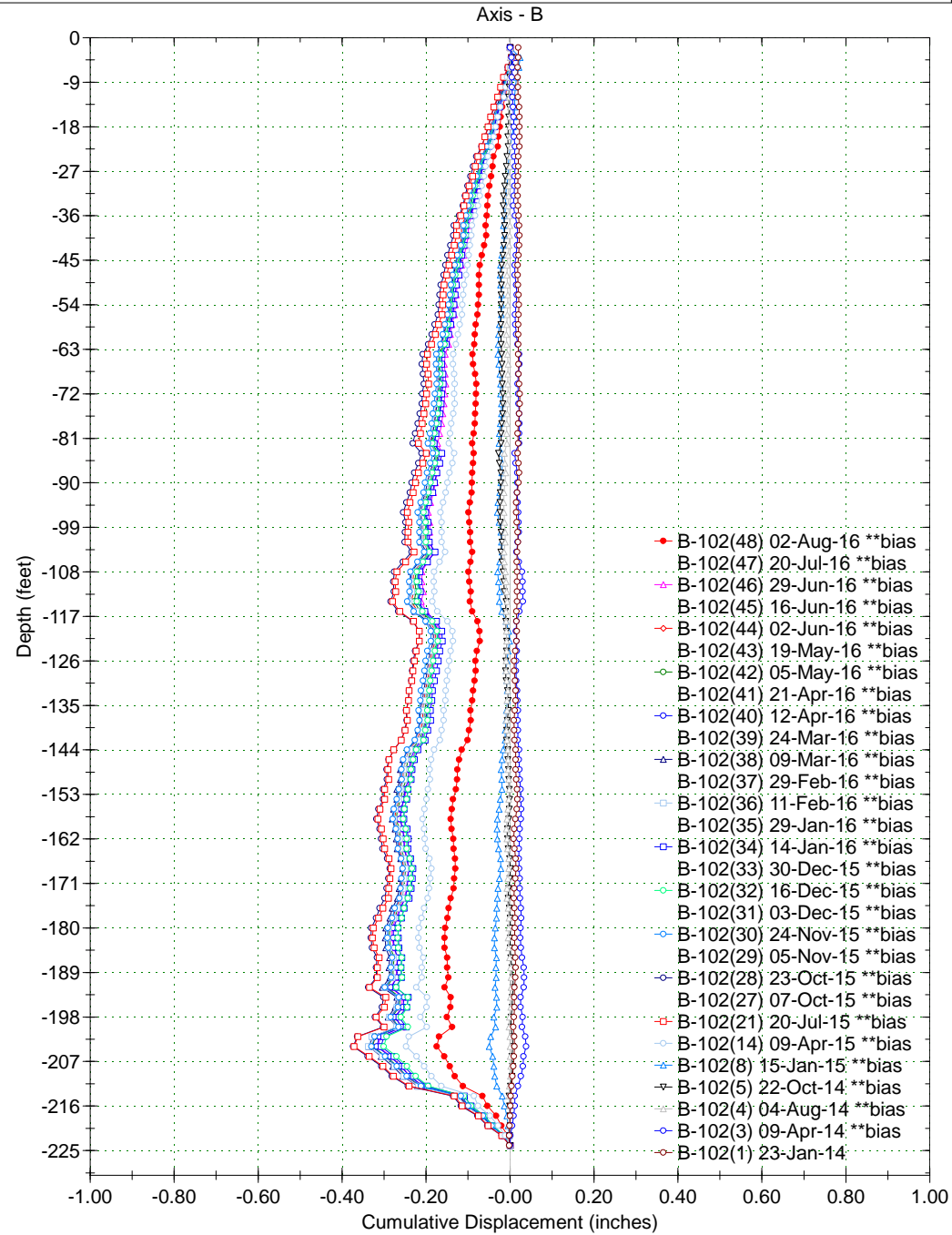
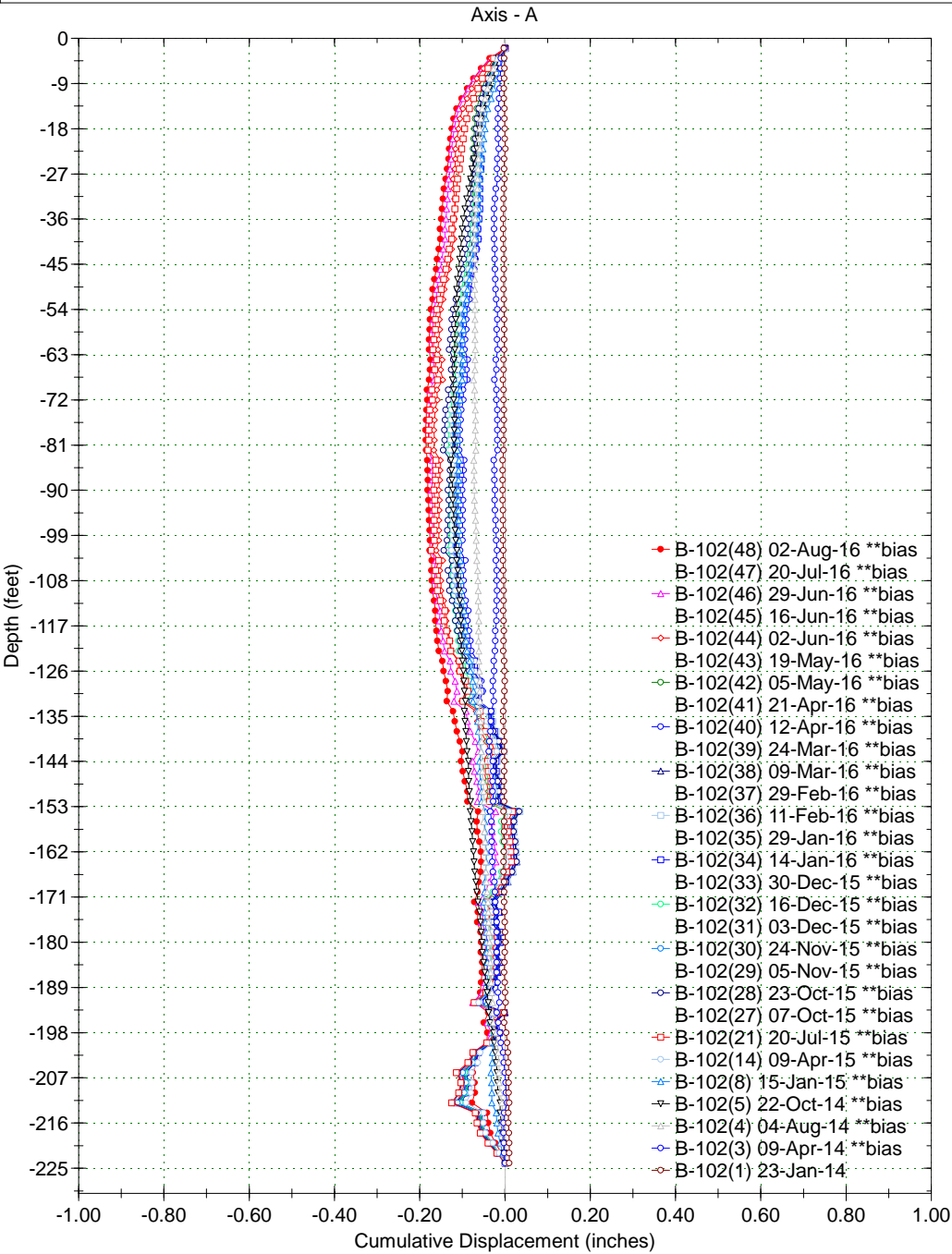
Spiral Correction : N/A
Collar Elevation : 0.0 feet
Borehole Total Depth : 190.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 09:01
Applied Azimuth : 0.0 degrees



