SCS ENGINEERS

May 9, 2025 File No. 01204123.21-13

Mr. Baitong Chen South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, California 91765

Subject: Monthly Reaction Committee Determination on Reaction Area Boundary Chiquita Canyon Landfill – Castaic, California

Dear Mr. Chen:

In accordance with Condition Nos. 9a and 9b of the Modified Stipulated Order for Abatement (SOFA) pertaining to the Chiquita Canyon Landfill (Landfill or Facility) (Case No. 6177-4), the Reaction Committee has reviewed newly acquired applicable data recorded during the month of April 2025, considered revisions of the estimated extent of elevated temperature landfill (ETLF) conditions exhibited at the subject Facility (referred to as the "Reaction Area" limits), and has prepared this determination on potentially revising the Reaction Area map.

Attachment A presents the Drawing, titled "Reaction Area Map", prepared by SCS Engineers (SCS) and dated 5/5/25. The Drawing depicts the Reaction Area boundary as prescribed in Condition No. 9a, which corresponds to the limits of Cells 1/2A, 2B/3, 4, and Module 2B/3/4 P2, as a solid black line. The Drawing also depicts the estimated extent of ETLF conditions being experienced at the site based on the Reaction Committee's review of scientific data as a dashed magenta line. The rationale that serves as the basis for considering adjustments and modifications to the Reaction Area boundary (or the determination to maintain the decreed boundary), include the following:

- LFG wellhead temperatures in excess of approximately 160 degrees Fahrenheit.
- Poor gas quality (defined as methane levels of less than 30 percent) in conjunction with methane-to-carbon dioxide (CH₄:CO₂) ratios less than 1.0.
- The concentration of hydrogen (H₂) in the LFG measured greater than 2 percent by volume.
- The concentration of carbon monoxide (CO) in the LFG measured greater than 2,000 ppm.
- Accelerated settlement of the landfill surface, defined as approximately 18 inches or greater within a 60-day period, and cracks in landfill cover. This corresponds to a strain value (i.e., settlement rate) rate of 3 percent per year for areas with a 300-foot waste column depth, which we believe is a reasonable average depth in the subject area of interest.
- First-hand observations of Landfill and/or SCS engineering, construction, and operations and maintenance (O&M) field personnel who are on-site related to: 1) atypical excess leachate quantities (presence and quantity of liquids); 2) instances of pressurized liquids emitting from the landfill surface, from boreholes during drilling, and from LFG wells; and, 3) the characteristics of the odors originating from the select areas of the waste footprint (often

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described as "chemical-like" and distinctly different from typical LFG or landfill working face odors).

- Observations of subsurface waste conditions and characteristics as noted on borehole drilling logs for recently installed new wells and/or probes.
- Subsurface temperatures recorded at the in-situ waste temperature probes during April 2025.
- Temperature of gas or liquids measured at depth within the LFG well riser pipe (using an automated transmitter or manual field instrumentation).
- Since there were no drilling activities for new waste temperature probes during April 2025, there was no new data related to subsurface temperature and pressures associated with drilling.

CONSIDERATIONS FOR POTENTIAL ADJUSTMENTS TO THE ESTIMATED EXTENT OF ETLF CONDITIONS (DASHED MAGENTA LINE)

In making its monthly determinations, the Reaction Committee evaluates the above set of data parameters, in conjunction with one another, to identify meaningful trends indicating ETLF conditions, as opposed to fluctuations exhibited in isolated datapoints.

Each month, the Reaction Committee scrutinizes particular areas of the Landfill that have previously exhibited abnormal or fluctuating data, when applicable. As discussed below, despite minor variances in discrete areas of the landfill, the Committee has not discerned any meaningful trends with respect to the April 2025 data that would indicate the reaction has expanded into these areas.

Near CV-24083

During multiple monitoring events in March and April, well CV-24083 exhibited an average methane concentration of approximately 26 percent and an average LFG wellhead temperature of approximately 162 degrees Fahrenheit. At the adjacent well CV-24070, which is positioned closer to the current estimated extent of ETLF conditions (dashed magenta line) than CV-24083, the methane concentrations recorded during March and April averaged 33 percent and the temperatures averaged 136 degrees F. A review of the monitoring data recorded at three other wells adjacent to CV-24083 (CV-24071, CV-24082, and CV-24084) indicates that these three wells exhibited average wellhead temperatures below 145 degrees F during March and April. Furthermore, the maximum methane concentrations recorded at these three wells during this timeframe are between 42 and 49 percent, suggesting significant methanogenic activity is occurring. Accordingly, at this time, the Reaction Committee believes that no adjustment to the estimated extent of ETLF conditions in this discrete location is warranted, since the data recorded in April does not appear to signal a potential expansion of the subsurface reaction.

Near CV-24084 & TP-11

Considering the increasing temperatures recorded by the thermocouples at various depth intervals in TP-11 over the past several months, the Reaction Committee carefully considered the operating

parameters recorded at the co-located well CV-24084, along with conditions at adjacent wells CV-24071 and CV-24156. While the 30-day maximum temperature recorded at the 100-foot interval in TP-11 is 172 degrees F, the average LFG temperature at the co-located well CV-24084 is less than 145 degrees F. While the average methane concentration exhibited at well CV-24084 during multiple monitoring events in March and April of 20 percent is suppressed, a methane content of 42 percent was recorded on April 8th. The hydrogen concentrations at CV-24084 was 6.8 percent. The gas composition and temperatures at adjacent well CV-24156 are clearly inconsistent with ETLF conditions (methane content near 50 percent and temperatures less than 119 degrees). While adjacent well CV-24071 exhibited hydrogen greater than 2 percent, the average methane concentrations above 35 percent and low temperature values (below 130 degrees F) are likewise inconsistent with ETLF conditions. Accordingly, the Reaction Committee does not believe that any adjustment to the estimated extent of ETLF conditions in this discrete location is warranted at this time, since the data recorded in April does not appear to consistently signal a potential expansion of the subsurface reaction.

Near TP-24, TP-26, TP-29, TP-30, TP-31, and TP-32

On or about April 1, 2025, the Reaction Committee received documentation, prepared by Dr. Timothy D. Stark, Ph.D, PE, BC.GE and dated February 26, 2025, titled "Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20,2025 Waste Temperature Data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event". This document was included as Exhibit 6 in the California Environmental Protection Agency Department of Toxic Substances and Control Imminent and Substantial Endangerment Determination and Order, effective April 2, 2025. Figure 2 of this document presented a delineation of the SET Event that is inclusive of temperature monitoring probes TP-7, TP-29, TP-30, TP-31, and TP-32. The Reaction Committee reviewed the in-situ waste temperatures recorded at these five probes, as well as probe TP-24, and evaluated the surrounding LFG wells and field conditions in relation to the rationale that serves as the basis for considering adjustments and modifications to the Reaction Area boundary that are cited above. Based on this evaluation, there does not appear to be evidence of a potential expansion of the subsurface reaction into the portions of the waste mass along the delineation presented in Figure 2. Accordingly, the Reaction Committee does not believe that any adjustment to the estimated extent of ETLF conditions in this discrete location is warranted at this time, since the data recorded in April does not appear to consistently signal a potential expansion of the subsurface reaction

TEMPERATURE MONITORING PROBE DATA

The Reaction Committee reviewed the temperature measurements recorded during April 2025 by the in-situ temperature monitoring probes. As of April 2025, five (5) of the thirty-two (32) probes (TP-2, 3, 9, 15, and 21) are located within the current estimated extent of ETLF conditions (dashed magenta line). Of the remaining twenty-seven (27) probes positioned outside of the boundary, twelve (12) probes are positioned within relatively close proximity (within 200 feet) of this boundary. It is the Committee's opinion that the temperatures recorded by the 27 probes outside of the boundary during April 2025 are not indicative of a subsurface reaction and do not substantiate a decision to adjust the boundary of the reaction area at this time. Chiquita's submittal of temperature measurements to the Local Enforcement Agency, dated May 1, 2025, explained that the sensors in TP-06 "were evaluated and found to have had errors and failures since being brought back online"

from filling operations. The failed sensors were replaced and re-wired on April 4th. The maximum recorded temperature at TP-06 since the replacement and re-wiring is 138°F."

The Reaction Committee evaluated the 30-day maximum temperatures recorded in TP-26 (173 degrees Fahrenheit at the 160-foot interval), TP-29 (183 degrees F at the 250-foot interval), TP-30 (170 degrees F at the 200-foot interval), and TP-31 (185 degrees F at the 190-foot interval). The Committee noted differentiation between the 30-day maximum temperatures in these four probes compared to the 30-day maximum temperatures measured at the three probes within the current estimated extent of ETLF conditions (dashed magenta line), specifically TP-3 (233 degrees F at 45-foot interval), TP-9 (223 degrees at the 125-foot interval), and TP-21 (257 degrees at the 110-foot interval). Based on this differentiation, along with consideration of the other relevant criteria and data parameters, the Reaction Committee does not believe an adjustment to the boundary of the reaction area to include the portions of the waste footprint inclusive of TP-26, TP-29, TP-30, and TP-31 is warranted at this time.

HYDROGEN CONCENTRATIONS

The Reaction Committee also evaluated the concentration of hydrogen in landfill gas (LFG) during April 2025. Recall that certain wells positioned to the south and east of the reaction area boundary (where dewatering pumping was reactivated) have periodically demonstrated some increased hydrogen content in the LFG during the Reaction Committee's review of the data in previous months, which similarly was the case for the April data. The Reaction Committee noted in its review of the data that these wells did not exhibit elevated temperatures, except for one isolated instance at well CV-24083. The most recent measurements recorded at this well confirm that sustained elevated temperature values have not been exhibited at this time and the maximum methane content during the past two months of 37 percent indicates that methanogenesis is still occurring. Other than the value at this well, there was no evidence of the increased heat that is typical with ETLF conditions present at the wells exhibiting atypical hydrogen concentrations. As noted previously, the Committee suspects this increased hydrogen content may be attributable to substantial dewatering being accomplished throughout the Reaction Area and may be associated with gas movement from within the Reaction Area by existing horizontal collectors in close proximity. Thus, the presence of elevated hydrogen in these isolated locations does not suggest that ETLF conditions are expanding south and east of the delineated boundary. Accordingly, the Reaction Committee does not believe an adjustment to the boundary of the reaction area is warranted at this time.

CONCLUSION

As presented on the Drawing included as **Attachment A**, the estimated extent of ETLF conditions (dashed magenta line) is fully contained within the Reaction Area boundary decreed in the SOFA (solid black line). Because the ETLF conditions are fully contained within the Reaction Area boundary and have not expanded into a new cell, the Reaction Committee finds no basis to modify the Reaction Area boundary as prescribed in Condition 9a at this time.

There was no dissenting opinion among the Reaction Committee members regarding this monthly determination. Supporting data is presented on the Drawing included as **Attachment A.** The maximum temperature measurements recorded at the 32 in-situ waste temperature monitoring probes during April are presented in **Attachment B** in graphical format. The landfill gas wellhead temperatures recorded at the extraction wells for the entire landfill footprint are reflected on the

isothermal gradient range map presented as **Attachment C**. The carbon monoxide (CO) concentrations measured at the landfill gas wellheads in the vicinity of the data-driven reaction area boundary are depicted on the range map presented as **Attachment D**. The electronic database and recordkeeping platform enables these measurements to be downloaded into a tabular spreadsheet format, which can be submitted to the South Coast Air Quality Management District under separate cover, if requested.

Please contact either of the undersigned if you have questions or require additional information.

