

Bridgeton Landfill, LLC

Weekly Data Submittal

Week of March 22, 2015 – March 28, 2015

**Required by Section 52.F of Agreed Order, Case No. 13SL-CC01088
Effective May 13, 2013**

Contents:

Attachment A – Leachate Levels in Leachate Collection Sumps

Attachment B – Temperature Monitoring Probe Analytical Charts

Attachment C – Gas Interceptor Wellhead Temperature Graphs

Attachment D – Neck-Area Gas Extraction Wellhead Temperature Graphs

Provided Separately:

- Leachate Level in Leachate Collection Sump Raw Data Excel Spreadsheet**
- Temperature Monitoring Probe Raw Data Excel Spreadsheet**
- Gas Interceptor Well Reading Raw Data Excel Spreadsheet**
- Neck-Area Gas Extraction Well Data Excel Spreadsheet**

April 3, 2015

Commentary on Data

April 3, 2015

Attachment A – Leachate Levels in Leachate Collection Sumps

Leachate Collection Sump (LCS)-1D, -3D, -4B, -5A, and -6B were partially or fully operational during the weekly reporting period.

The pump in LCS-2D was off during the weekly monitoring event due to “over current”.

Attachment B - Temperature Monitoring Probe Analytical Charts

The following TMPs indicated generally consistent profiles to previous observations: TMP-1, -2, -3, -3R, -4R, -6, -10, -11, -14, -16, -17, -18, -21, -22, -23, -24, -25, -26, -27, -28, and -29. TMP-4, -8, and -9 have been removed from the presentation due to mechanical failure.

TMP readings for evaluation of the Heat Extraction System (HES) are attached, but not evaluated in this commentary.

Attachment C - Gas Interceptor Wellhead Temperature Graphs

As part of the HES, there are currently cooling water circulation loops installed in seven Gas Interceptor Wells (GIWs) (GIW-02 through GIW-07, as well as GIW-10).

For the remaining six wells without a HES installed (GIW-01, -08, -09, -11, -12, and -13), historical gas flow temperatures were observed. Liquids pumping to restore gas flows to GIW-11, -12, and -13 continue and are reflected in gas flow temperatures similar to adjacent wells and temperature monitoring probes.

Attachment D – Neck Area Gas Extraction Well Data

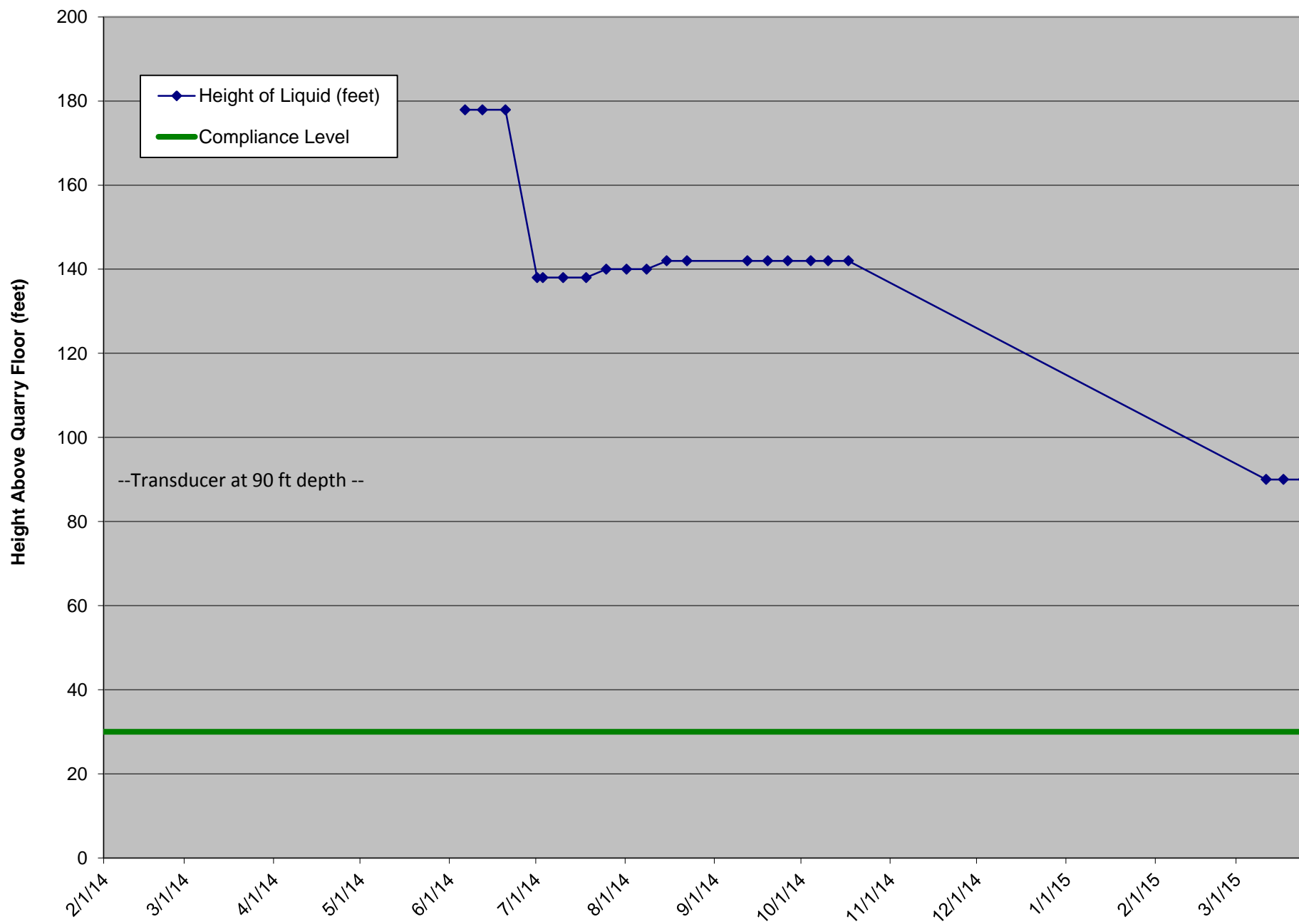
Weekly gas temperature data is being collected for select gas extraction wells (GEWs) located in the neck area of the landfill. These wells include GEW-008, -009, -010, -038, -039, -040, -041R, -043R, -053, -054, -055, -056R, -109, and -110.

Over the past week all 14 wells were monitored and all well temperatures were consistent with historical gas flow temperatures. Liquids’ pumping to restore gas flow to GEW-109 continues and is reflected in gas flow temperatures similar to adjacent wells and temperature monitoring probes. GEW-110 pump is offline for maintenance resulting in restricted gas flow and corresponding lower gas temperature.

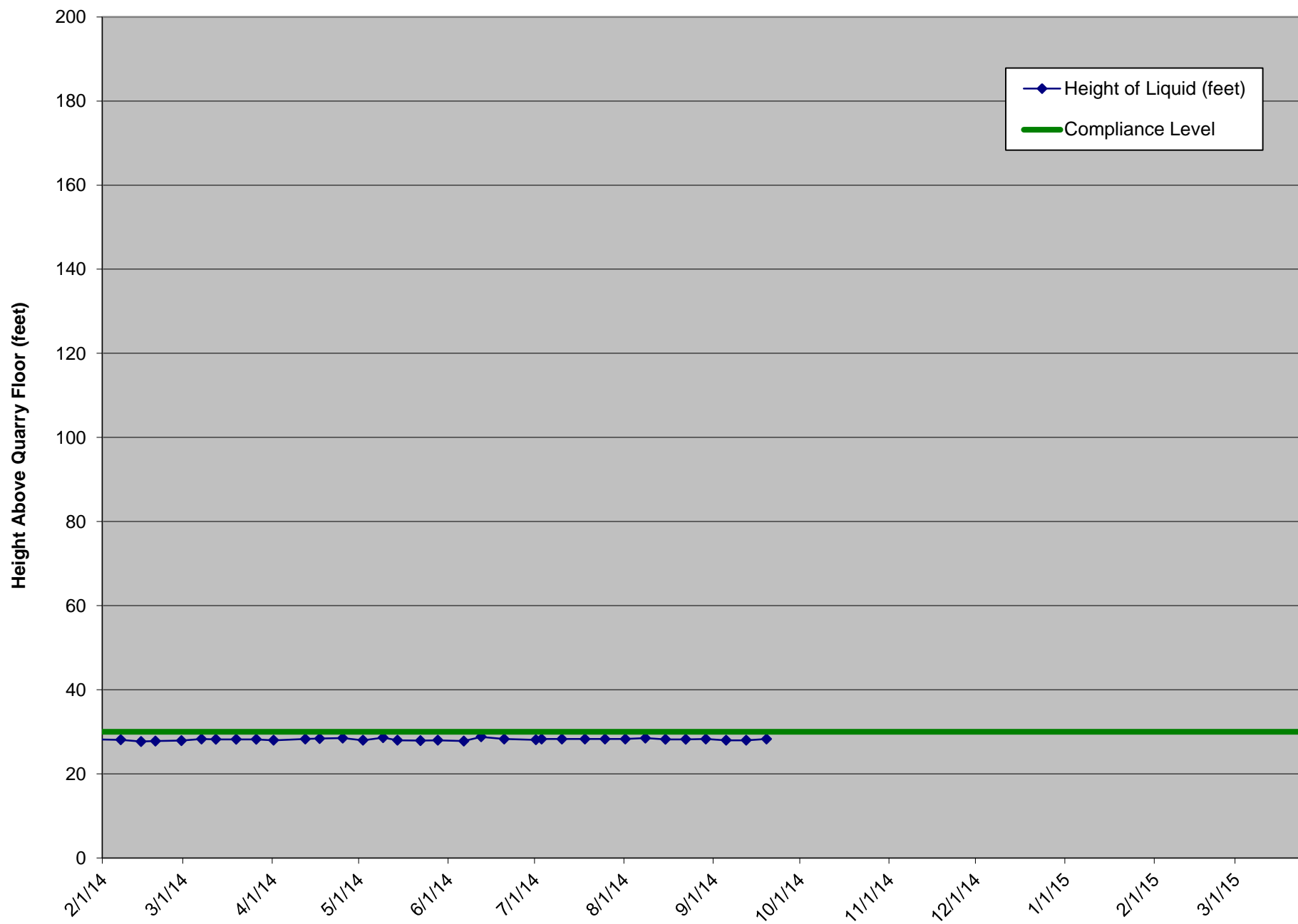
ATTACHMENT A

LEACHATE LEVELS IN LEACHATE COLLECTION SUMPS

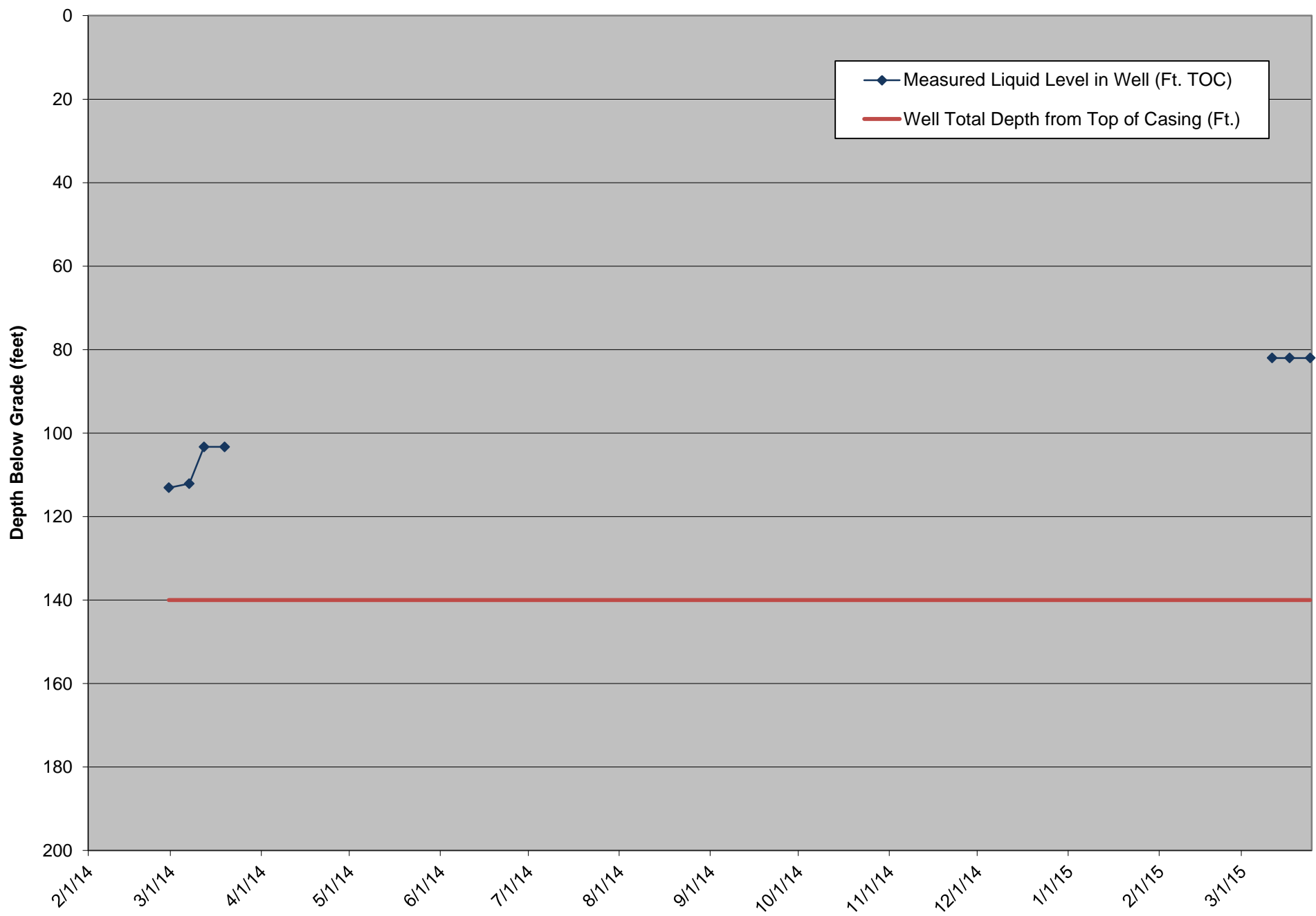
LCS-1D Liquid Level Above Quarry Floor



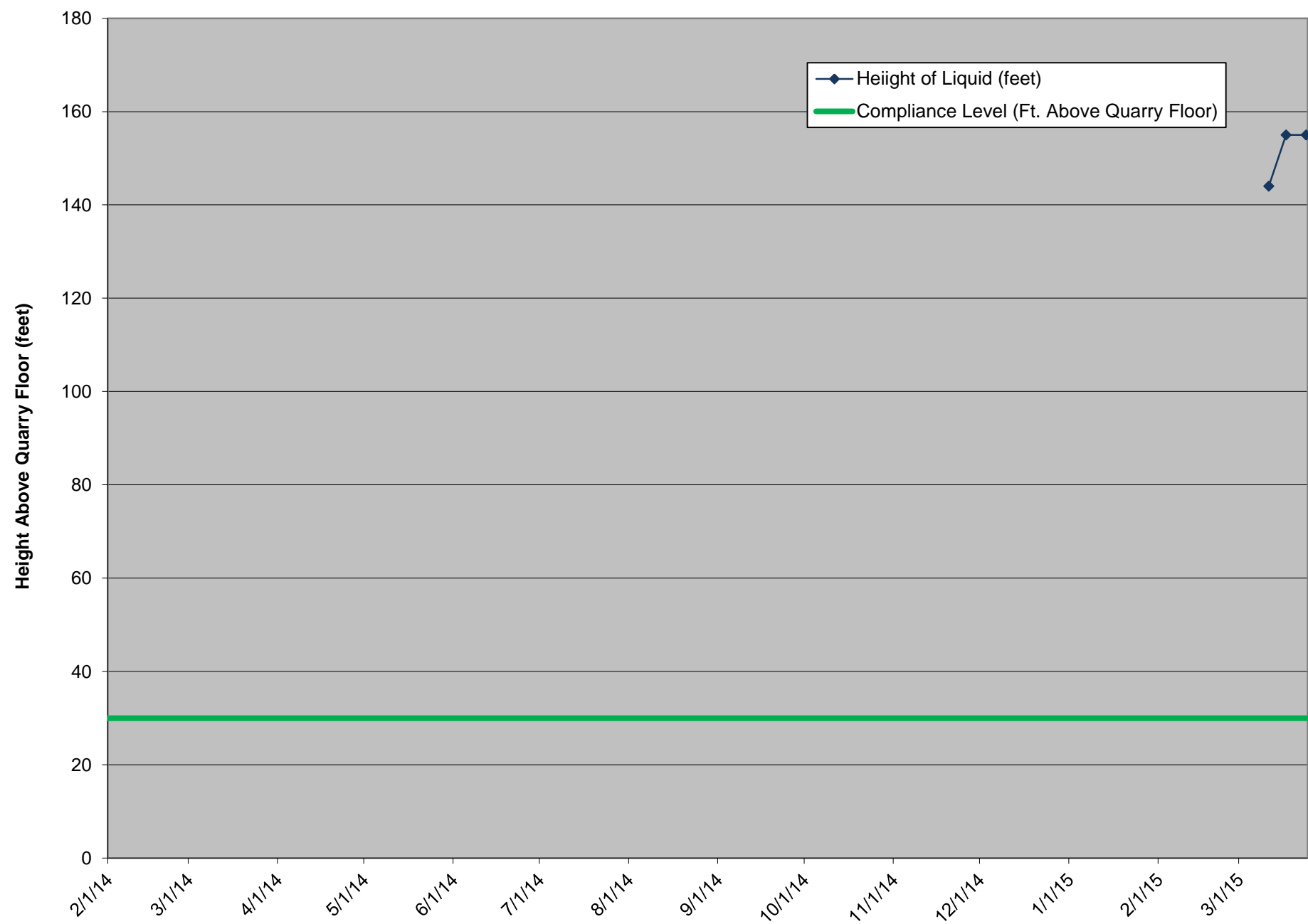
LCS-2D Liquid Level Above Quarry Floor



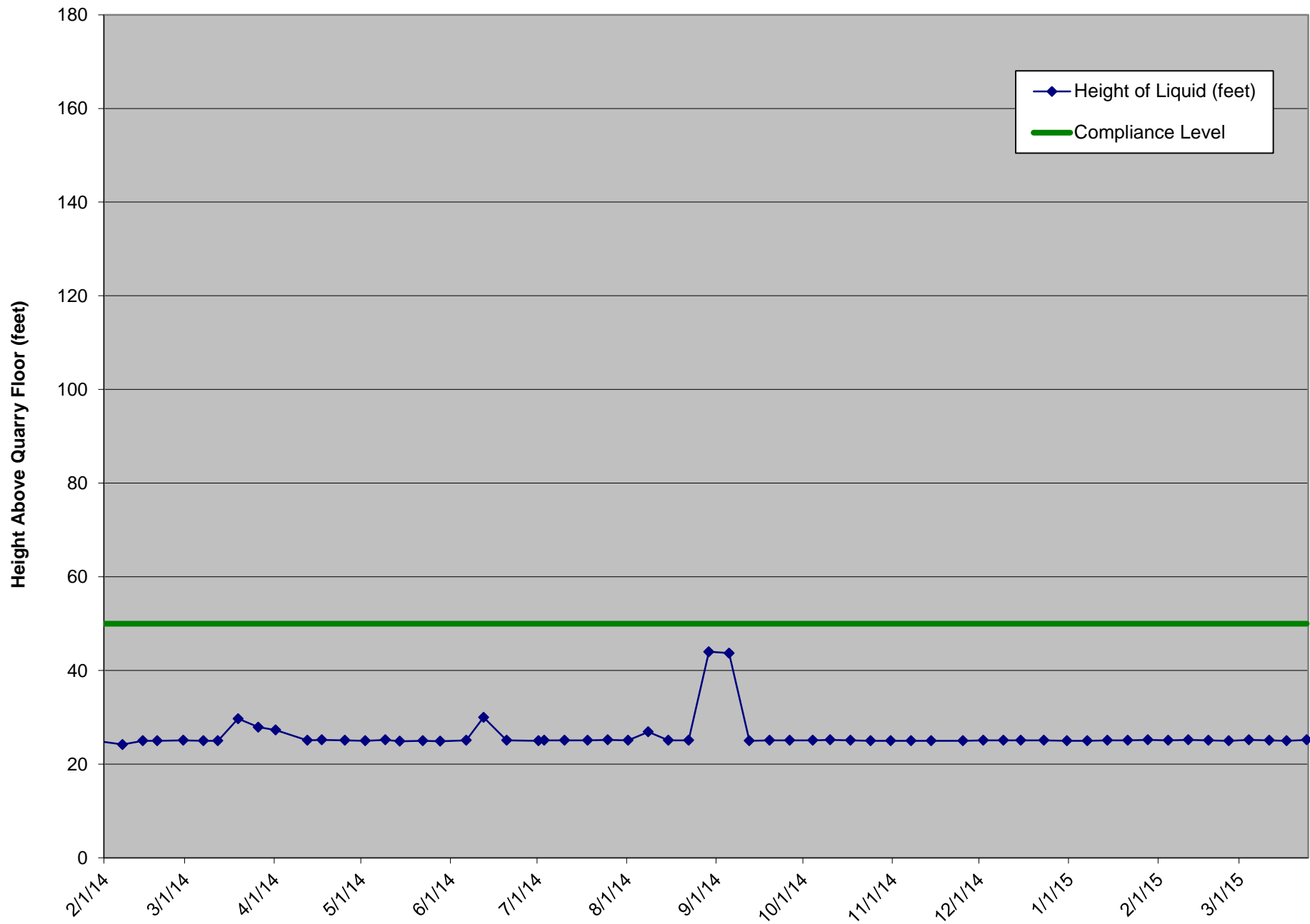
LCS-3D Liquid Level Below Ground Surface



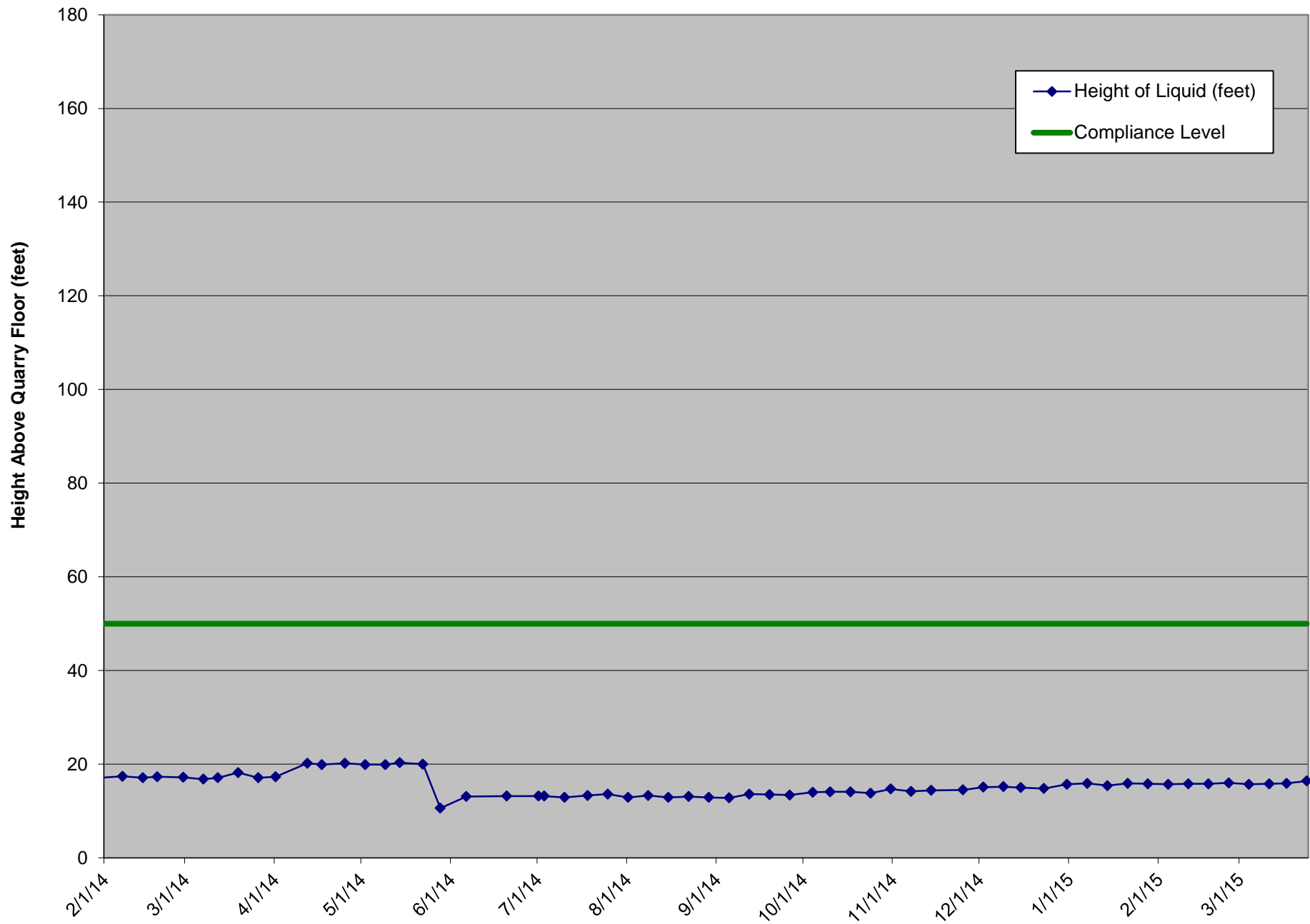
LCS-4B Liquid Level Above Quarry Floor



LCS-5A Liquid Level Above Quarry Floor

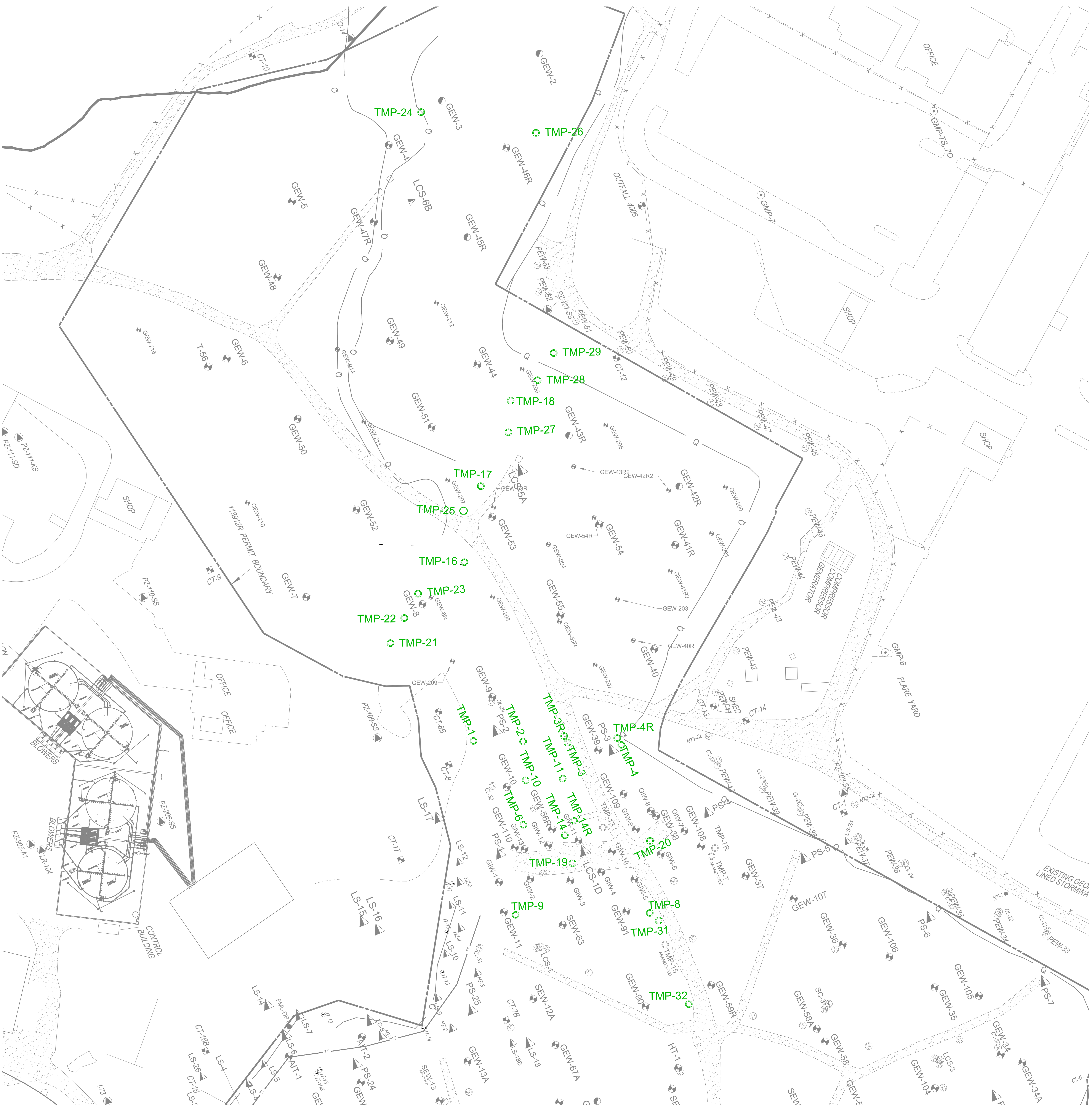


LCS-6B Liquid Level Above Quarry Floor



ATTACHMENT B

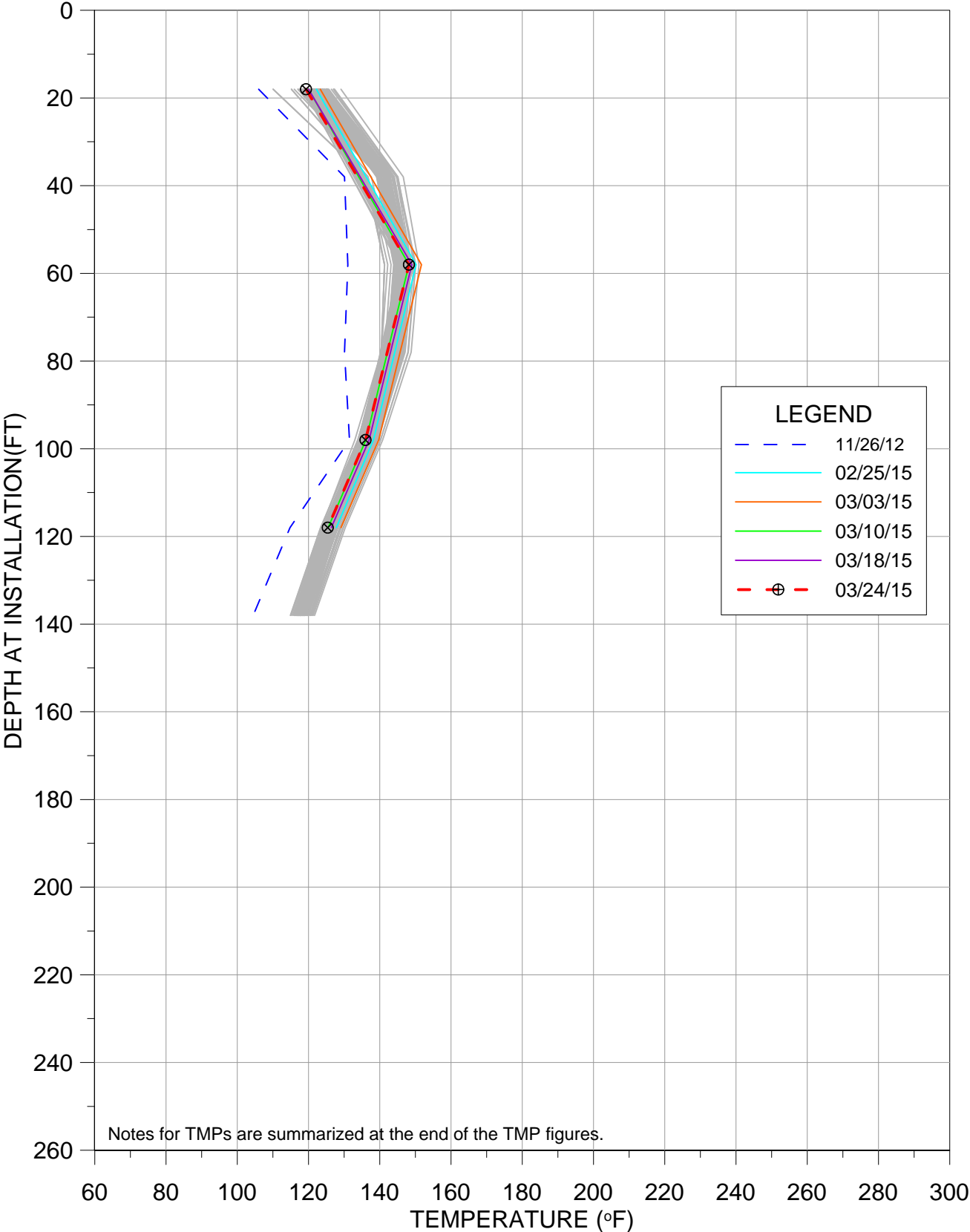
TEMPERATURE MONITORING PROBE ANALYTICAL CHARTS