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



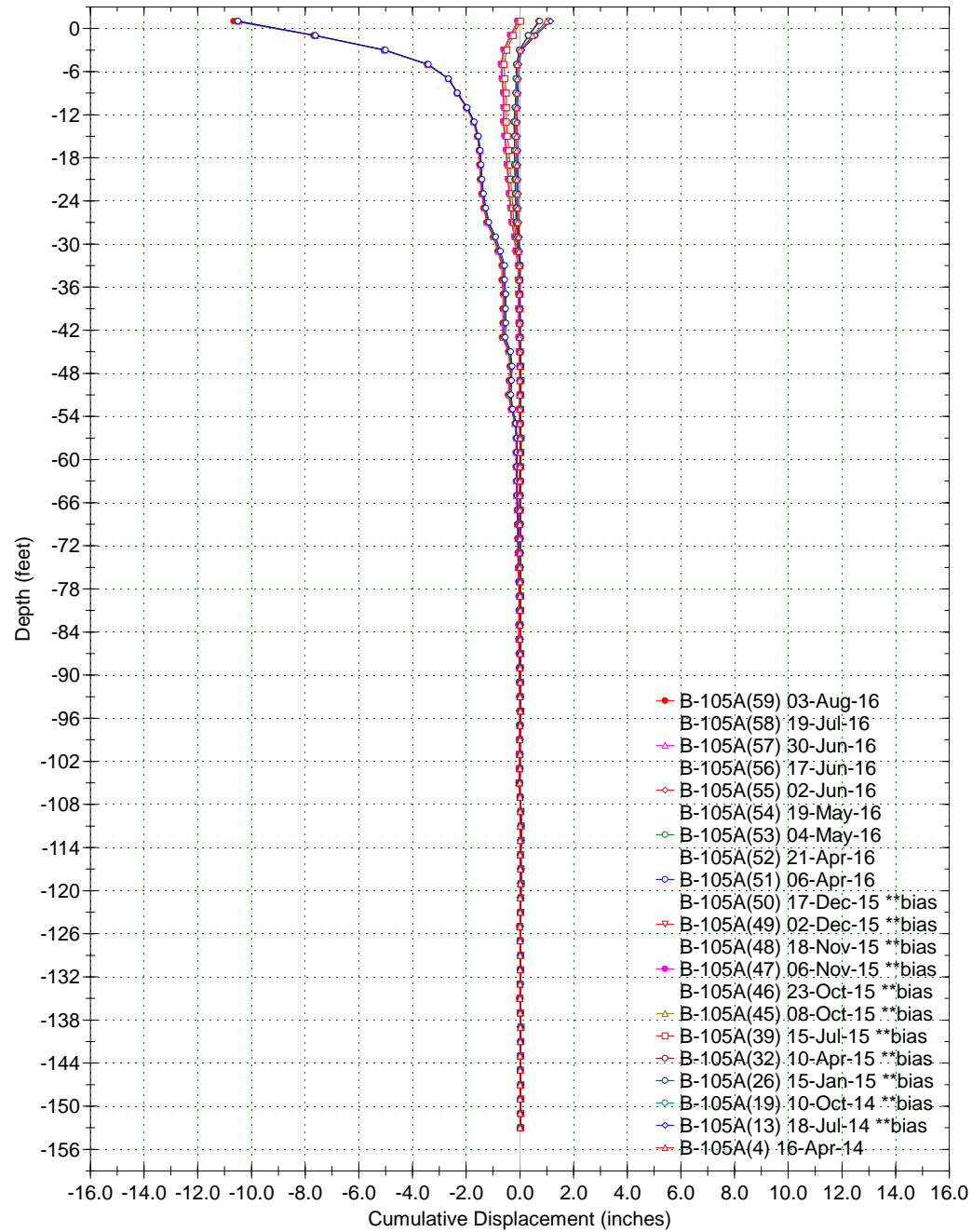
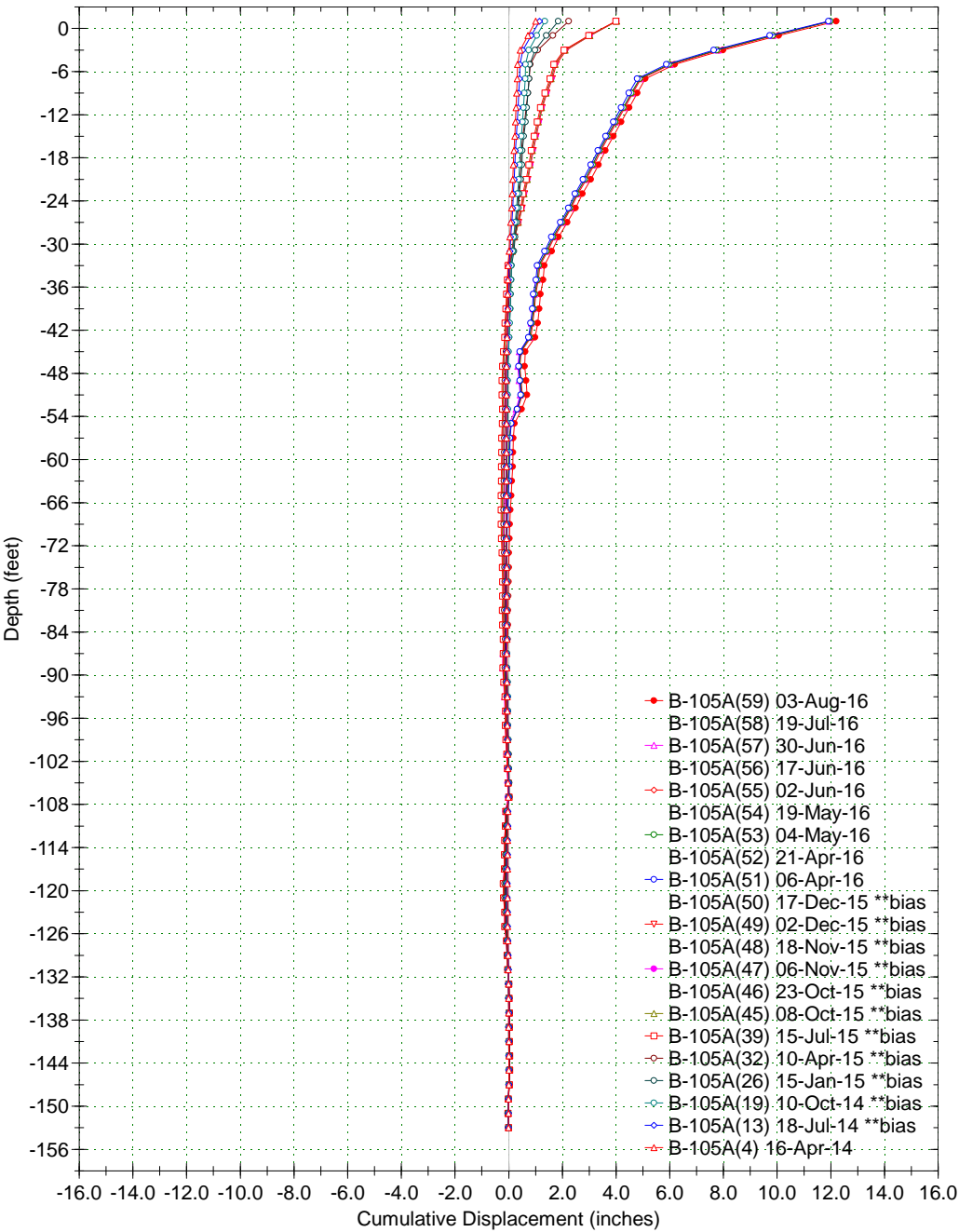
Borehole : B-105A
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing : Sta. 19+11.38
 Easting : 90.9' Rt of CL
 Collar :