Sincerely,

Robert I. Duch

Robert E. Dick, PE, BCEE Senior Vice President SCS Engineers

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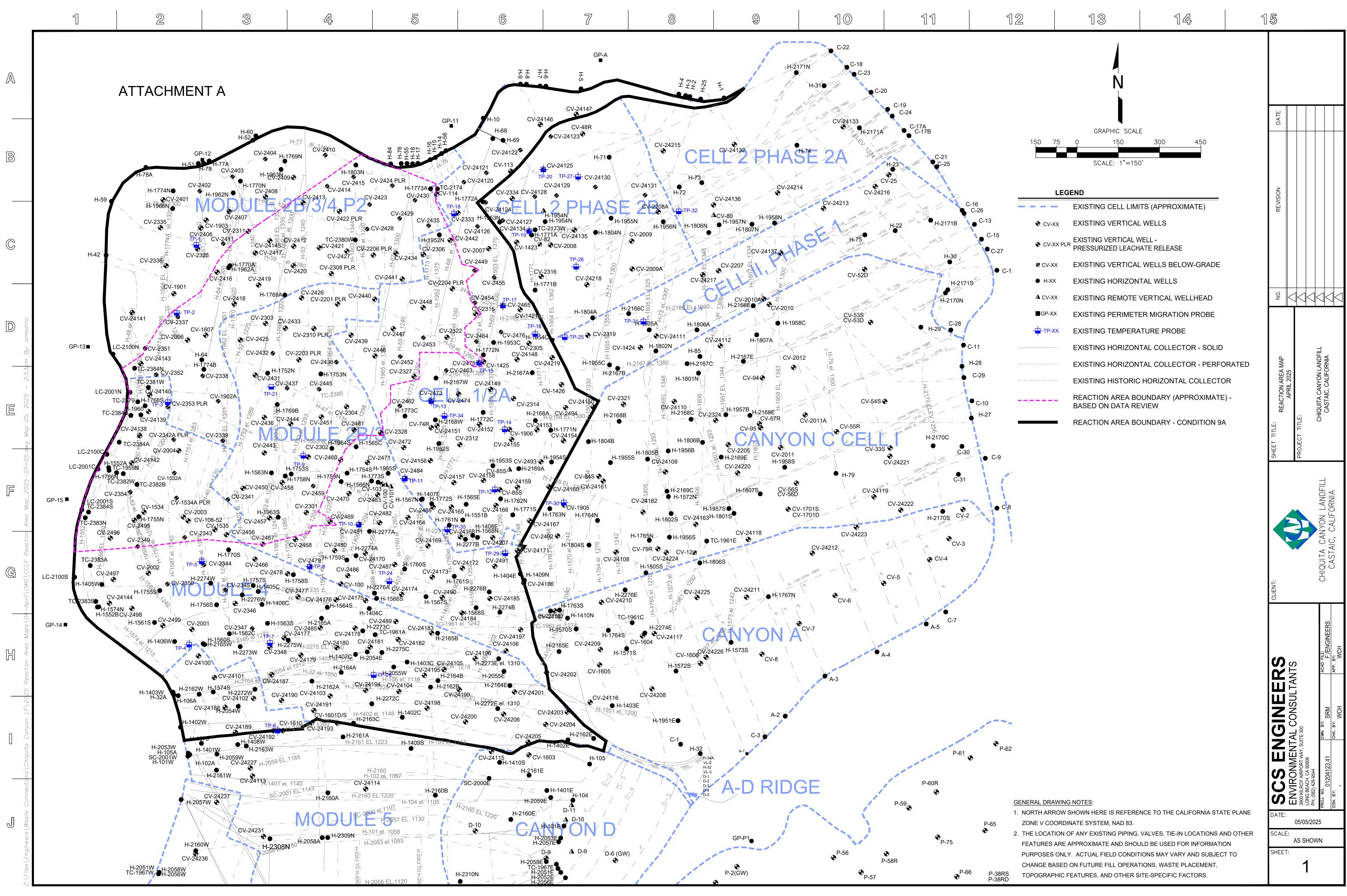
Patrick S. Sullivan, BCES, CCP Senior Vice President SCS Engineers

RED/PSS

cc: Nathaniel Dickel, SCAQMD Christina Ojeda, SCAQMD Pablo Sanchez Soria, PhD, CIH, CTEH Neal Bolton, PE, Blue Ridge Services, Inc. Richard Pleus, PhD, Intertox Srividhya Viswanathan, PE, SCS Engineers

Enclosures:

Attachment A – Reaction Area Map Attachment B – In-Situ Waste Temperature Monitoring Probe Data Attachment C – Isothermal Gradient Range Map Attachment D – Wellhead Carbon Monoxide Range Map



ATTACHMENT B

Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 3/20/2025 to 4/30/2025

From April 24, 2025, through April 30, 2025, there were two recorded temperature increases and two temperature decreases that triggered the notification limits set forth in the LEA's October 4, 2024 letter.

Additionally, as of April 4, 2025, twelve new TMPs (TMP-21, TMP-24, TMP-25, TMP-26, TMP-27, TMP-28, TMP-29, TMP-30, TMP-31, TMP-32, TMP-34, and TMP-35) have been installed and are online. None of these twelve new TMPs indicate reaction temperatures occurring outside of the currently delineated data-driven reaction area boundary, and the four TMPs that were able to be drilled to within 25 feet of the liner (TMP-24, TMP-27, TMP-31, and TMP-32) show significantly cooler temperatures at the deepest thermocouple, as expected due to the cooling from the underlying earth. This data further supports the previous conclusions of cooler temperatures near the liner and the liner's integrity being uncompromised by elevated temperatures.

Chiquita provides the following updates:

- TP-06
 - As stated in last week's report, during field investigation of TP-06, the thermocouples were evaluated and found to have had errors and failures since being brought back online from filling operations. Any temperature readings from the date that the thermocouples were brought back online were likely erroneous and any decreases or increases in temperatures were in error. The failed sensors were replaced and re-wired on April 4th. The maximum recorded temperature at TP-06 since the replacement and re-wiring is 138°F. However, the 100-foot thermocouple was reading in error and has been evaluated. After a below grade evaluation of TP-06, the 2-inch casing was found to be bent which was causing the 100-foot thermocouple to no longer read temperatures. On April 23rd a new thermocouple not being able to be removed or re-installed beyond repairable depth. On April 29th field crews were able to reinsert the 100-foot thermocouple by removing all thermocouples and re-installing them together. Note that the vertical temperature profile for TP-06 will be corrected in future weeks when we have multiple weeks of correct data and no past data issues that throw off previous weeks graphs.
- TP-09

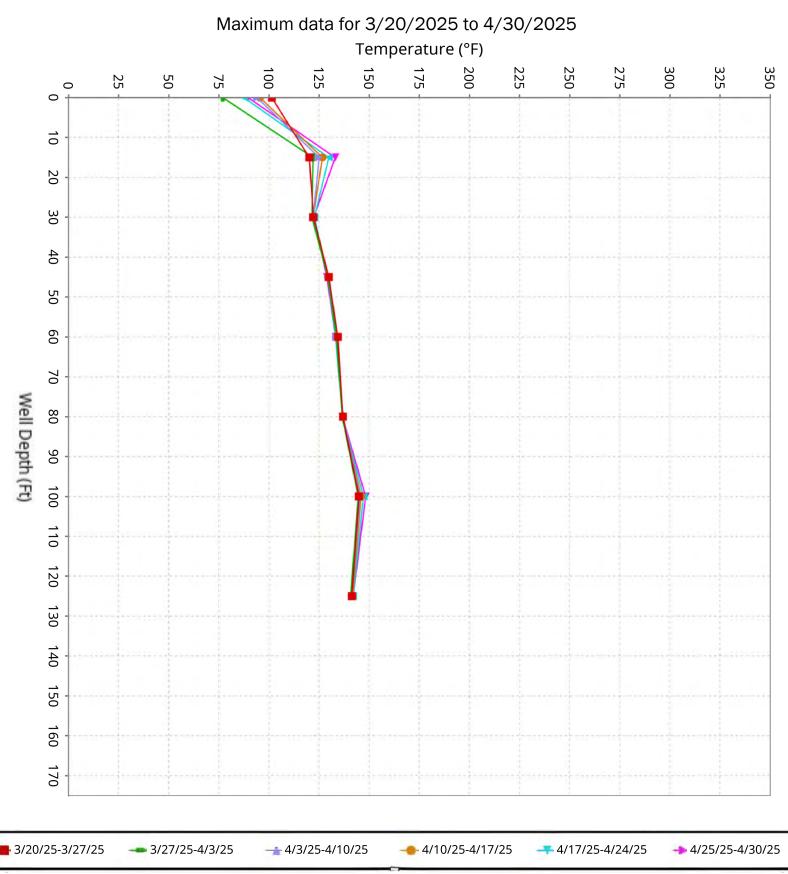
The past week of readings at TP-09 have shown no variability and upon field investigation, the battery for TP-09 was found to have failed likely due to poor cell network connection rapidly draining the battery. A new battery will be ordered and re-installed as soon as reasonably possible.

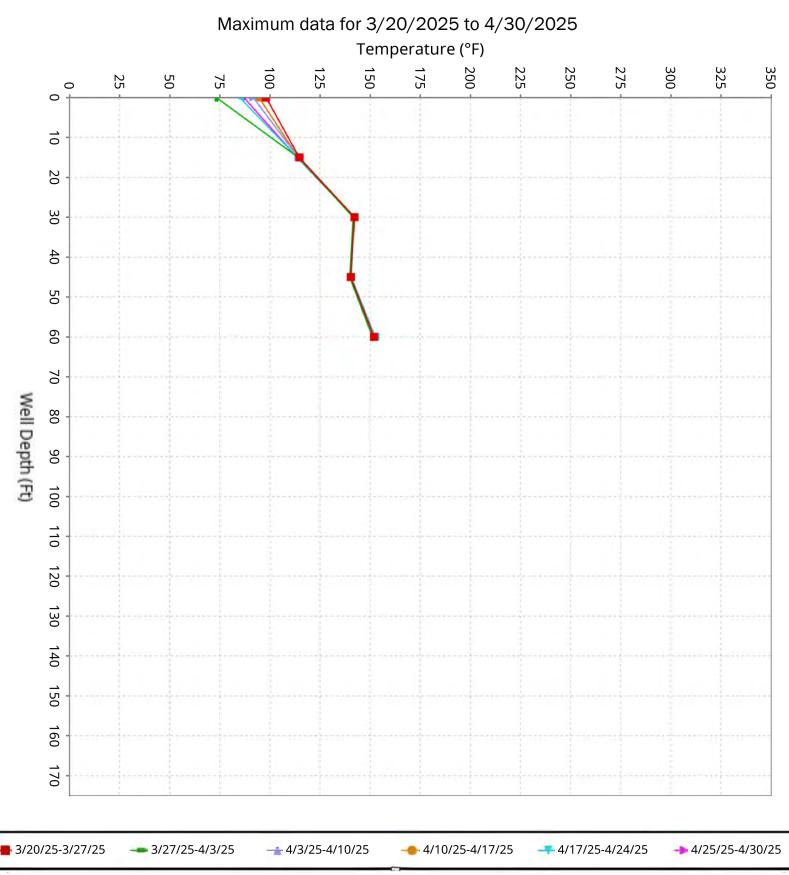
- TP-15
 - The 30-foot thermocouple showed an increase in maximum temperature of 15°F from 171°F to 186°F from April 23rd to April 26th, then a decrease in maximum temperature of 25°F from 186°F to 161°F from April 26th to April 28th, and then an increase in maximum temperature of 21°F from 161°F to 182°F from April 28th to April 30th, for an overall increase in maximum temperature of 11°F.
- TP-21
 - The 85-foot thermocouple showed a decrease in maximum temperature of 11°F from 221°F to 210°F from April 23rd to April 27th.