LEGEND

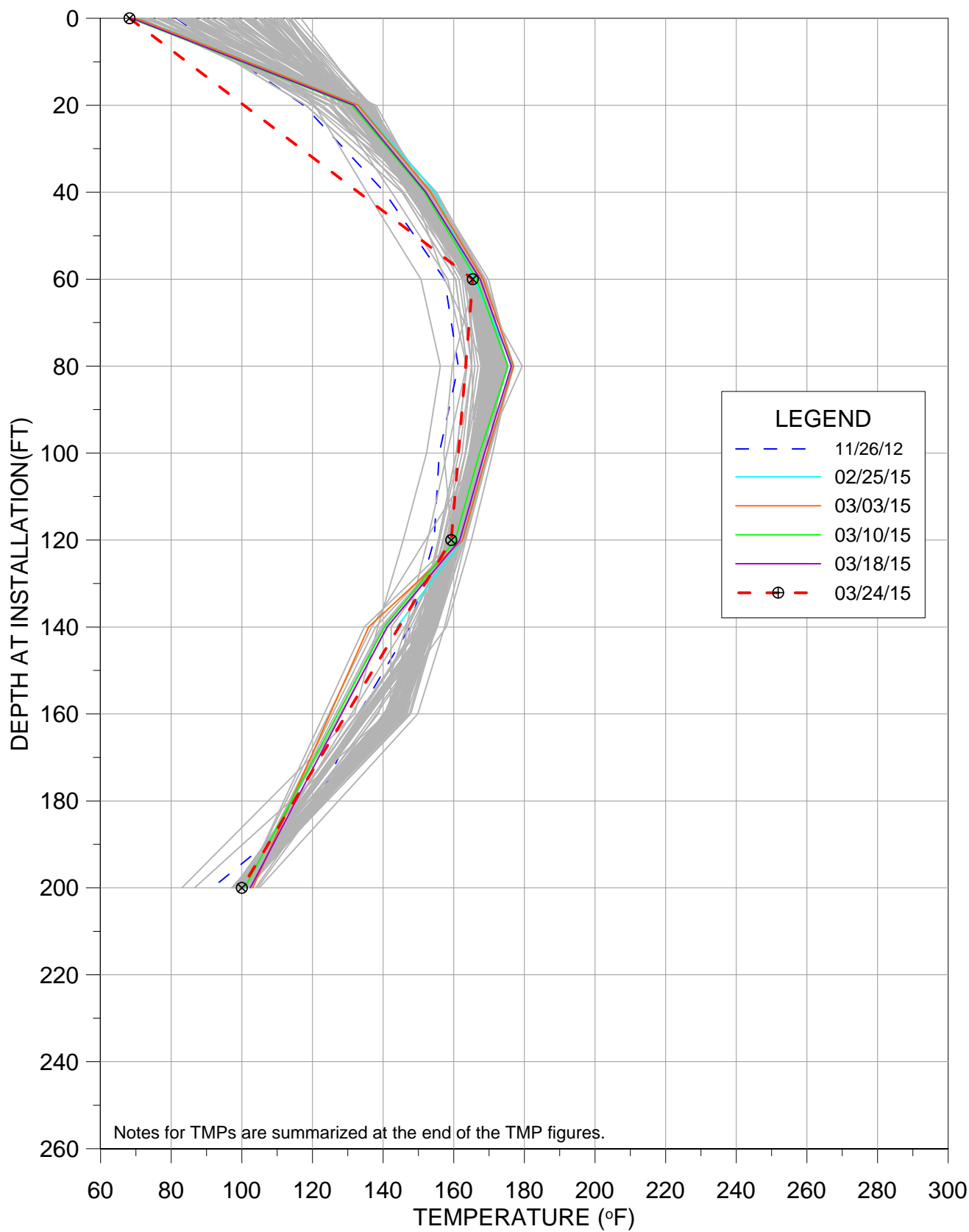
○ TMP-24 TEMPERATURE MONITORING PROBE (EXISTING)

TMP-1



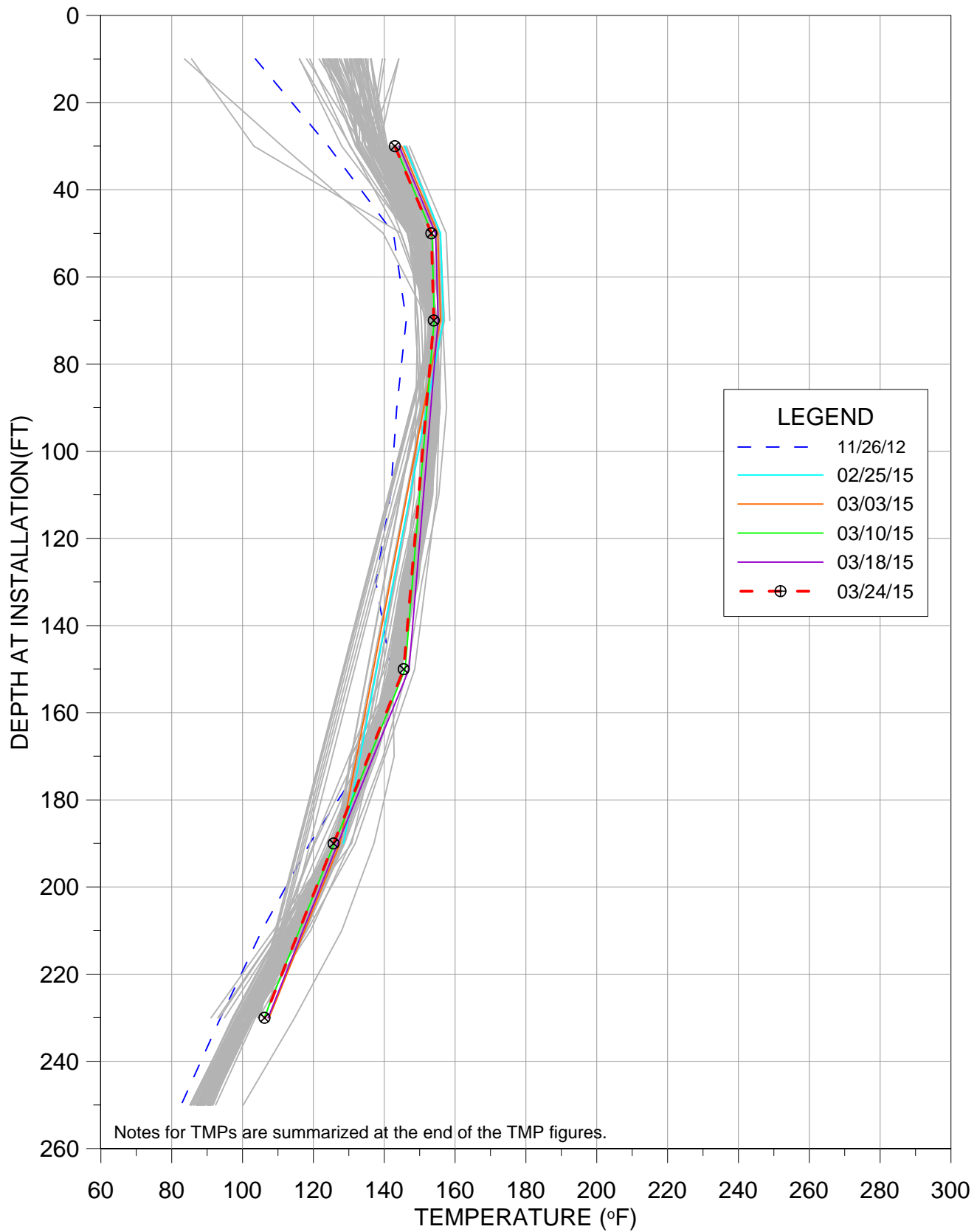
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

TMP-2

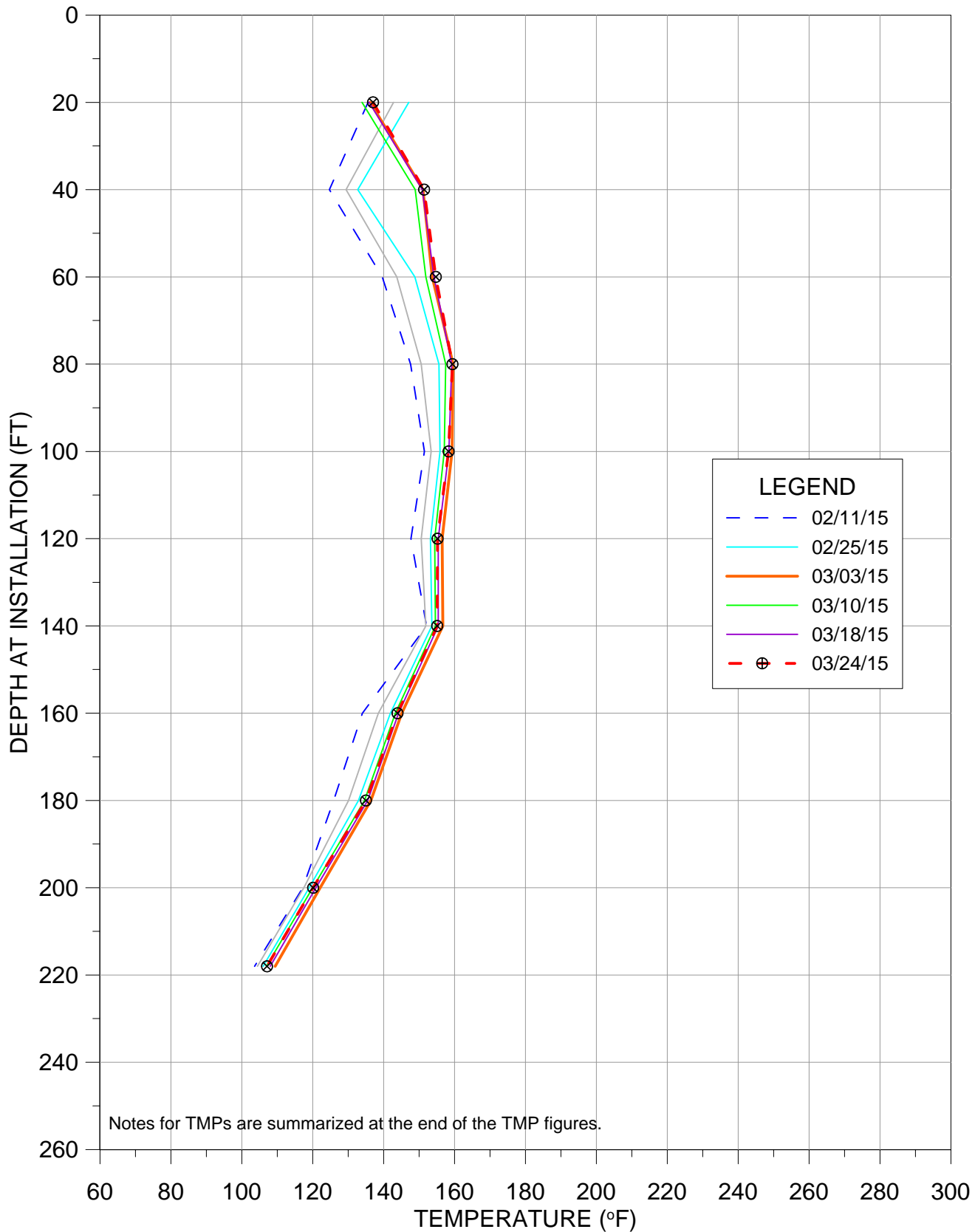


Notes for TMPs are summarized at the end of the TMP figures.

TMP-3

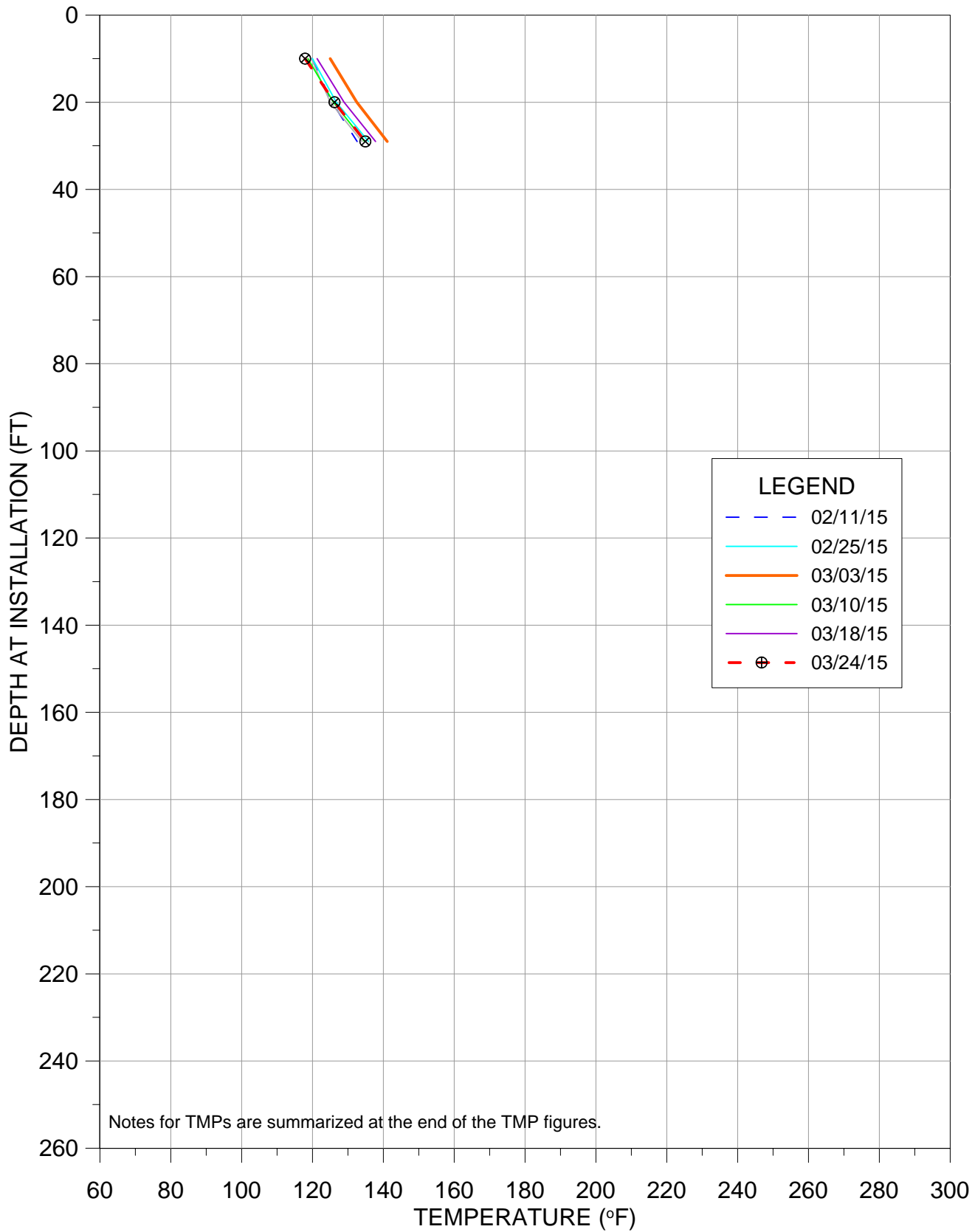


TMP-3R

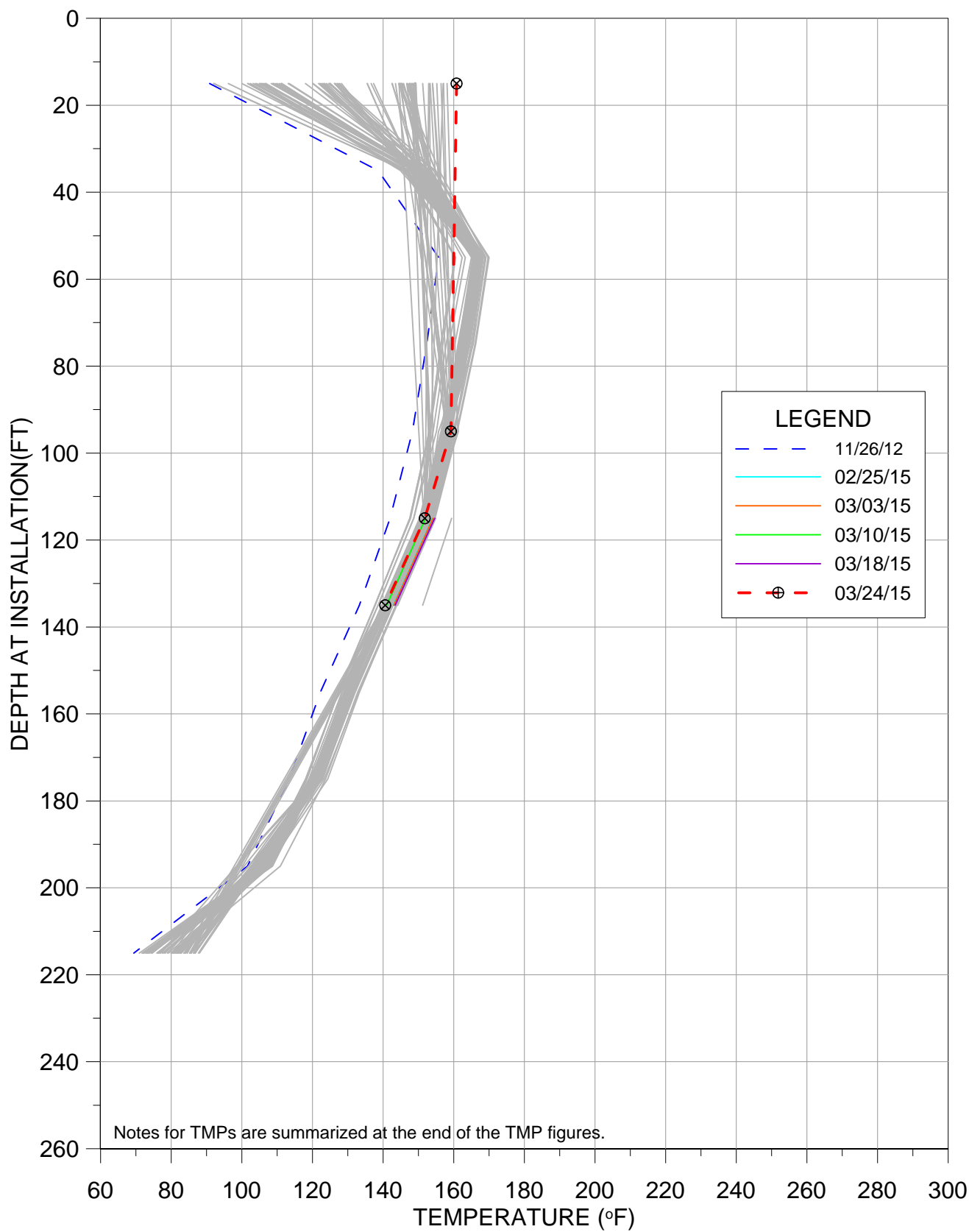


TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

TMP-4R

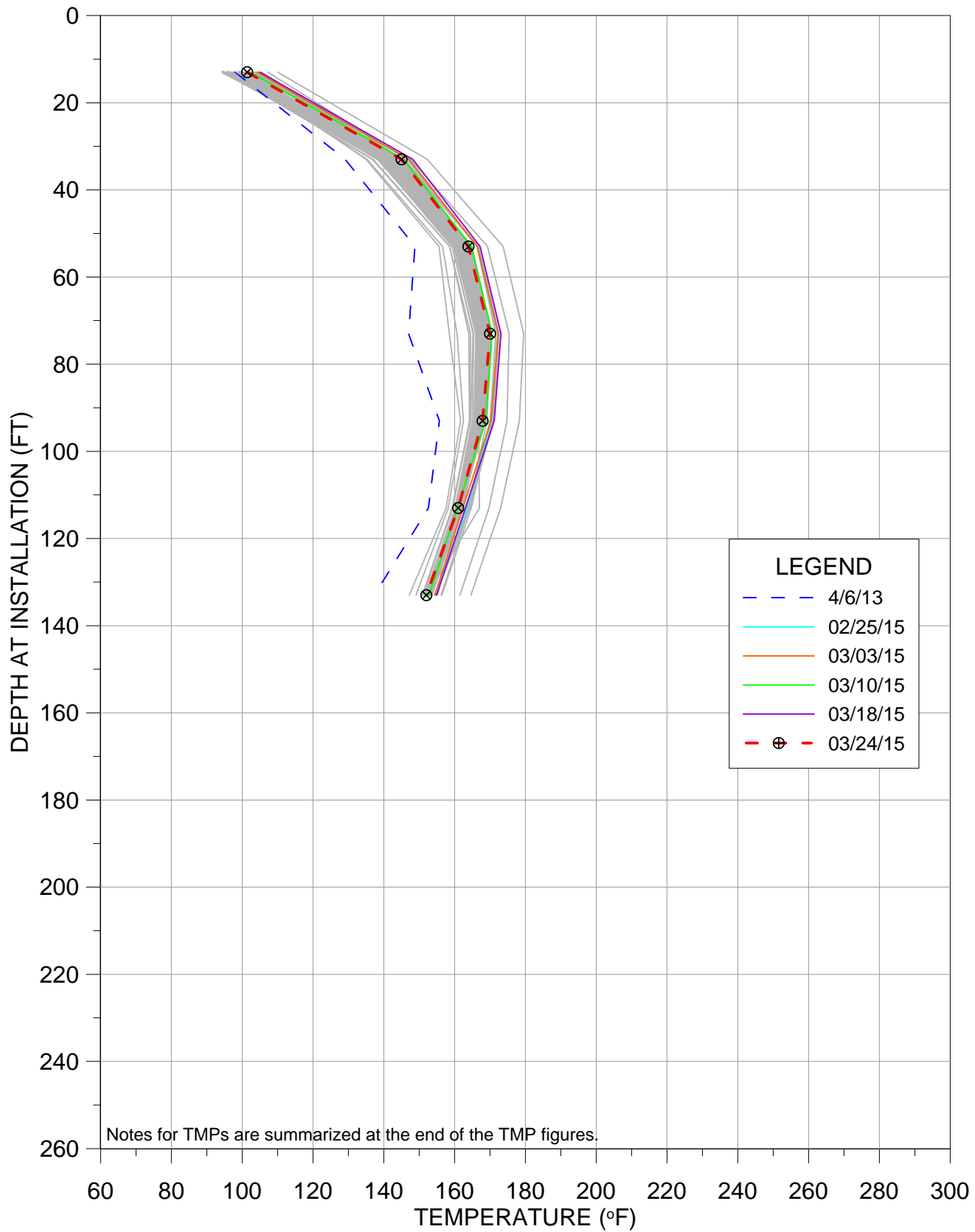


TMP-6



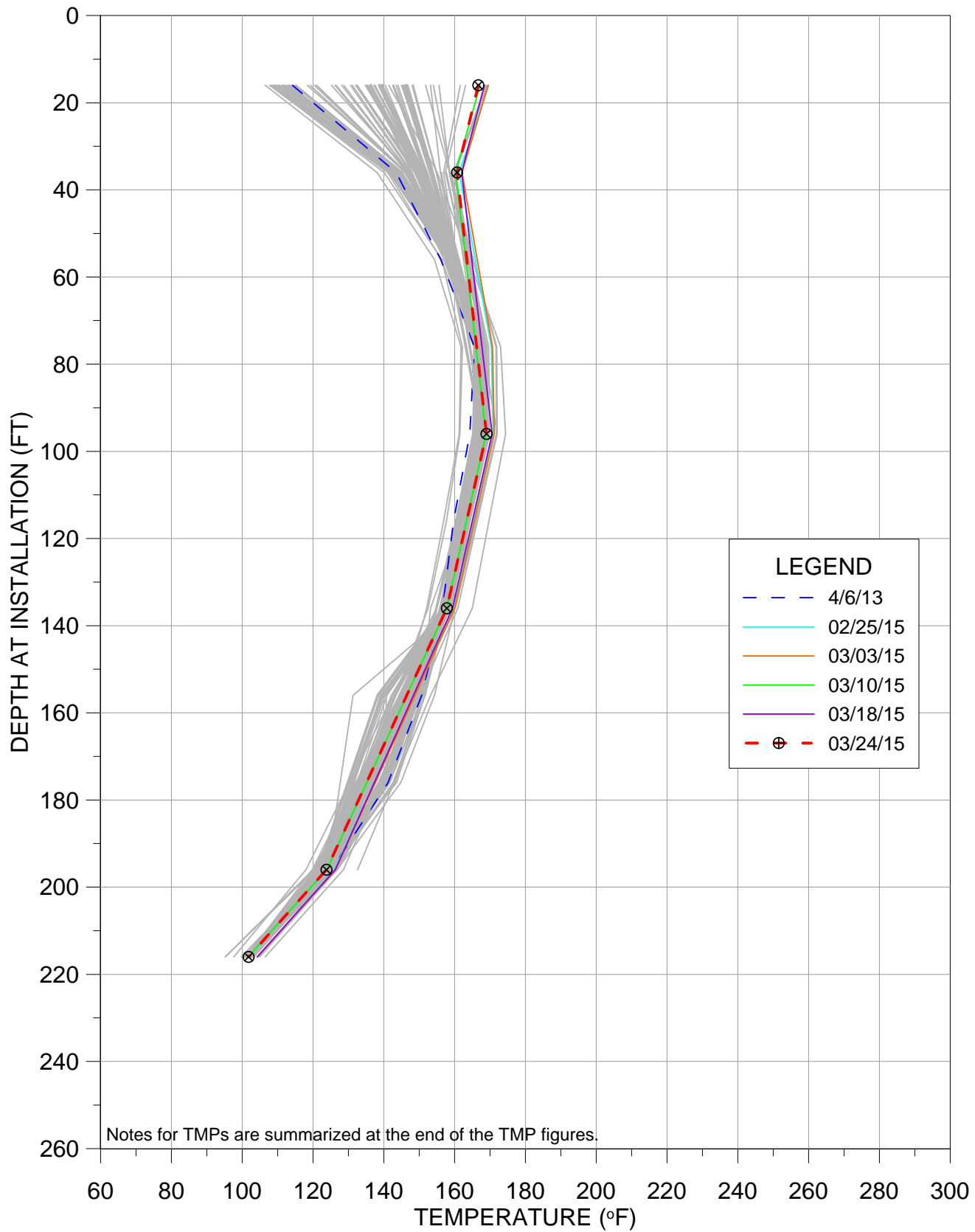
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

TMP-10



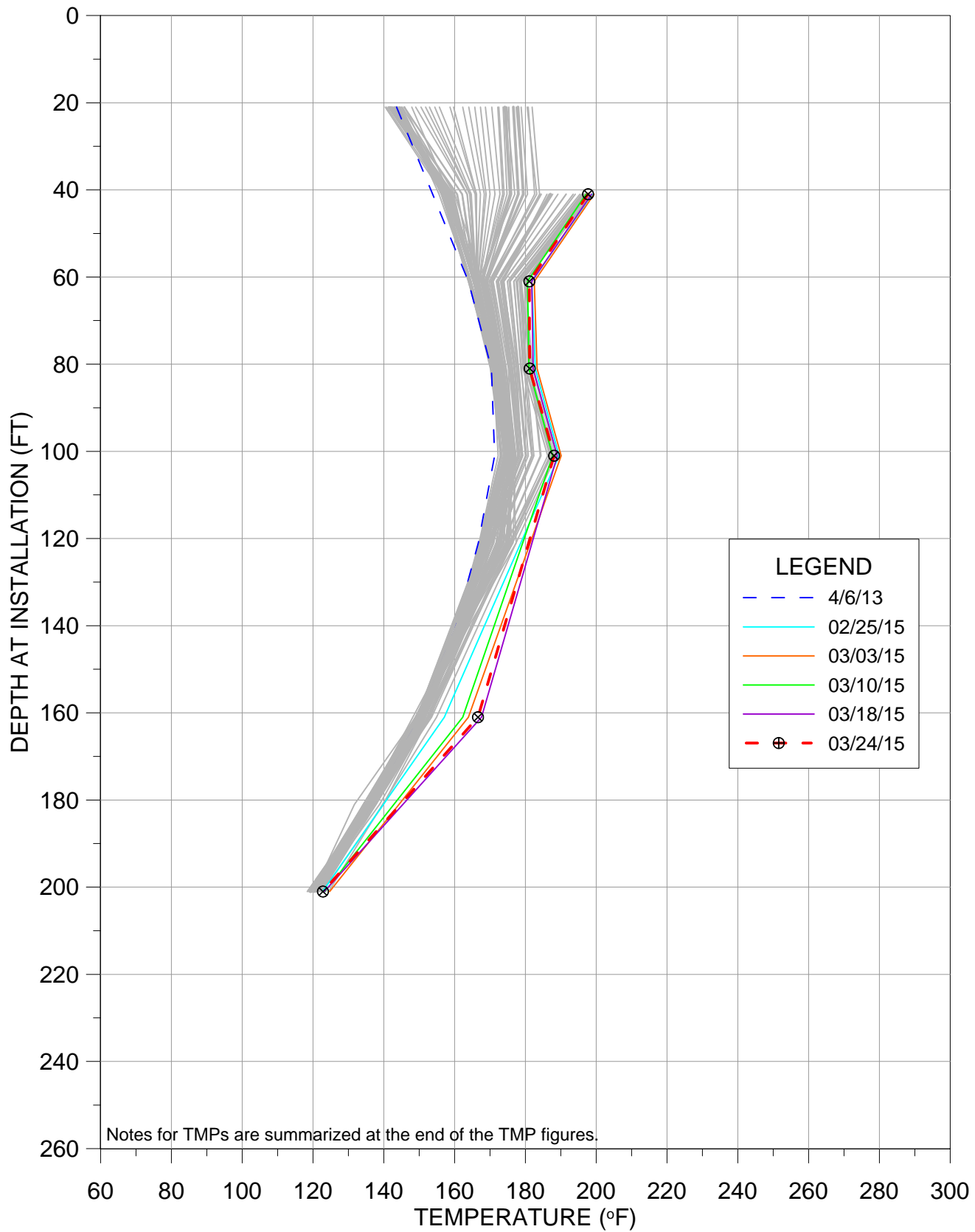
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