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

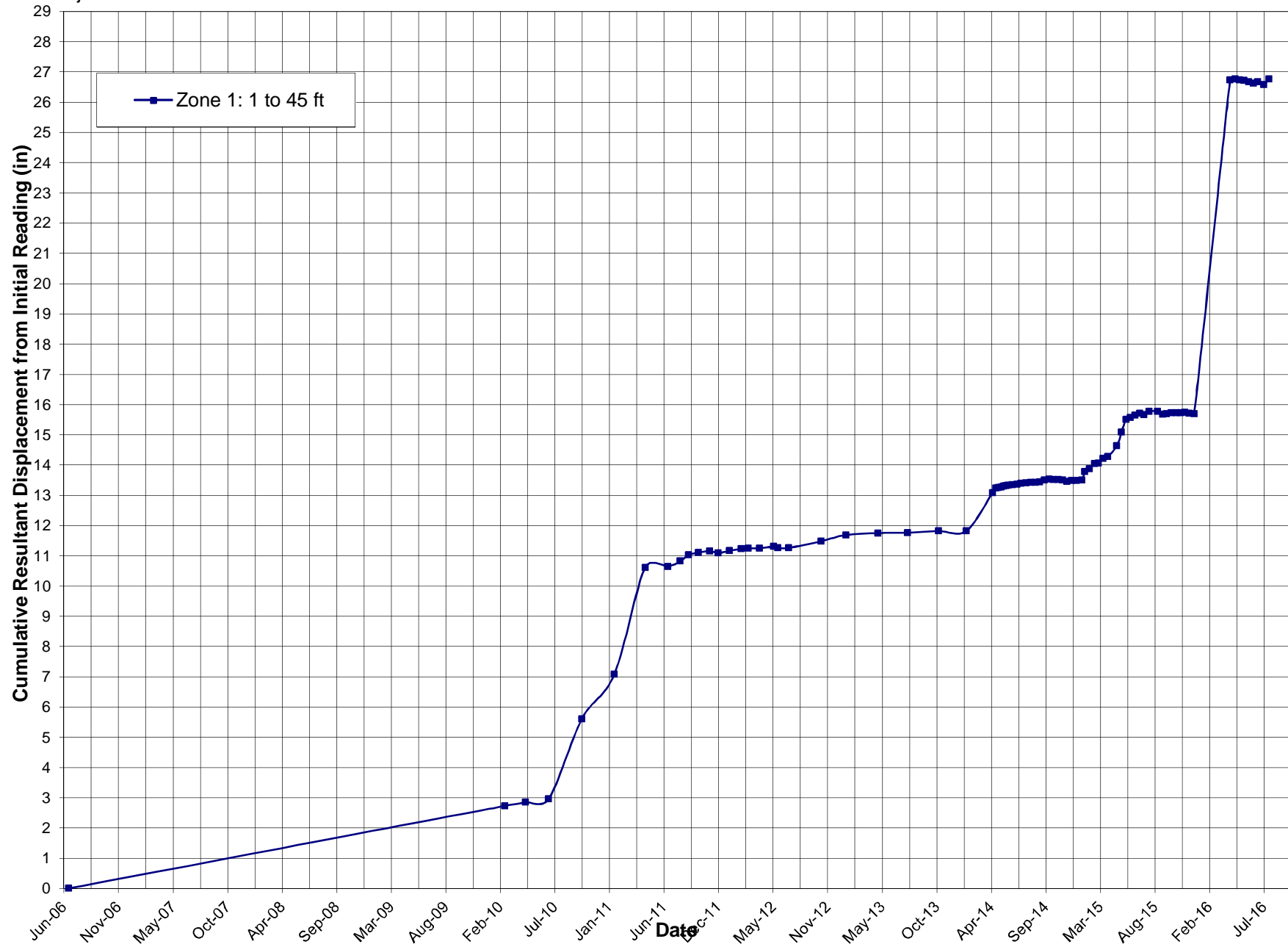
Axis - A

Axis - B



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

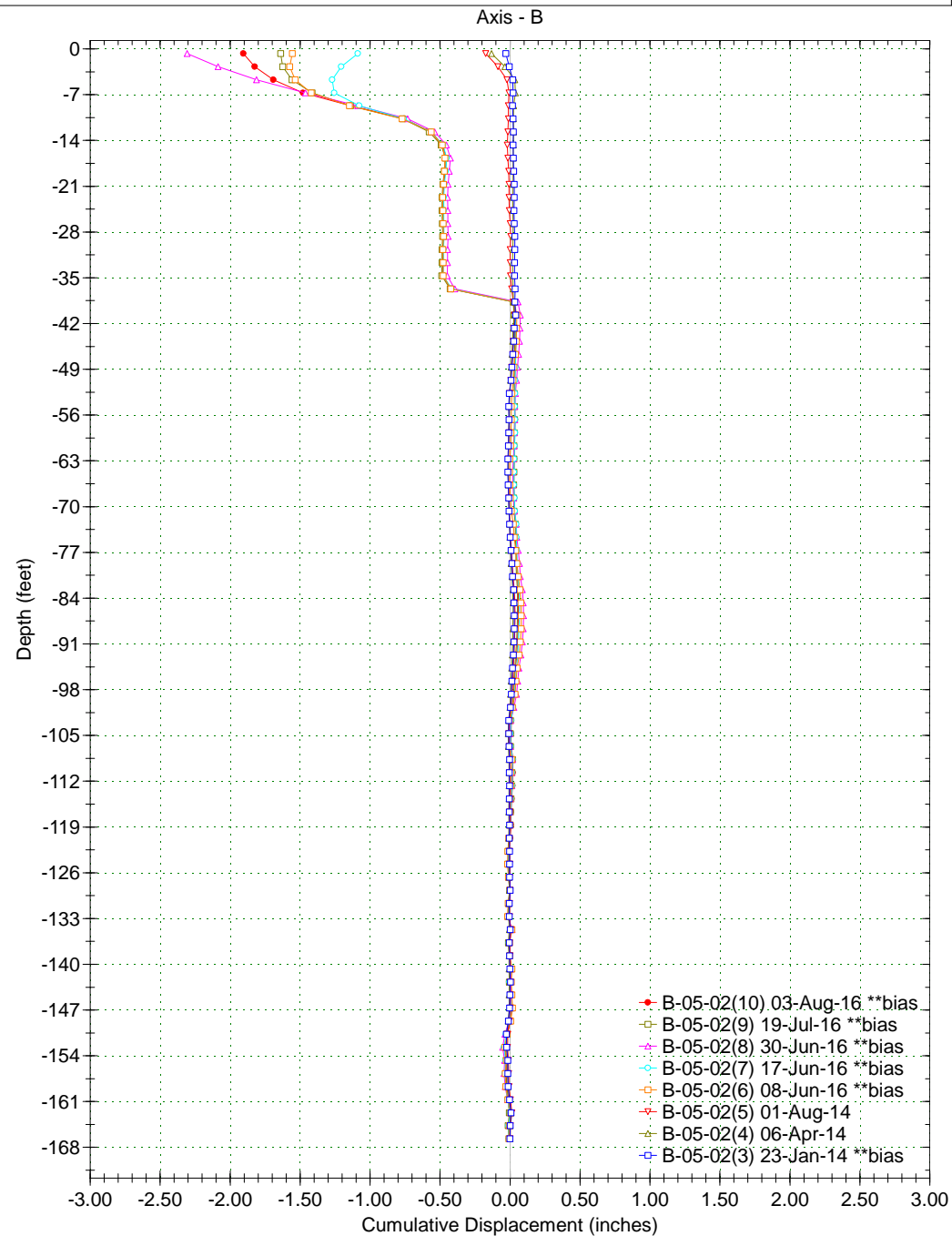
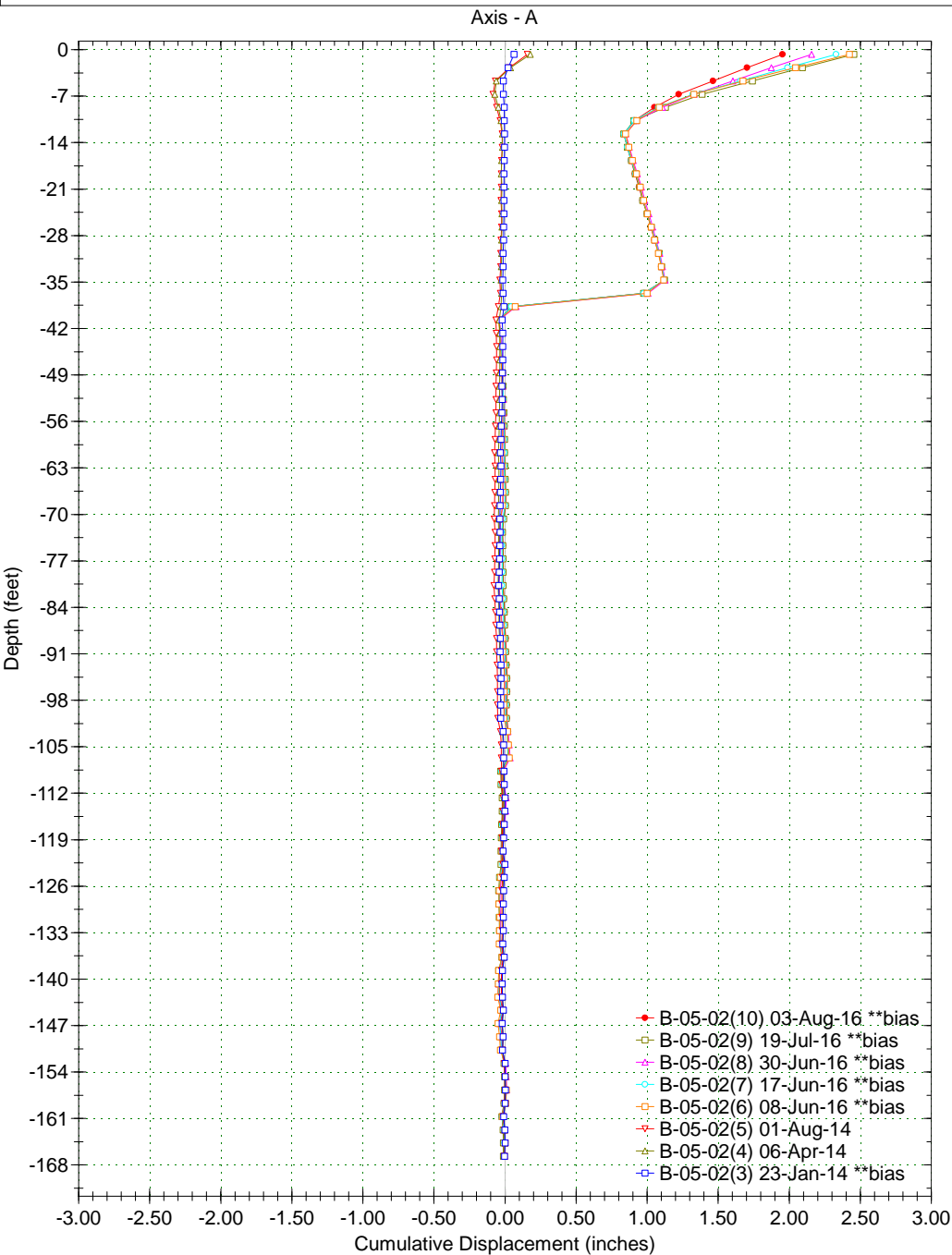
B-105A