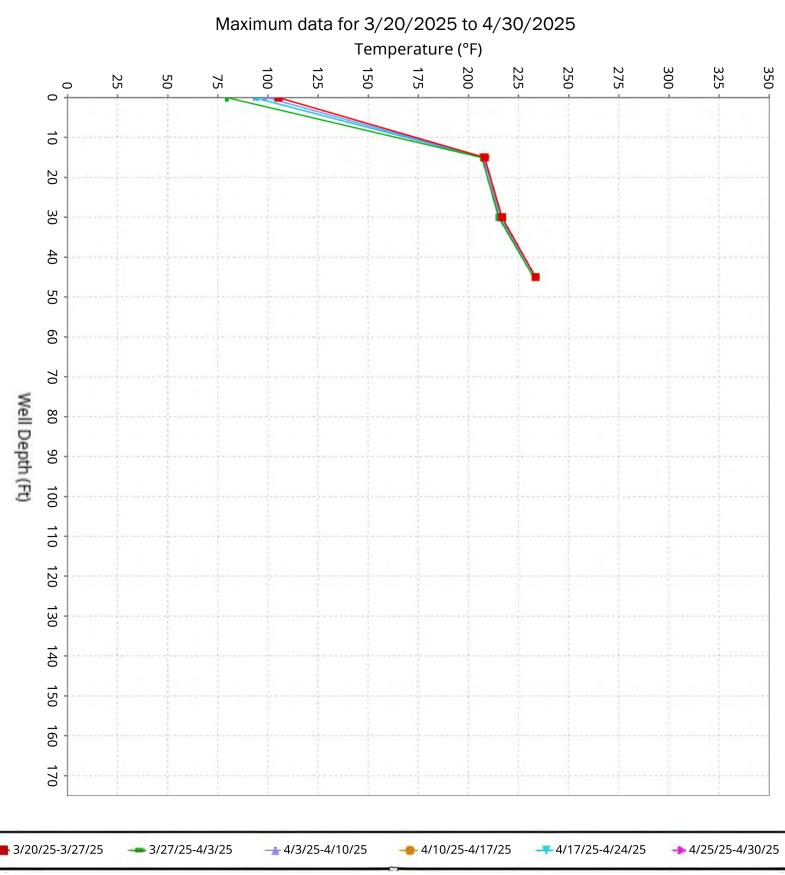
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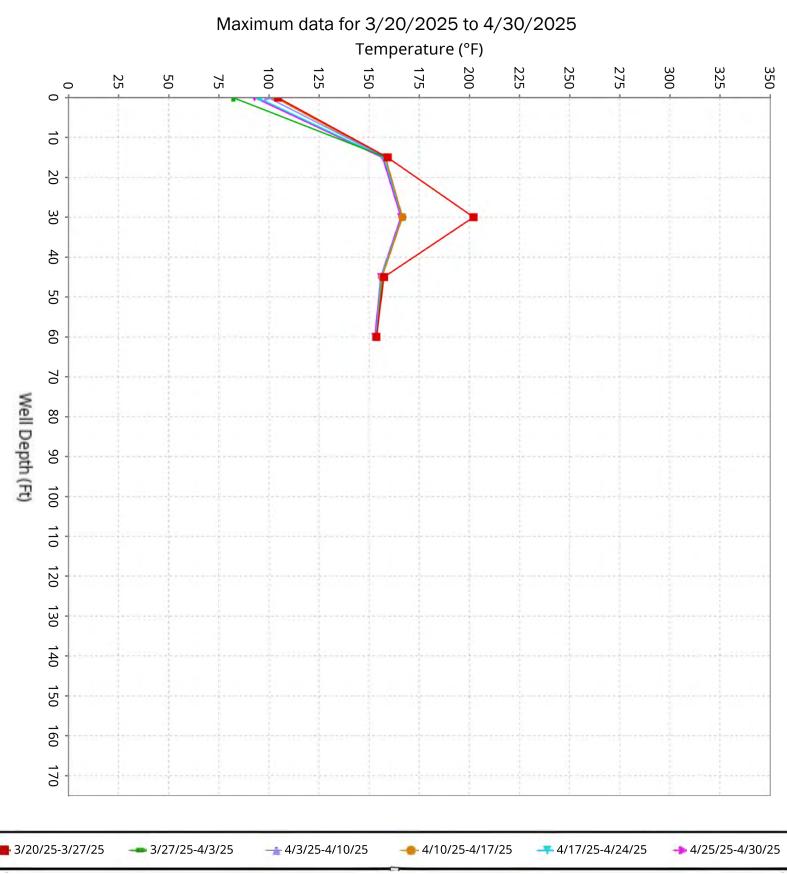
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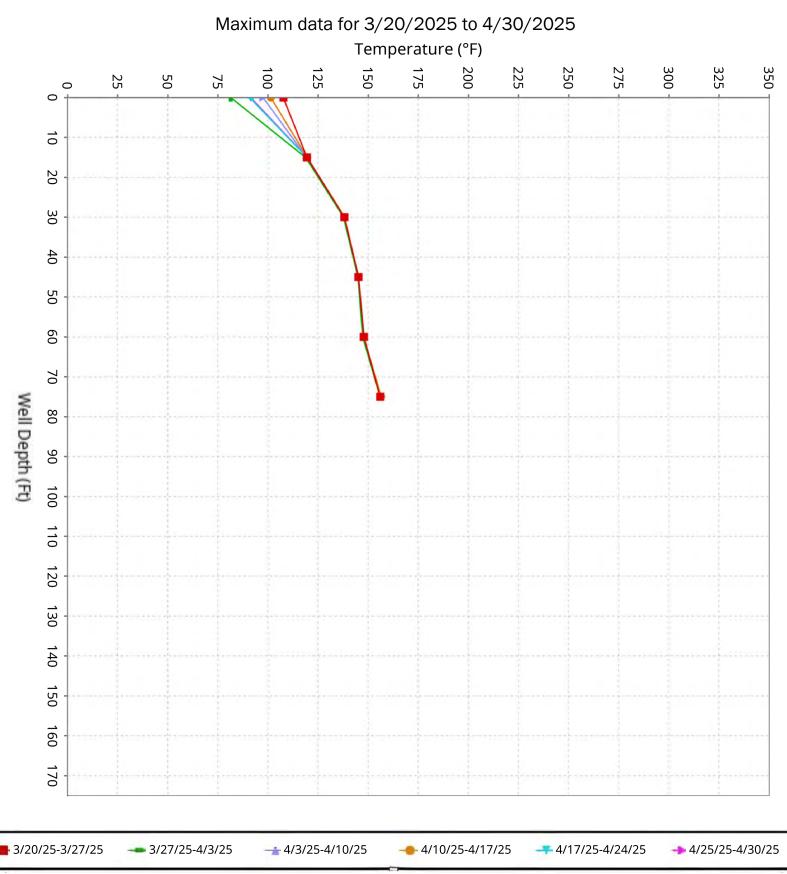
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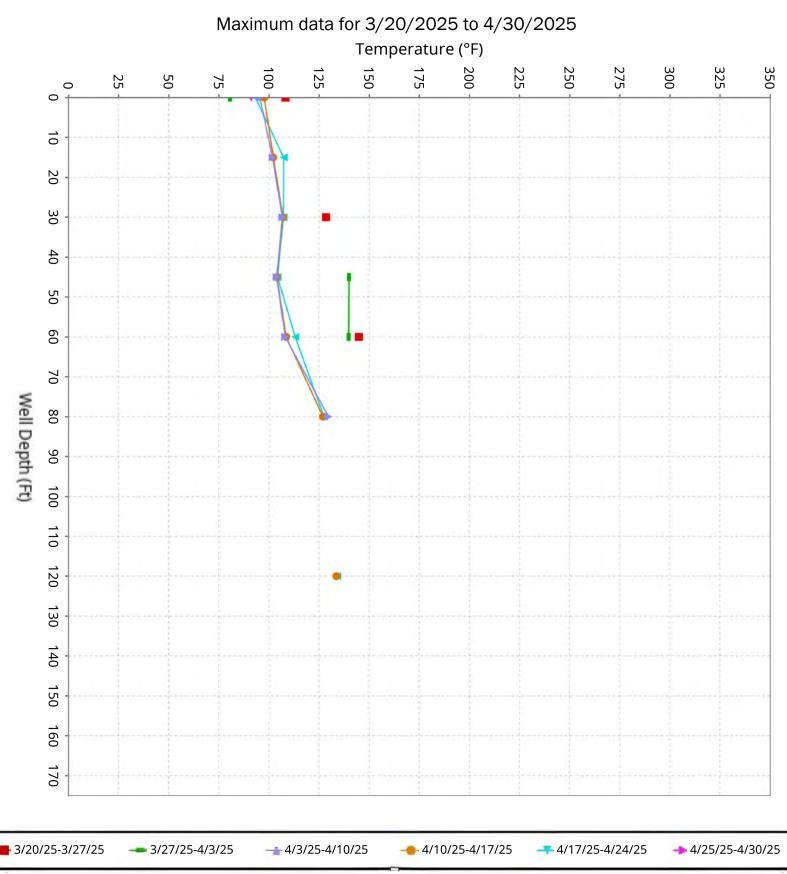