TMP-11



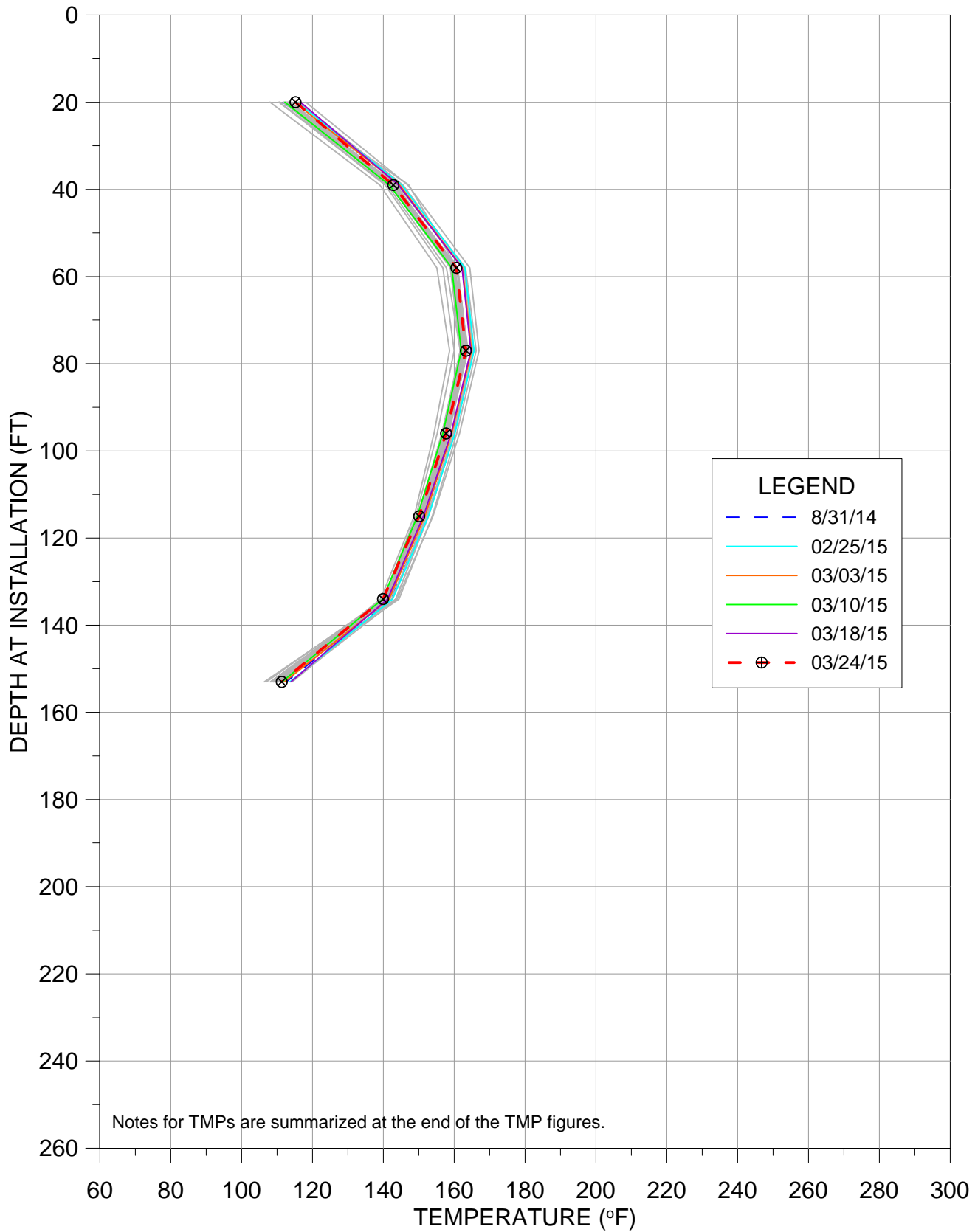
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