Borehole : B-05-02A
Project : CUY-90-15-24
Location : Cleveland, Ohio
Northing : 663737.939
Easting : 2190289.081
Collar :

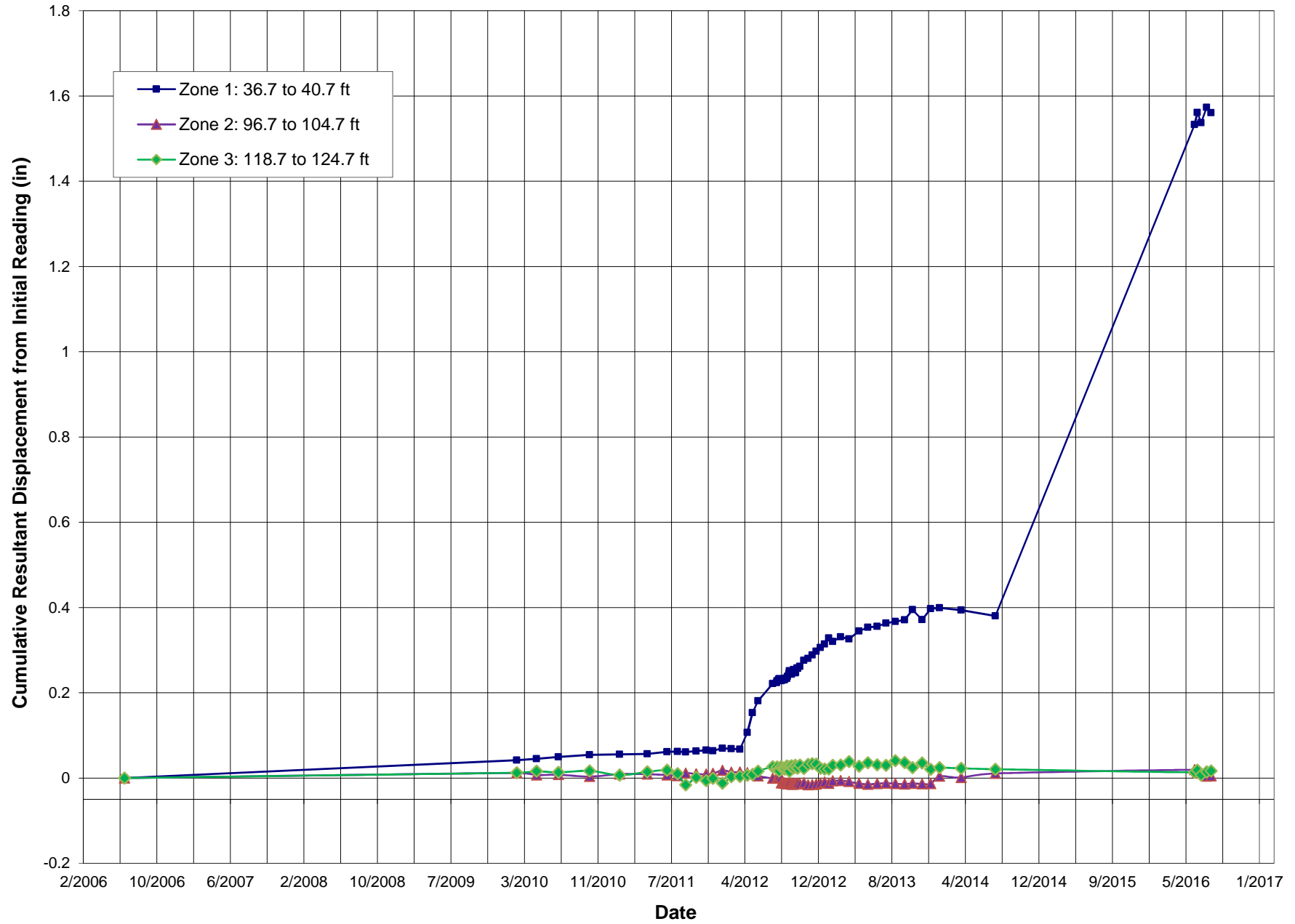


Spiral Correction : N/A
Collar Elevation : 1.3 feet
Borehole Total Depth : 168.0 feet
A+ Groove Azimuth :
Base Reading : 2013 Dec 24 11:12
Applied Azimuth : 0.0 degrees



CUY-90-15.24
PID 63504
SME Project#: 069032.00

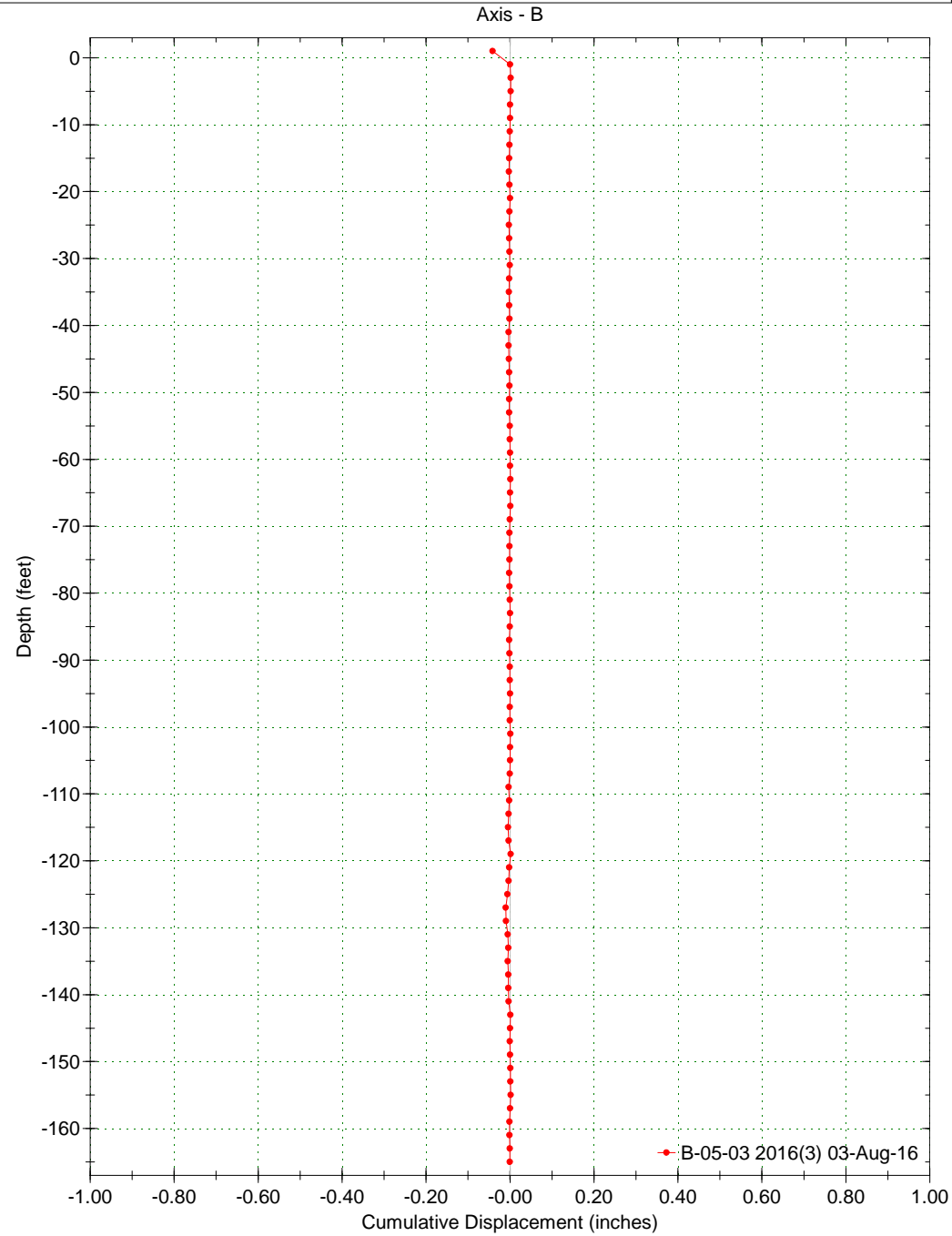
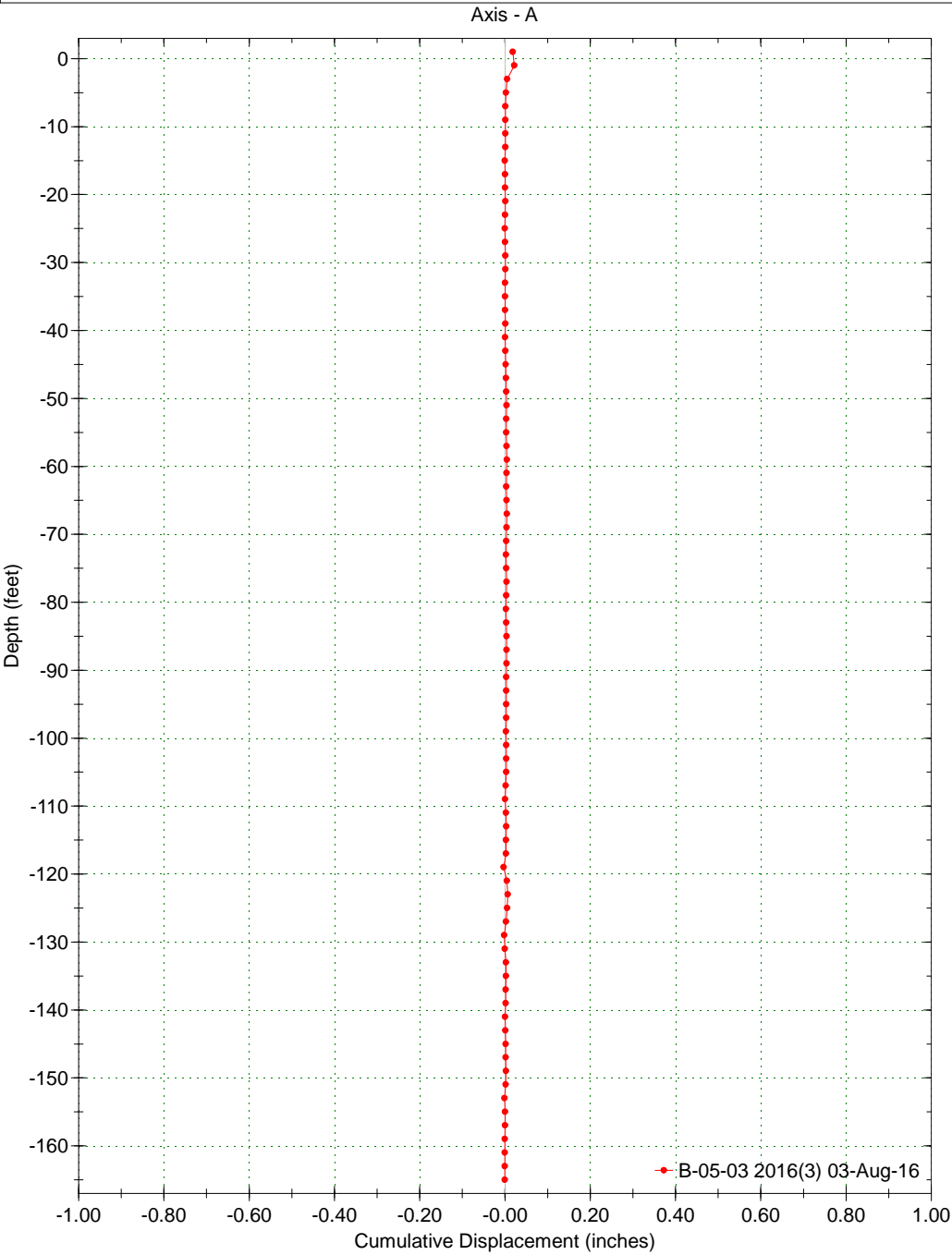
B-05-02