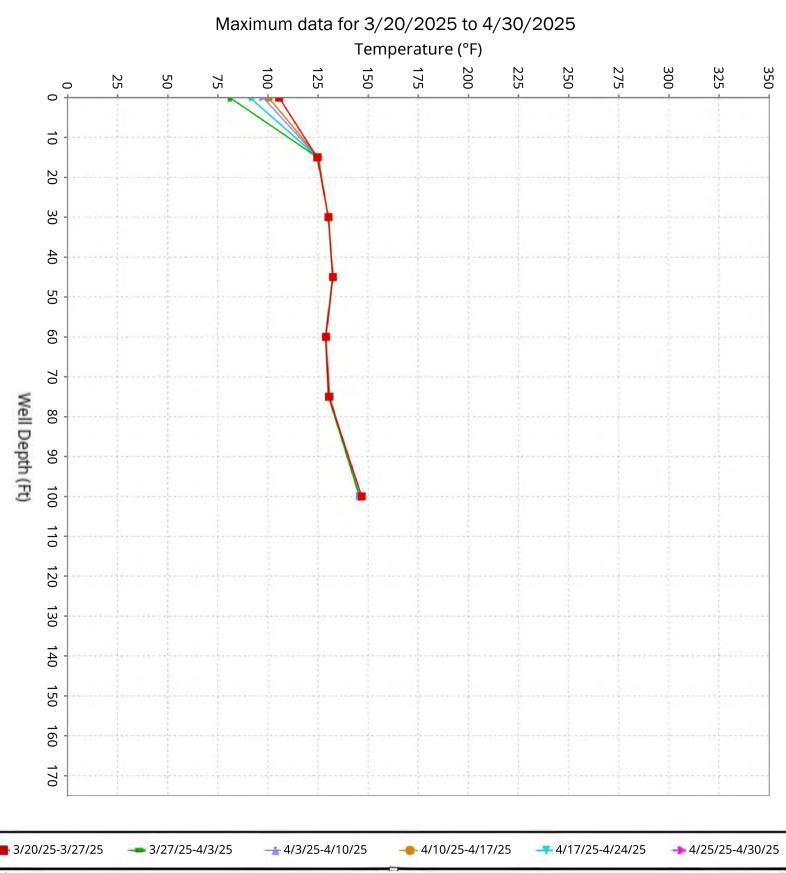


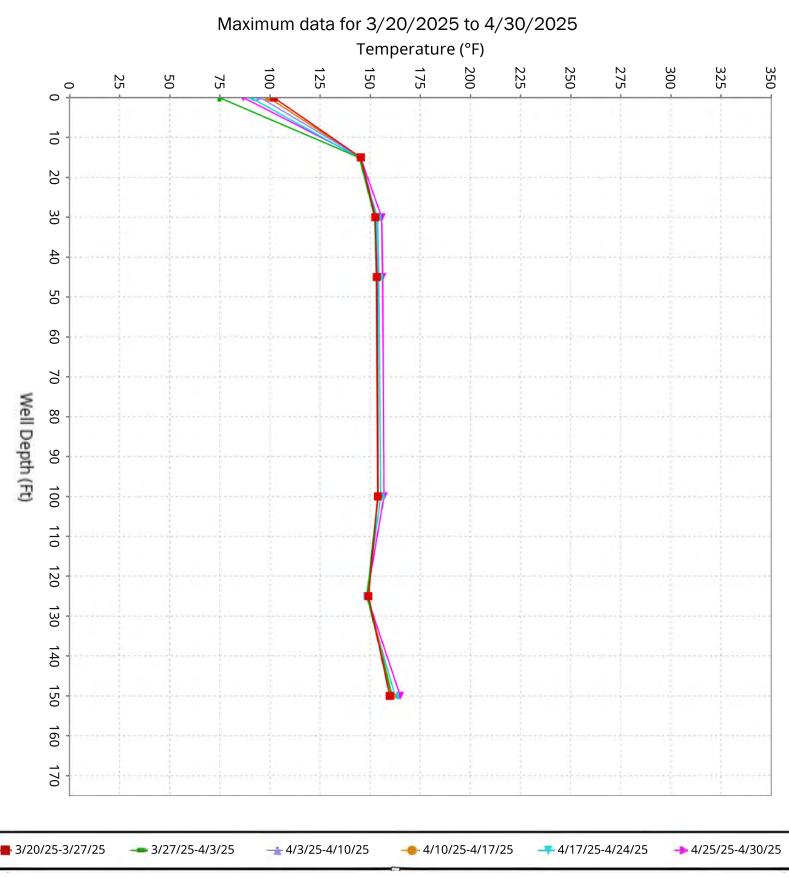


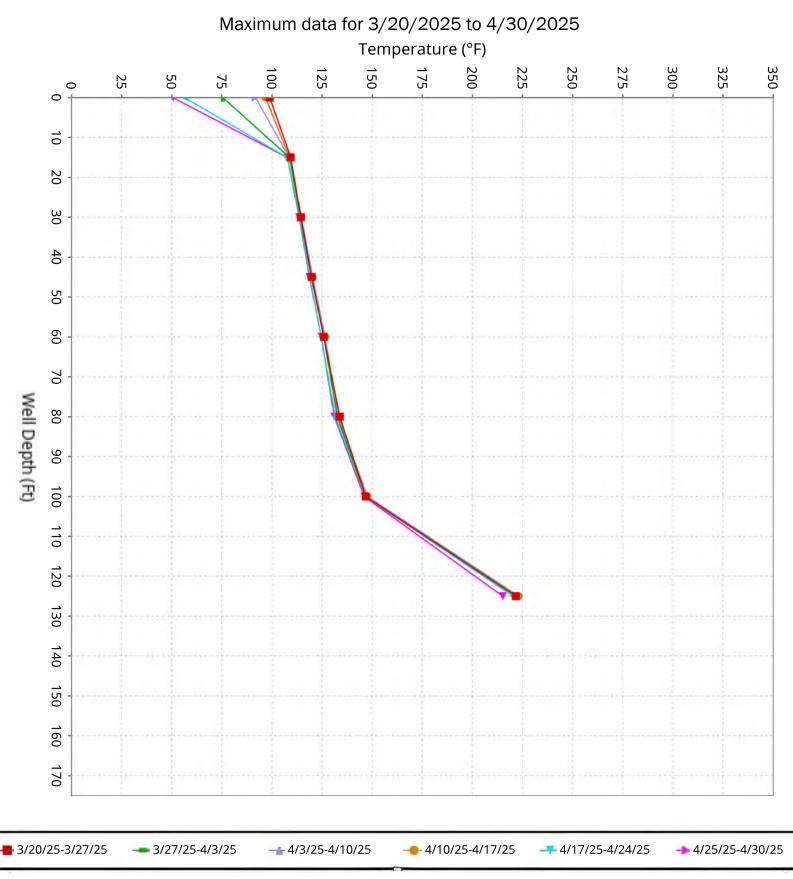


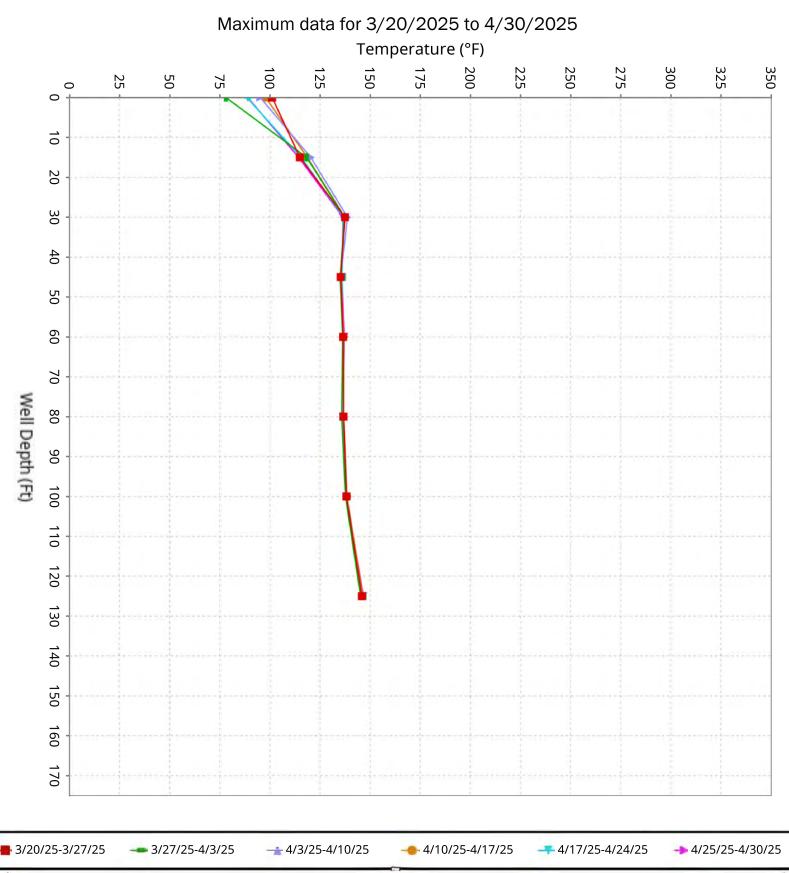


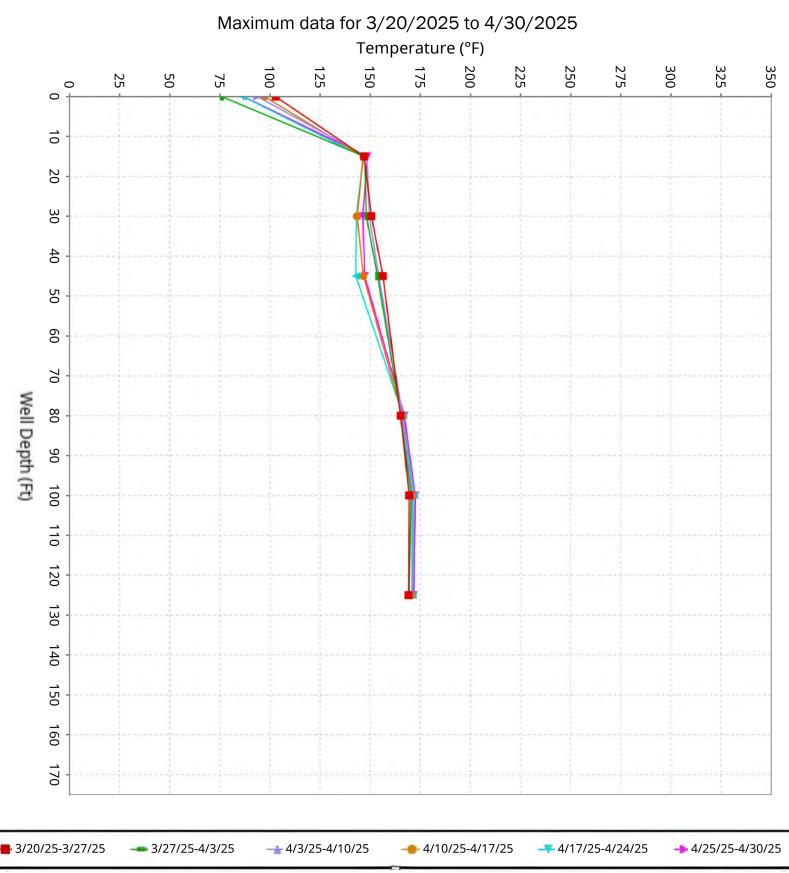


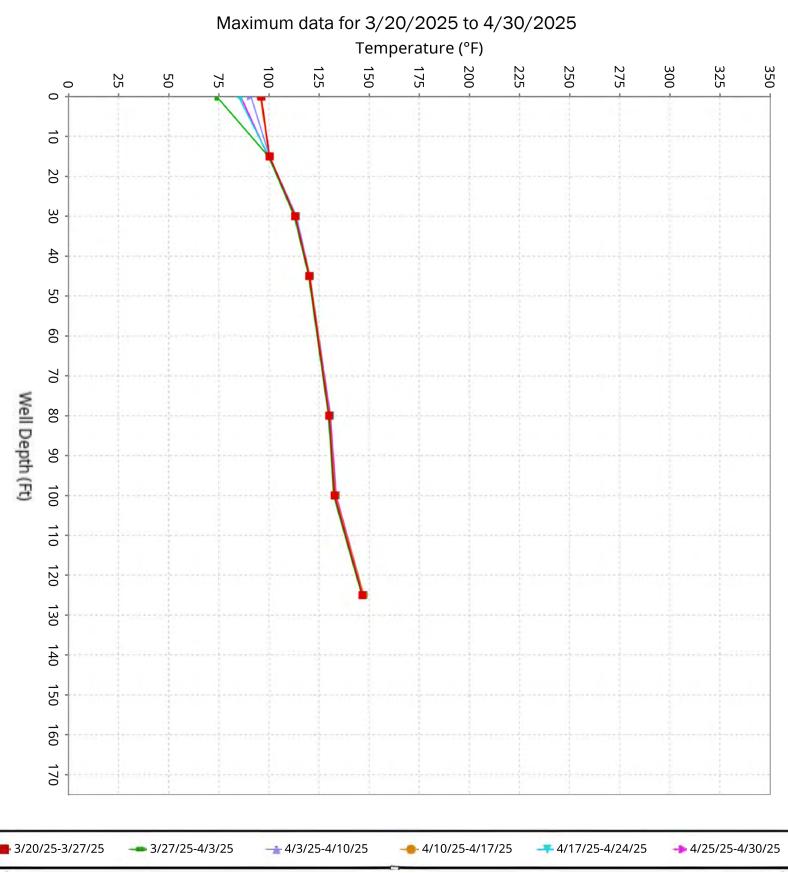


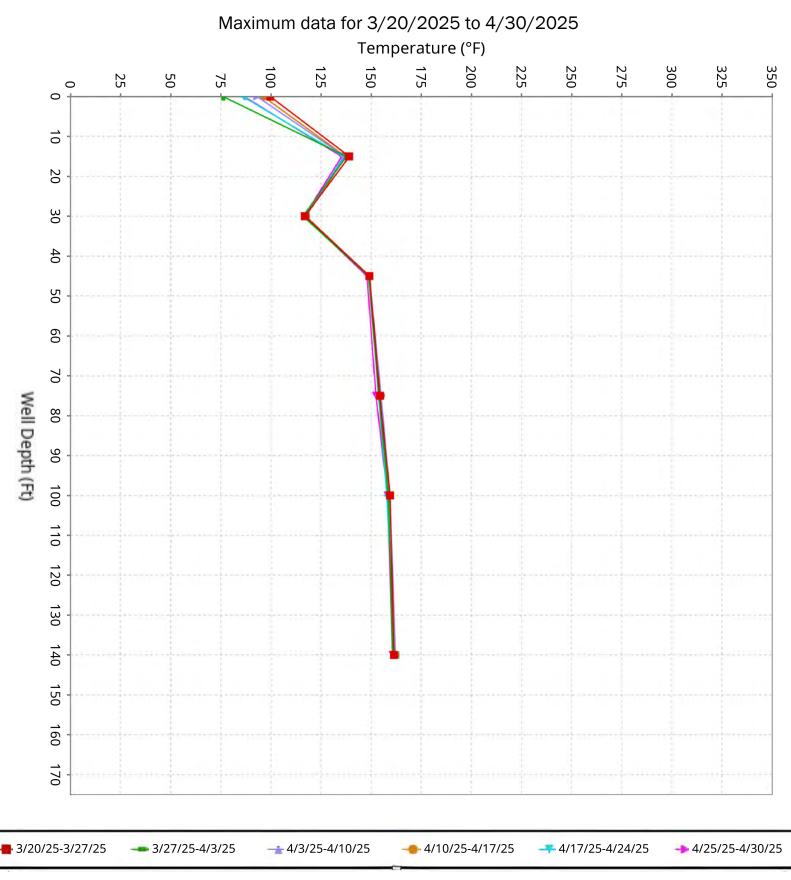