TMP-14

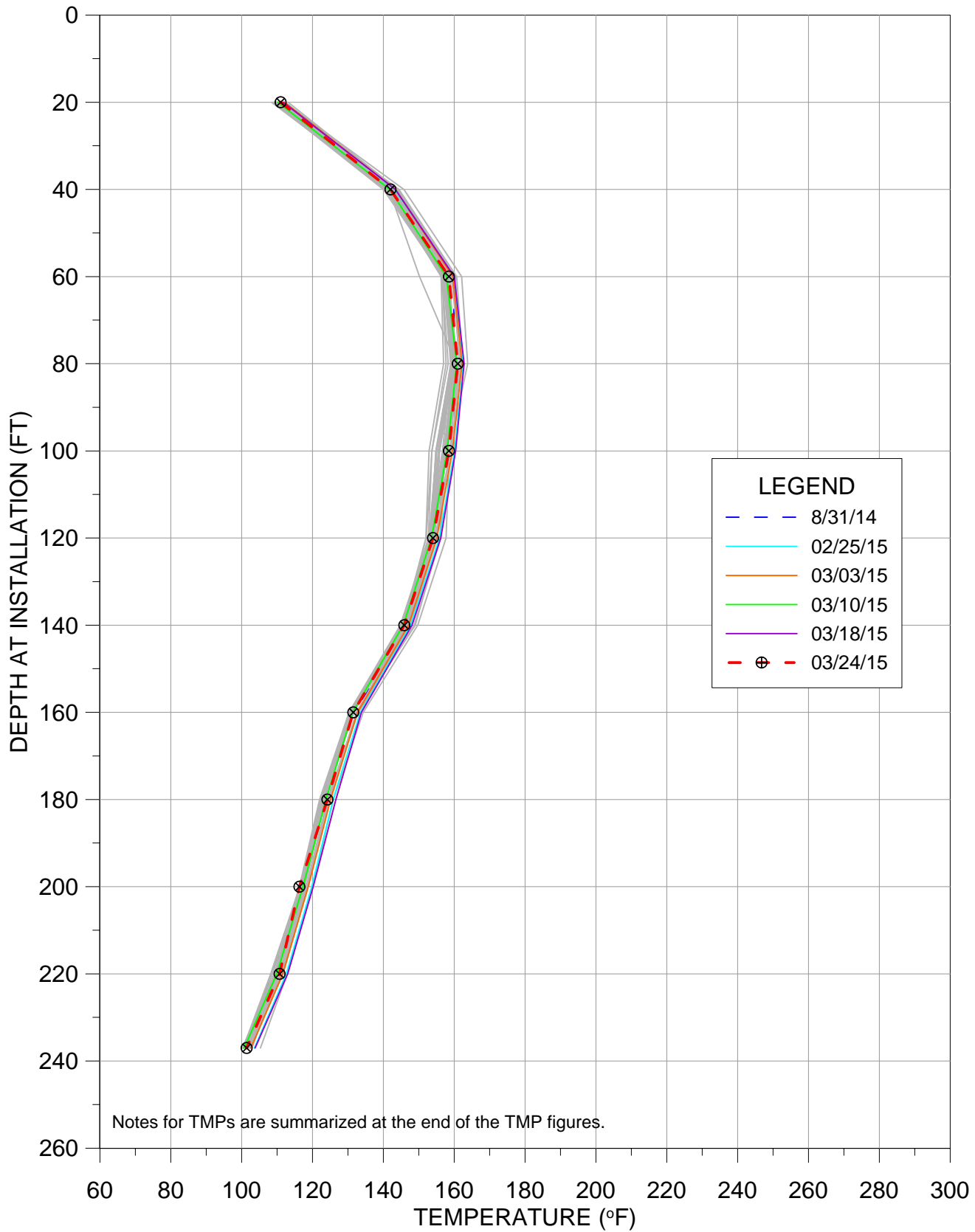


TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

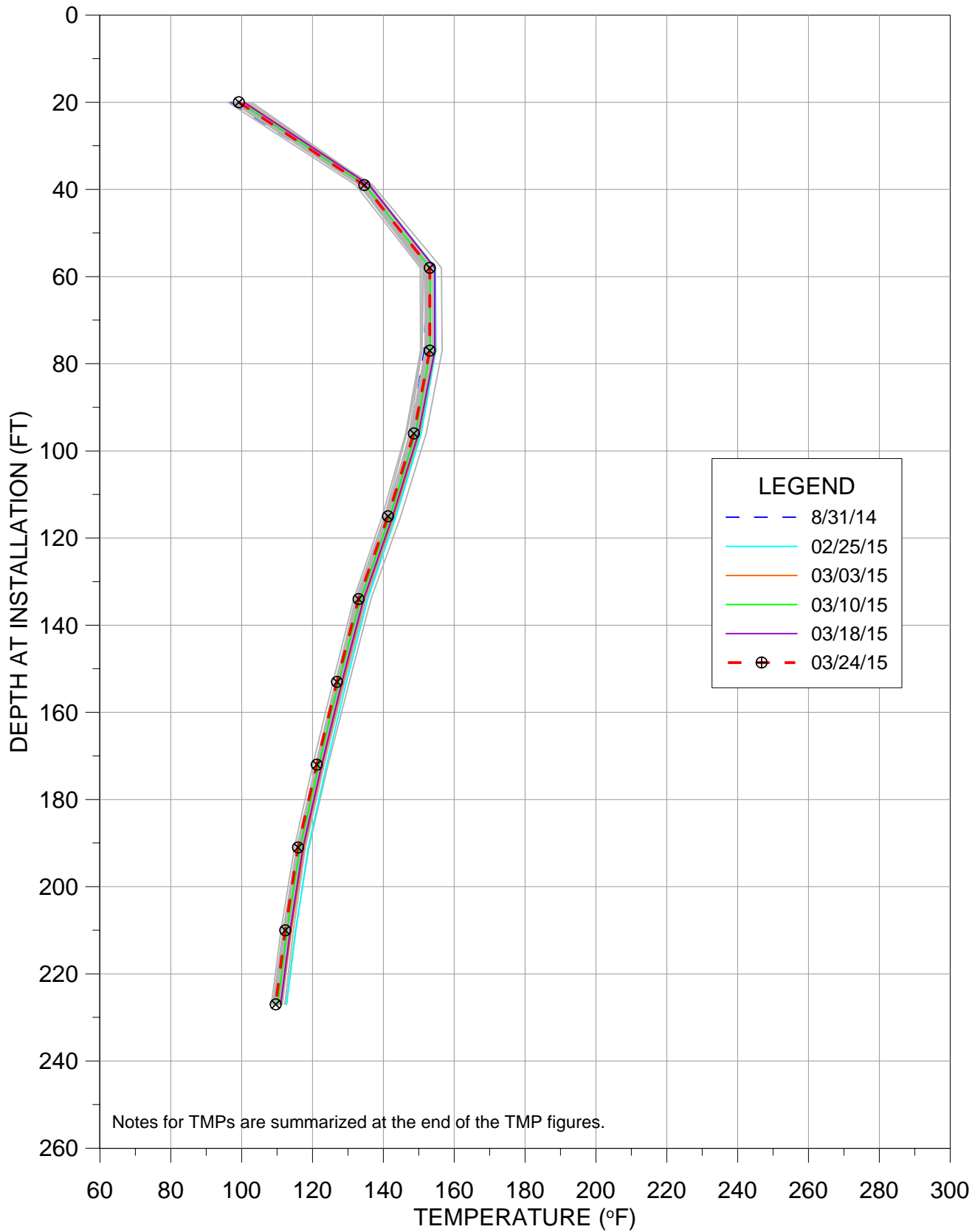
TMP-16



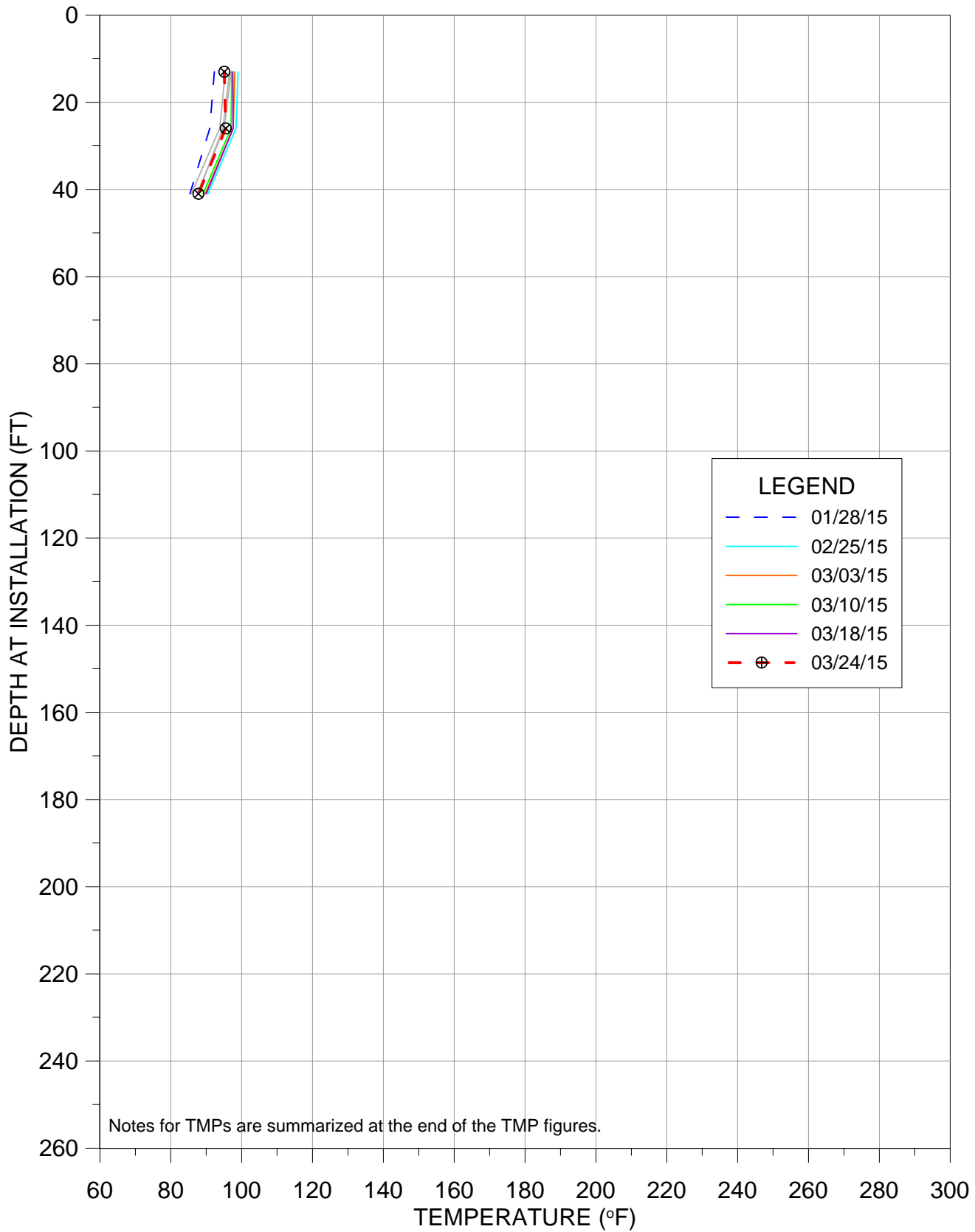
TMP-17



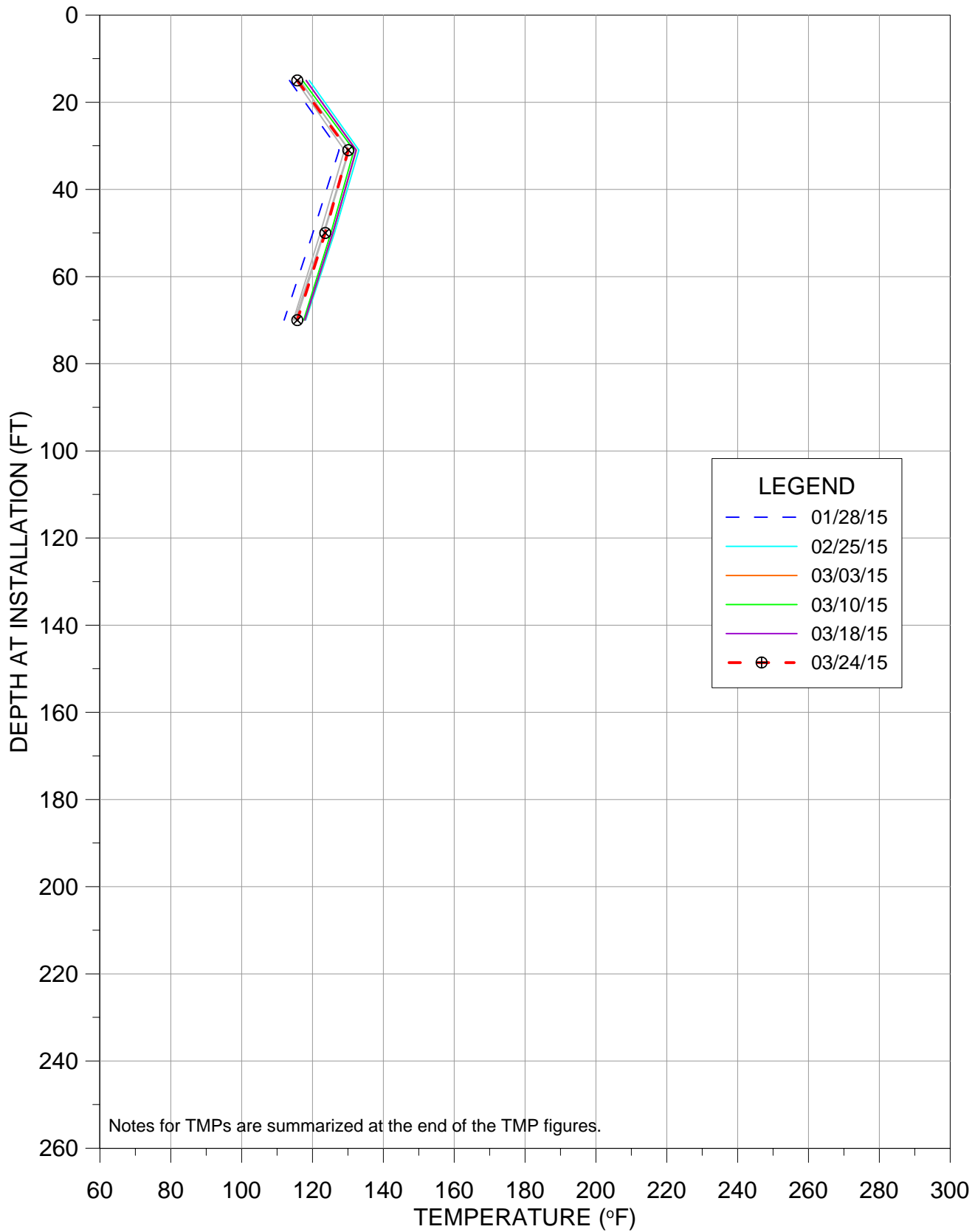
TMP-18



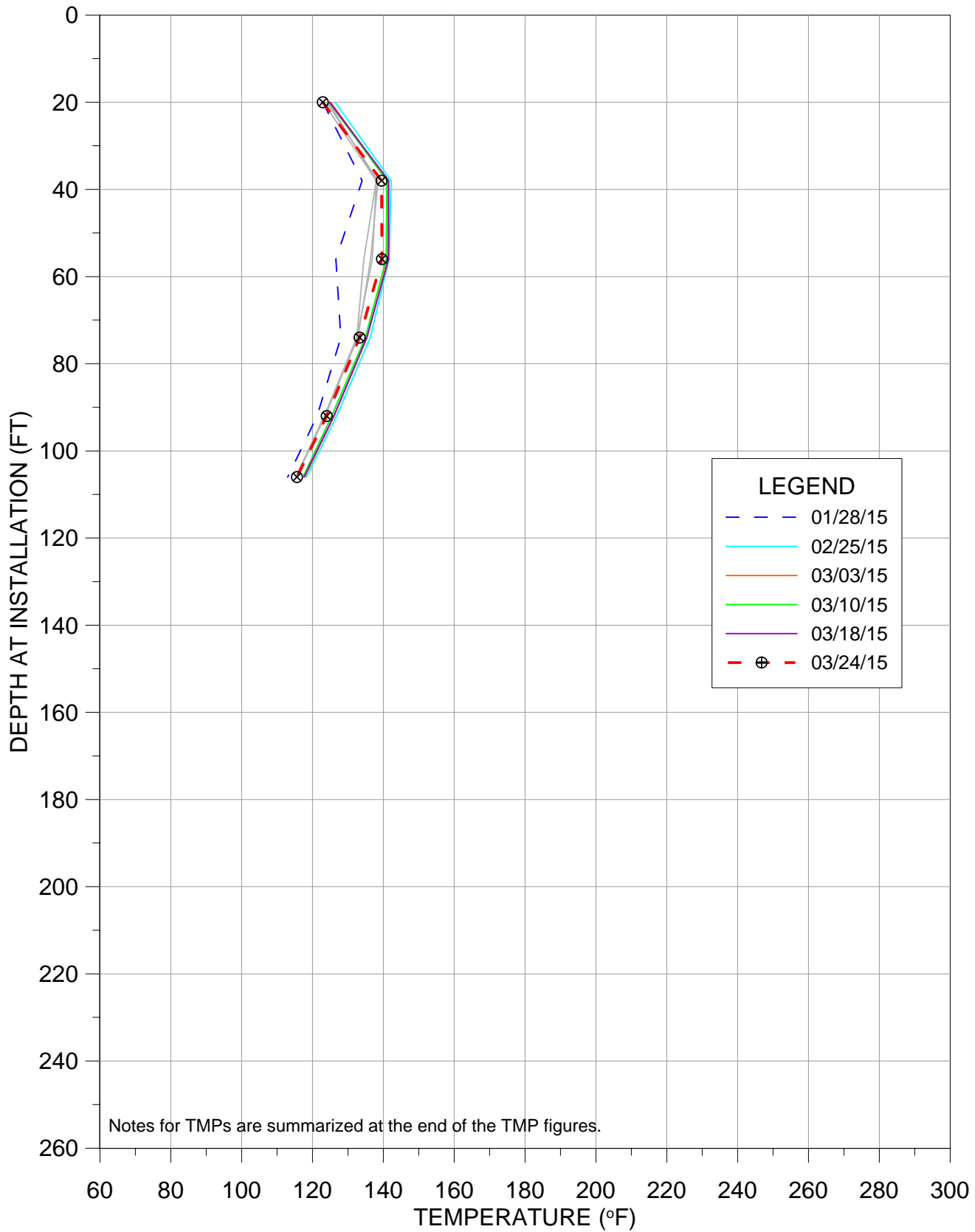
TMP-21



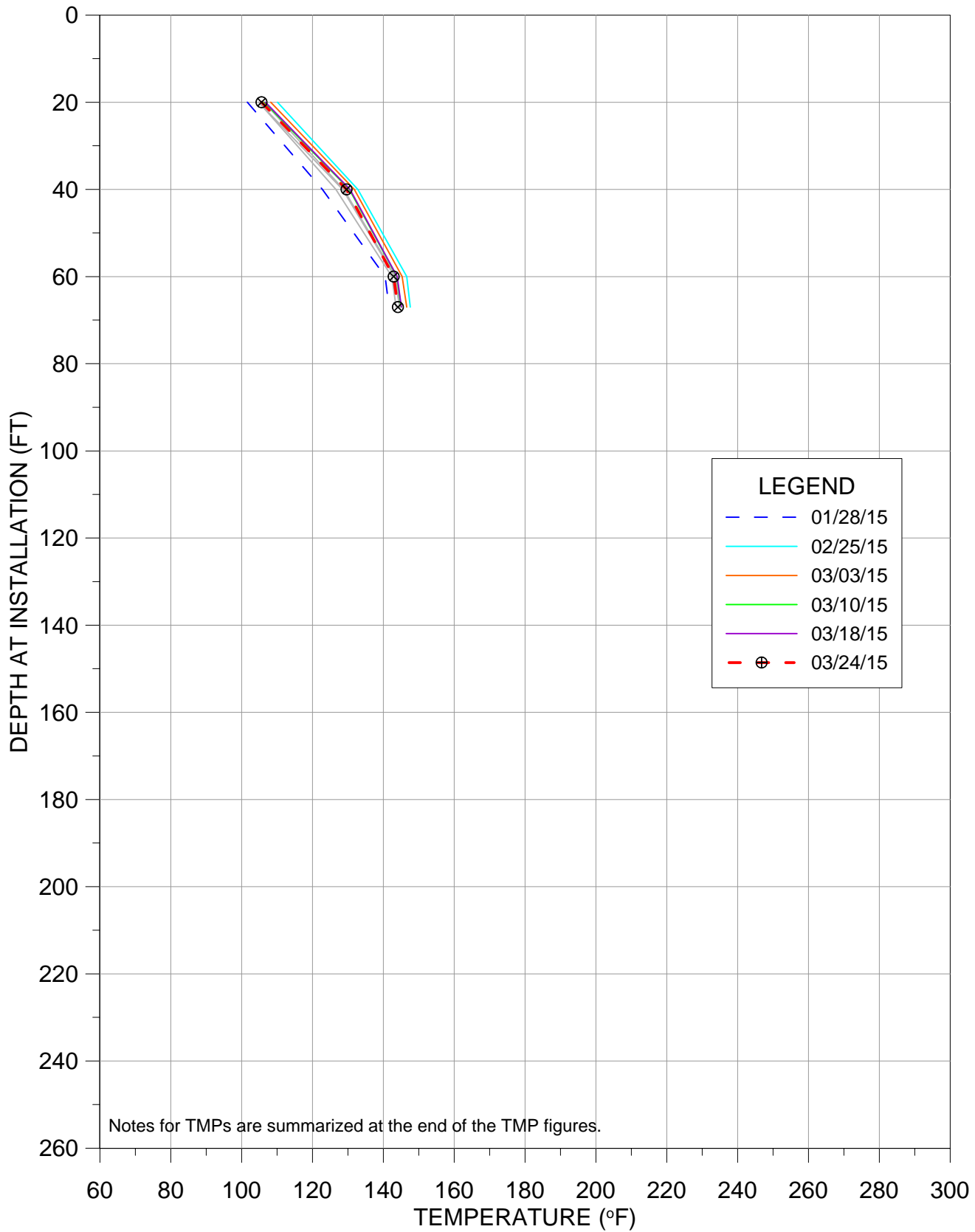
TMP-22



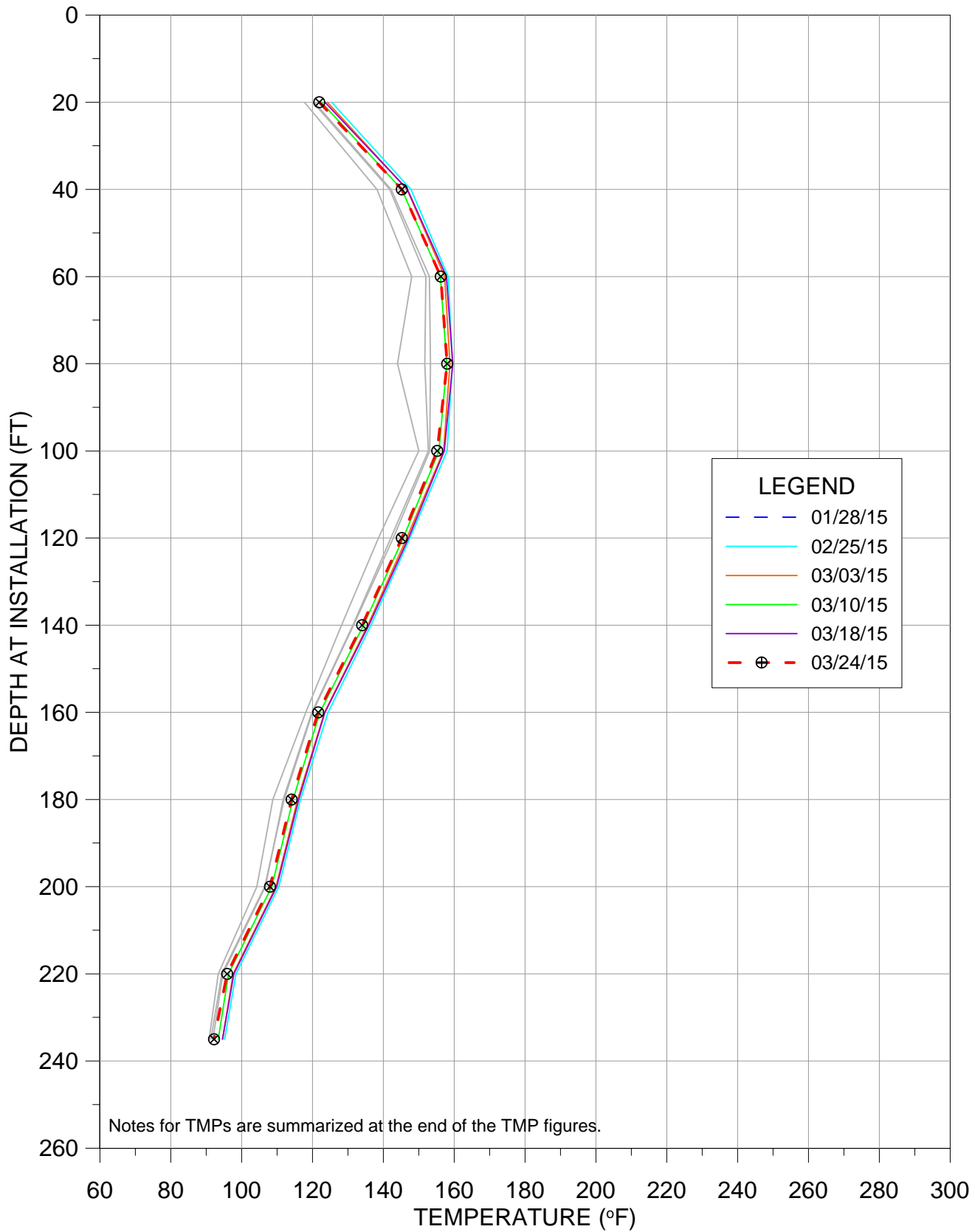
TMP-23



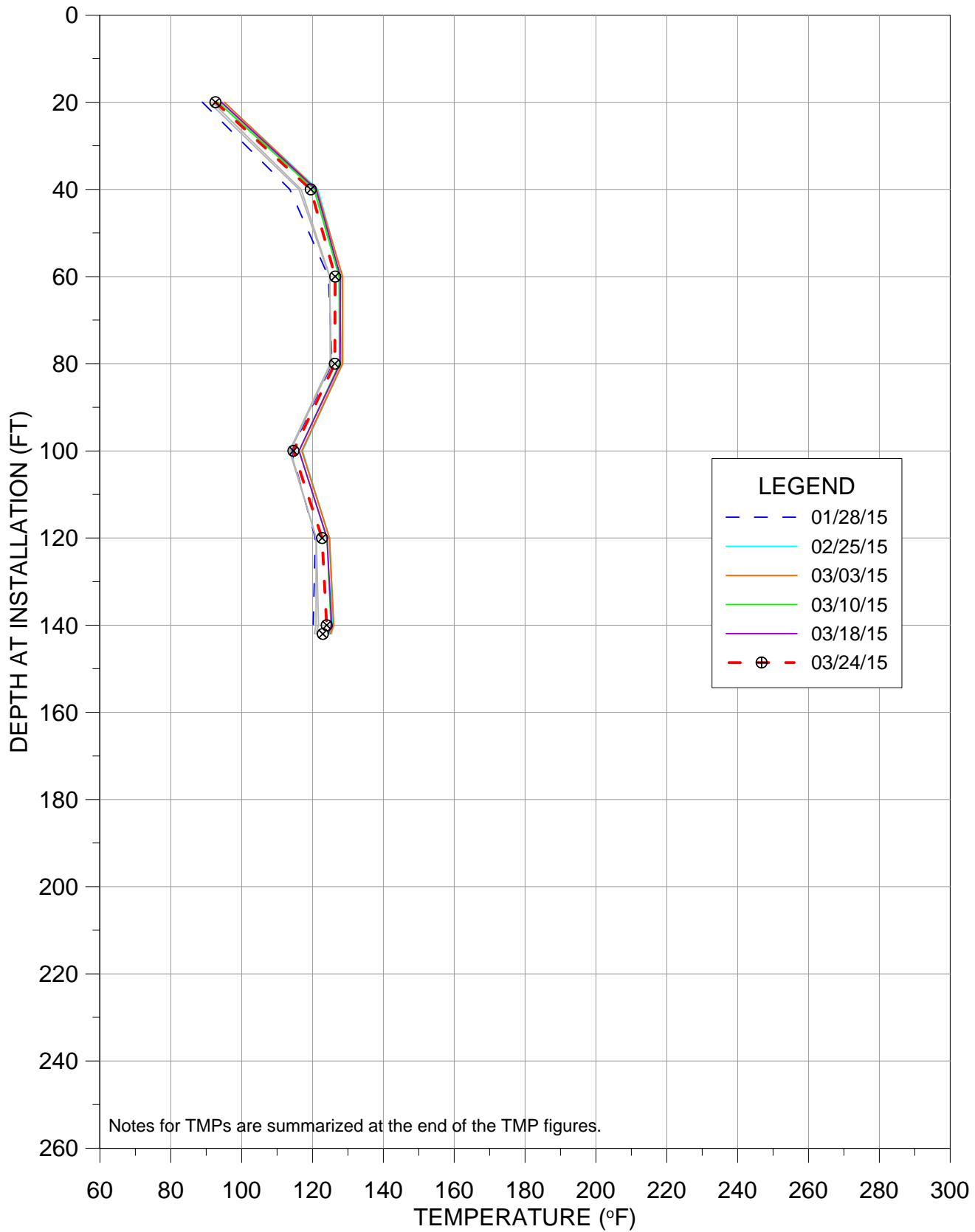
TMP-24



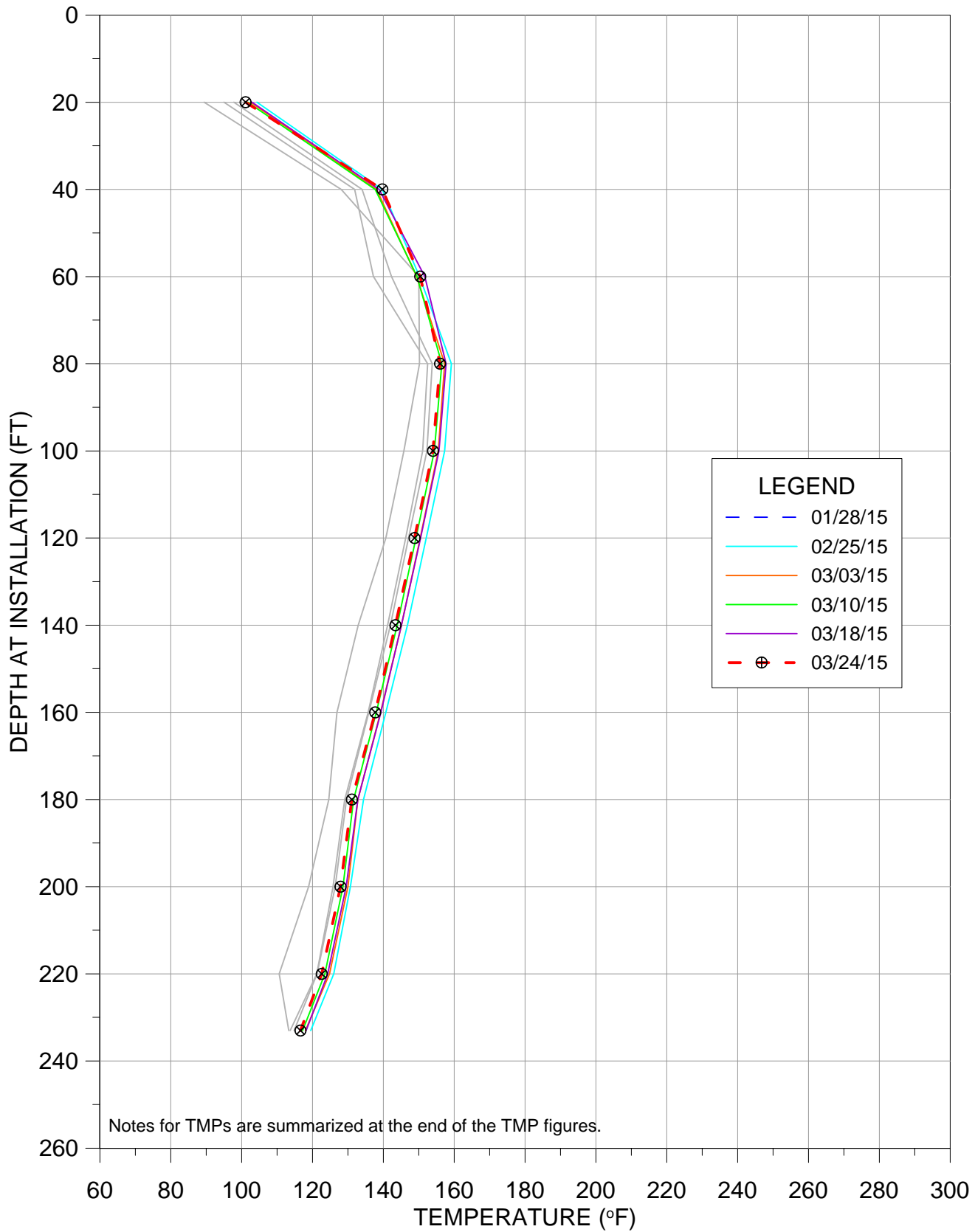
TMP-25



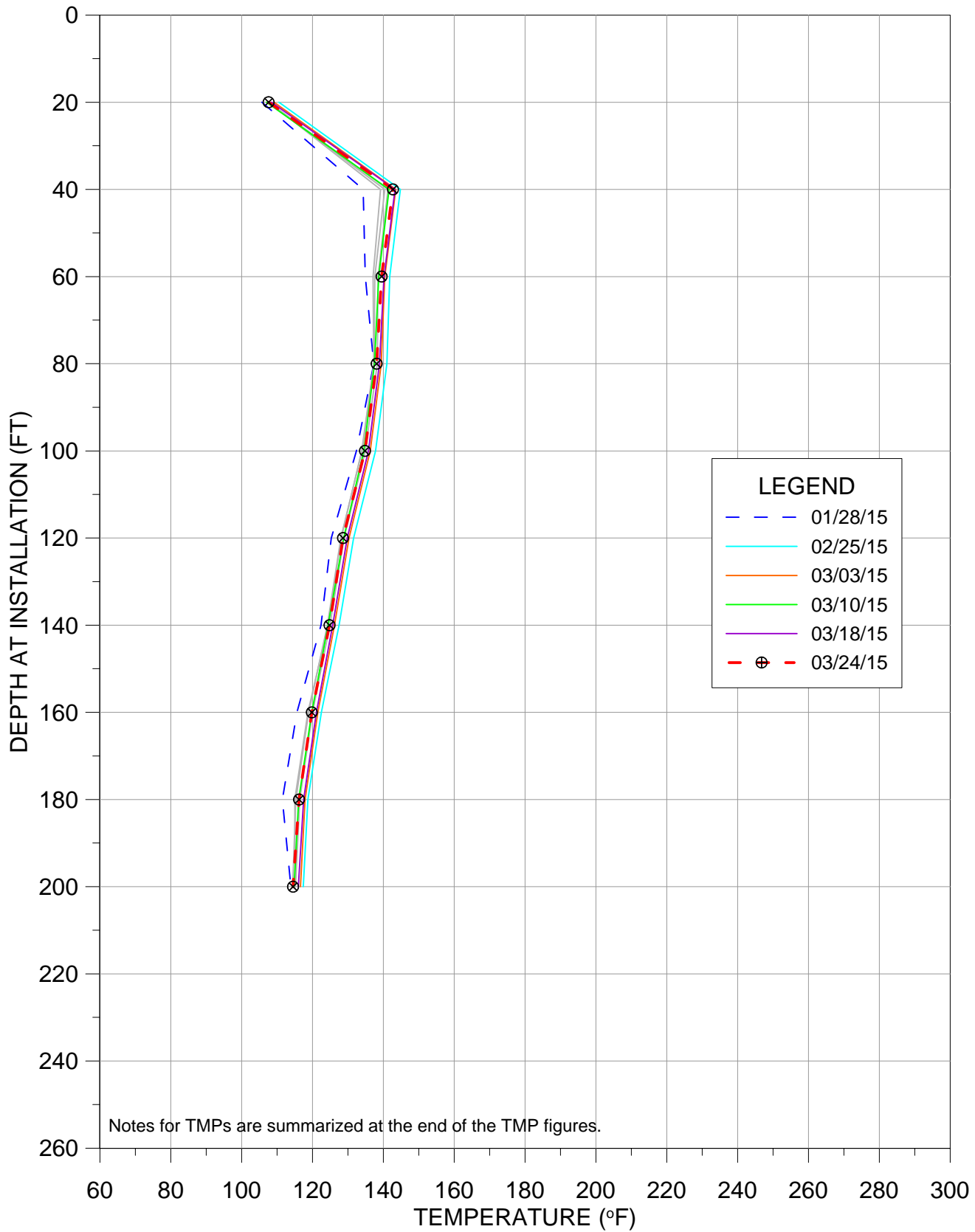
TMP-26



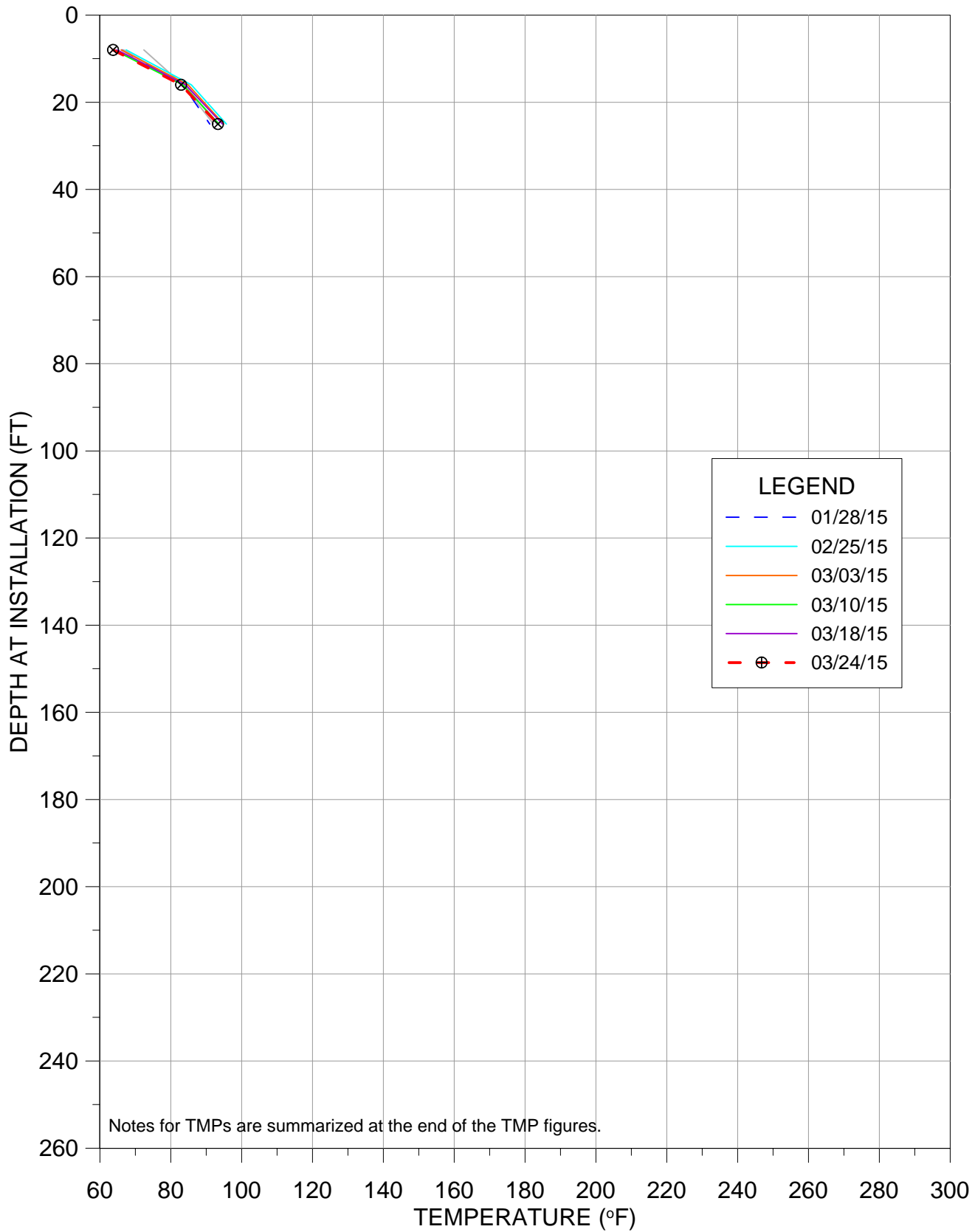
TMP-27



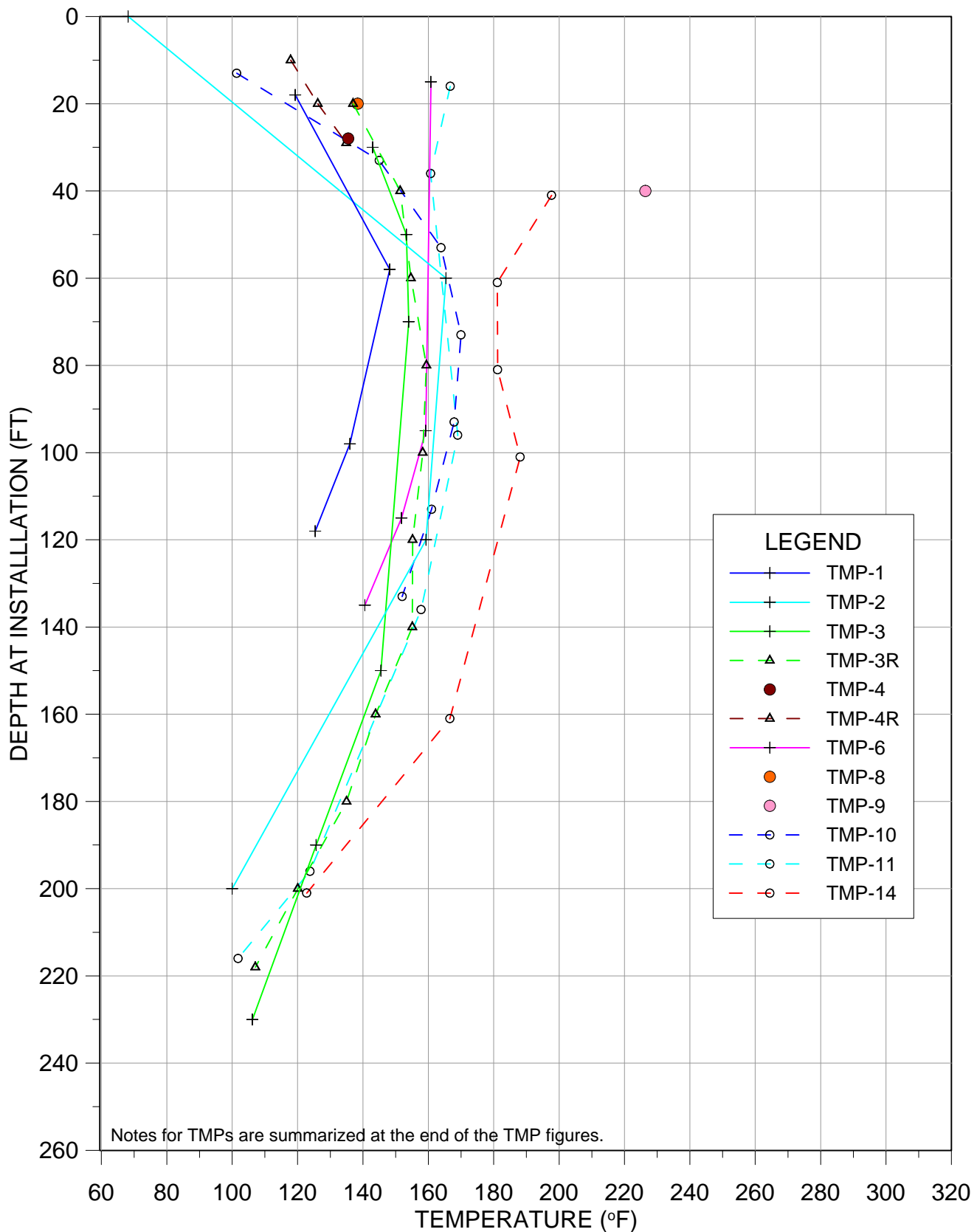
TMP-28



TMP-29

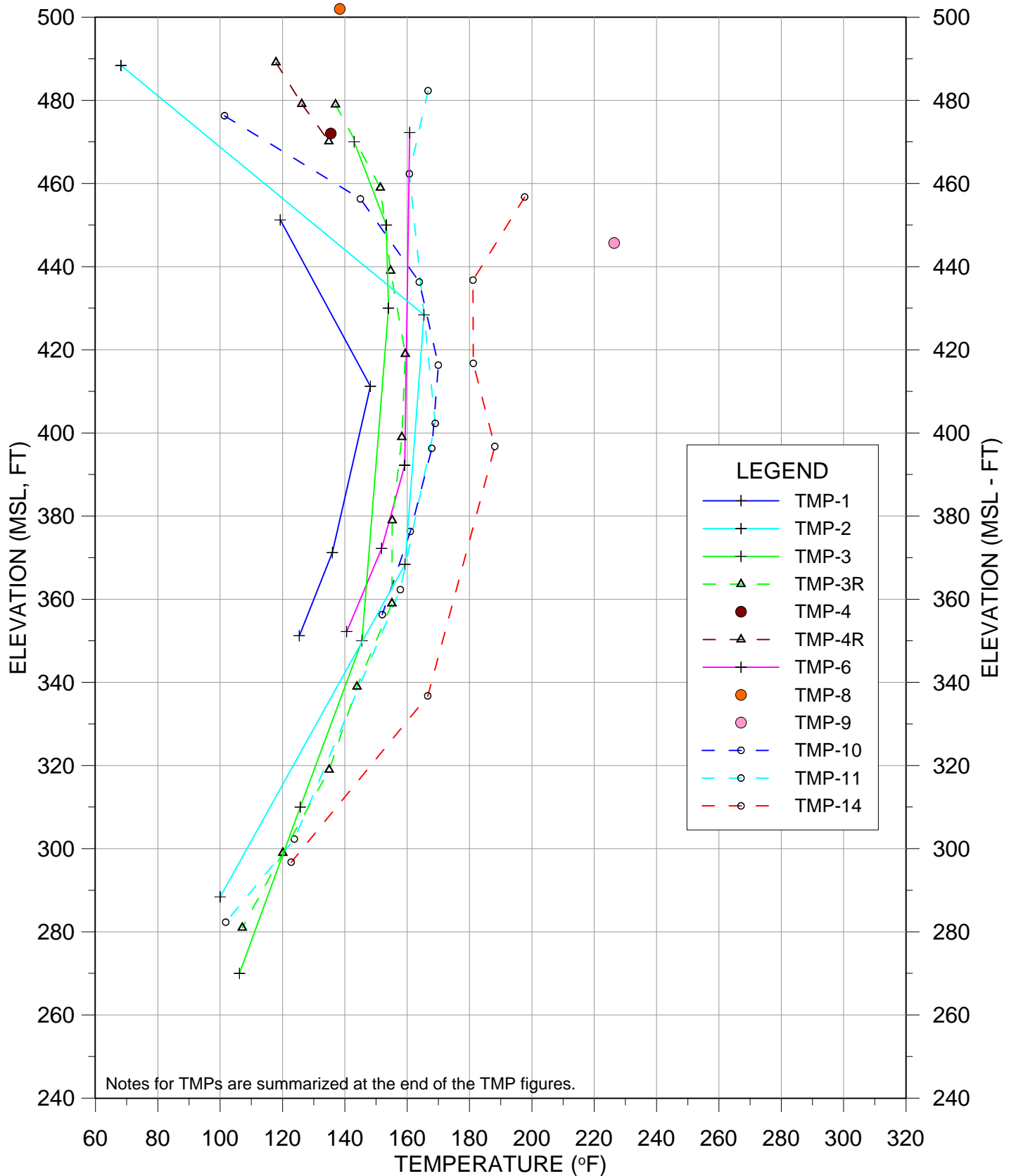


3/24/2015



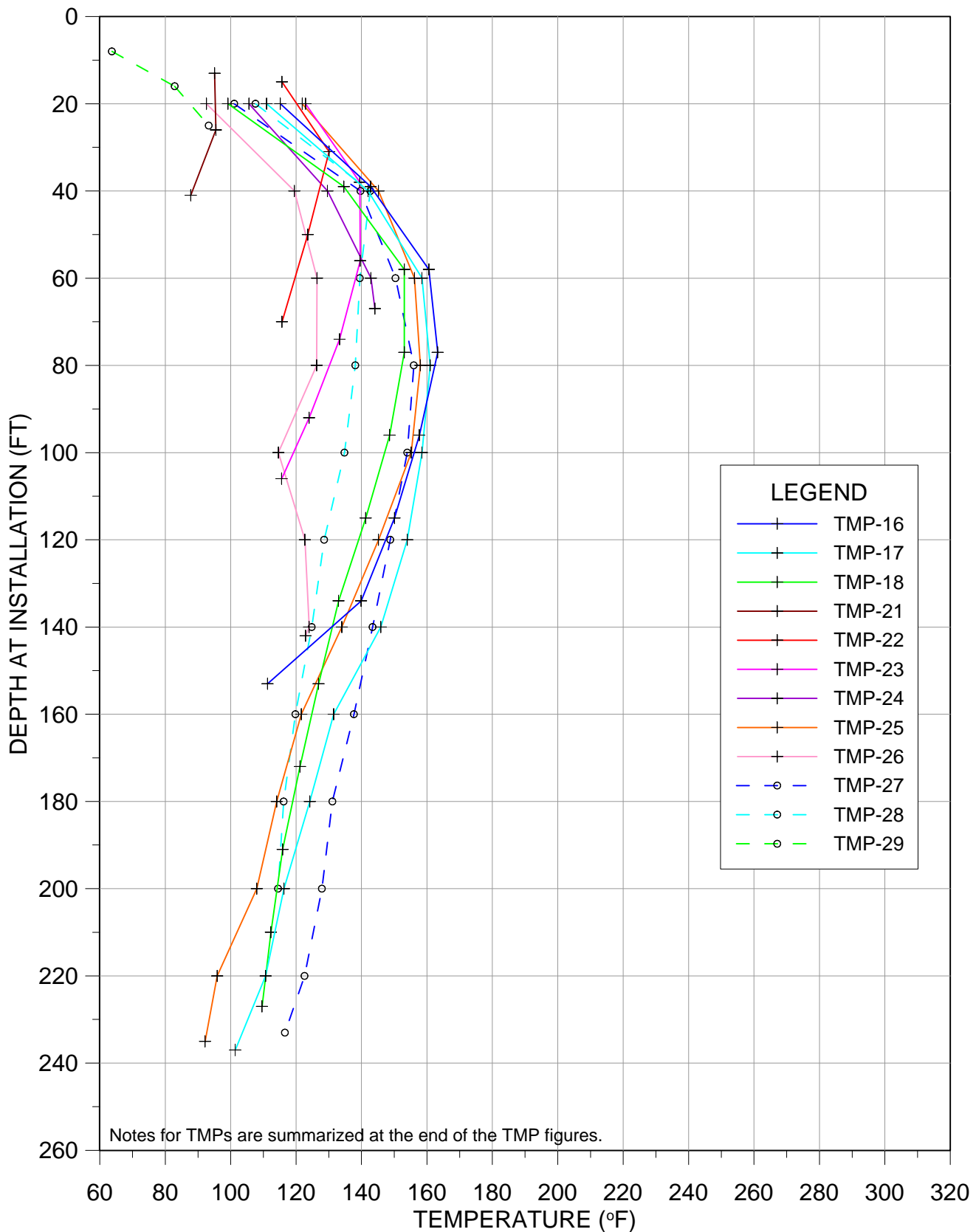
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

3/24/2015

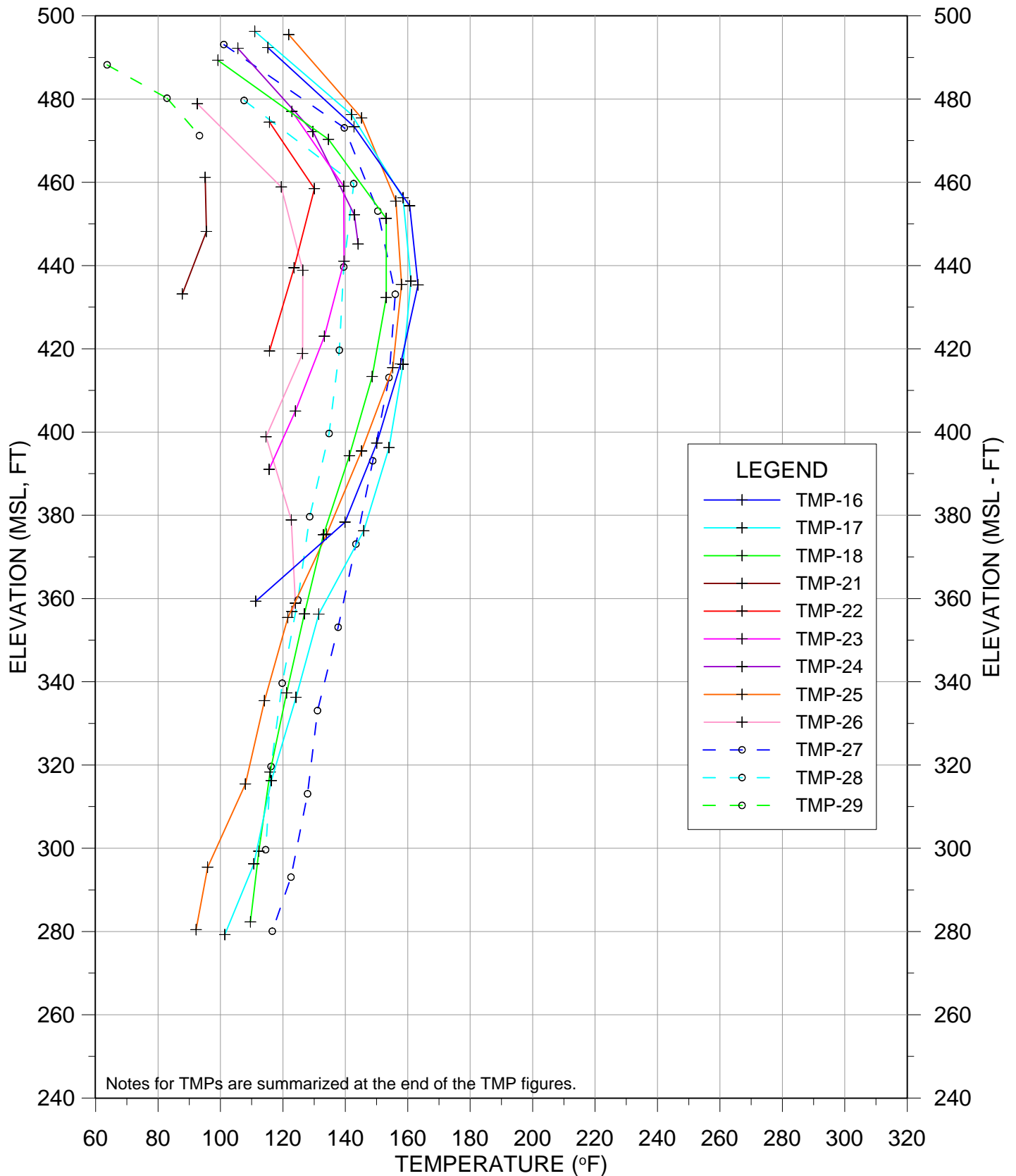


TEMPERATURE VS ELEVATION
BRIDGETON LANDFILL

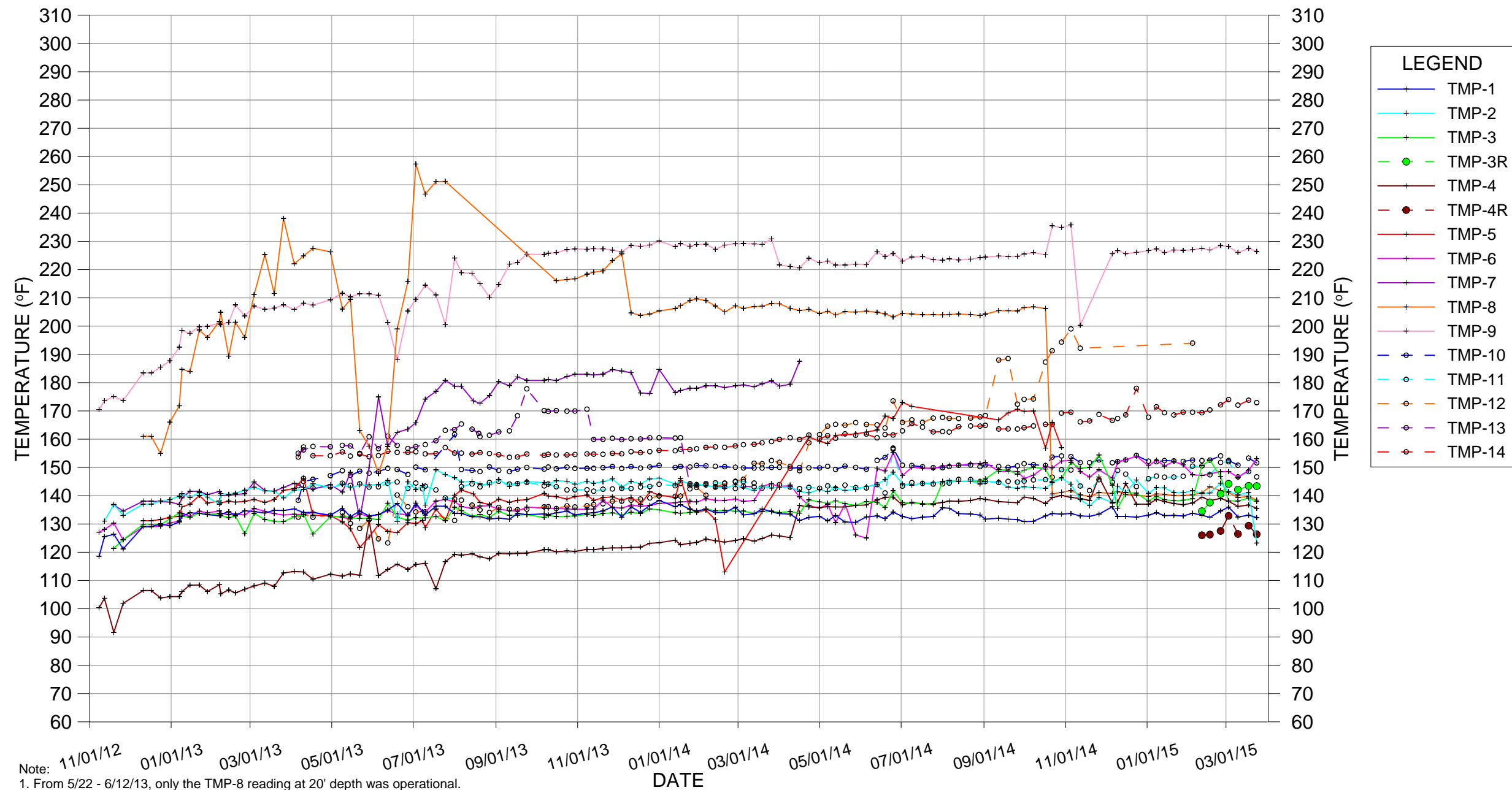
3/24/2015 - NORTH QUARRY



3/24/2015 - NORTH QUARRY



AVERAGE TEMPERATURES



Note: 11/01/12 01/01/13 03/01/13 05/01/13 07/01/13 09/01/13 11/01/13 01/01/14 03/01/14 05/01/14 07/01/14 09/01/14 11/01/14 01/01/15 03/01/15

1. From 5/22 - 6/12/13, only the TMP-8 reading at 20' depth was operational.
No valid readings were obtained for TMP-8 from 8/1 to 10/10/2013. Valid readings from 20' to 40' resumed on 10/16/2013.