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



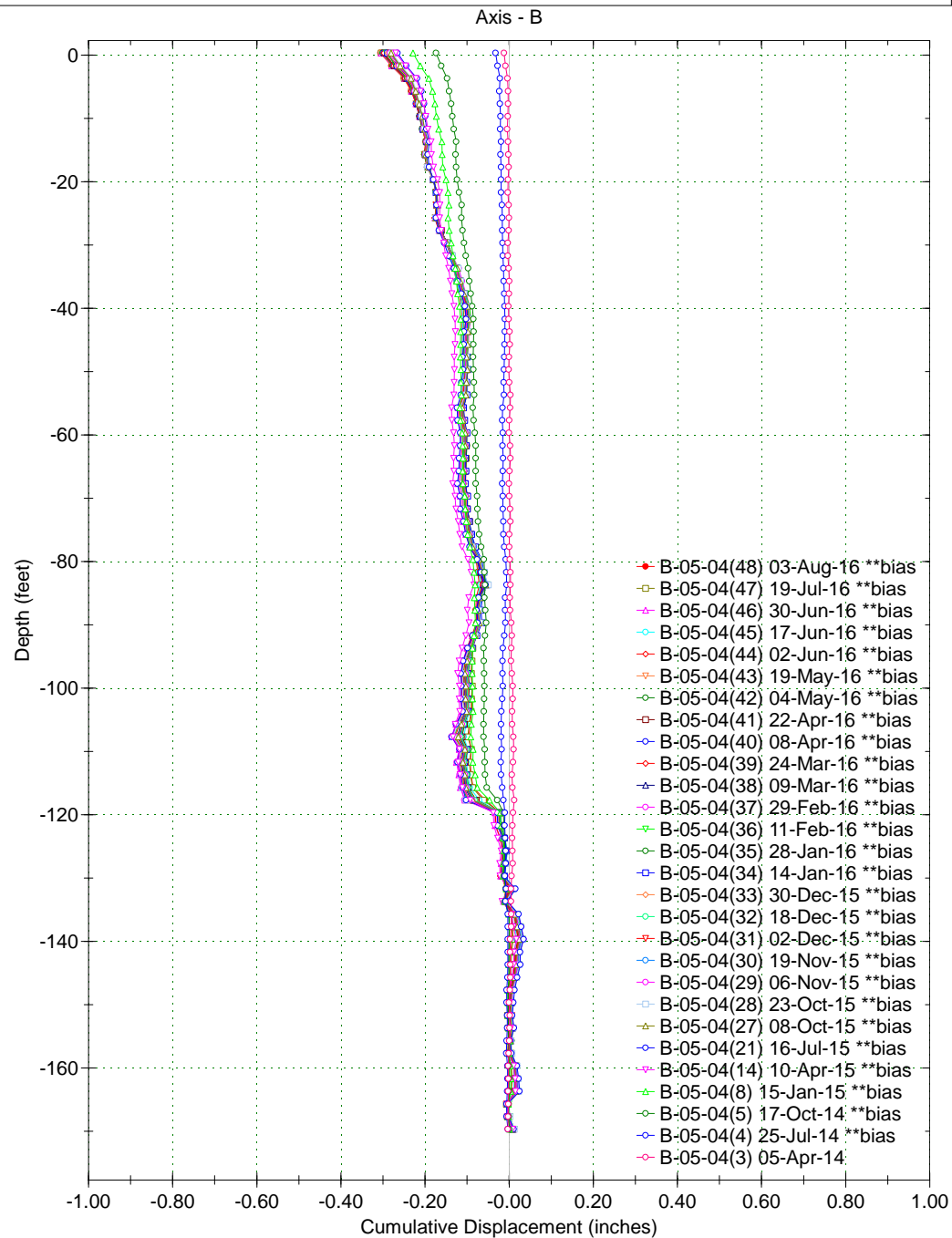
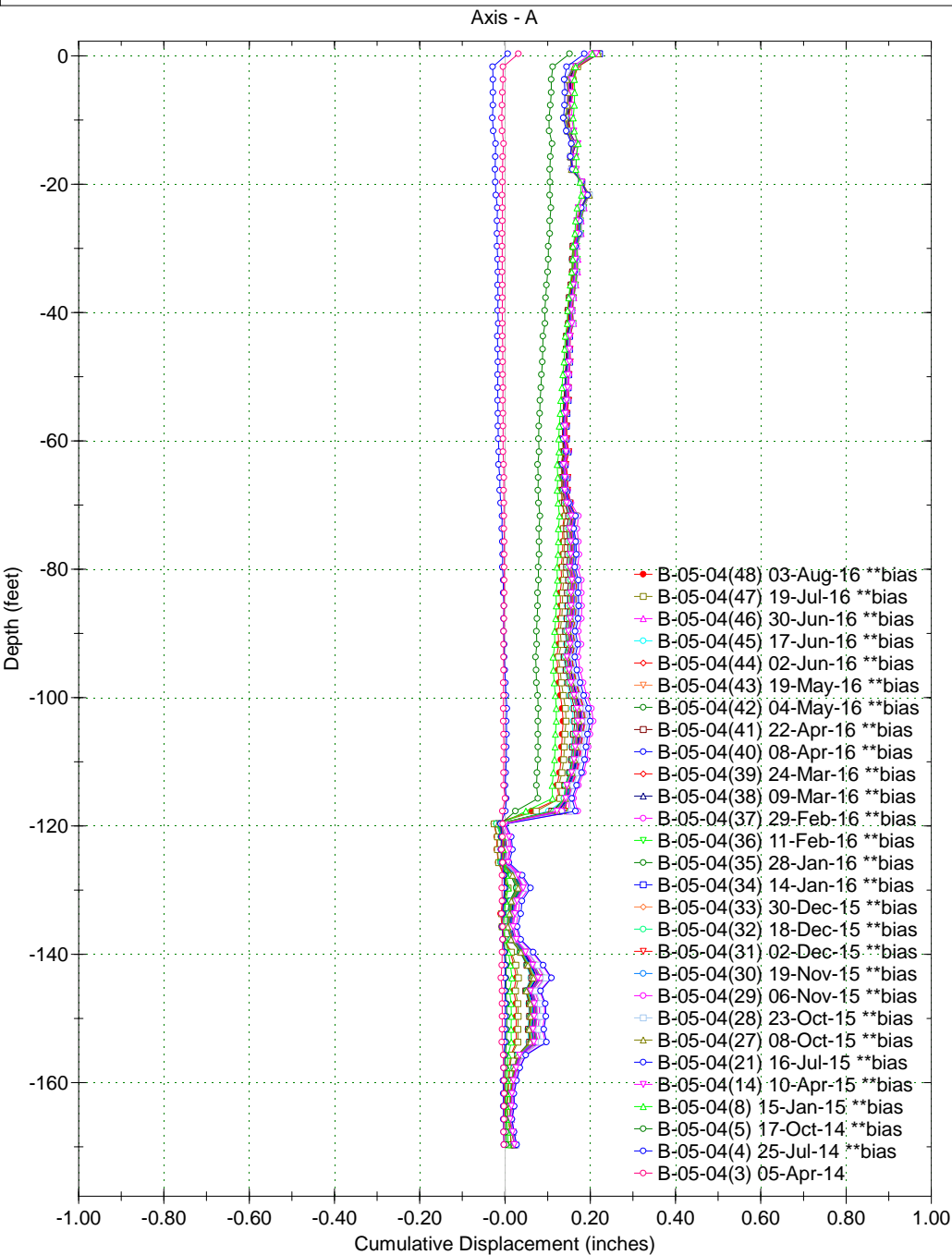
Spiral Correction : N/A
Collar Elevation : 3.0 feet
Borehole Total Depth : 168.0 feet
A+ Groove Azimuth :
Base Reading : 2016 Jul 19 09:08
Applied Azimuth : 0.0 degrees