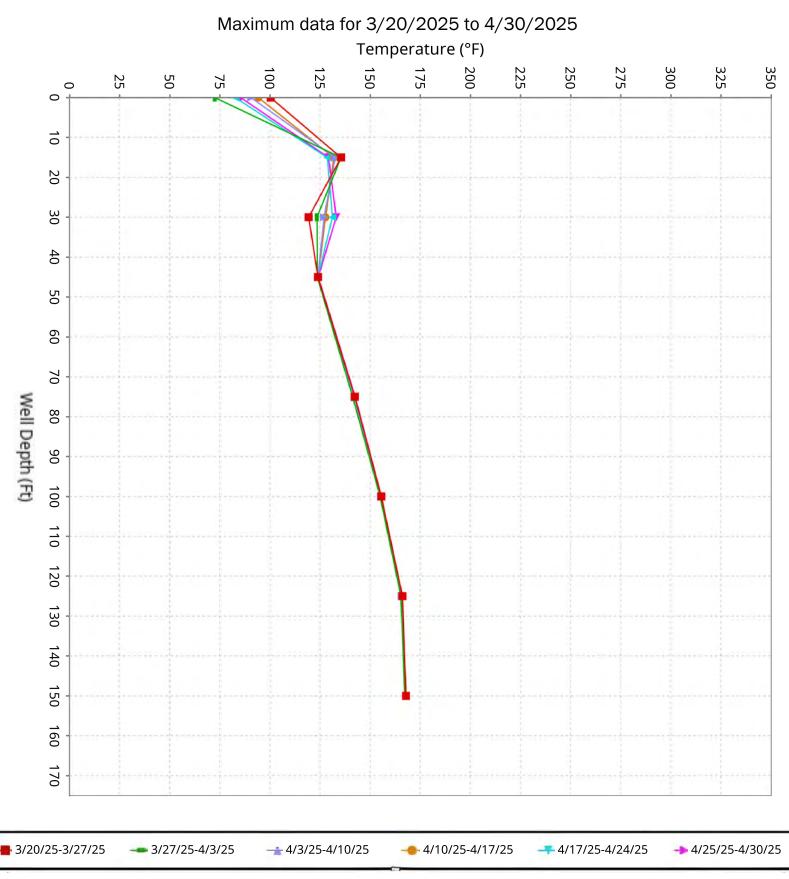


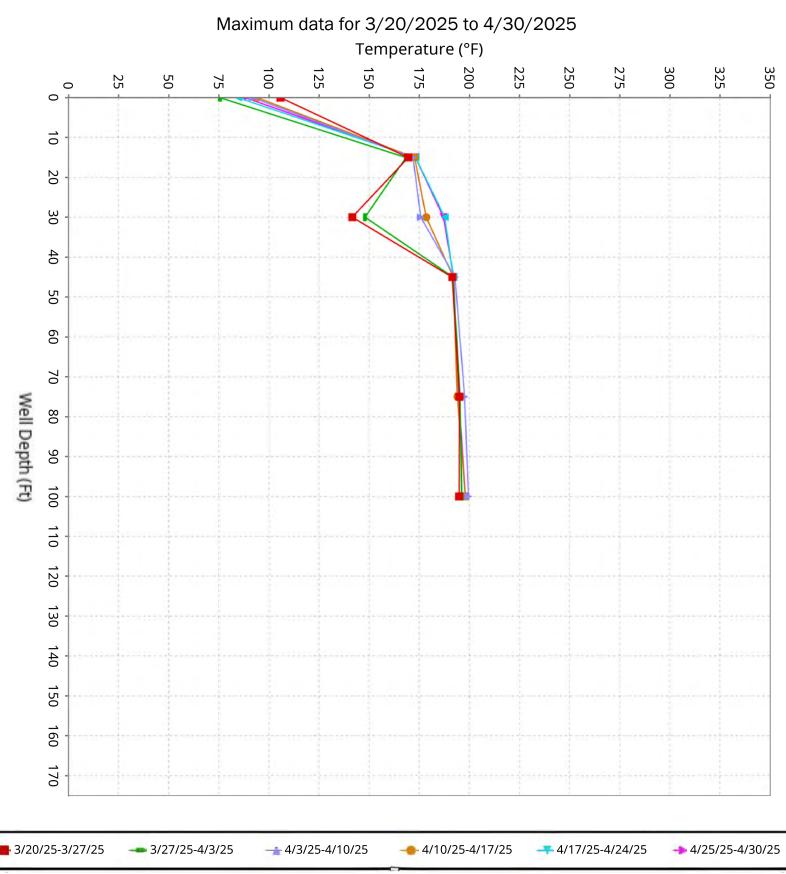


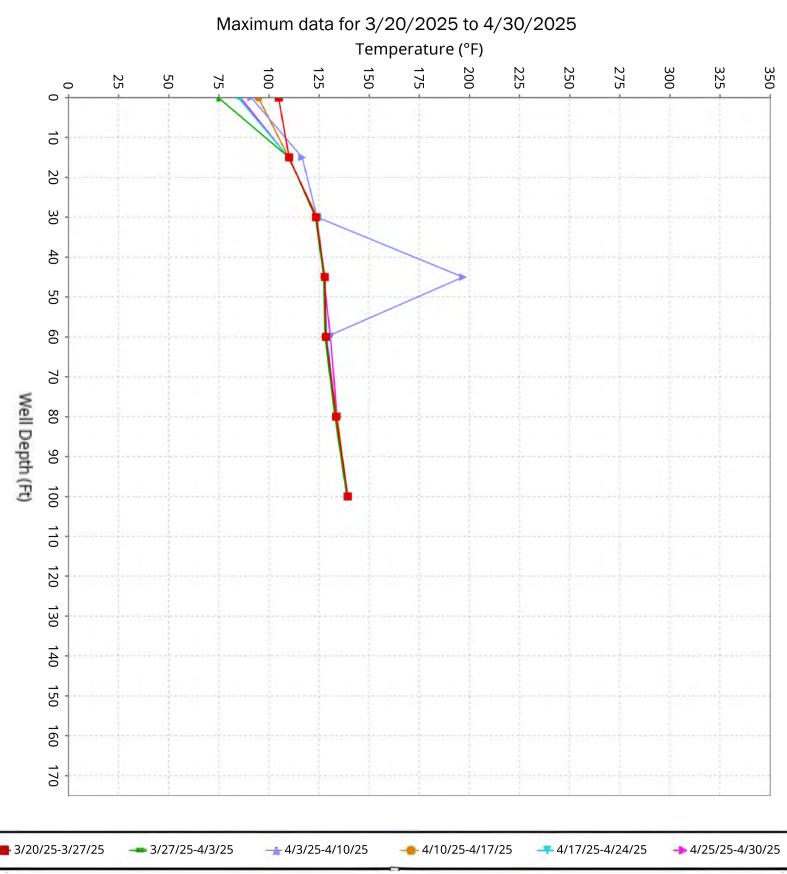


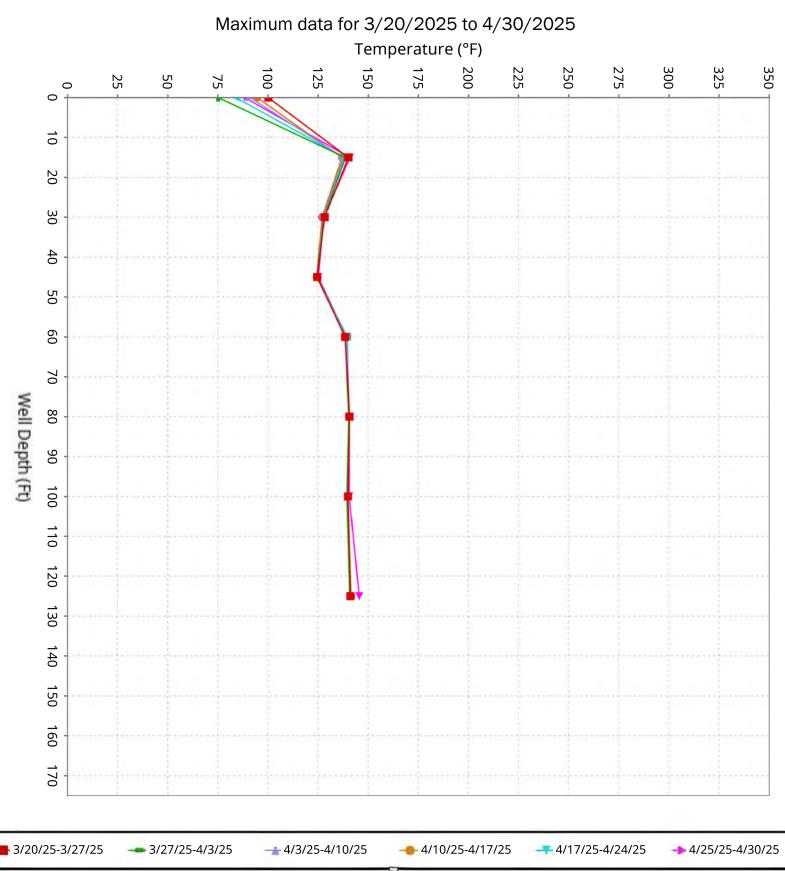


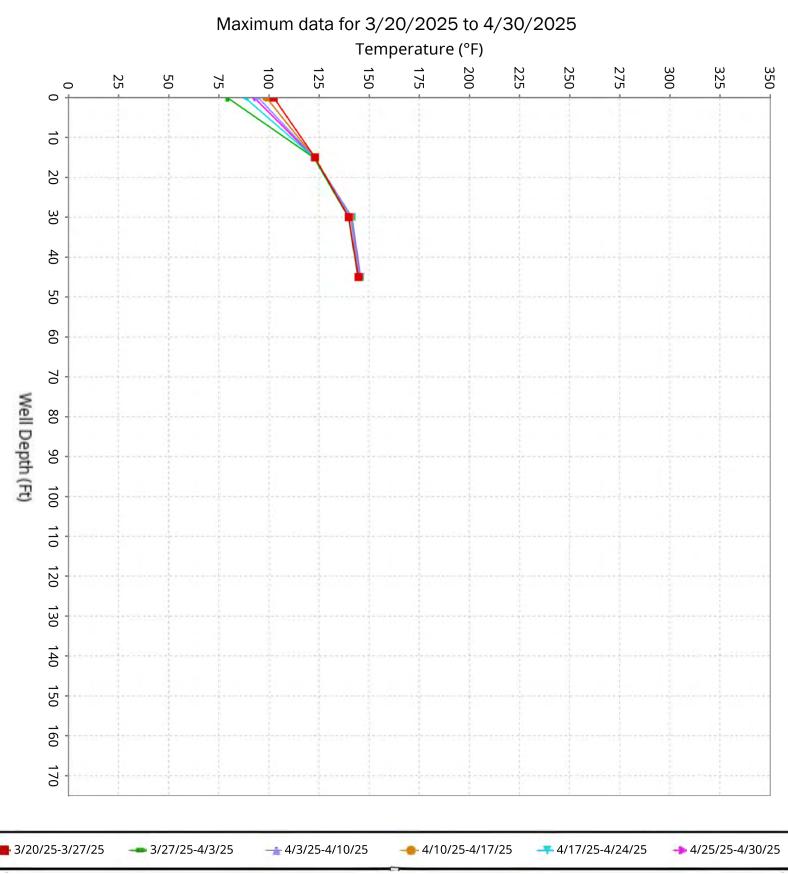


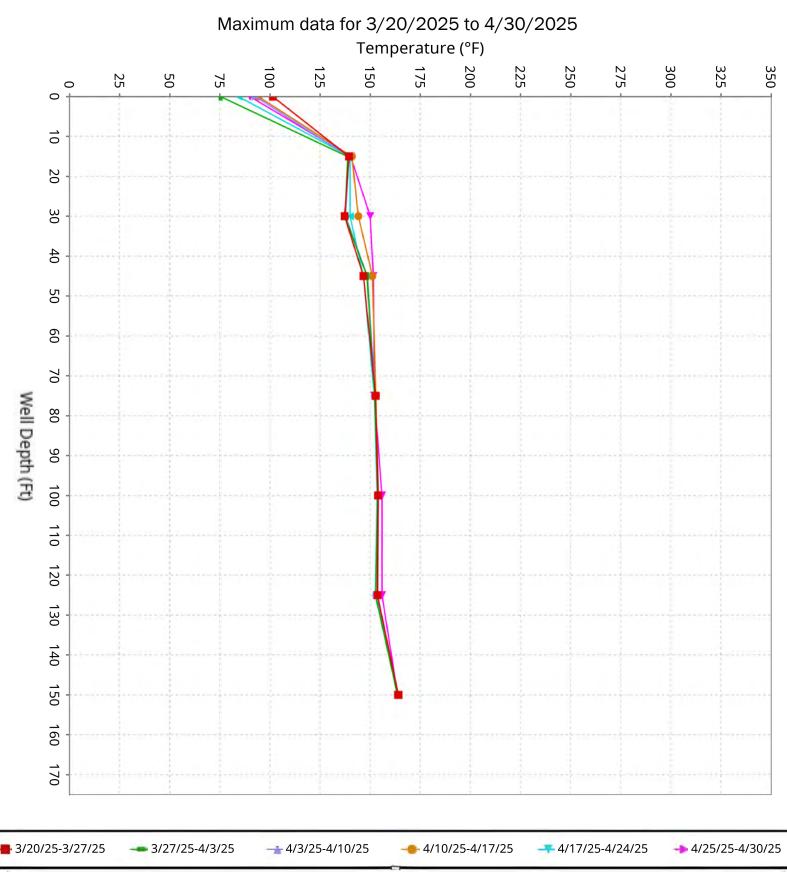


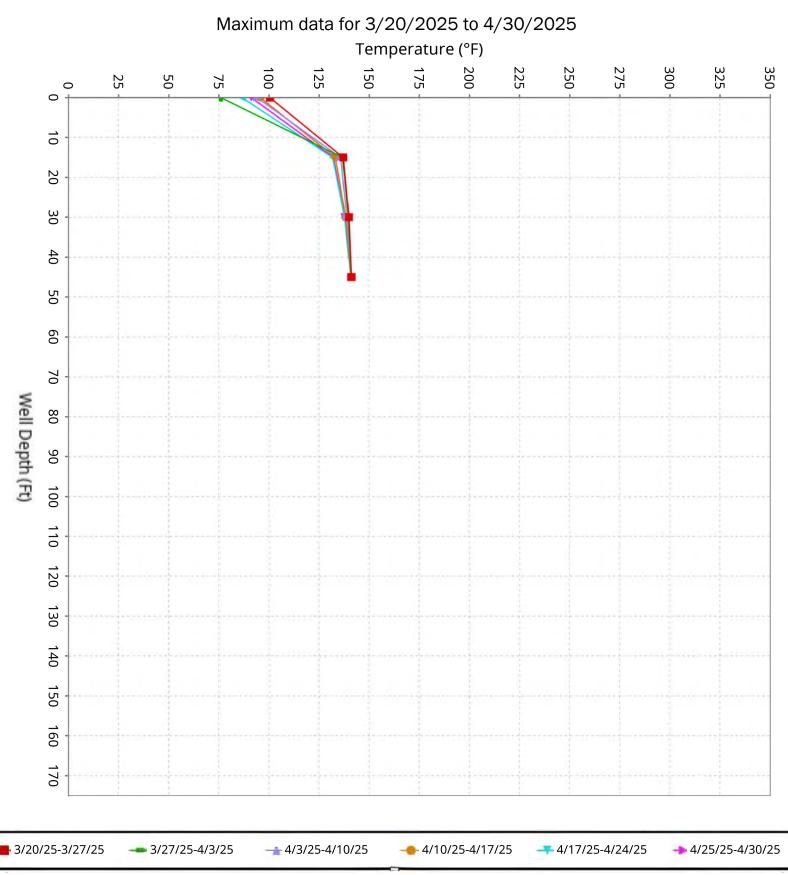


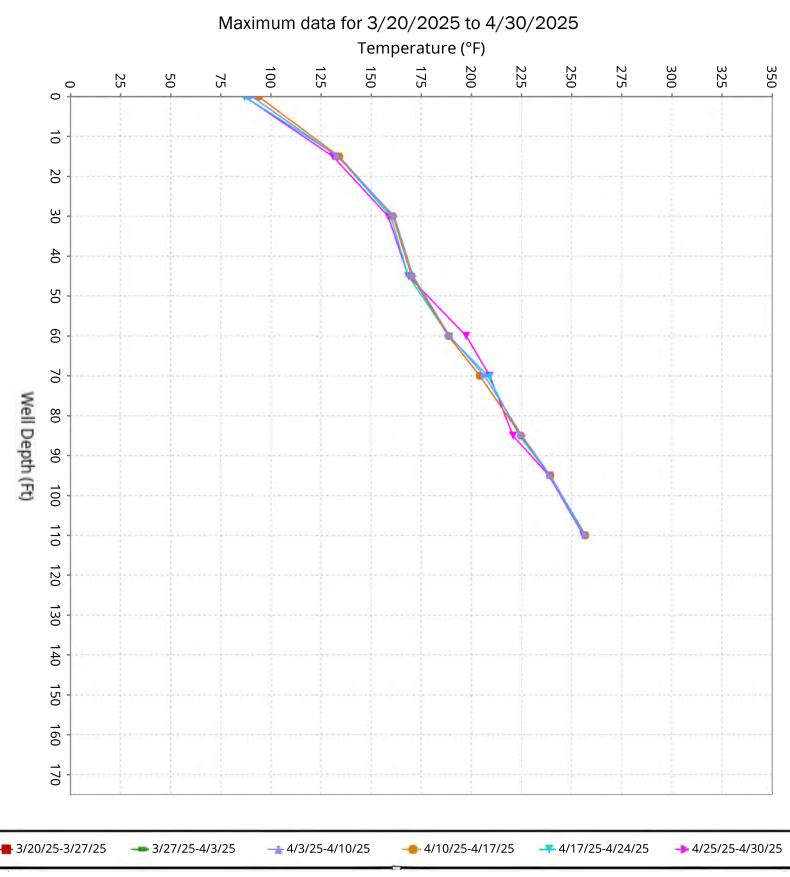