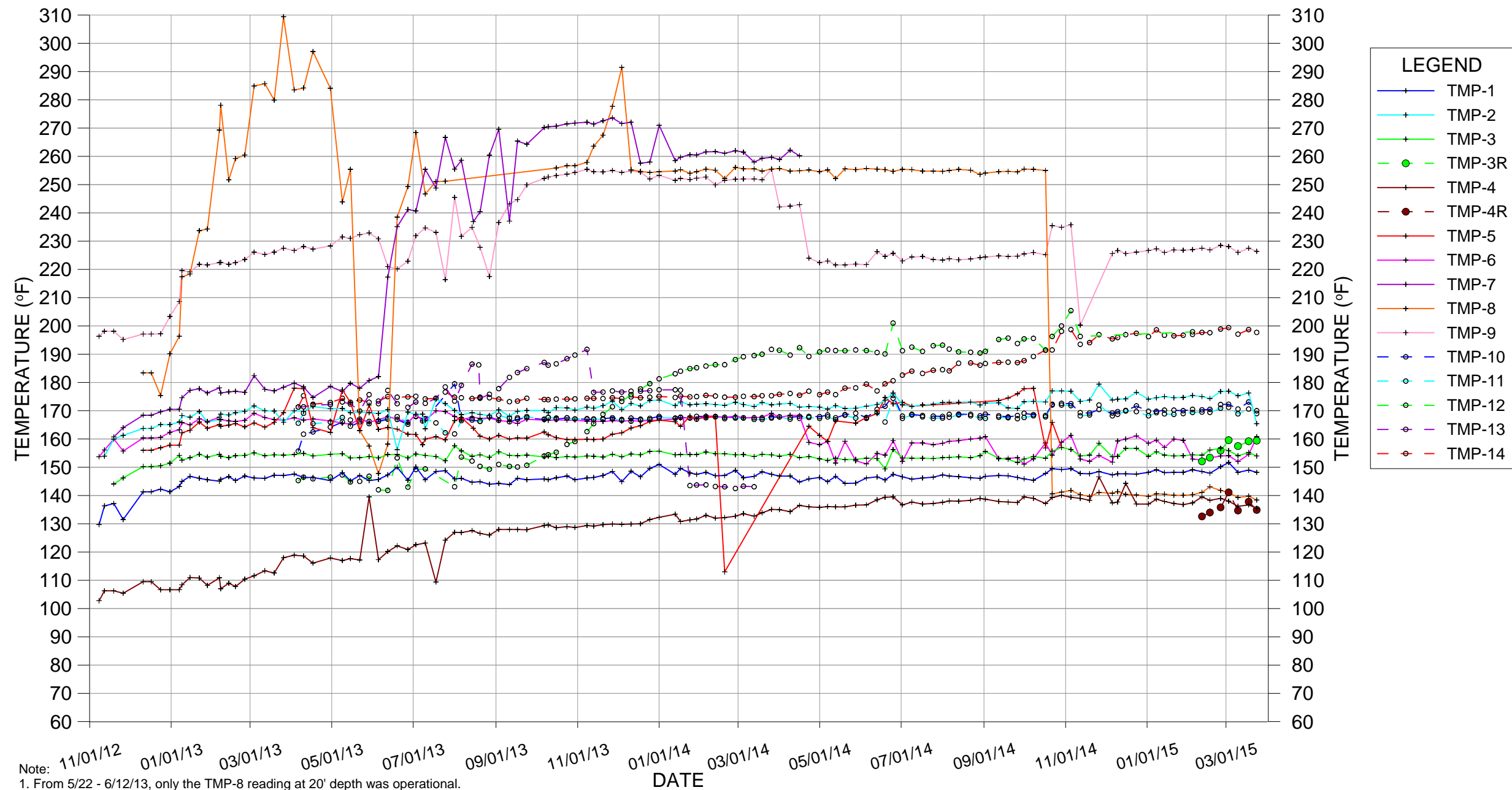
2. A new OMEGA dial was installed at TMP-7R on 6/12/2013 enabling more valid readings.

3. No valid readings were obtained for TMP-10 and TMP-12 on 7/18/2013 or 7/25/2013.

4. End terminals were replaced just prior to the 8/6/2013 readings with type T Omega connectors (part # SMPW-CC-T-M) on all TMPs except for TMP-8.

TEMPERATURE VS TIME
BRIDGETON LANDFILL

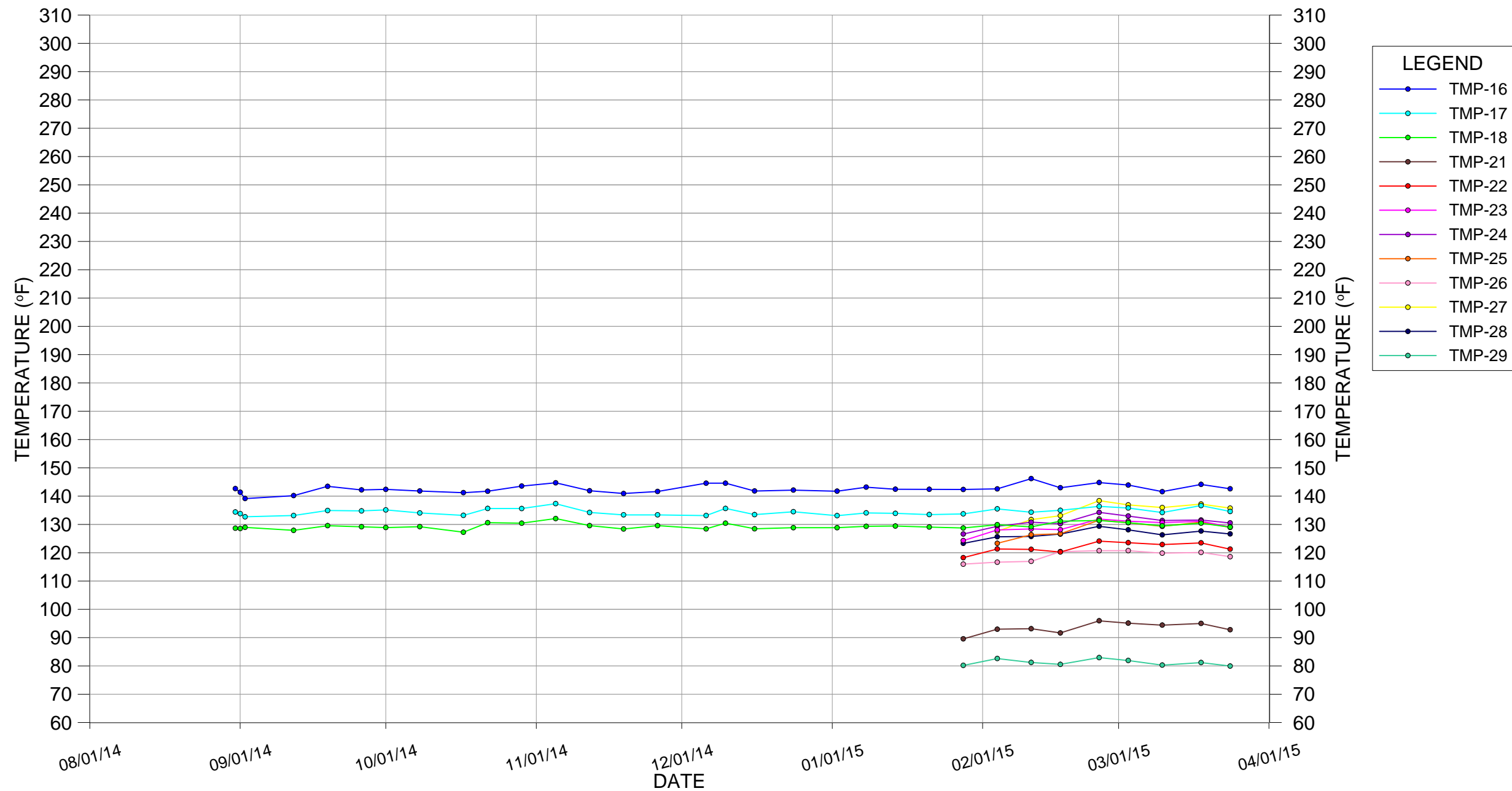
MAXIMUM TEMPERATURES



- Note:
1. From 5/22 - 6/12/13, only the TMP-8 reading at 20' depth was operational.
No valid readings were obtained for TMP-8 from 8/1 to 10/10/2013. Valid readings from 20' to 40' resumed on 10/16/2013.
 2. A new OMEGA dial was installed at TMP-7R on 6/12/2013 enabling more valid readings.
 3. No valid readings were obtained for TMP-10 and TMP-12 on 7/18/2013 or 7/25/2013.
 4. End terminals were replaced just prior to the 8/6/2013 readings with type T Omega connectors (part # SMPW-CC-T-M) on all TMPs except for TMP-8.

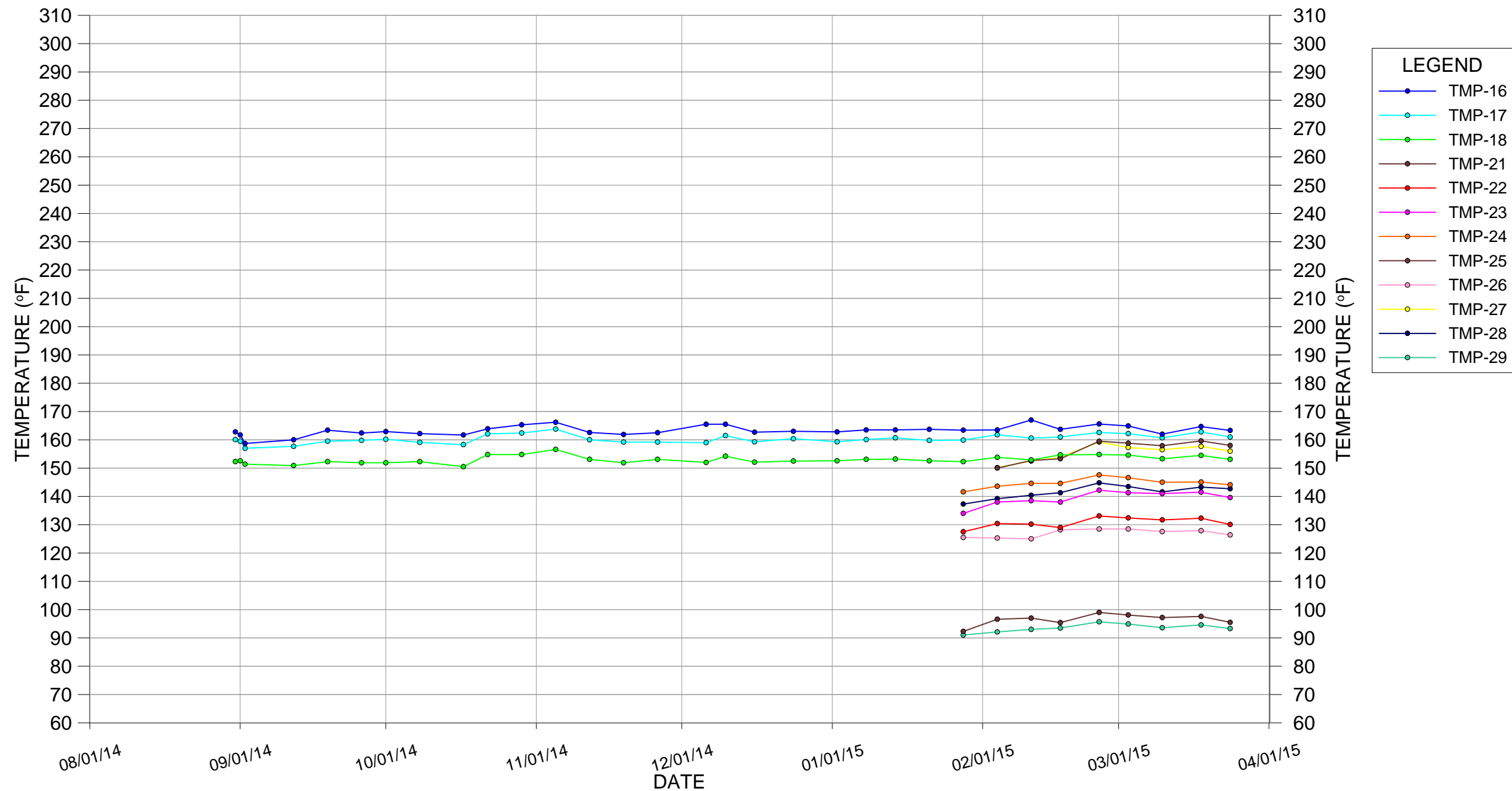
TEMPERATURE VS TIME
BRIDGETON LANDFILL

AVERAGE TEMPERATURES - NORTH QUARRY



TEMPERATURE VS TIME
BRIDGETON LANDFILL

MAXIMUM TEMPERATURES - NORTH QUARRY



TEMPERATURE VS TIME
BRIDGETON LANDFILL

TMP BRIDGETON LANDFILL NOTES

TMP-1:

1. No reliable temperature readings at 138 ft depth since 8/1/2014.
2. No reliable temperature readings at 78 ft depth since 8/13/2014.
3. No reliable temperature readings at 38 ft depth since 9/2/2014.

TMP-2:

1. Unit at 180 ft depth had resistance reading above allowable and is no longer working. No reliable reading has been obtained since 11/26/2012.
2. The resistance reading was high and no temperature readings were obtained at 160 ft depth since 6/19/2014.
3. Unit at 120 ft depth had high resistance readings that were fluctuating on 10/22/14 & from 11/5-12/6/2014 and on 12/16/2014.
4. Unit at 60 ft depth had fluctuating high resistance readings from 11/12/14 – 12/6/14 and no resistance reading between 2/11/2015 and 2/25/15, therefore the temperatures are unreliable during those dates.
5. The conductivity tests on 3/19/15 conducted by FEI showed that units at 20', 40', 80', 100', 140' are no longer reliable.

TMP-3:

1. No reliable temperature readings have been obtained at 170' depth since 1/29/2014, except on 3/13/2014.
2. The conductivity tests on 4/11/14 conducted by CEC showed that units at 10', 90', 130', 210' and 250' are no longer reliable.
3. No reliable temperature readings were obtained at 230' depth from 8/01/2014 – 12/6/14 and 2/11/15 – 2/25/15.
4. No reliable temperature readings were obtained at 190' depth from 9/12 to 10/17/14, from 11/5 to 11/26/14 and on 12/16/14.
5. The conductivity tests on 10/28/14 conducted by Feezor Engineering showed that units at 10', 90', 110', 130', 210' and 250' are not reliable.
6. The unit at 150' no temperature or unreliable readings between 9/12/14 and 3/3/15.
7. The unit at 230' had unreliable or no readings from 10/22/-12/6/2014 and between 2/11/15 – 2/25/15.
8. The unit at 190' had unreliable or no readings from 12/16/14 – 2/17/15.

TMP-3R: NONE

TMP-4: TMP NO LONGER IN SERVICE

1. The conductivity tests on 4/11/14 conducted by CEC showed that the unit at 48' depth is no longer reliable.

TMP-4R: NONE

TMP-5: TMP NO LONGER IN SERVICE– Verified by Conductivity testing by FELin March 2015.

TMP-6:

1. Unit at 195 ft depth had a resistance reading above acceptable on 11/20/2013.
2. Unit at 155 and depth had resistance readings above acceptable since 3/19/2014. No temperature readings were obtained.
3. Units at 195 ft depths had resistance readings above acceptable and no temperature readings obtained from 3/19/2014 to 4/11/2014.
4. The conductivity tests on 4/11/14 conducted by CEC showed that units at 35', 55', 75', 155', 175', and 195' depths are no longer reliable.
5. No reliable temperature readings were obtained at the unit at 95' on 5/13/14, 5/28-7/2/14, 10/1-10/8/14, 10/22/14, 11/12-12/6/14, 1/14/15 & since 2/4/15. The temperatures between 12/16/14-1/8/15 are questionable due to high/fluctuating resistivity.
6. No reliable temperature readings were obtained at the 15' unit on 5/28-6/13/14, 6/25/14, 8/1-9/2/14, 10/1-10/8/14, 11/19-12/6/14, 1/2/15, & between 1/28/15 – 3/18/15. The temperature obtained on 12/16/14 is questionable due to high resistivity.
7. No reliable temperature readings were obtained at the unit at 215' since 6/13/14.

TMP-7R: TMP NO LONGER IN SERVICE

TMP-8: **TMP NO LONGER IN SERVICE**

1. Lines connecting data over distance of > 40' are to identify the data set and should not be used for temperature estimation.
2. The presented TMP readings represent the thermocouples that were operational on those dates.
3. No acceptable readings were obtained between 7/25/13 to 10/10/13.
4. Acceptable readings were obtained resuming on 10/16/13 from 20' to 80' depths.
5. Resistance of the unit at 80' indicates the reading is not reliable since 12/04/13.
6. The conductivity tests on 10/28/14 conducted by Feezor Engineering showed that units at 40' and 60' are not reliable.

TMP-9: **TMP NO LONGER IN SERVICE**

1. All units had resistivity readings higher than acceptable levels on 7/3, 7/18, 7/25, 8/14, 8/20, 8/27, and 9/3/2013. Values shown on and between those dates are for informational purposes and should not be considered reliable. Resistivity readings since 9/11/2013 were acceptable for all units except 100'.
2. Unit at 100' depth had an inaccurate temperature reading on 8/1/2013 and no reading since 8/6/2013.
3. Unit at 80' depth had a high resistivity and no temperature readings on 4/1/2014.

4. The conductivity tests on 4/11/14 conducted by CEC showed that units at 20', 60', 80', and 100' depths are no longer reliable.
5. Unit at 40' depth had a resistance lower than credible on 11/12/14. The unit requires assessment.
6. Unit at 40' depth had a resistance which is fluctuating from week to week between 11/19 & 11/26/14. The readings are considered unreliable during that time.

TMP-10:

1. Resistance readings for 7/18 and 7/25/2013 were acceptable; however the temperature readings appear inaccurate. This issue appears to be resolved as of the 8/1/2013 readings.
2. No reliable temperature reading was obtained at 113' depth between 3/3/15 and 3/18/15.

TMP-11:

1. None of the units had acceptable resistivity readings on 7/3/2013. The units at TMP-11 were subsequently re-read on 7/8/2013. Resistance readings for 7/8/2013 were acceptable.
2. All units had resistivity readings higher than acceptable levels on 7/18/2013. Values shown for that date are for informational purposes and should not be considered reliable.
3. All units had acceptable resistance readings starting on 7/25/13, except a high resistance reading at 116' depth since 10/30/13.
4. No temperature reading was obtained at 176' since 1/17/2014.
5. The unit at 156' depth had high or questionable resistance since 1/17/14. No temperatures were obtained between 1/17/14 and 5/13/14, on 6/19/14, between 8/13/14 and 10/17/2014, and since 2/11/15. Readings were either not obtained or deemed unreliable since 8/13/14, except for on 10/22/14 and 12/10/14.
6. The unit at 56' depth had a high resistance reading since 3/19/14 & no temperatures were obtained.
7. The conductivity tests on 4/11/14 conducted by CEC showed that units at 56', 116', and 176' depths are no longer reliable.
8. No temperature was obtained on 6/25/14 at 216' depth.
9. The conductivity tests on 10/28/14 conducted by Feezor Engineering showed that units at 56', 116' and 176' are not reliable.
10. The Unit at 76' depth had either no readings or unreasonable readings between 11/12 & 12/6/14, 12/24/14, on 1/14/15, on 2/17/15 and since 3/10/15.
11. The Unit at 16' depth had either no readings or unreasonable readings between 11/19 & 12/6/14 and 12/16/14 – 1/28/15.

TMP-12: TMP NO LONGER IN SERVICE – Verified by Conductivity testing by CEC in March 2015.

TMP-13: TMP NO LONGER IN SERVICE

TMP-14:

1. The unit at 181 ft depth had resistance readings that were out of readable limit and no temperature readings obtained since 7/9/2014.
2. The unit at 101 ft depth had resistance readings that were out of readable limit and no temperature readings from 7/9/2014 to 7/17/2014.
3. The unit at 121 ft depth had resistance readings out of readable limit and no temperature readings since 7/25/2014.
4. The unit at 141 ft depth had a high resistance reading and no temperature reading obtained since 8/01/2014.
5. The unit at 21 ft depth had low resistance readings and unreliable temperature readings since 7/25/2014.
6. The unit at 201 ft depth had no temperature or resistance reading obtained on 12/24/2014.

TMP-14R: NOT PART OF THIS SUBMITTAL (HEAT EXTRACTION TMP)

TMP-15: TMP WAS NEVER IN SERVICE

TMP-16: NONE

TMP-17: NONE

TMP-18: NONE

TMP-19: NOT PART OF THIS SUBMITTAL (HEAT EXTRACTION TMP)

TMP-20: NOT PART OF THIS SUBMITTAL (HEAT EXTRACTION TMP)

TMP-21: NONE

TMP-22: NONE

TMP-23: NONE

TMP-24: NONE

TMP-25: NONE

TMP-26: NONE

TMP-27: NONE

TMP-28:

1. The unit at 217 ft depth has had no resistance or temperature readings since installation.

TMP-29: NONE

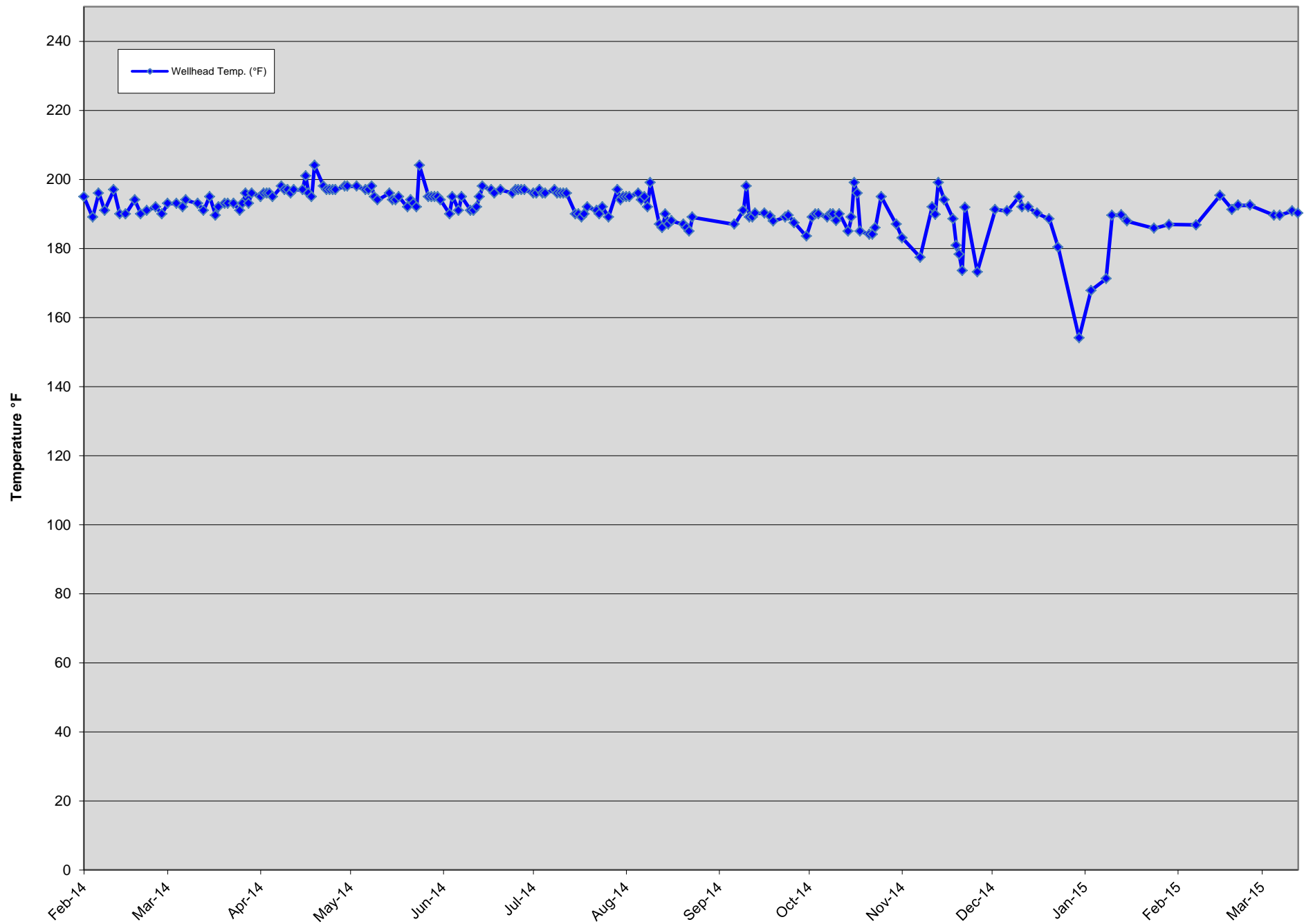
TMP vs DEPTH and TMP vs ELEVATION (for 3/24/2015):

1. There were no reliable temperature readings for TMP-13 since 3/19/2014.
2. There were no reliable temperature readings for TMP-7R, as determined by the conductivity test on 4/11/14.
3. There were no reliable temperature readings for TMP-5 from 7/17-9/2/2014 and since 11/5/14.
4. There were no reliable temperature readings for TMP-9 from 11/19 - 12/26/2014.
5. There were no reliable temperature readings for TMP-12 since 11/19/2014.