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

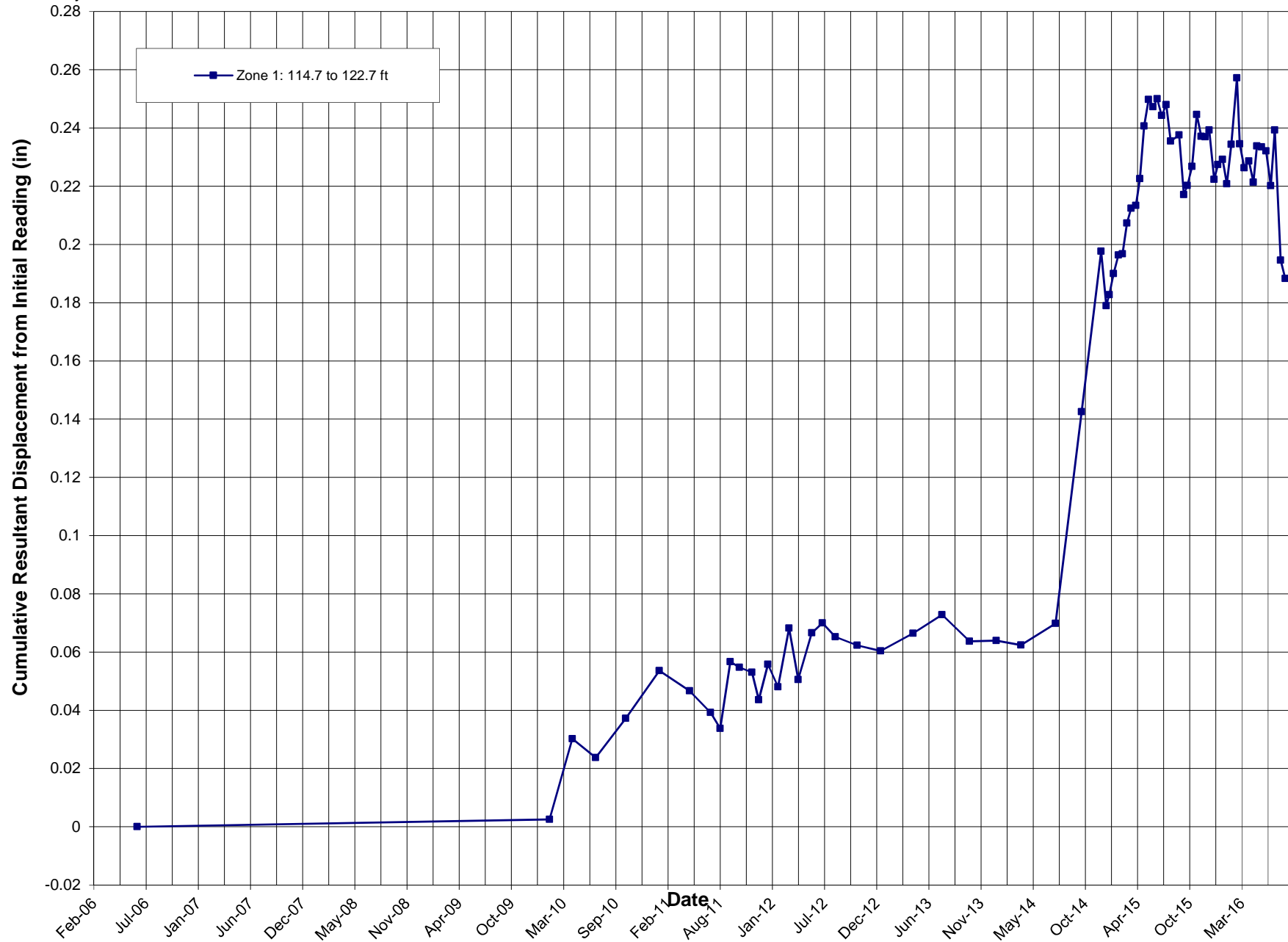


Spiral Correction : N/A
Collar Elevation : 2.3 feet
Borehole Total Depth : 172.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 12:30
Applied Azimuth : 0.0 degrees