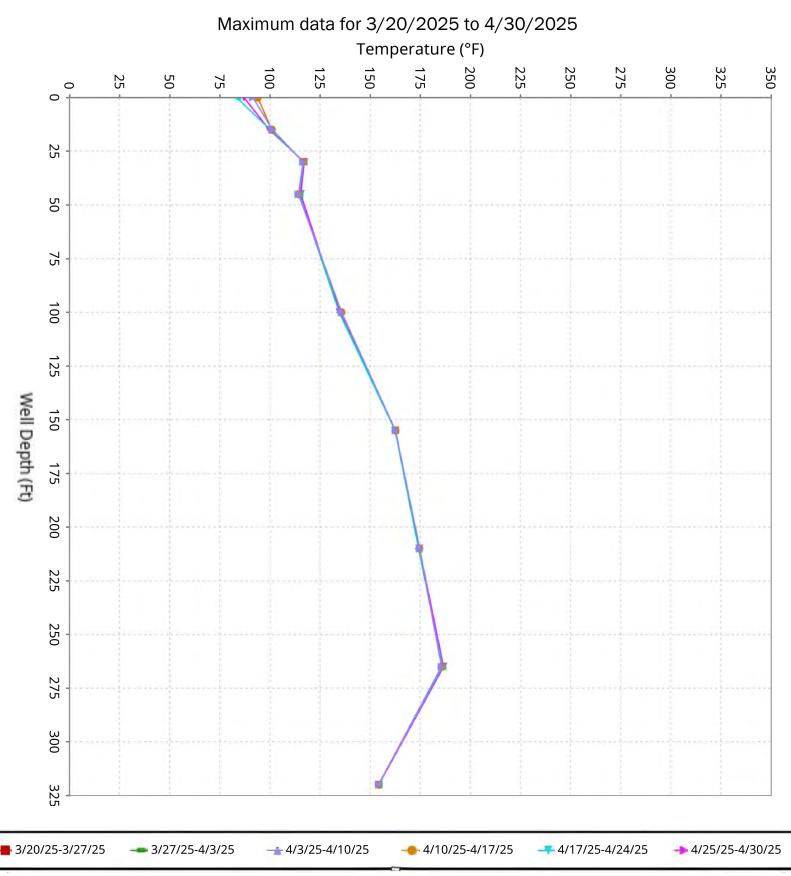


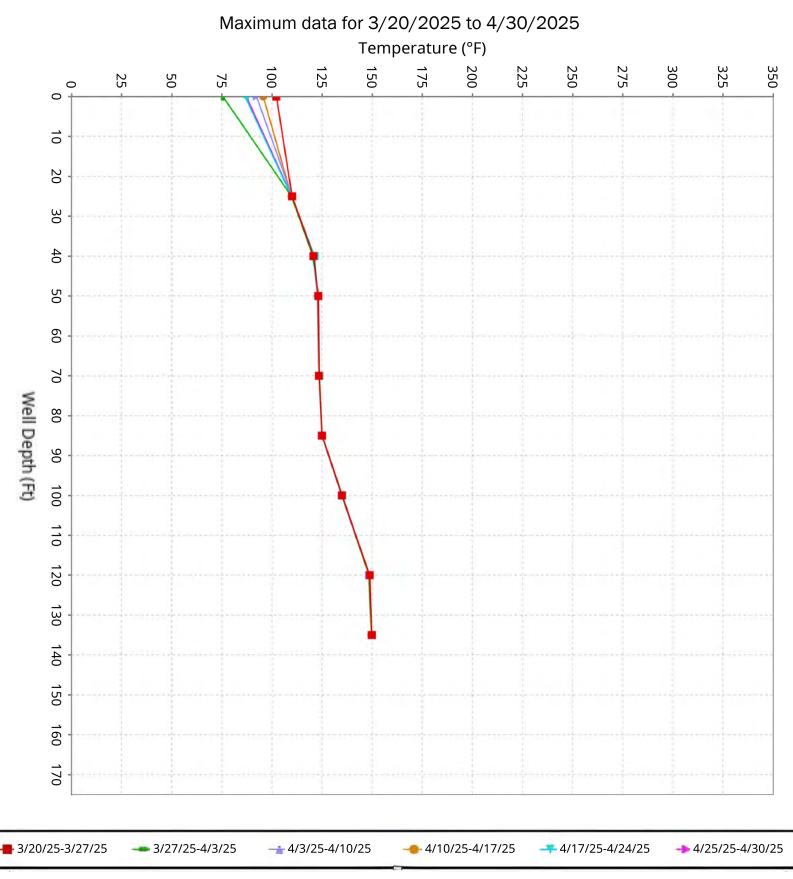


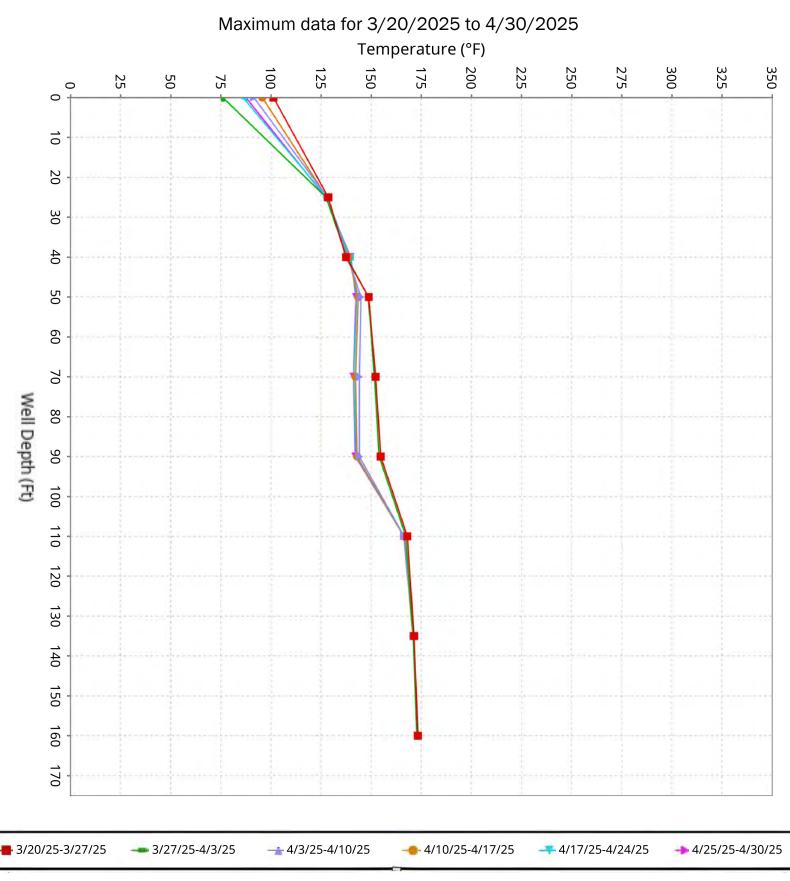


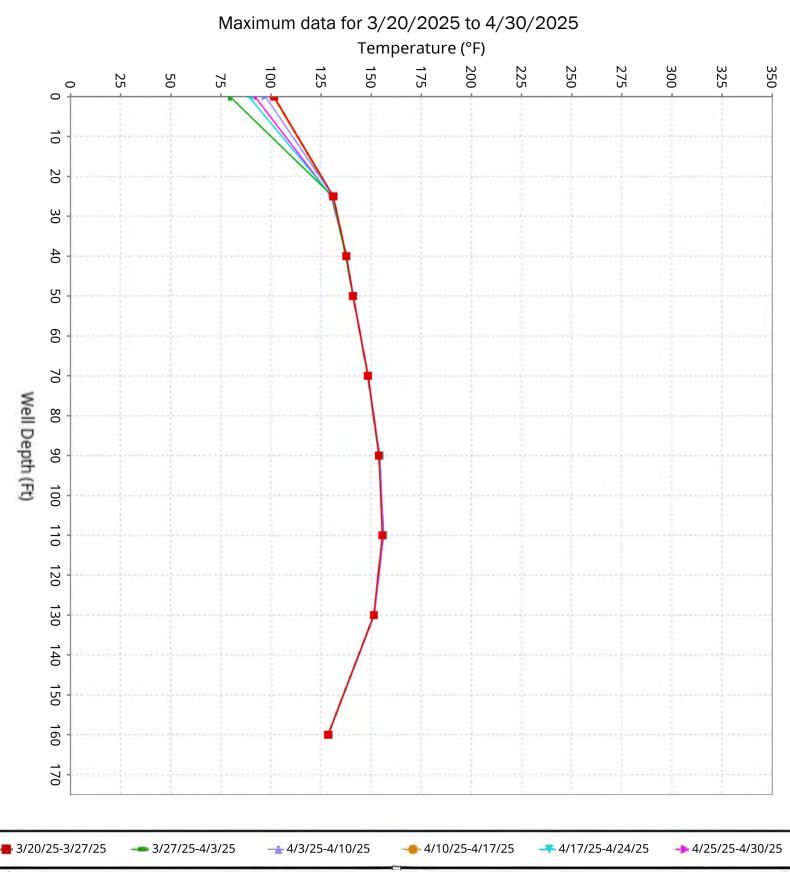


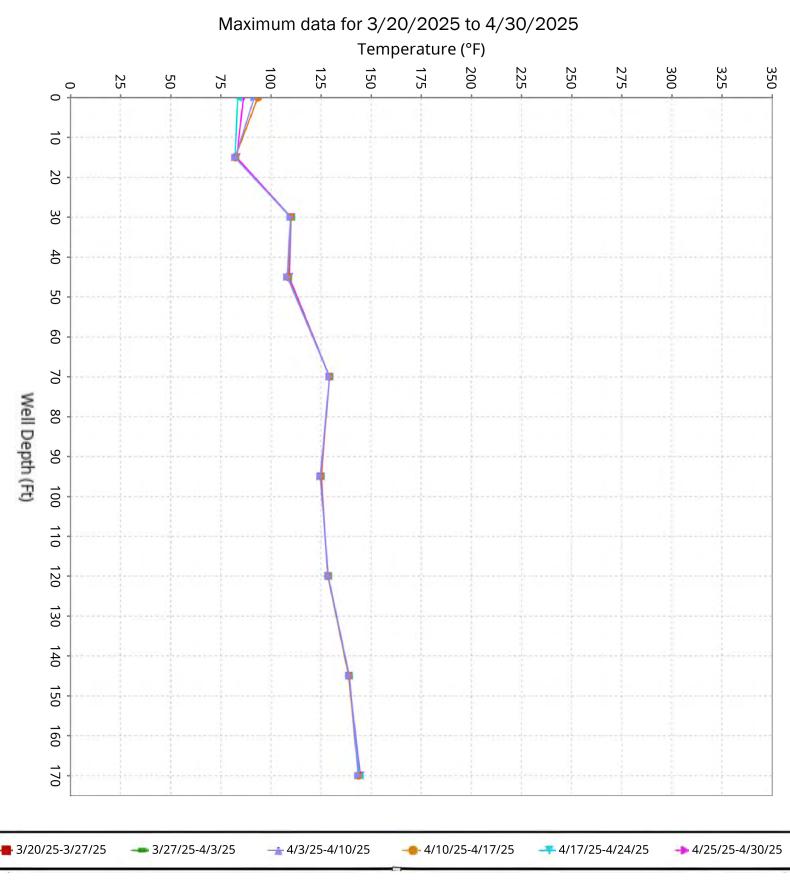


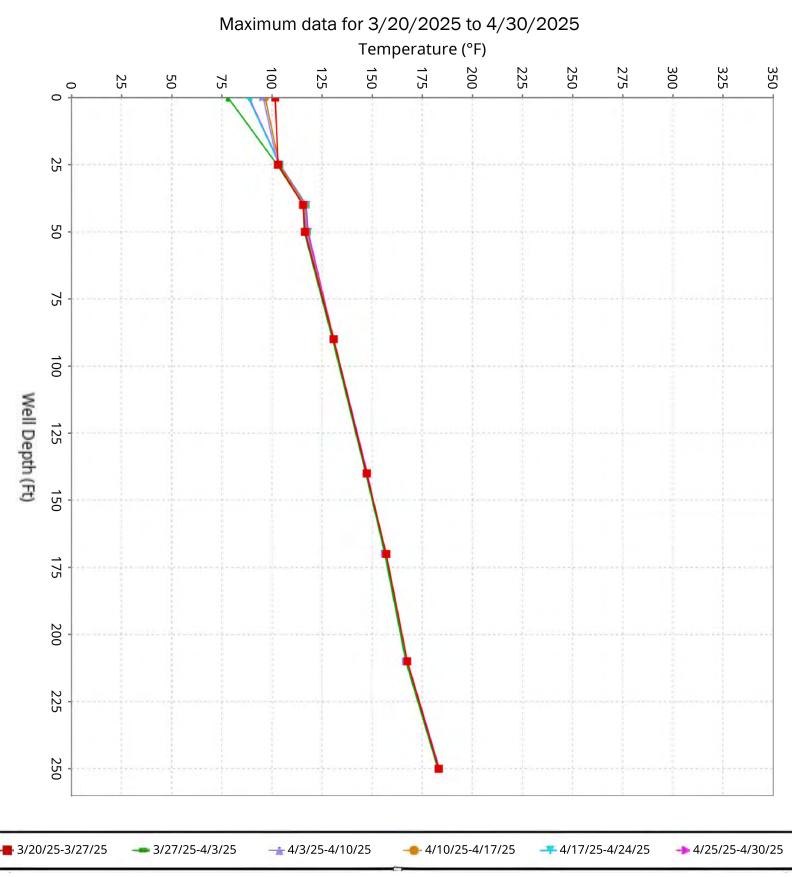


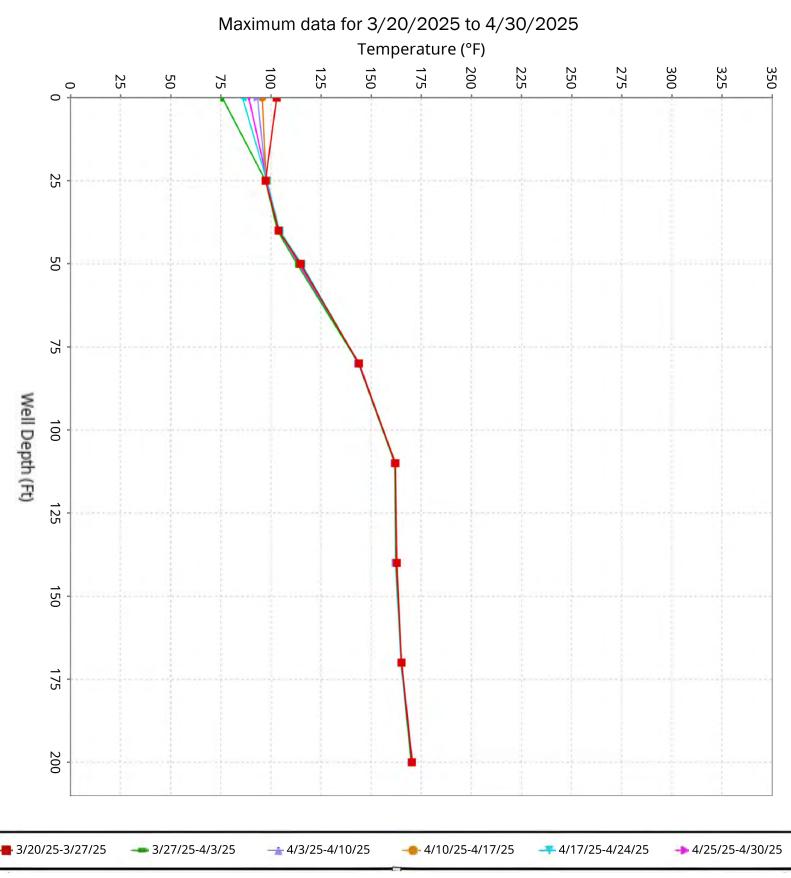