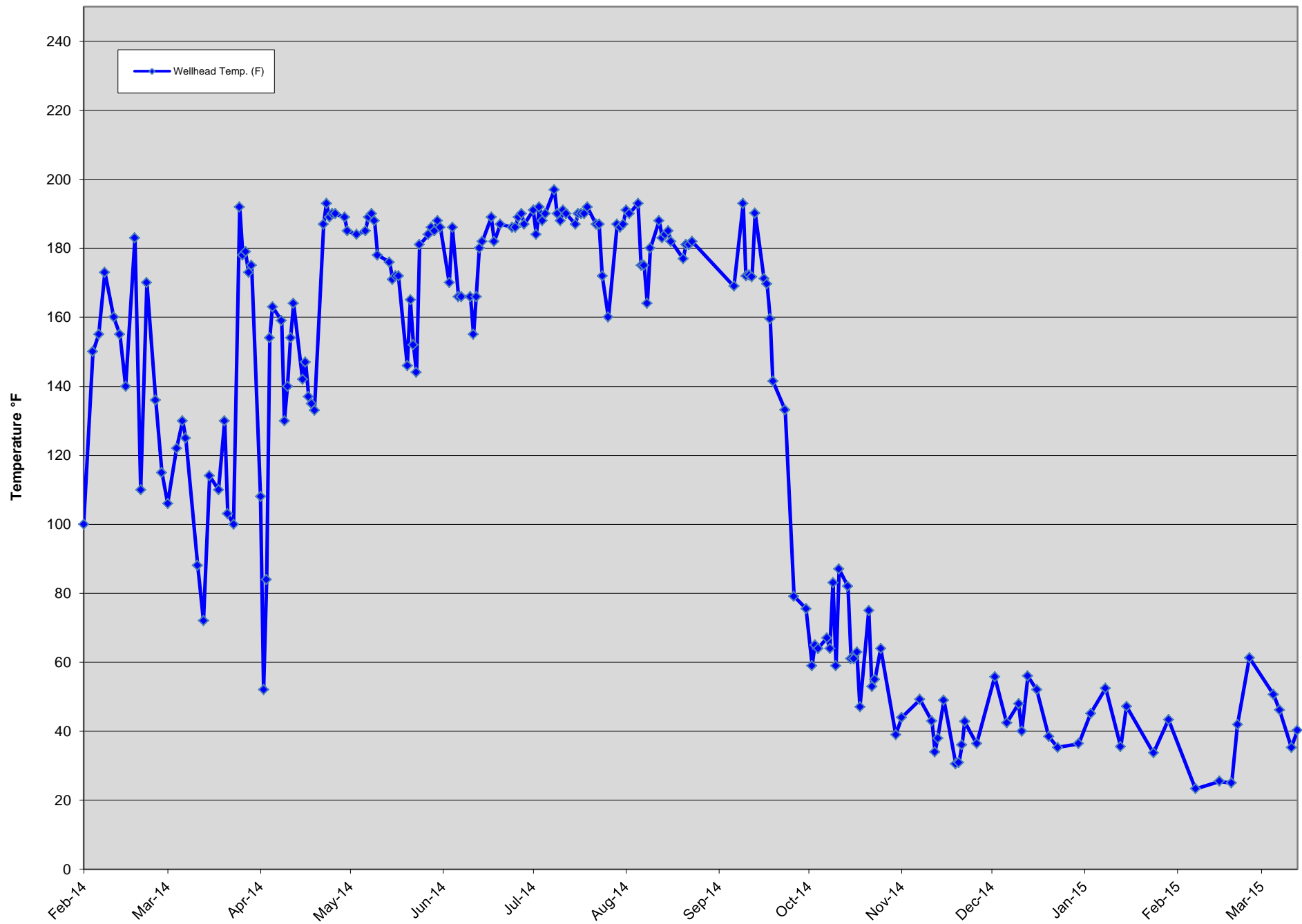
ATTACHMENT C

GAS INTERCEPTOR WELLHEAD TEMPERATURE GRAPHS

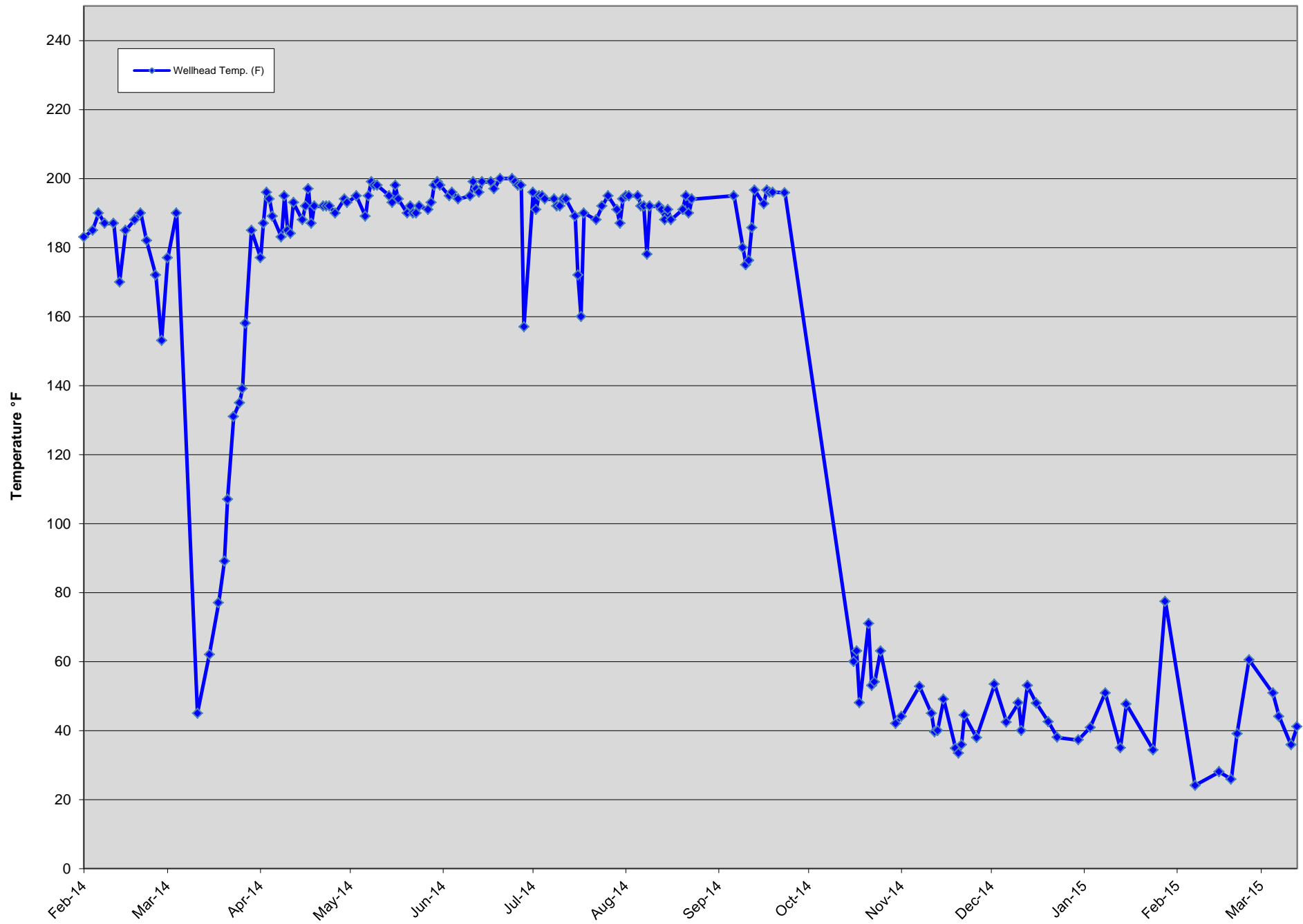
GIW-1 Wellhead Temperatures



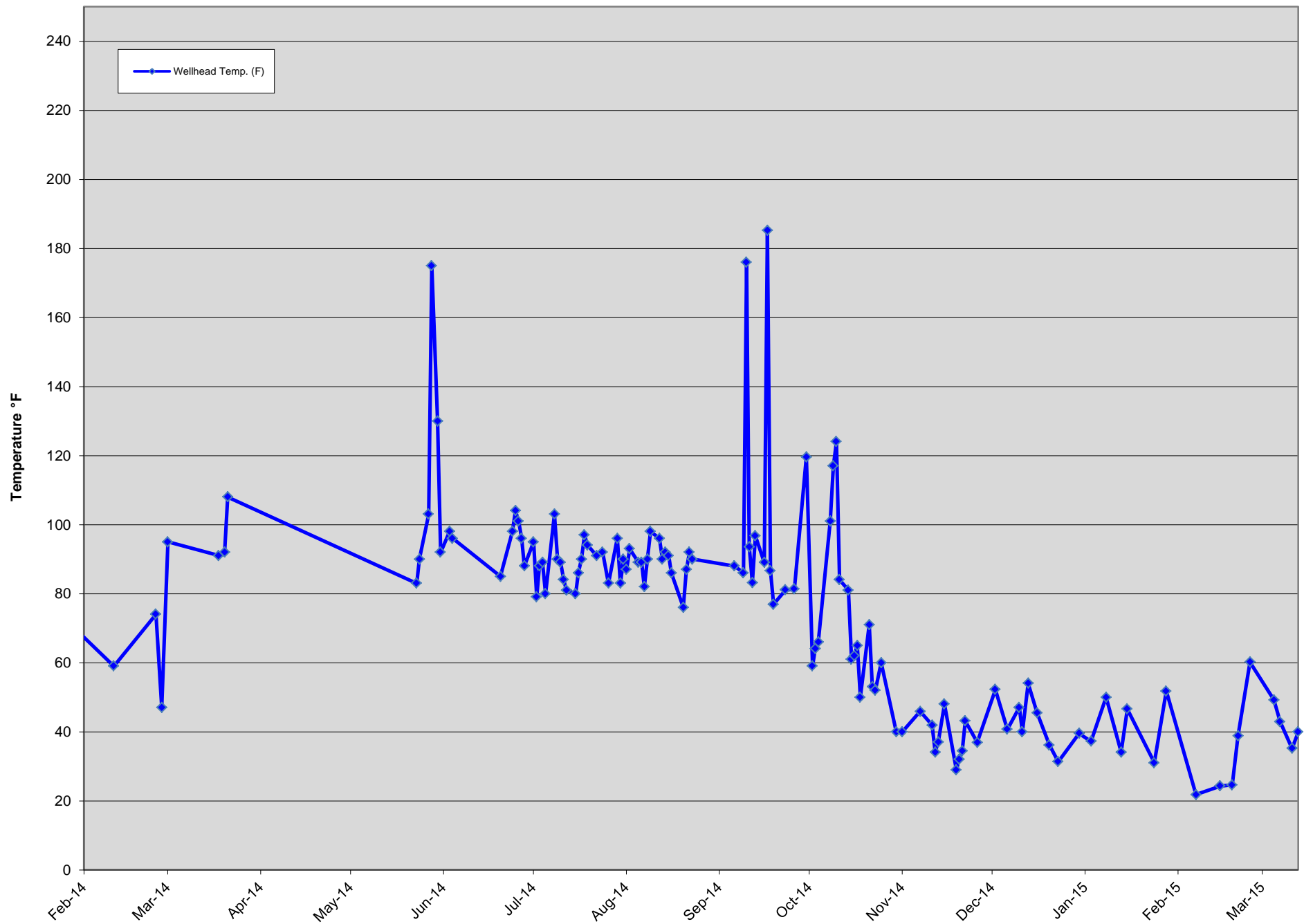
GIW-2 Wellhead Temperatures



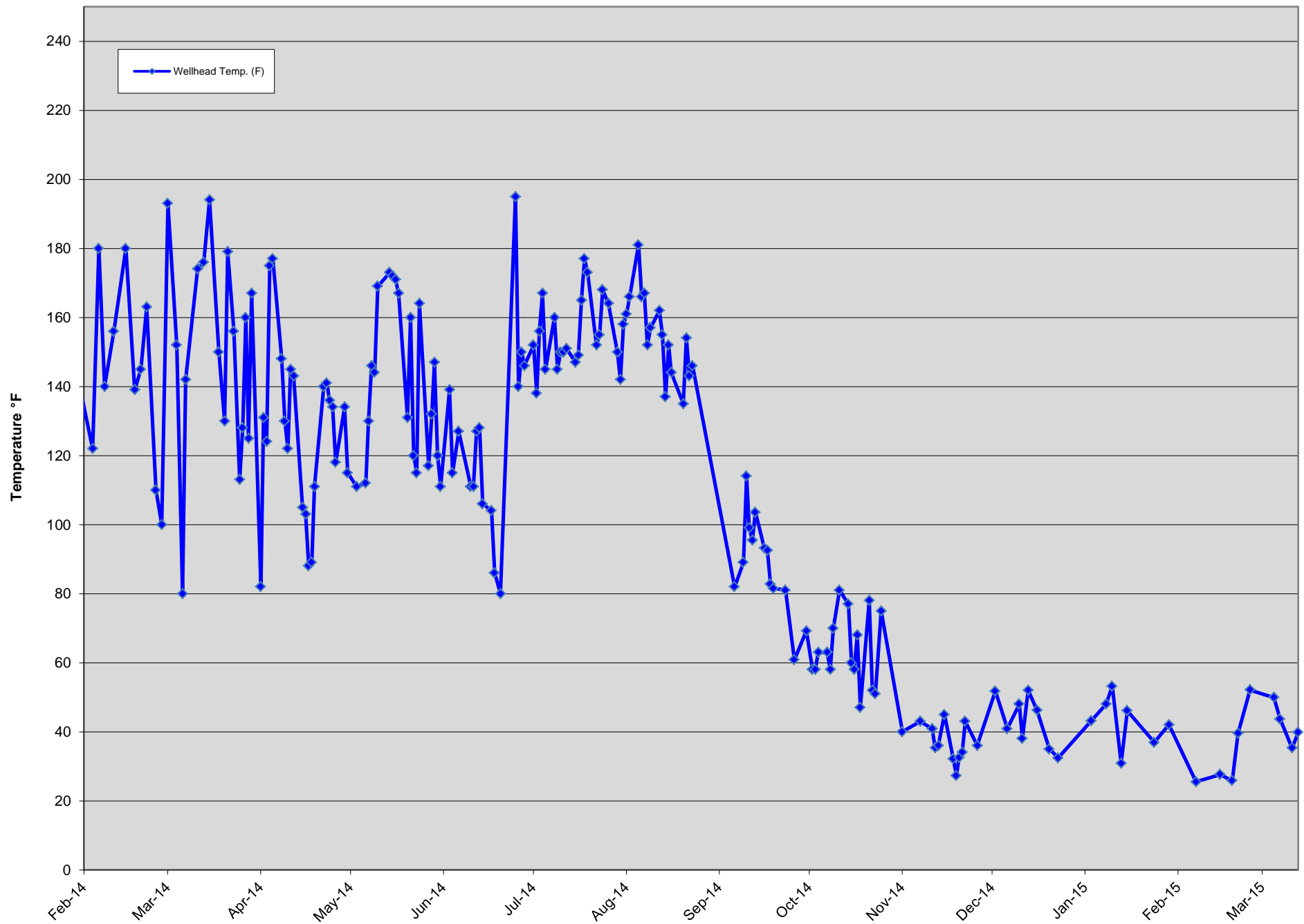
GIW-3 Wellhead Temperatures



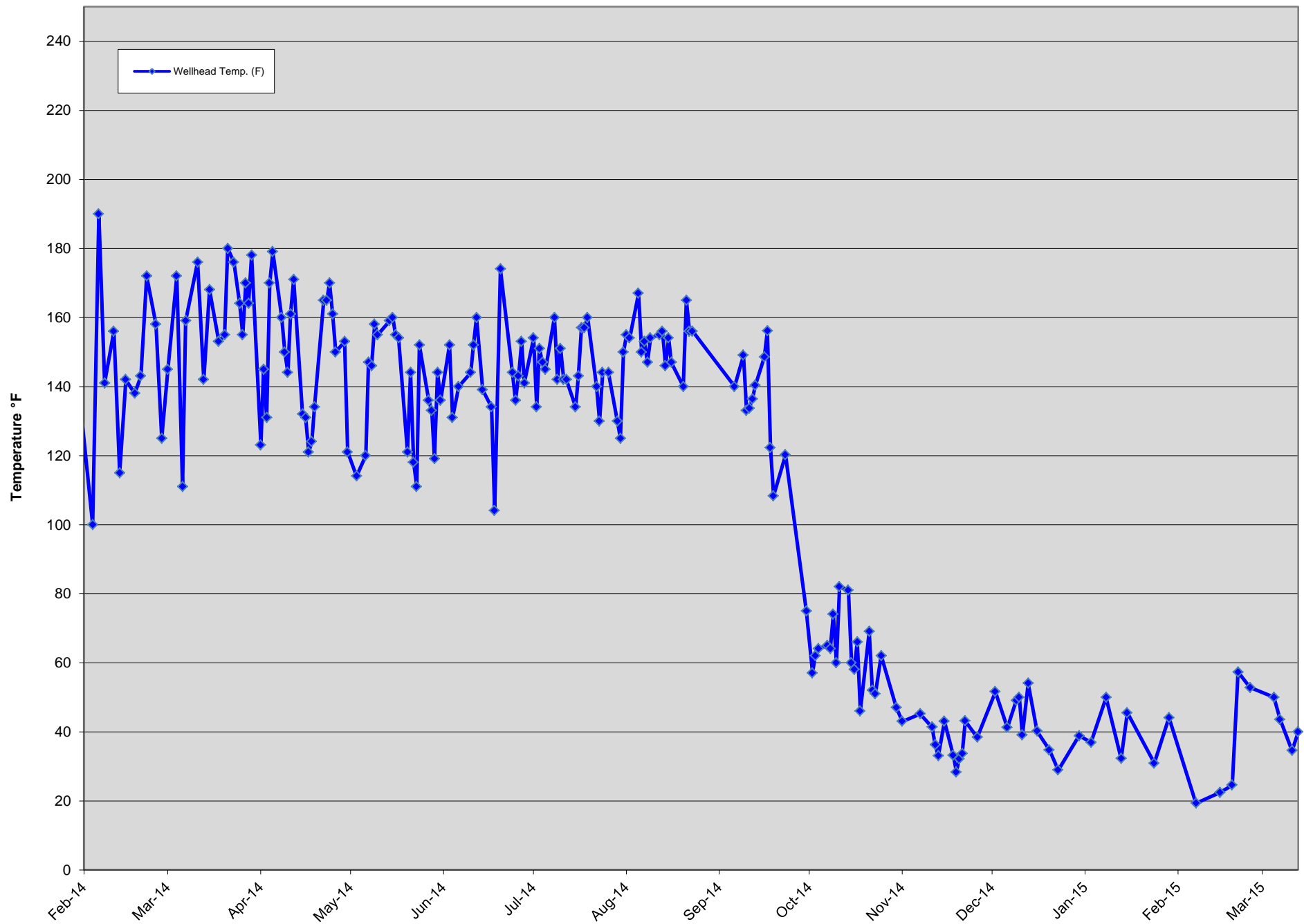
GIW-4 Wellhead Temperatures



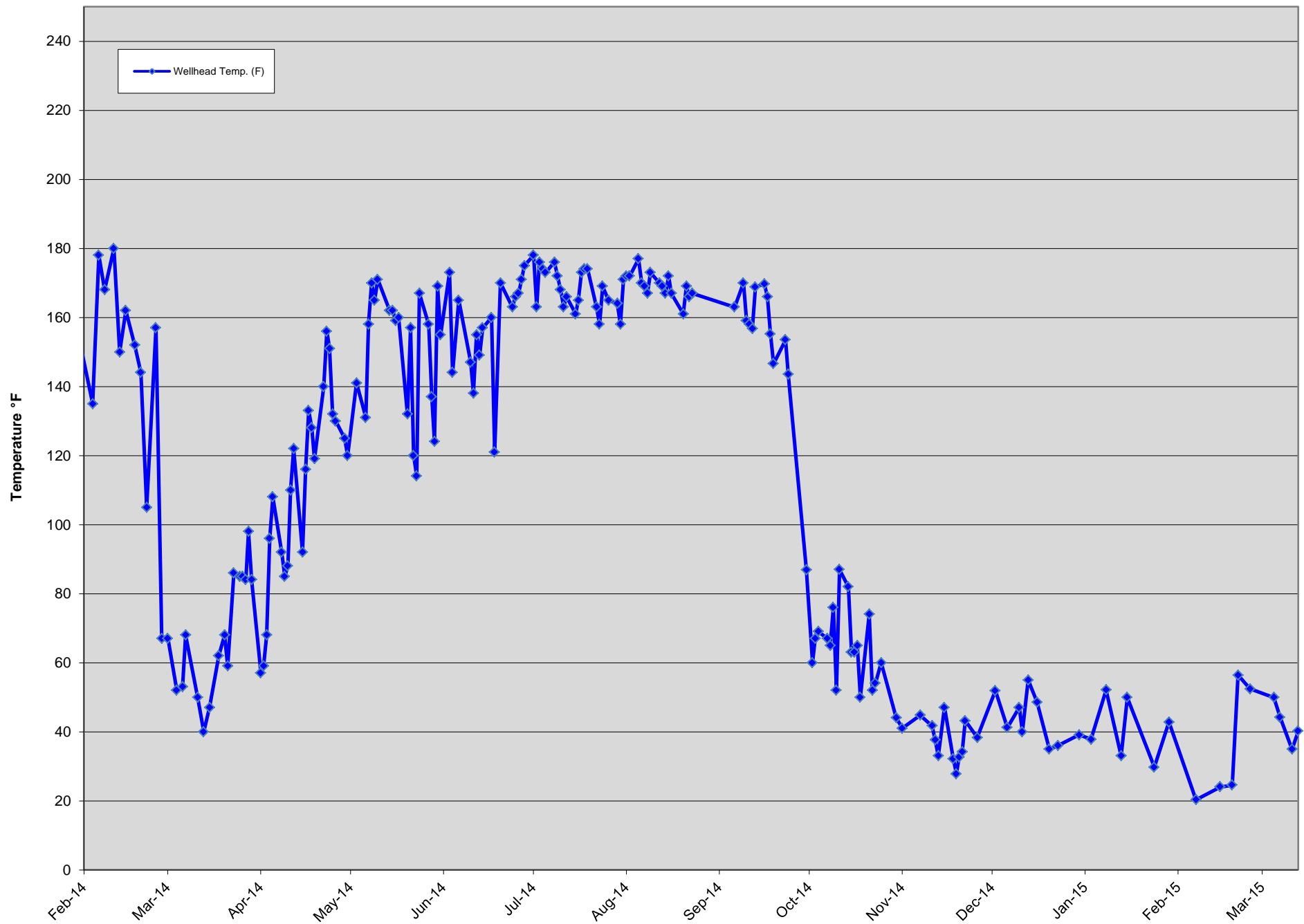
GIW-5 Wellhead Temperatures



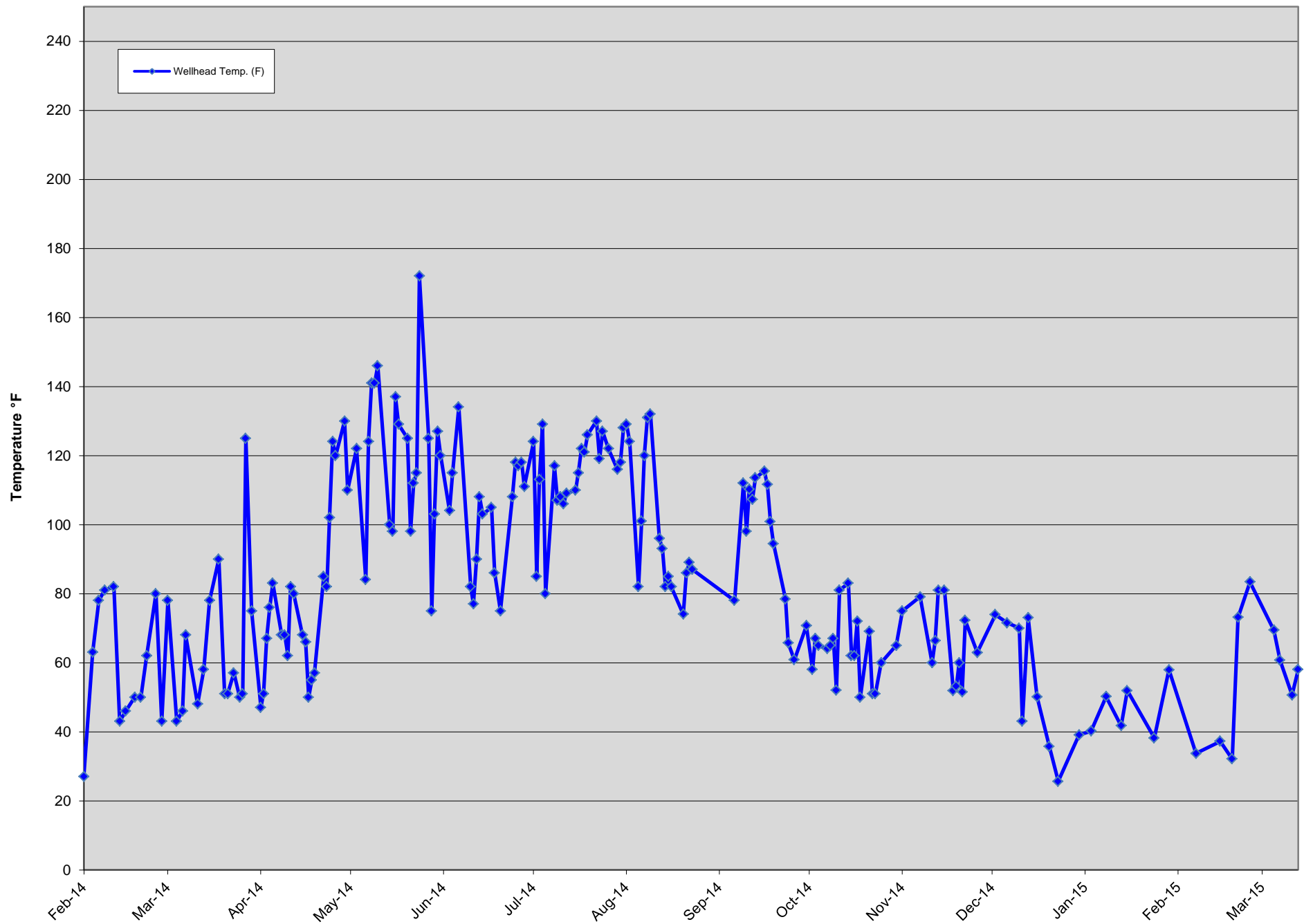
GIW-6 Wellhead Temperatures



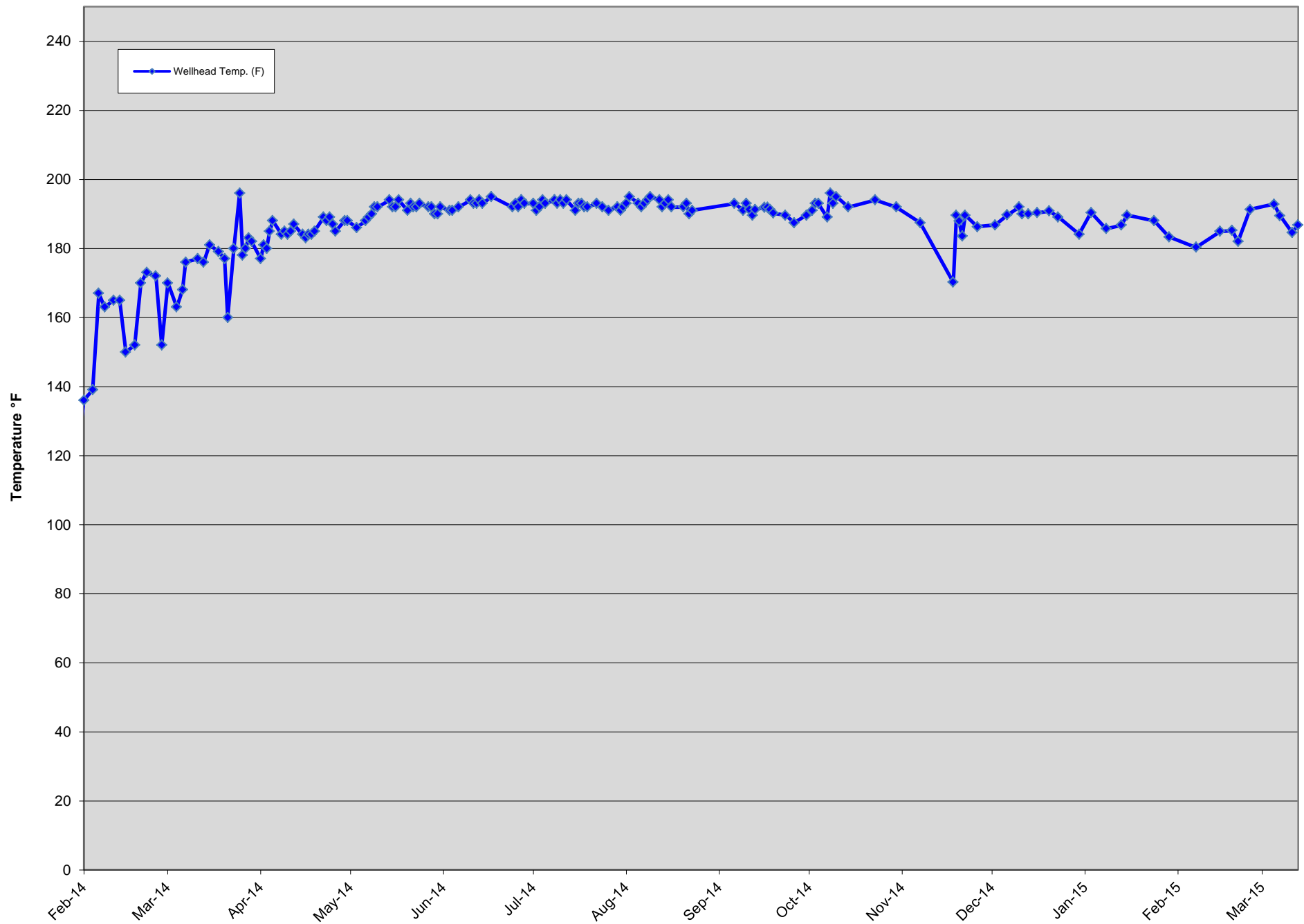
GIW-7 Wellhead Temperatures



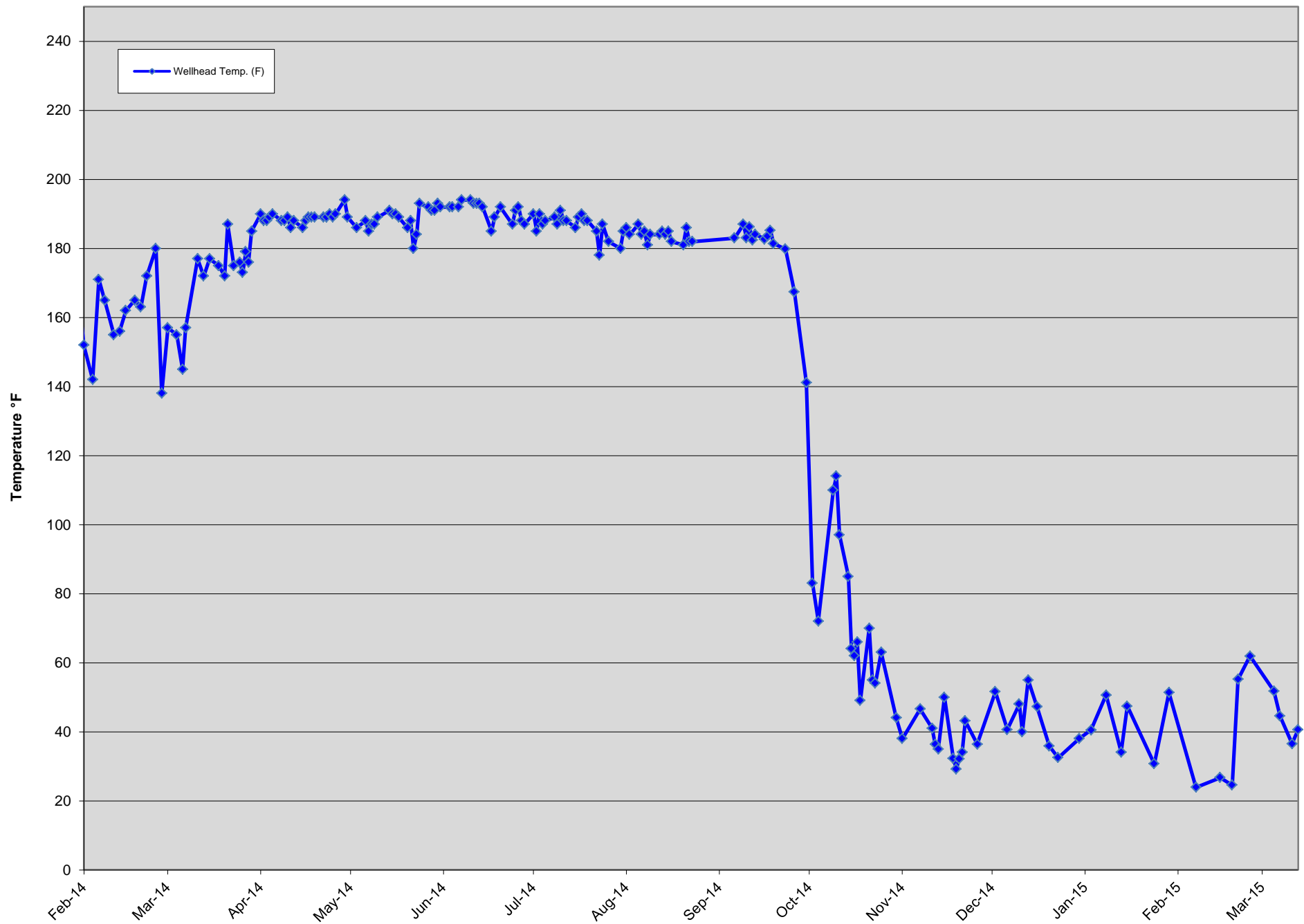
GIW-8 Wellhead Temperatures