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

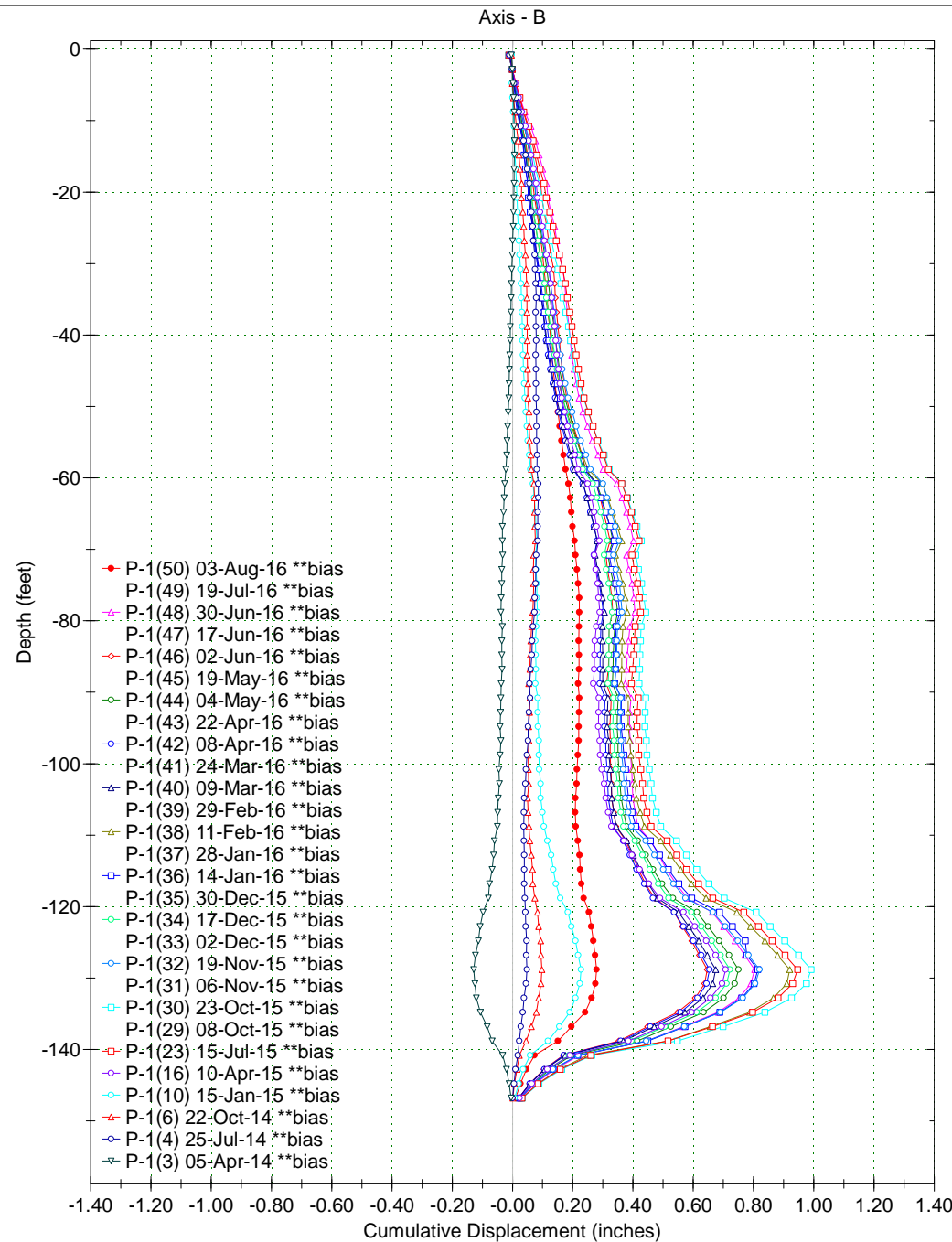
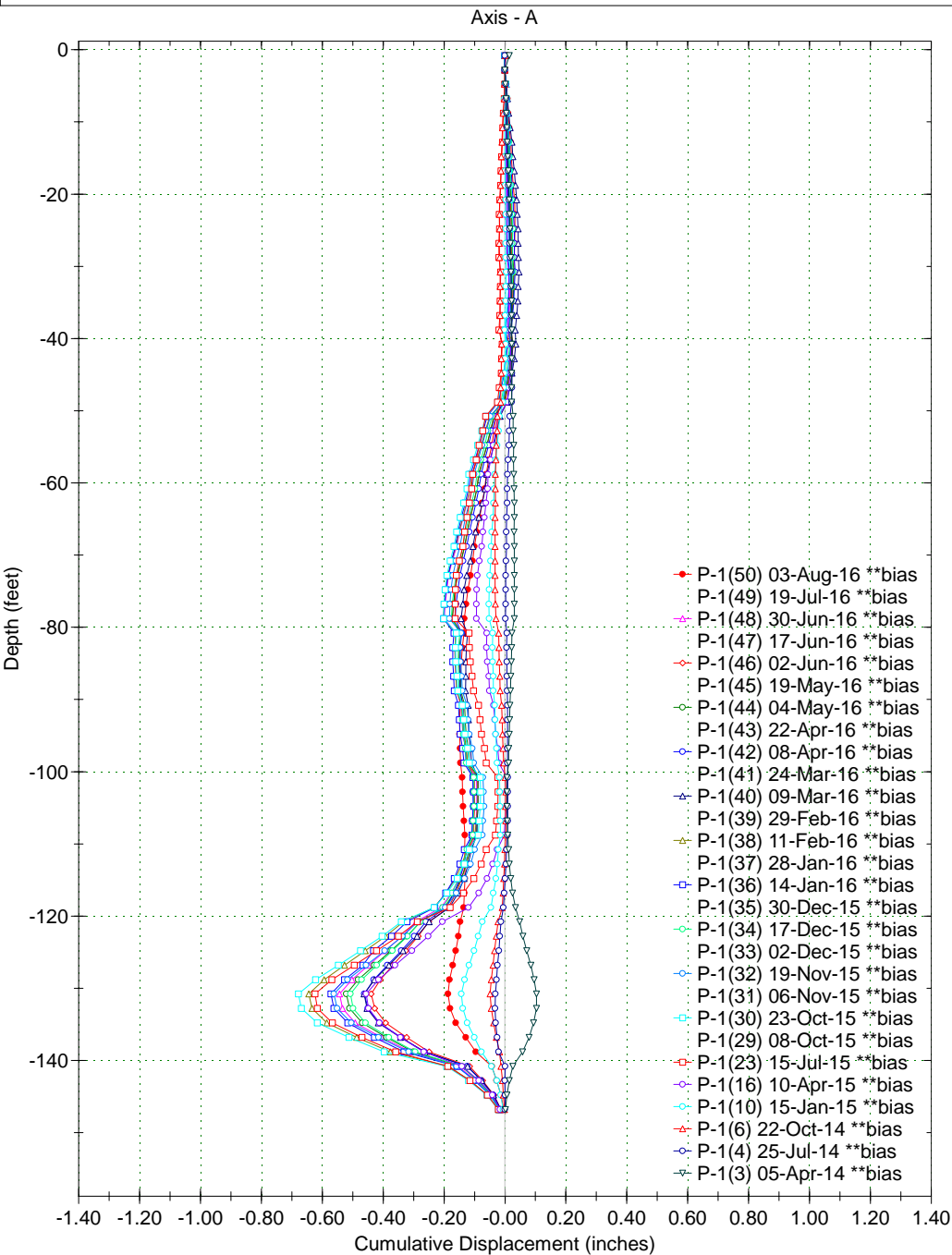
B-05-04



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

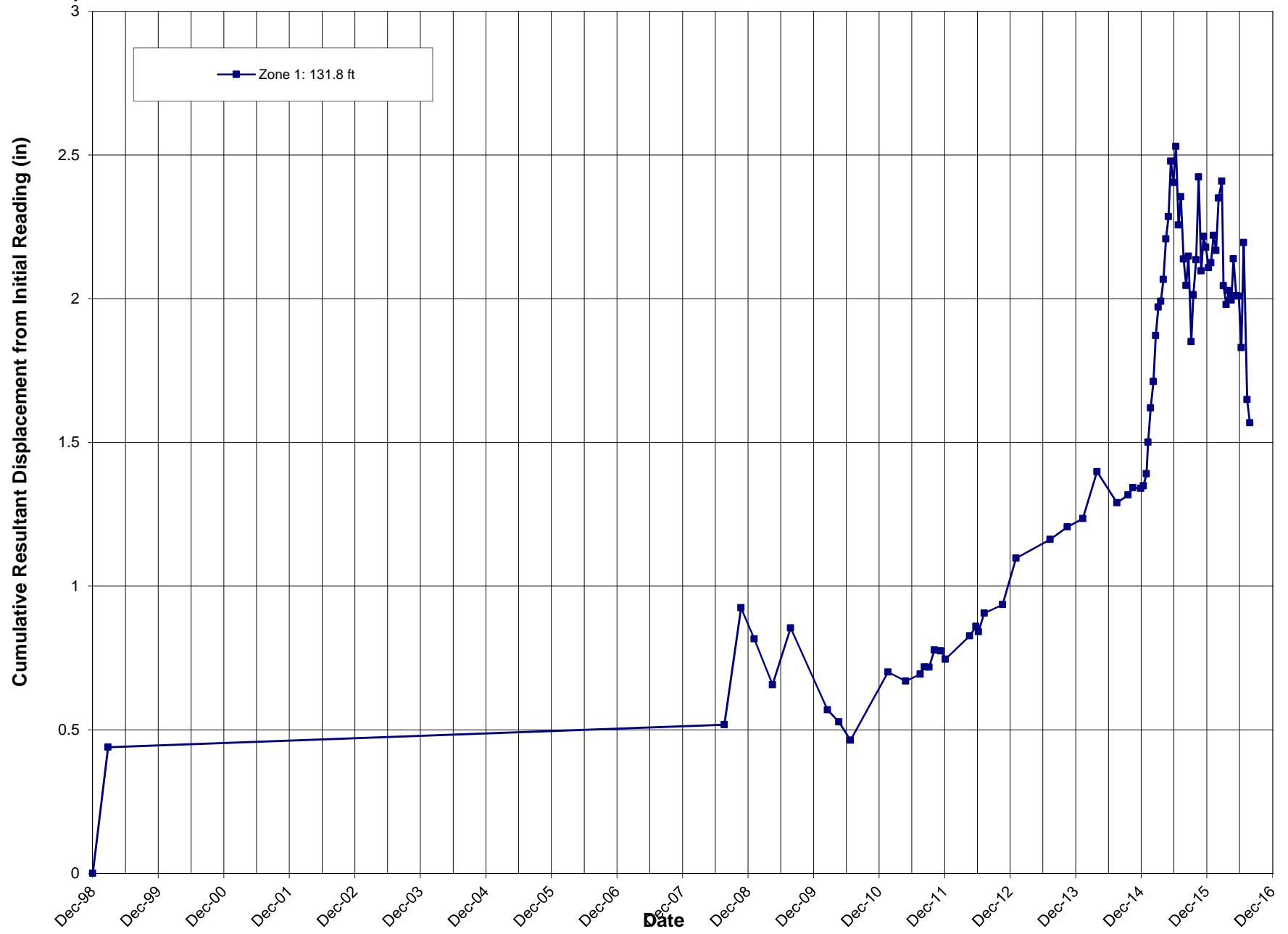


Spiral Correction : N/A
Collar Elevation : 1.2 feet
Borehole Total Depth : 148.0 feet
A+ Groove Azimuth :
Base Reading : 2014 Jan 22 10:47
Applied Azimuth : 0.0 degrees