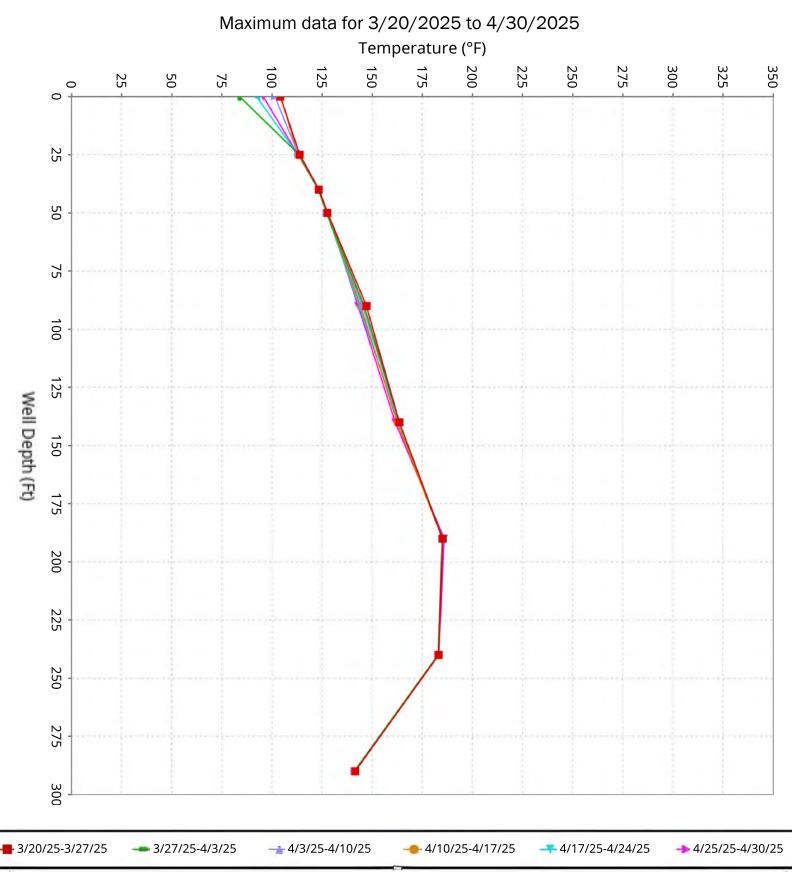


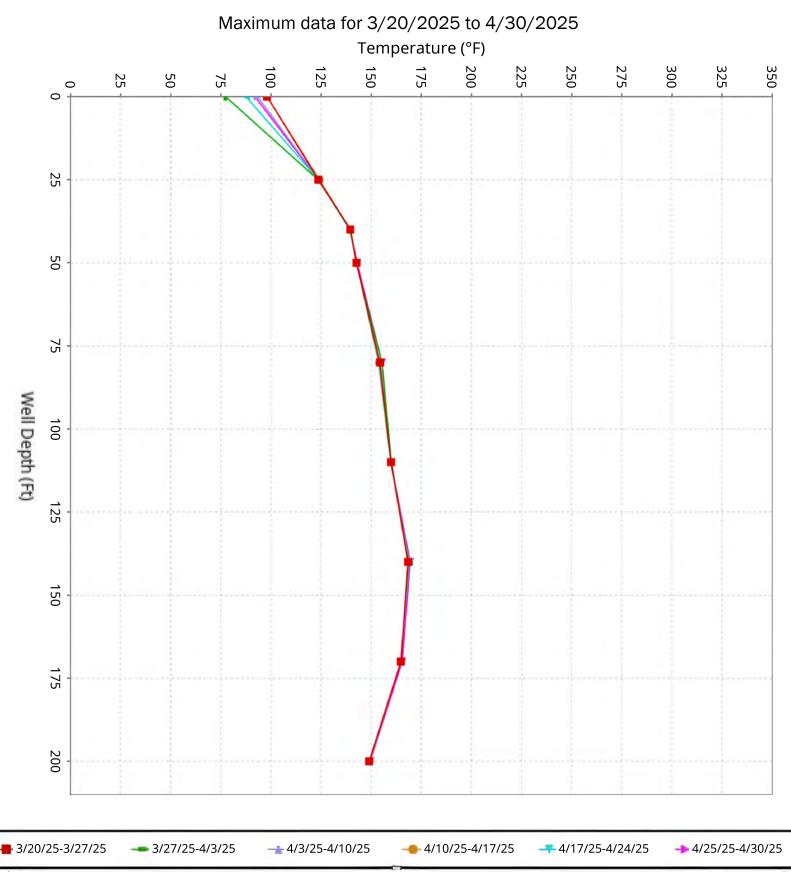


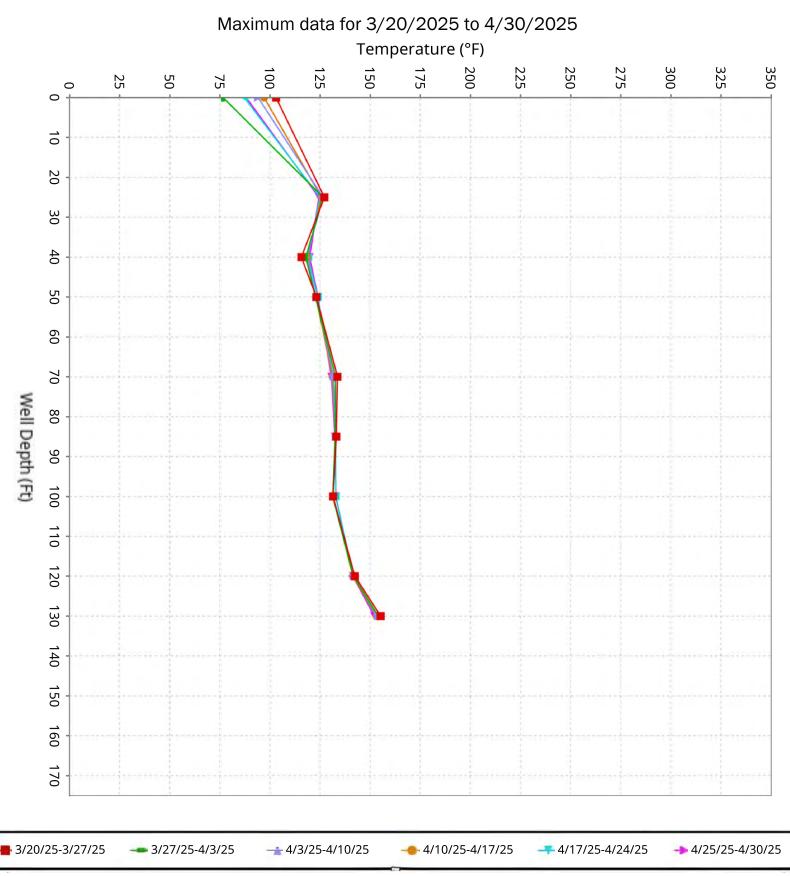


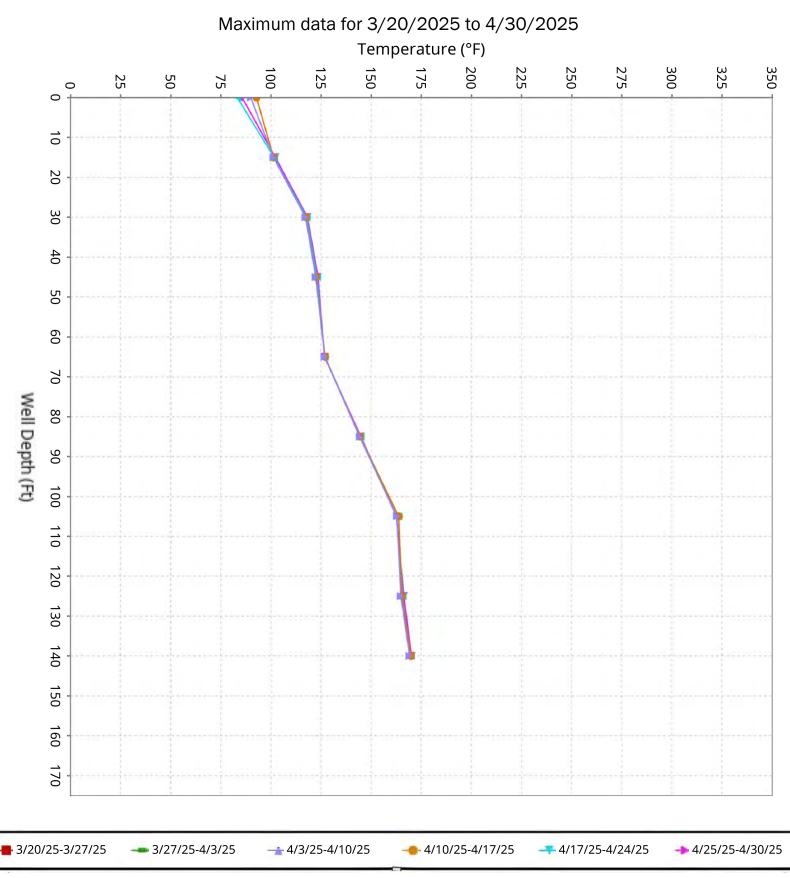




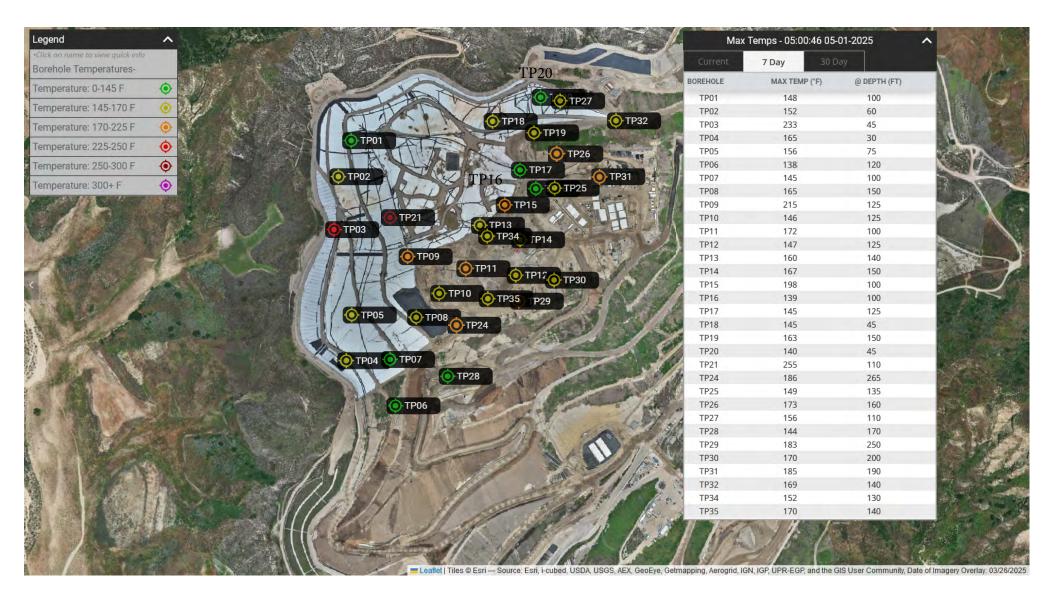


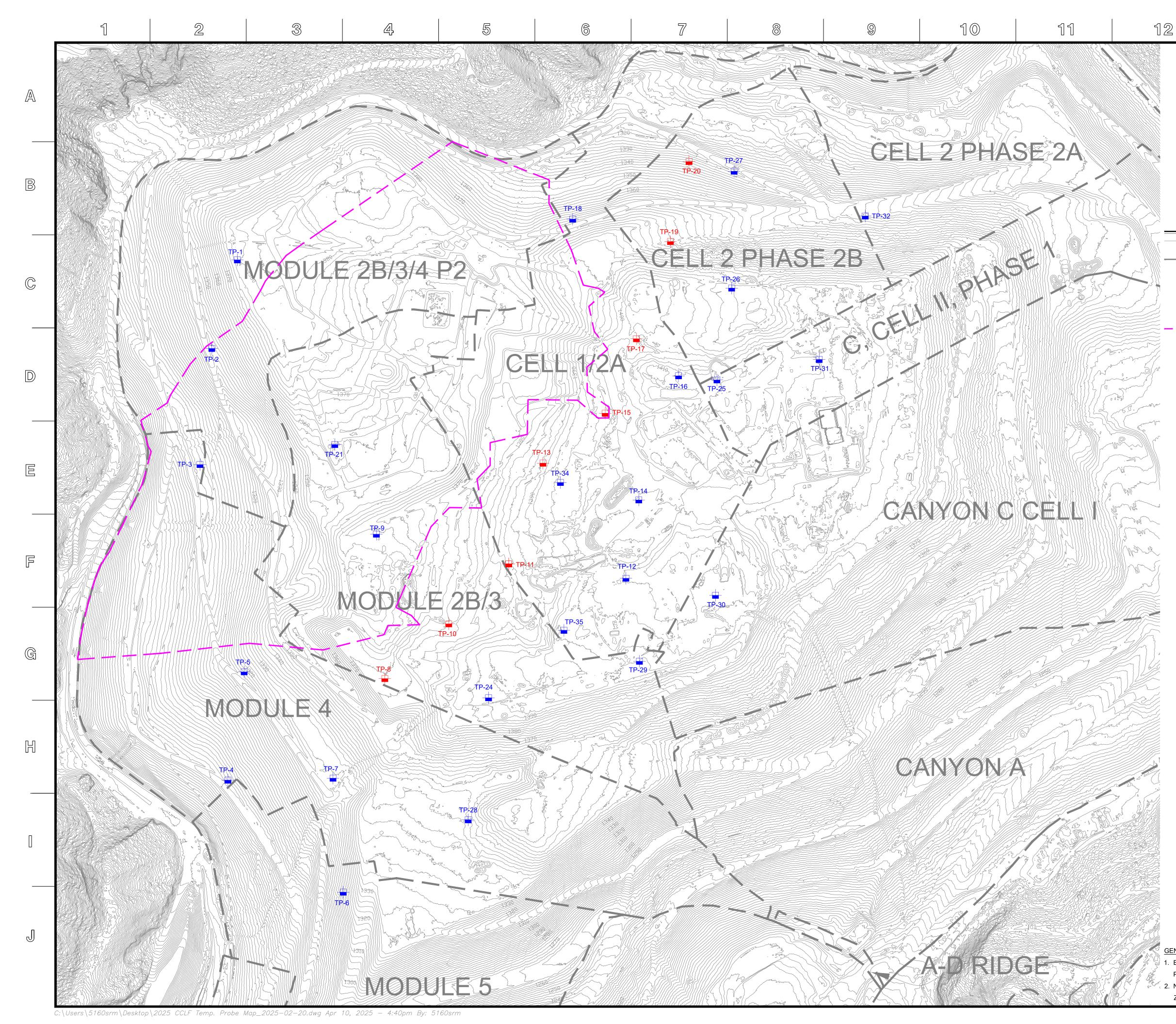


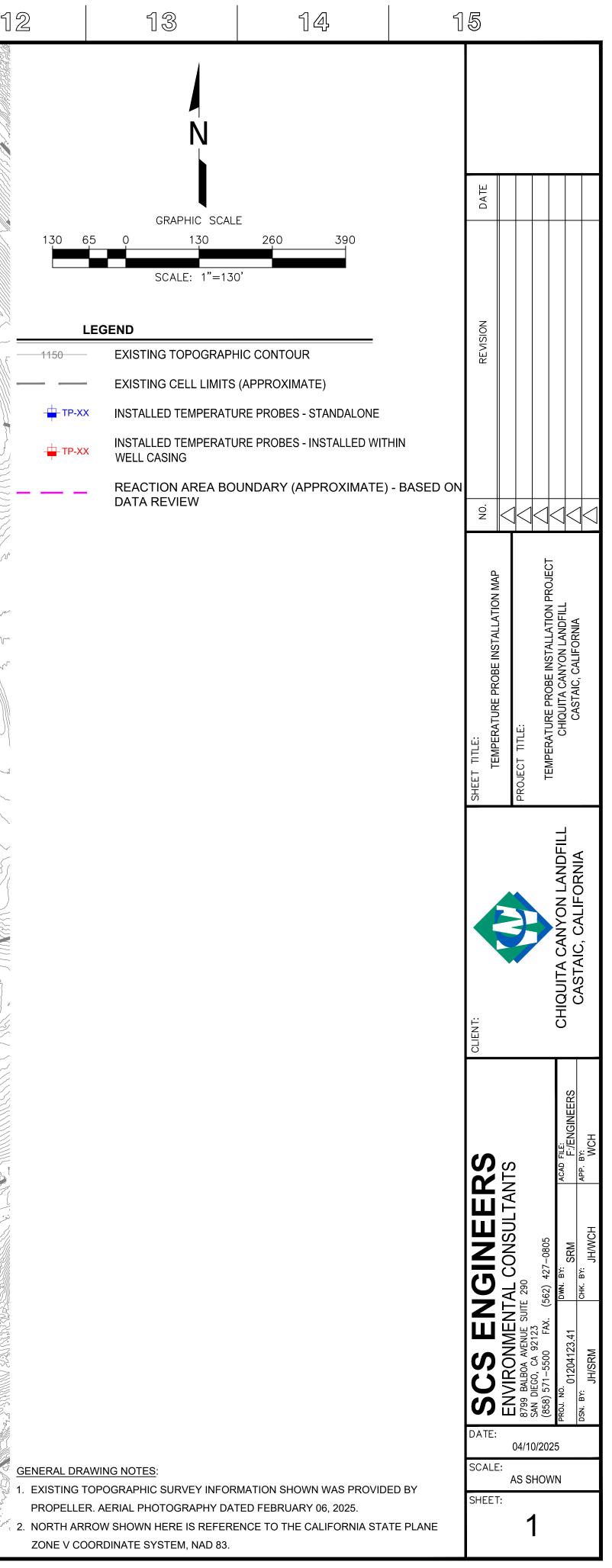


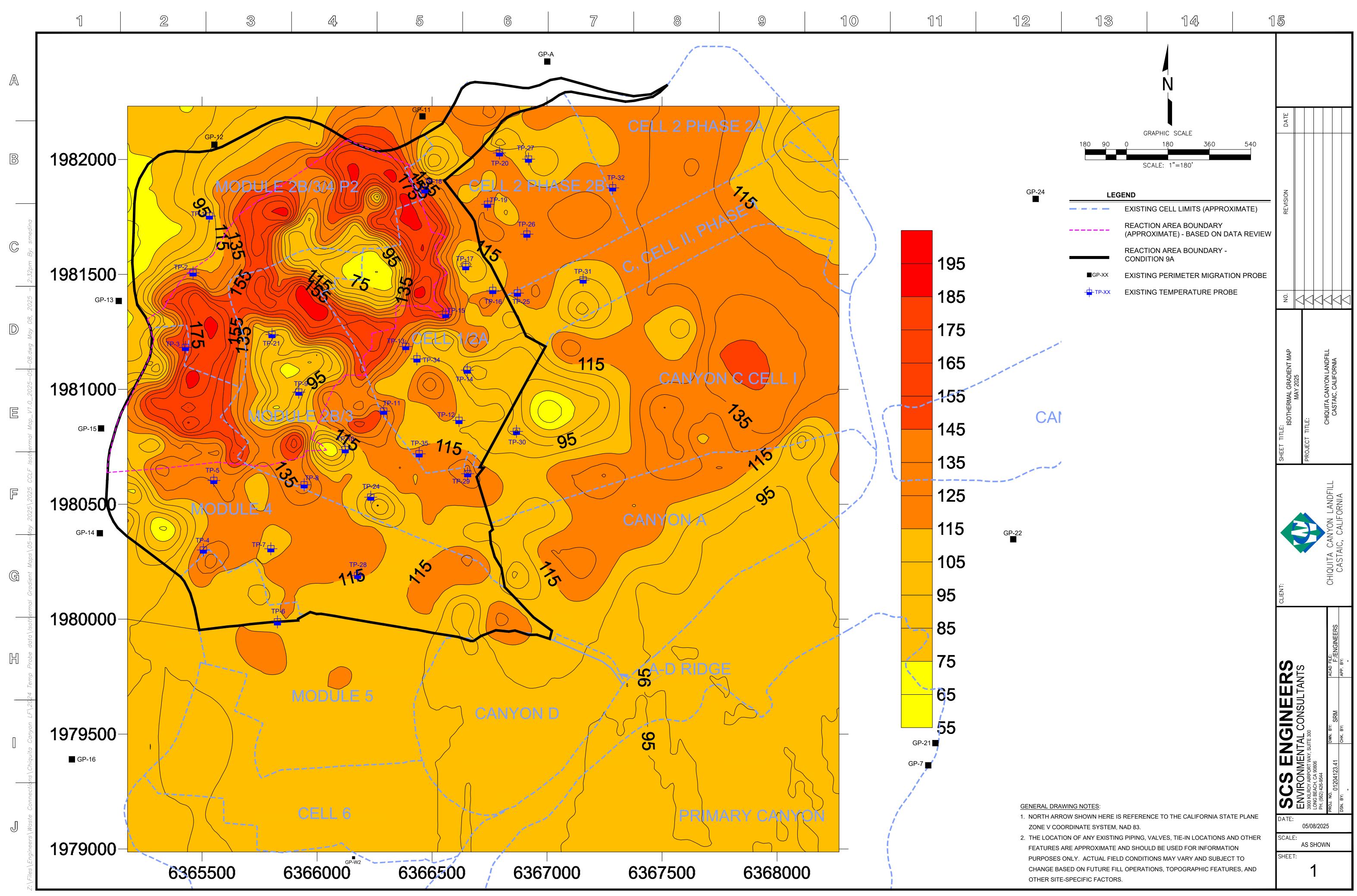