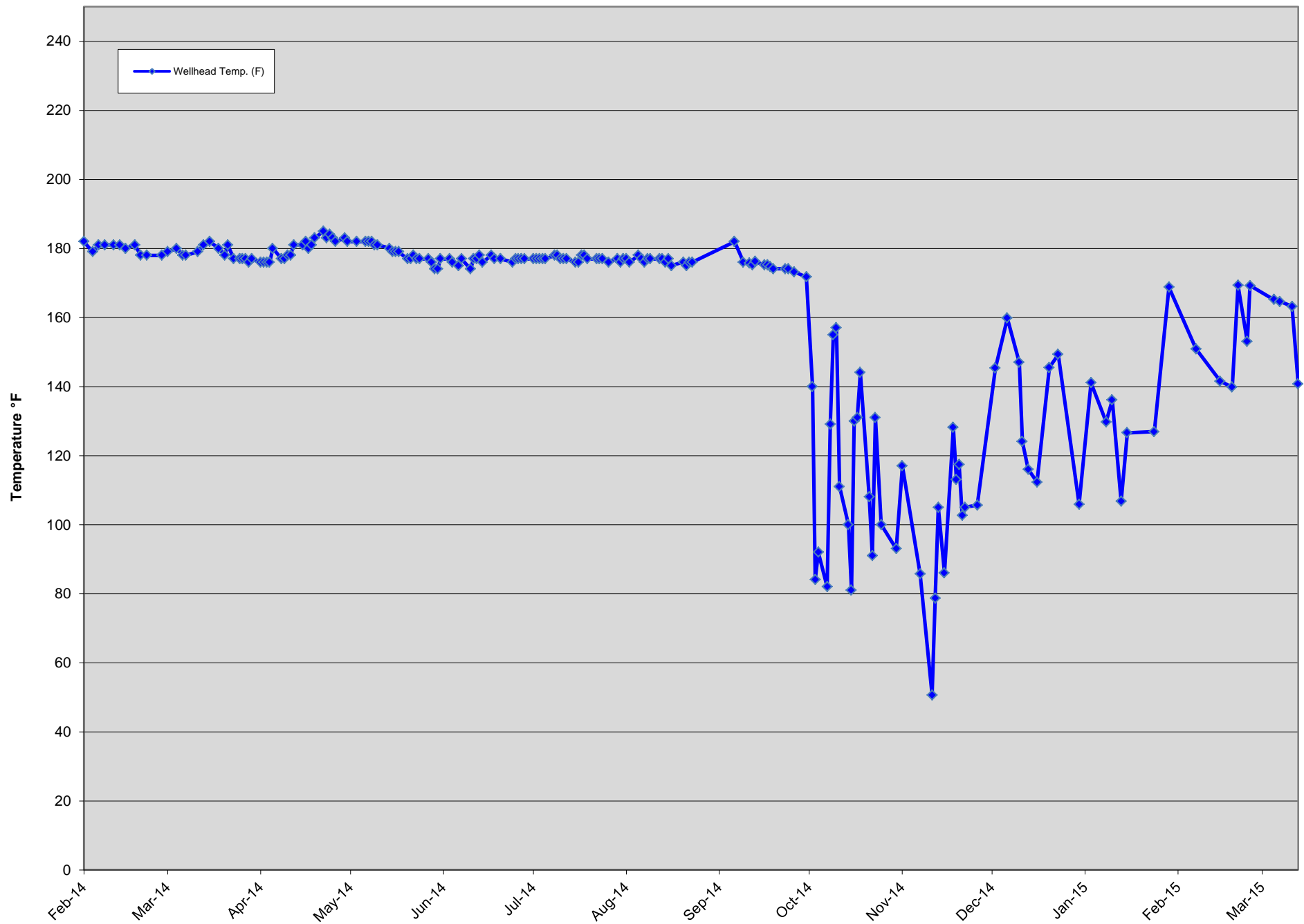
GIW-9 Wellhead Temperatures



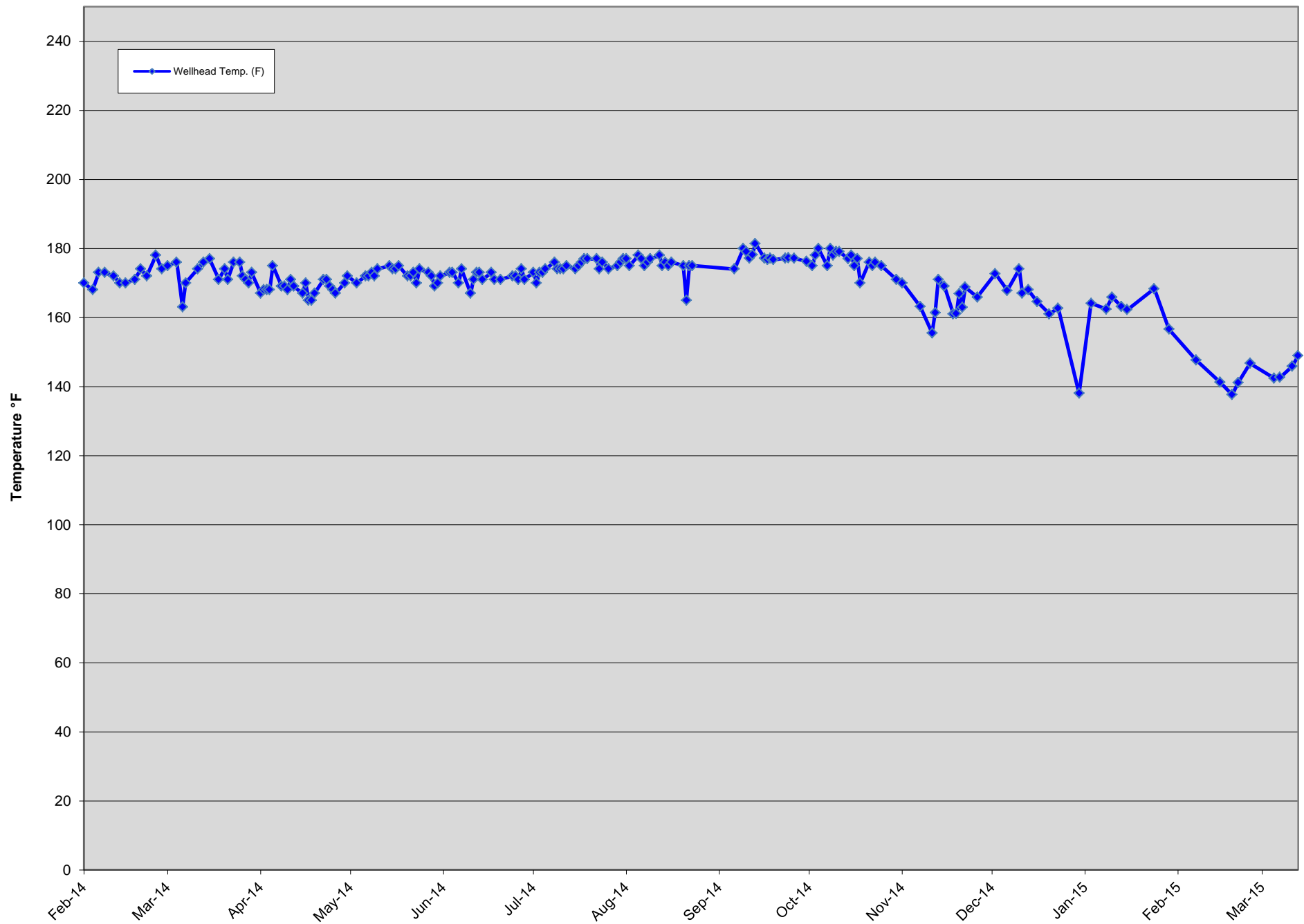
GIW-10 Wellhead Temperatures



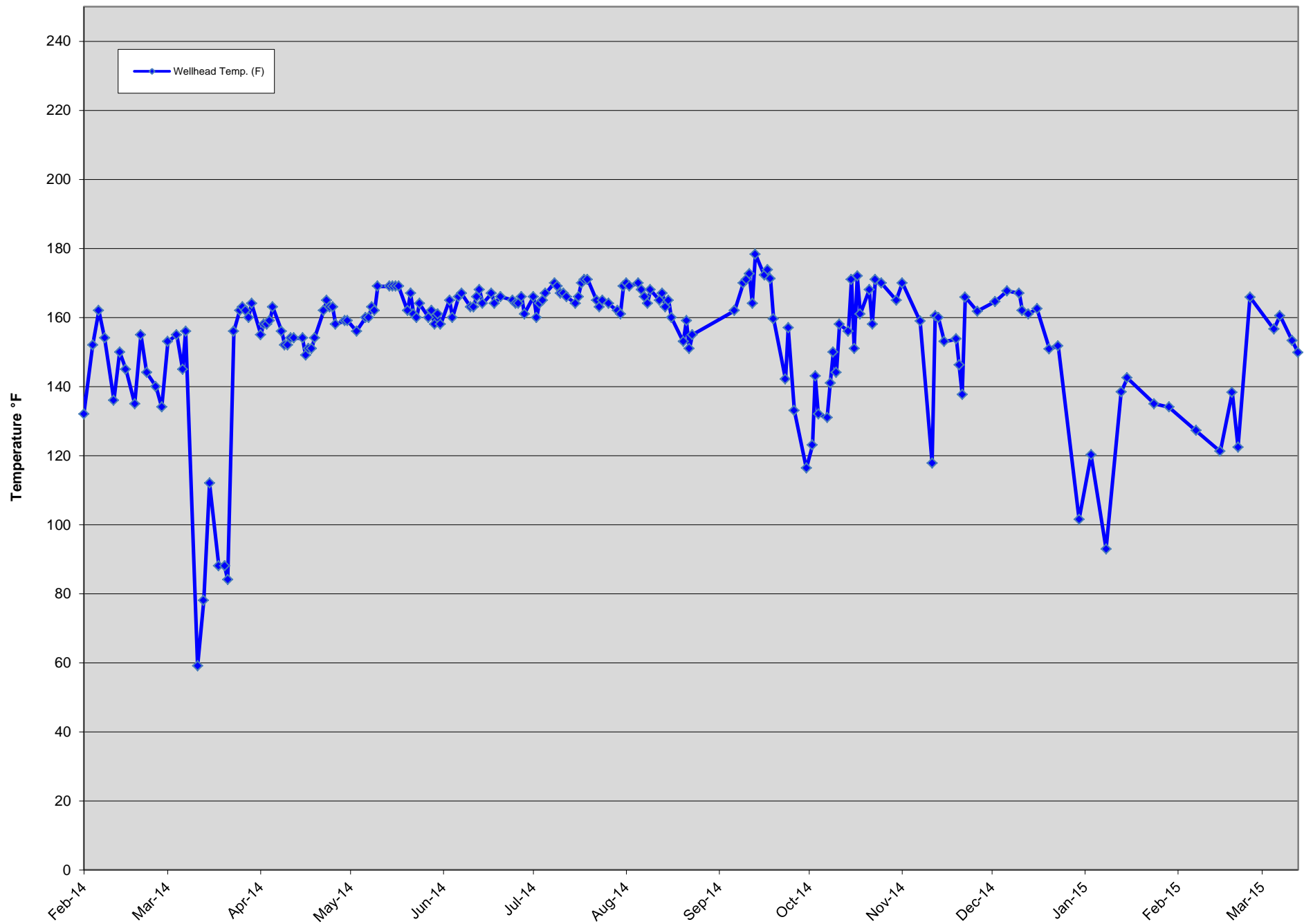
GIW-11 Wellhead Temperatures



GIW-12 Wellhead Temperatures



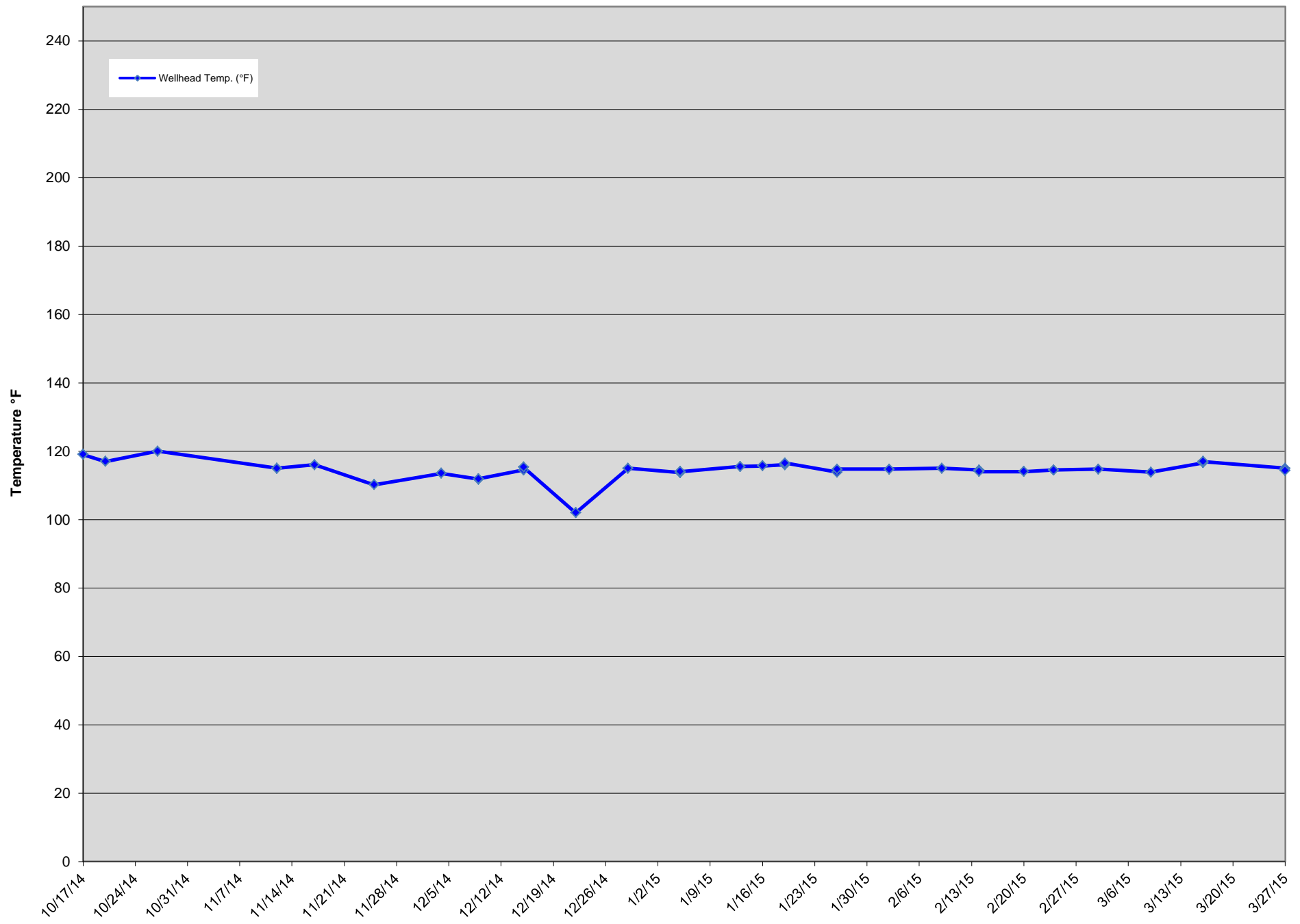
GIW-13 Wellhead Temperatures



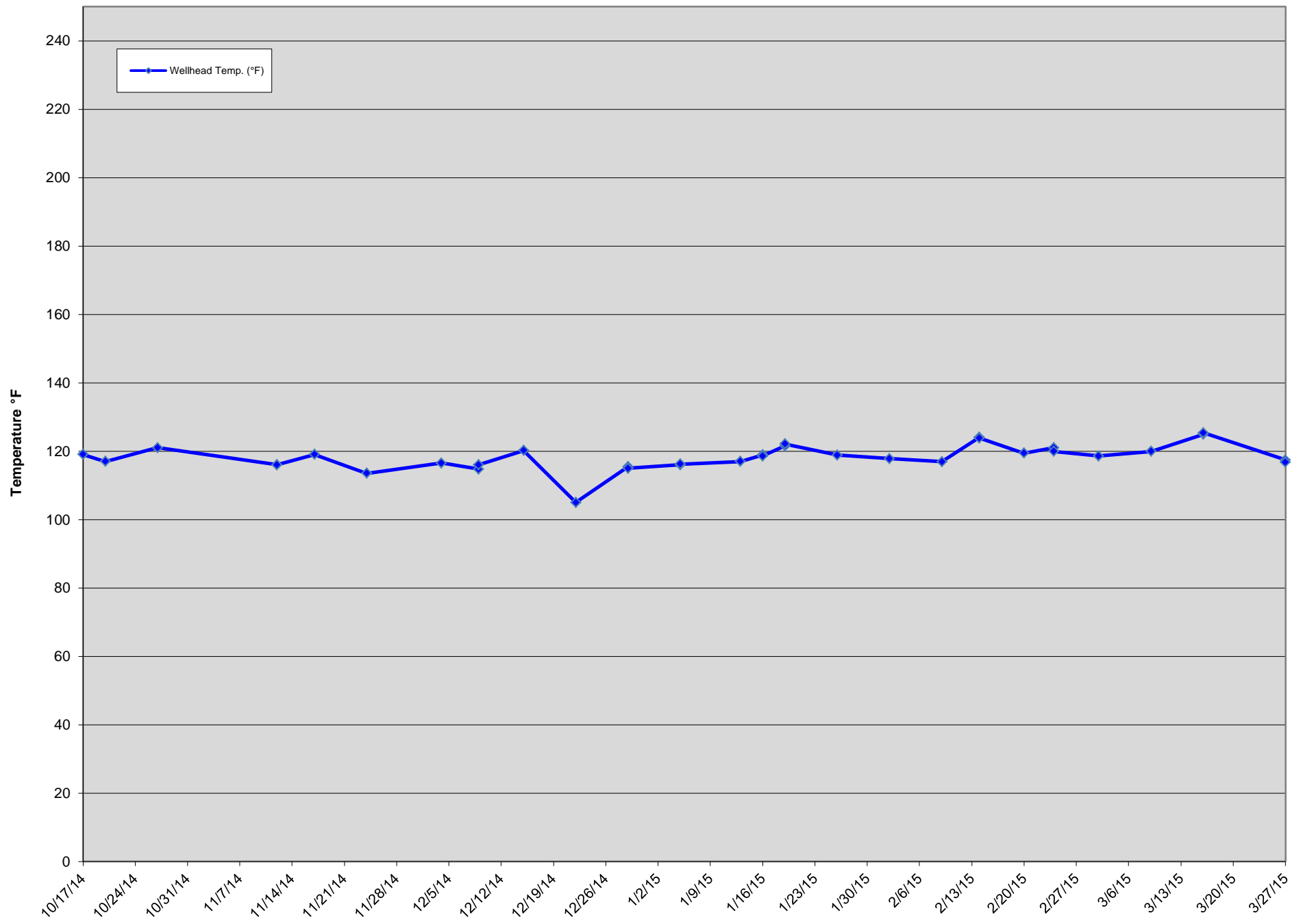
ATTACHMENT D

NECK-AREA GAS EXTRACTION WELL DATA

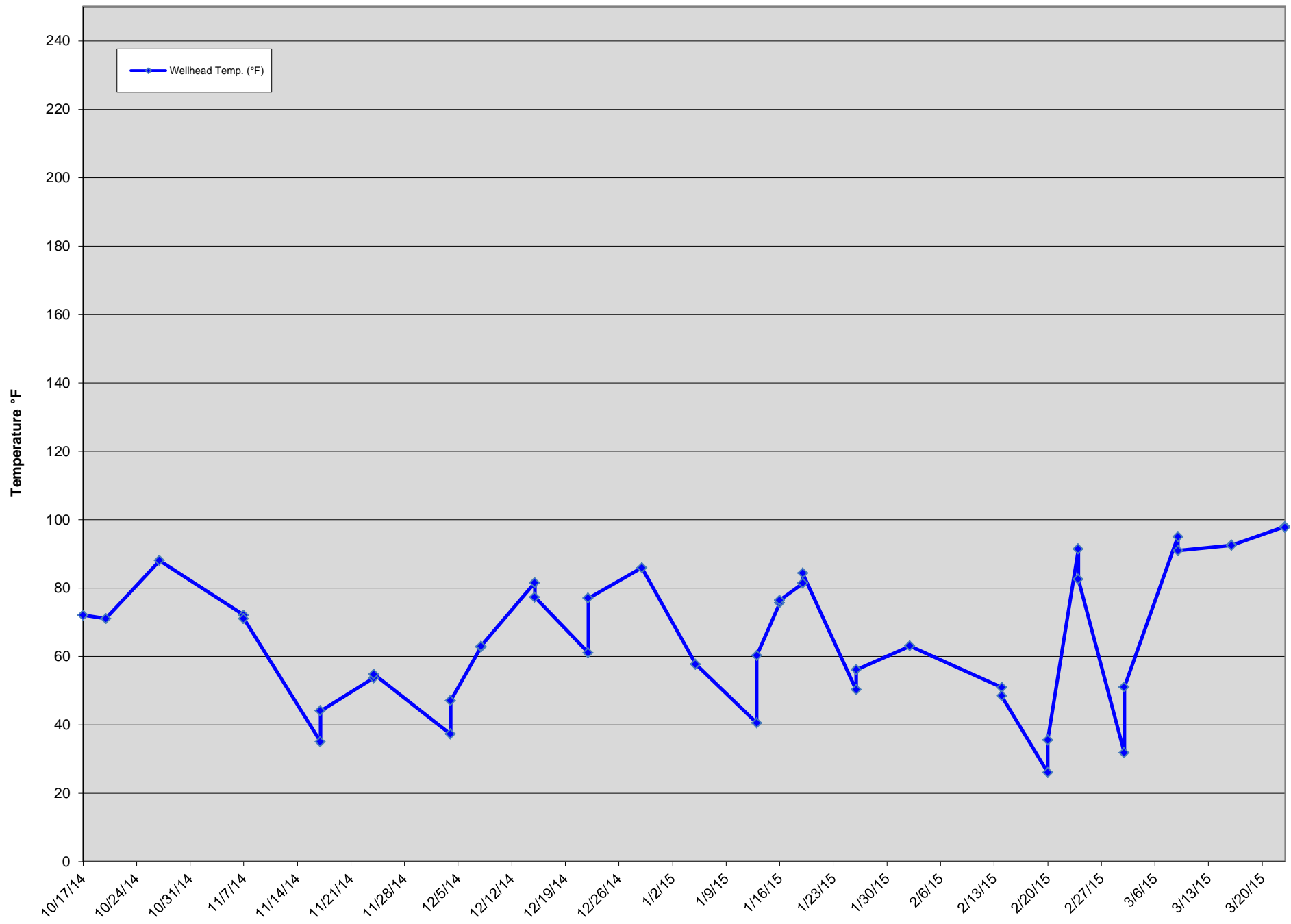
GEW-008 Wellhead Temperatures



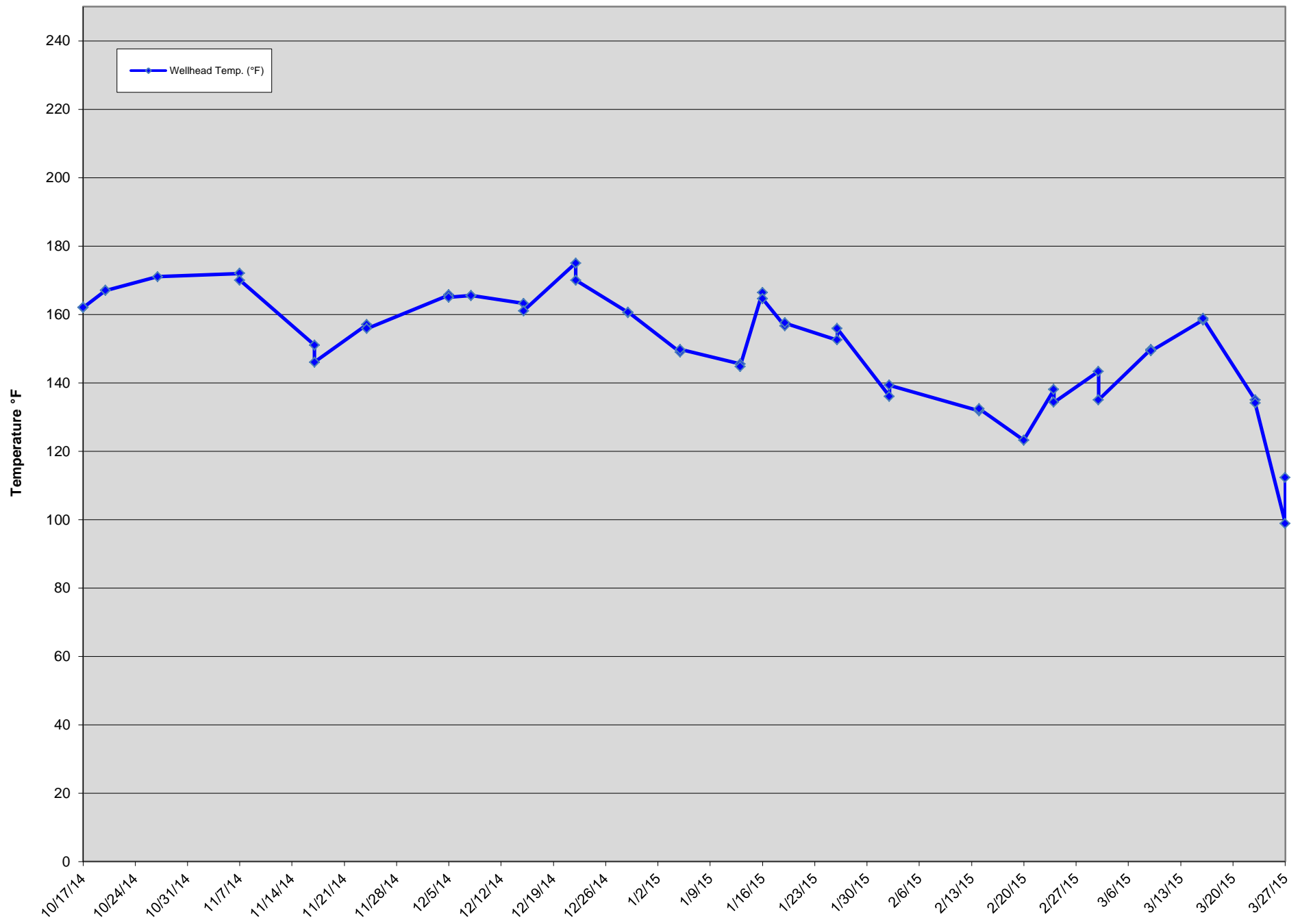
GEW-009 Wellhead Temperatures



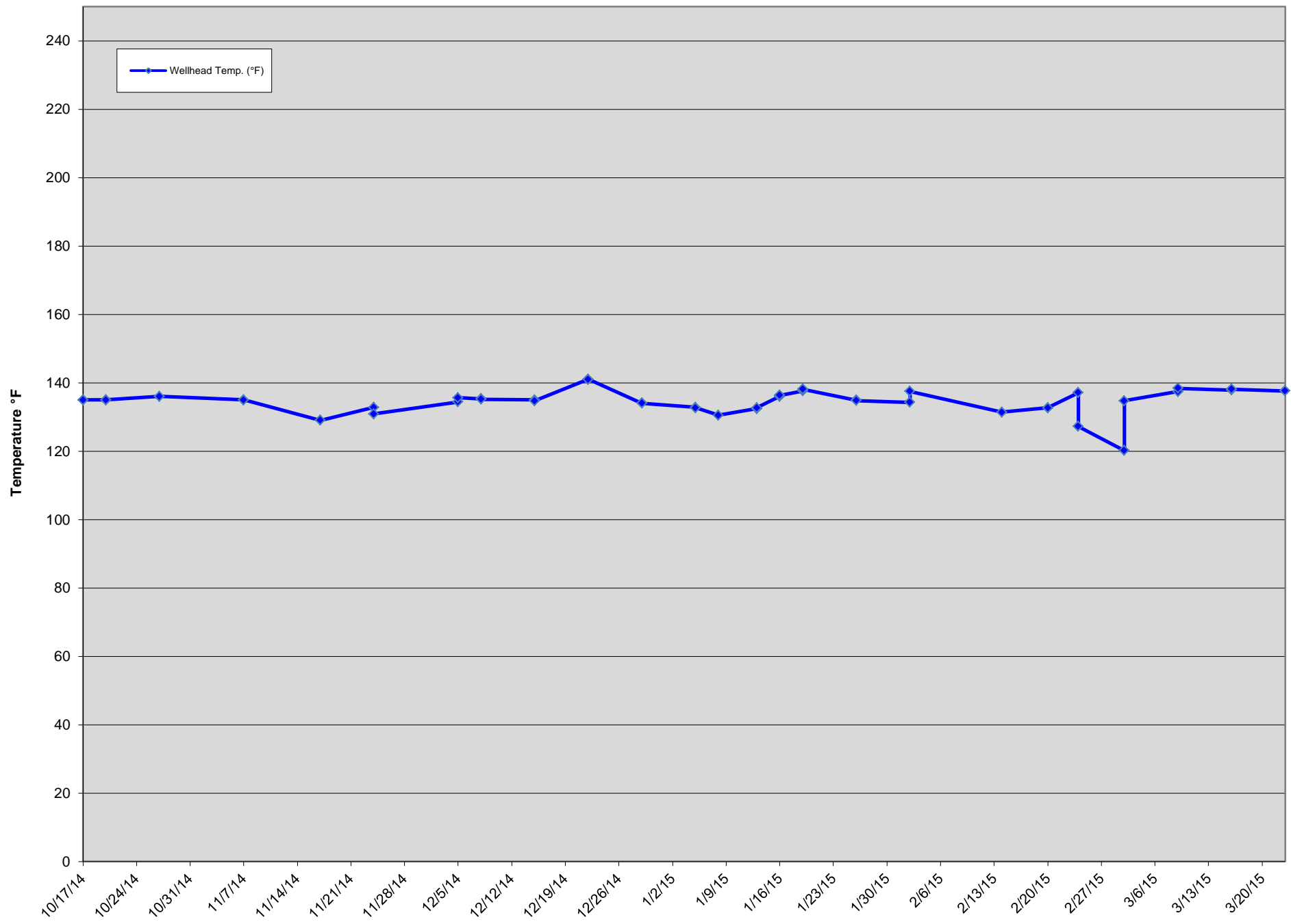
GEW-010 Wellhead Temperatures



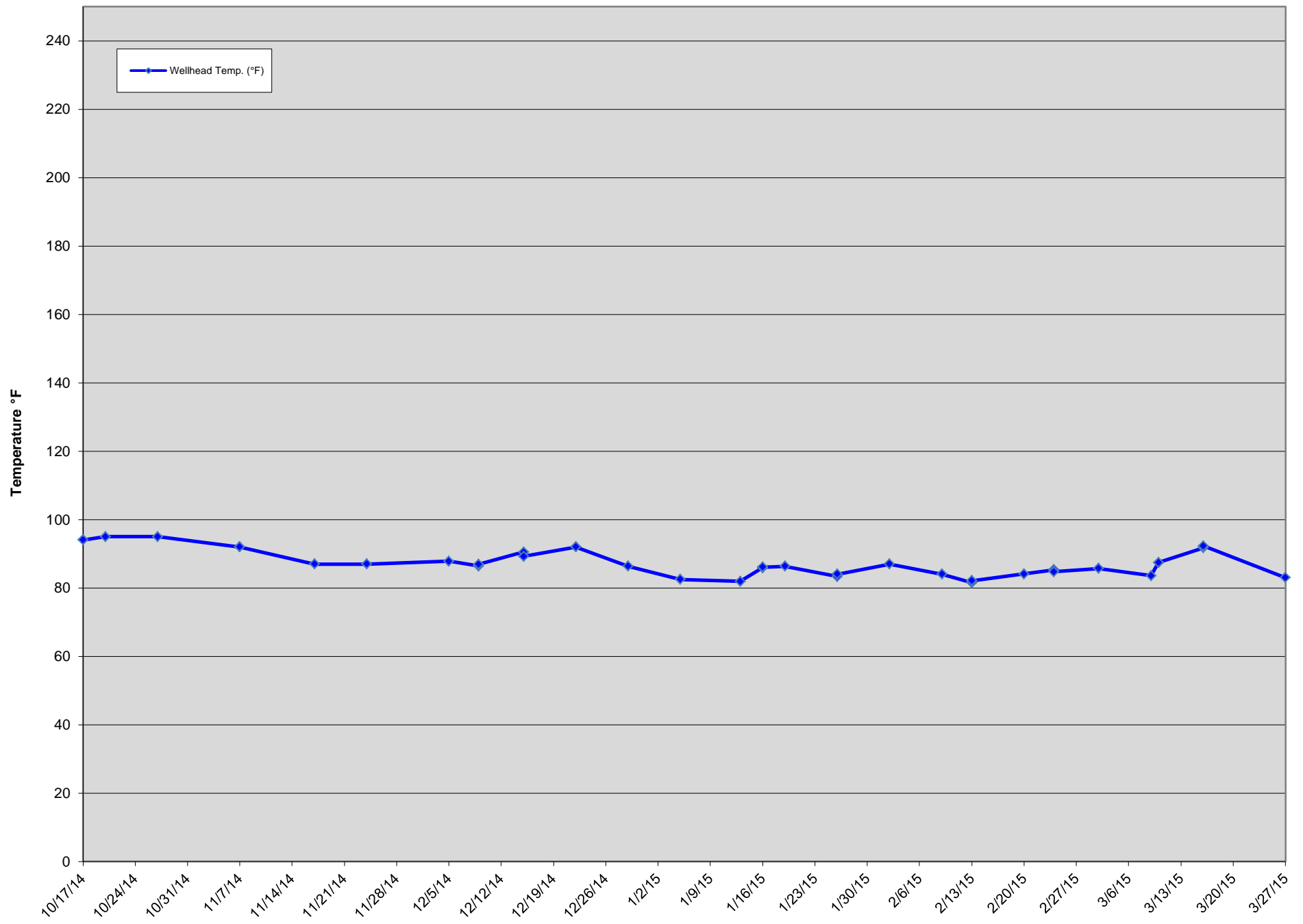