CUY-90-15.24
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P-1



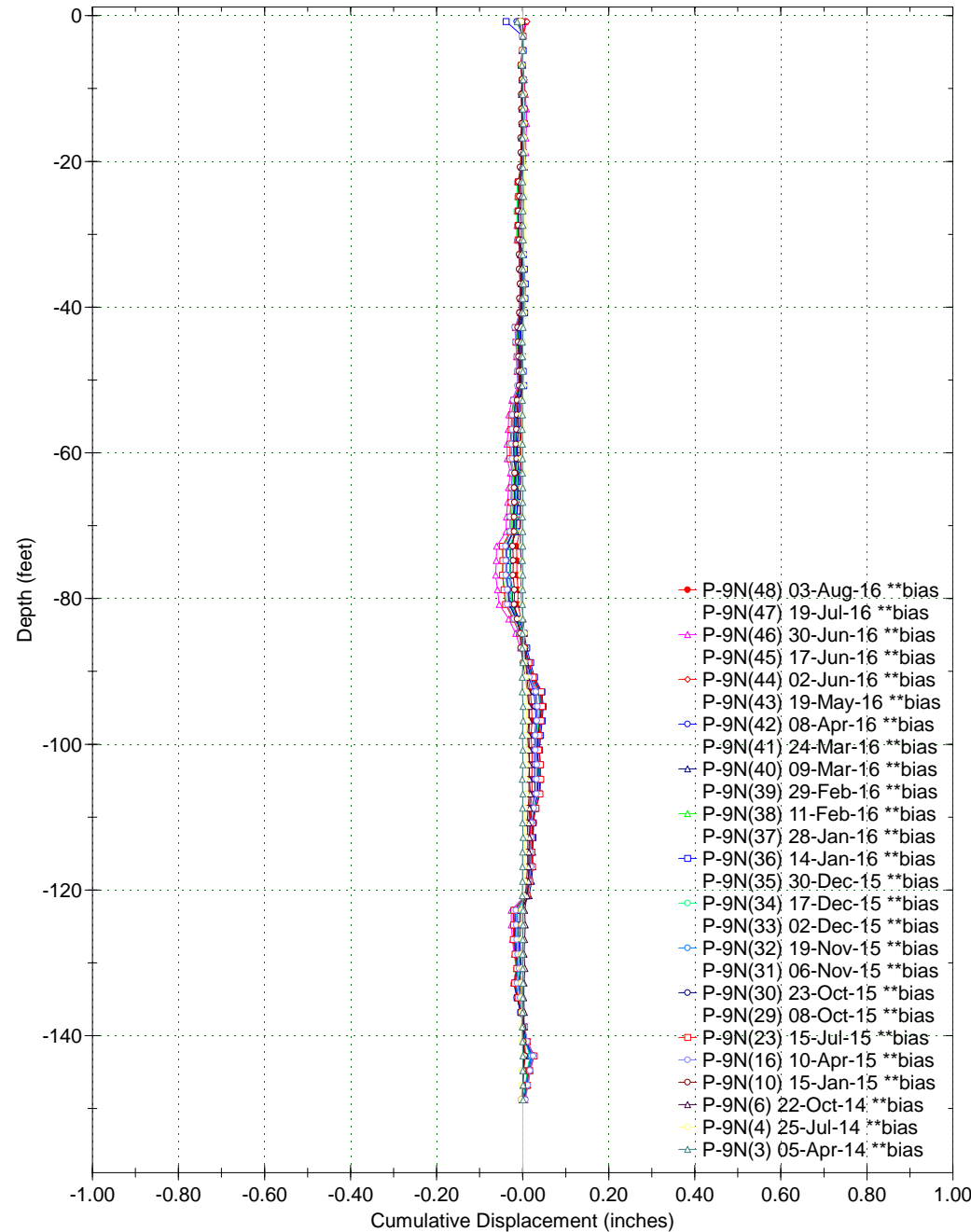
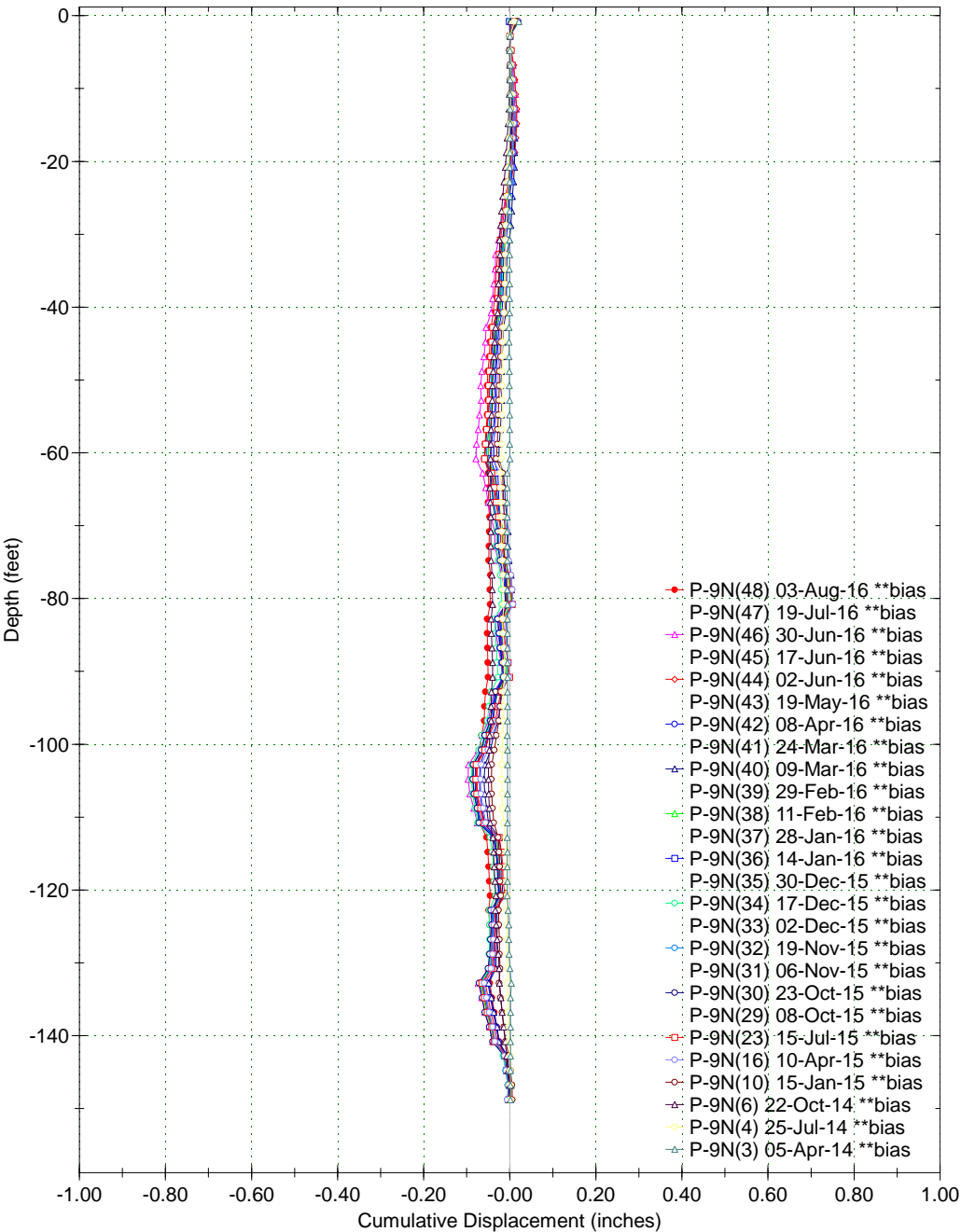
Borehole : P-9N
 Project : CUY-90-15-24
 Location : Cleveland, Ohio
 Northing :
 Easting :
 Collar :



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

Axis - A

Axis - B



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