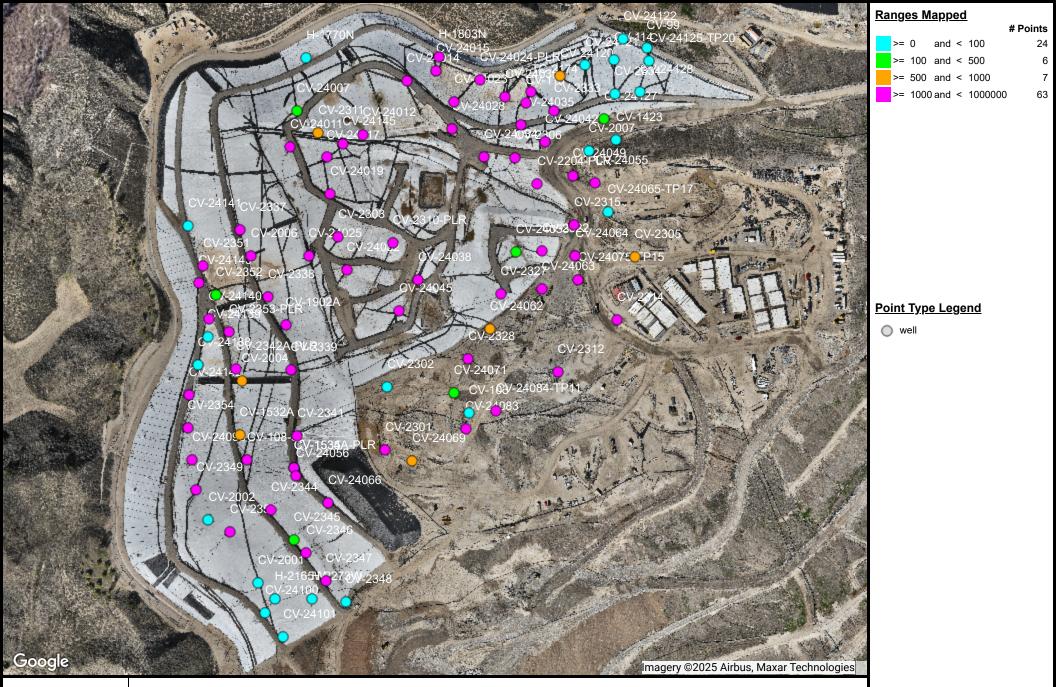
Maximum Vertical Temperature Map from Temperature Probes at Chiquita Landfill













Chiquita Canyon Landfill Range Map Parameter: CO (mid range) Analysis Method: Average Date Range: 04/01/2025 - 04/30/2025

SCSeTools

Map generation date : 05/06/2025