GEW-038 Wellhead Temperatures



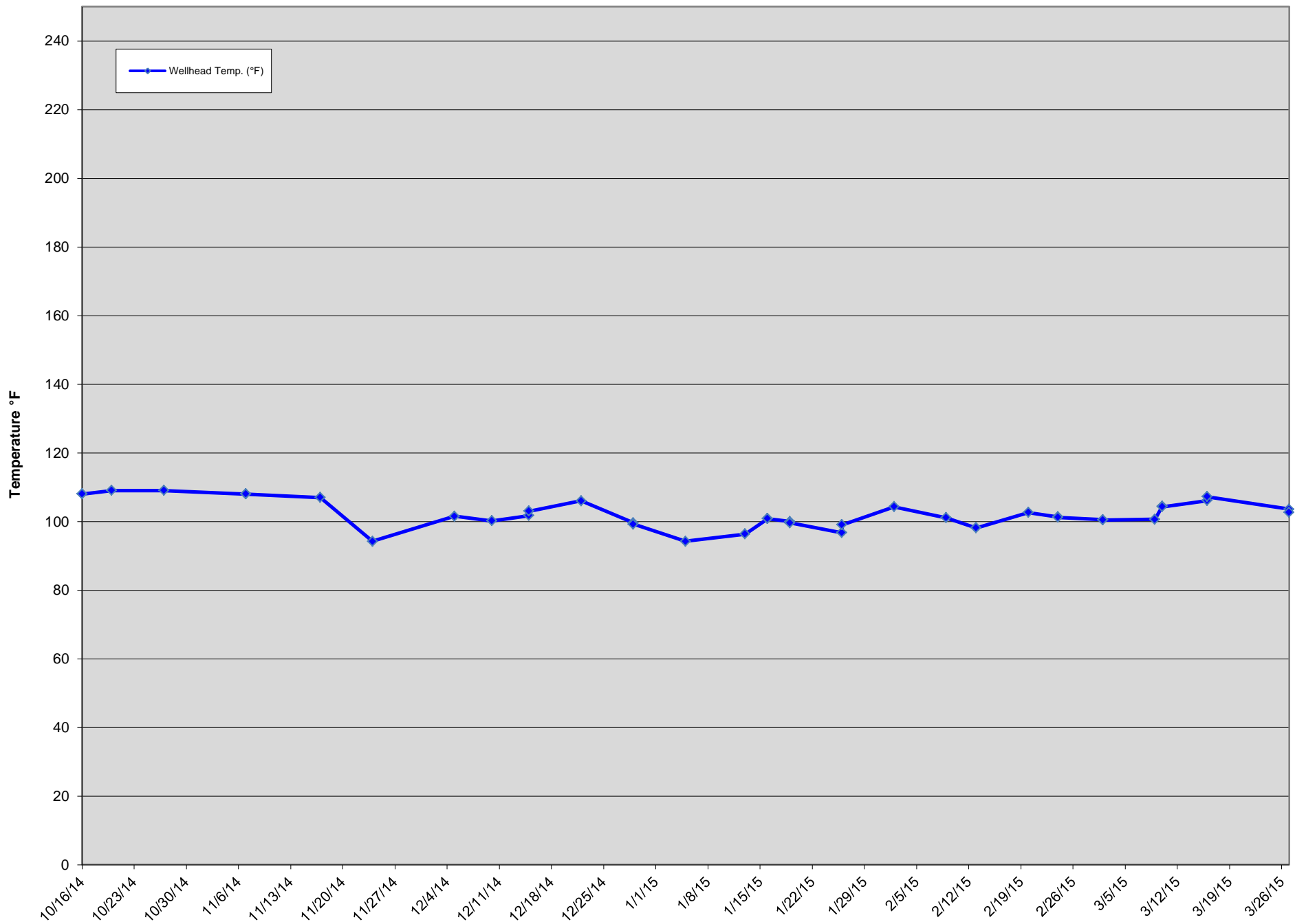
GEW-039 Wellhead Temperatures



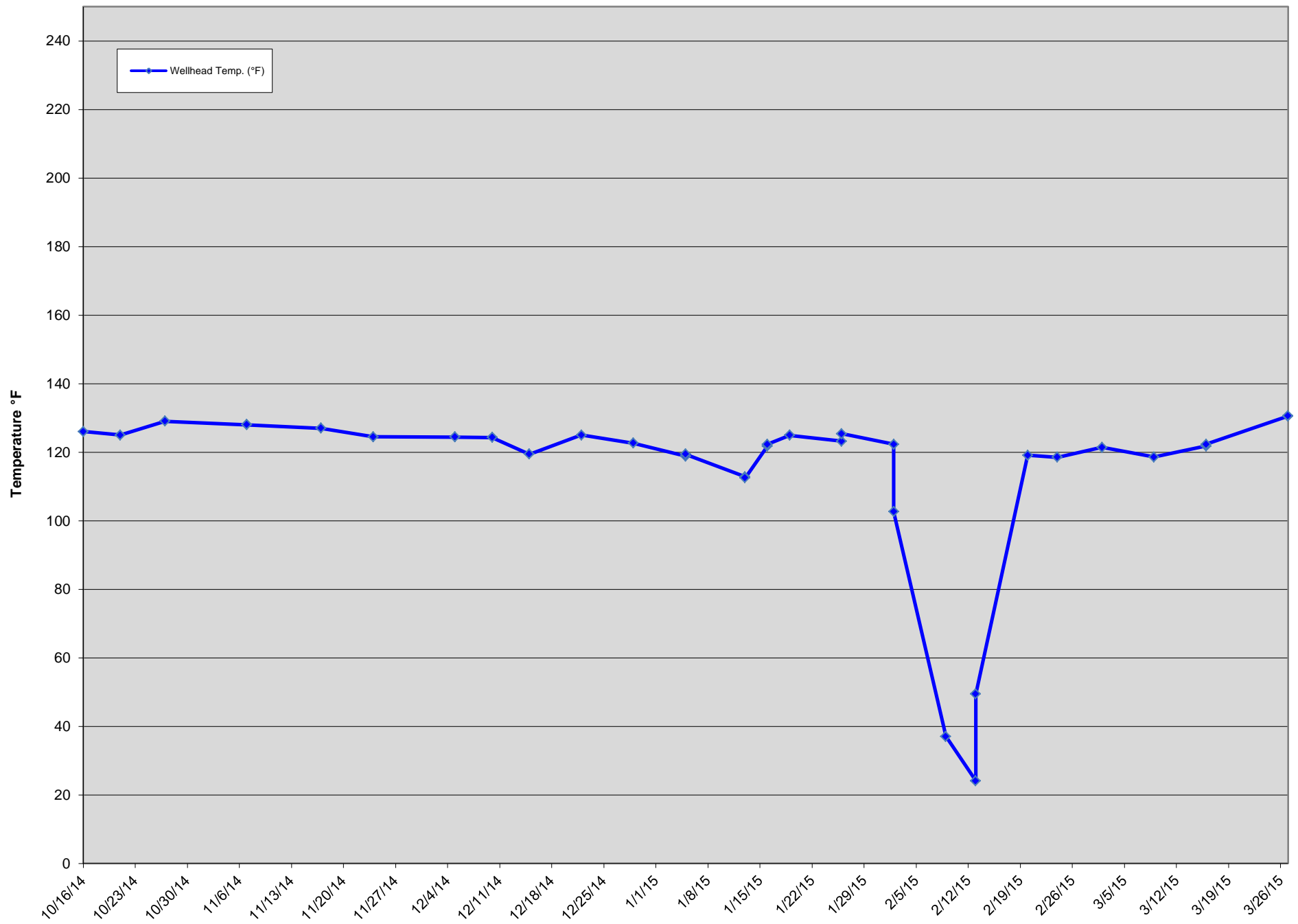
GEW-040 Wellhead Temperatures



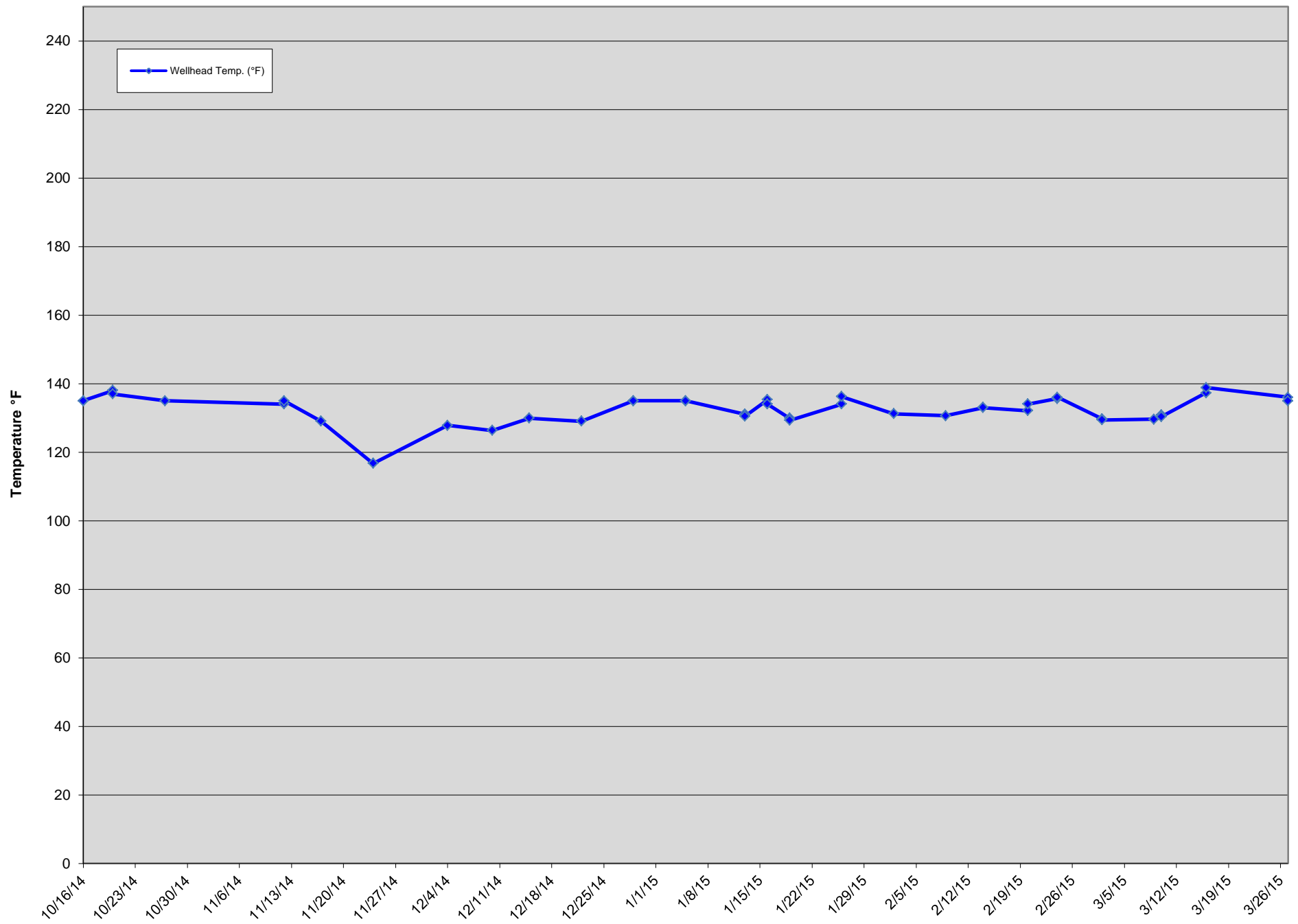
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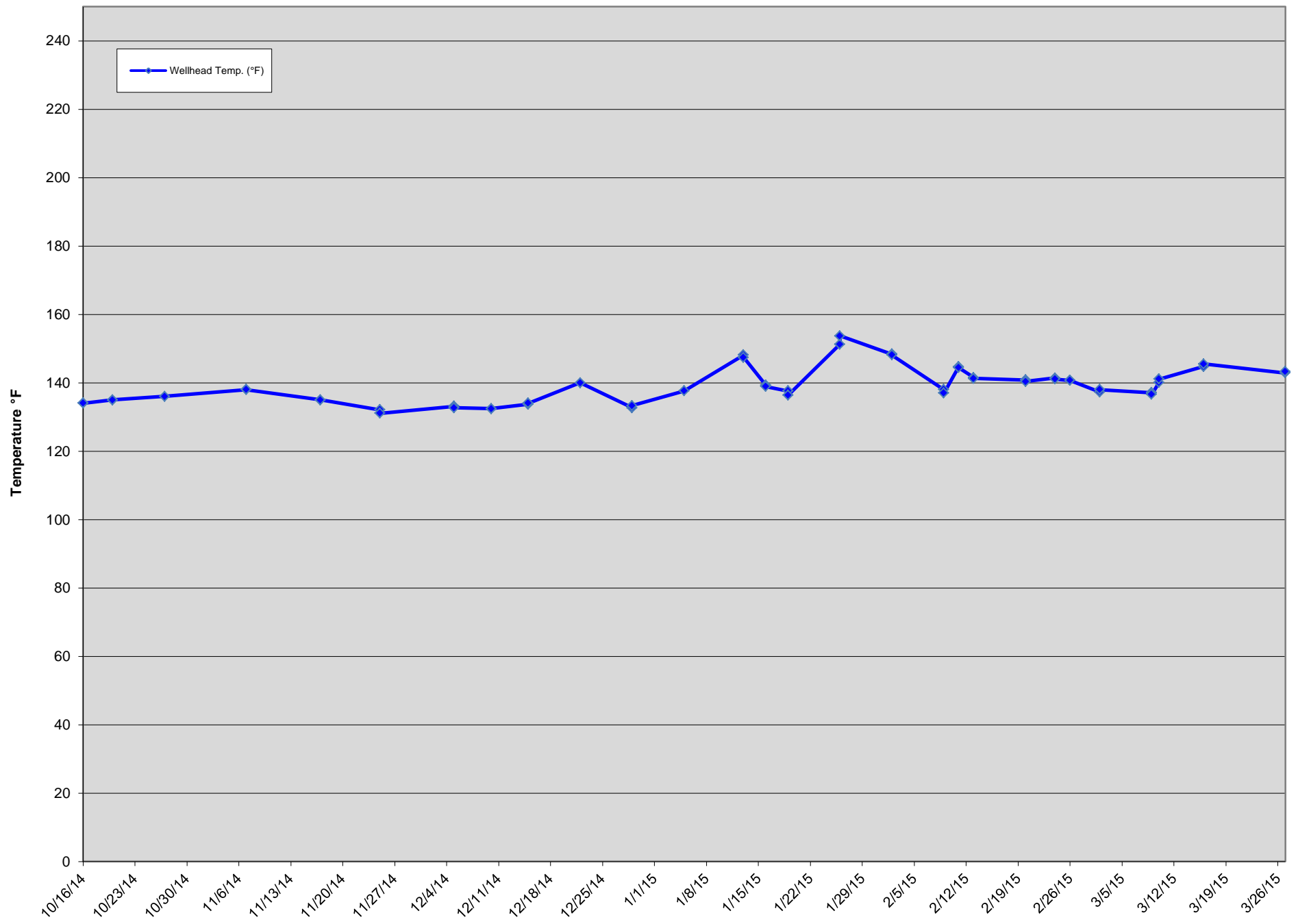
GEW-043R Wellhead Temperatures



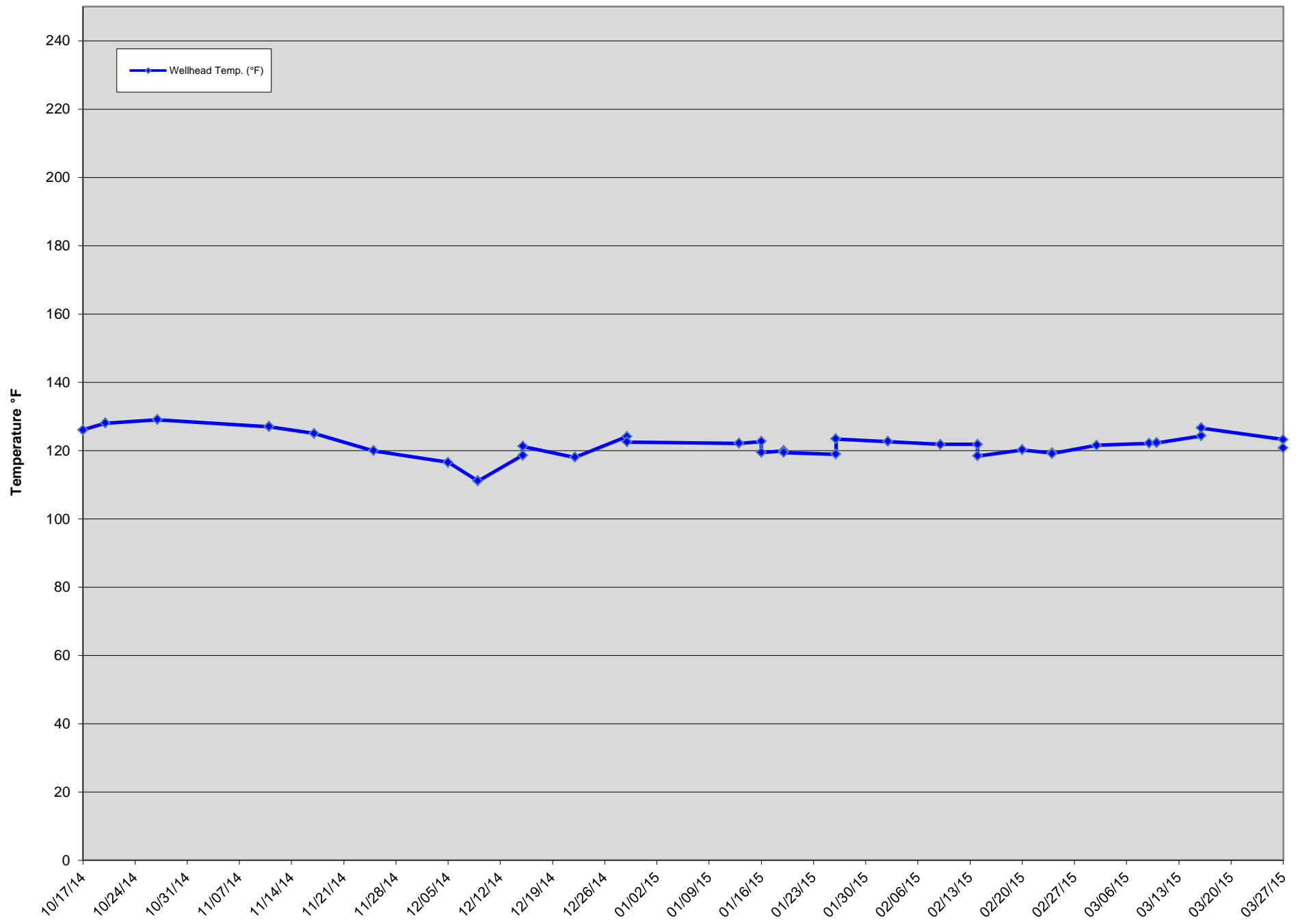
GEW-053 Wellhead Temperatures



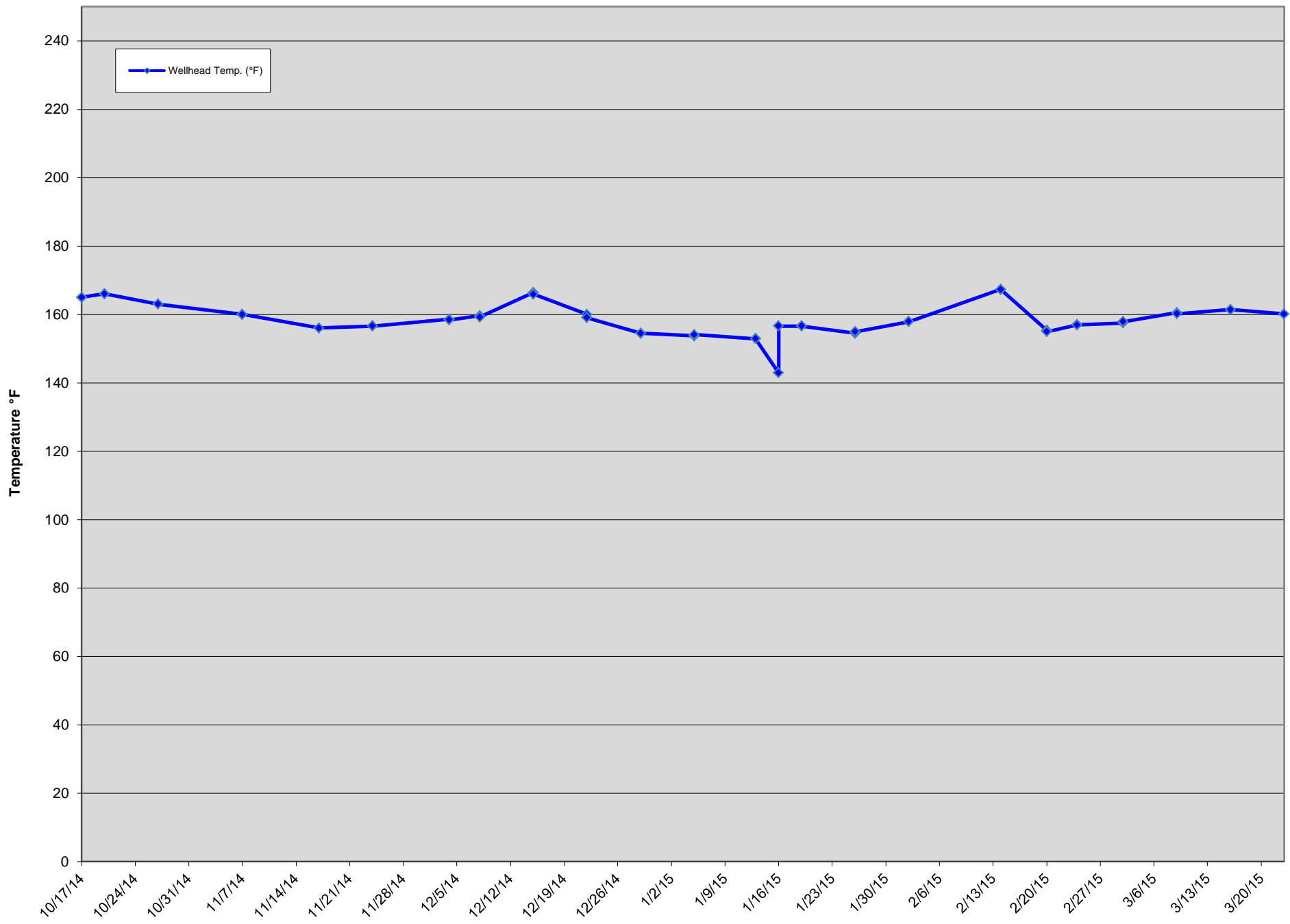
GEW-054 Wellhead Temperatures



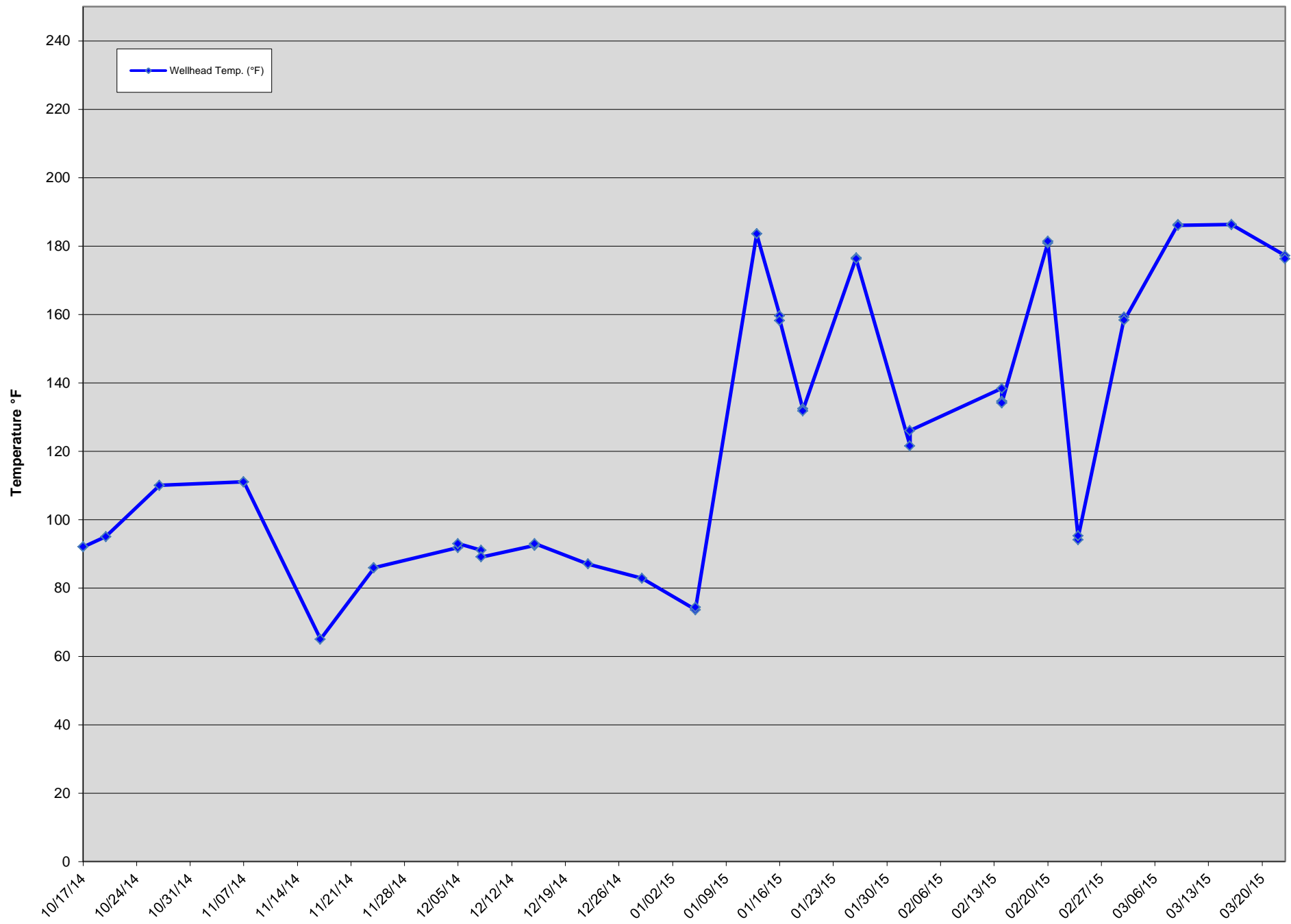
GEW-055 Wellhead Temperatures



GEW-056R Wellhead Temperatures



GEW-109 Wellhead Temperatures



GEW-110 Wellhead Temperatures

