August 7, 2024
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 July 2024, 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 8/2/24. 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 Reaction Committee reviewed the temperature measurements recorded during July 2024 by the in-situ temperature monitoring probes. Three (3) of the twenty (20) probes (TP-2, 3, and 9) are located within the estimated extent of ETLF conditions (dashed magenta line), and thirteen (13) probes are positioned adjacent to (within 200 feet) of this boundary. Similar to data recorded during the previous months, the temperatures recorded by the 13 probes outside of the boundary during July 2024 are not indicative of a subsurface reaction, and it is the Committee's opinion that they do not substantiate a decision to expand the boundary of the reaction area at this time.

The Reaction Committee also evaluated the concentration of hydrogen in landfill gas (LFG) during July 2024. Recall that certain wells positioned to the east of the reaction area boundary (where dewatering pumping was reactivated) had demonstrated some increased hydrogen content in the LFG during the Reaction Committee's review of the May 2024 data; however, these wells did not sustain these hydrogen concentrations when monitored in June 2024. The Reaction Committee had noted in its review of the May and June 2024 data that these wells did not exhibit elevated temperatures, such that there was no evidence of the increased heat that is typical with ETLF conditions present at these wells. The July 2024 data indicates there are four vertical wells positioned to the southeast outside the reaction area boundary exhibiting hydrogen concentrations over 2%; however, similar to the May and June data, none of the four wells that exhibited some increased hydrogen content in the LFG during July are demonstrating atypical heat present. Each of the four wells is located adjacent to an existing horizontal well and they are believed to be intercepting gas collected from within the reaction area by horizontal wells in close proximity. Accordingly, the Reaction Committee does not believe an adjustment to the boundary of the reaction

area is merited at this time. The Reaction Committee will continue to monitor LFG hydrogen concentrations closely during future months.

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 at this time. Please note the following:

- The rationale that would serve as the basis for considering adjustments and modifications to the Reaction Area boundary (or the determination to maintain the decreed boundary), include:

  - 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 (CH_4:CO_2) ratios less than 1.0.

  - The concentration of hydrogen (H_2) in the LFG measured greater than 2 percent by volume.

  - Accelerated settlement of the landfill surface, defined as approximately 6 inches or greater within a 60-day period, and cracks in landfill cover.

  - 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 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 June 2024.

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 20 in-situ waste temperature monitoring probes during July are presented in **Attachment B** in graphical format. 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 E. Dick, PE, BCEE
Senior Vice President
SCS Engineers

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

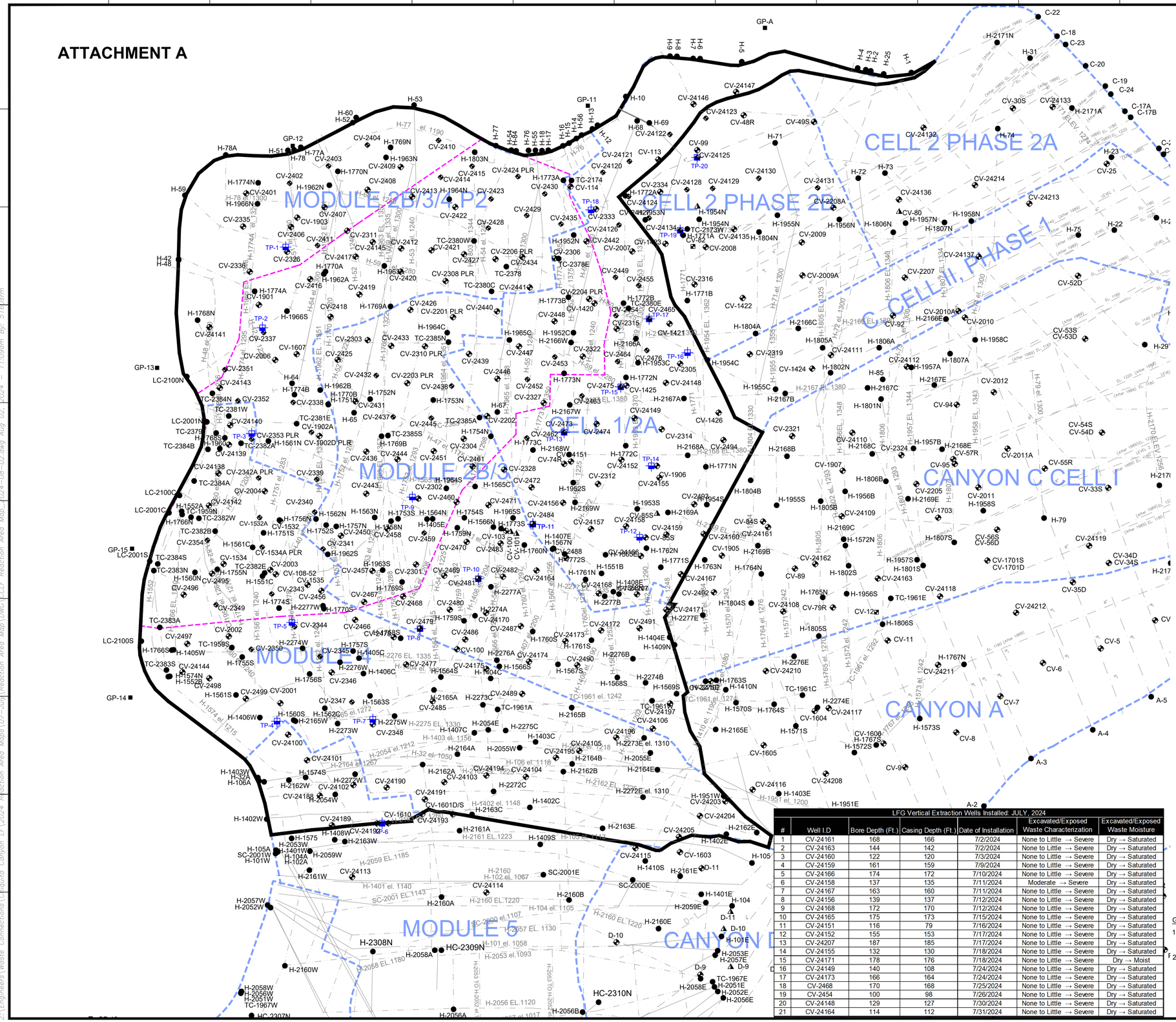
RED/PSS

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

Enclosure:

Attachment A – Reaction Area Map
Attachment B – In-Situ Waste Temperature Monitoring Probe Data

ATTACHMENT A



LFG Vertical Extraction Wells Installed: JULY, 2024

#	Well I.D	Bore Depth (Ft.)	Casing Depth (Ft.)	Date of Installation	Excavated/Exposed Waste Charactenization	Excavated/Exposed Waste Moisture
1	CV-24161	168	166	7/2/2024	None to Little → Severe	Dry → Saturated
2	CV-24163	144	142	7/2/2024	None to Little → Severe	Dry → Saturated
3	CV-24160	122	120	7/3/2024	None to Little → Severe	Dry → Saturated
4	CV-24159	161	159	7/9/2024	None to Little → Severe	Dry → Saturated
5	CV-24166	174	172	7/10/2024	None to Little → Severe	Dry → Saturated
6	CV-24158	137	135	7/11/2024	Moderate → Severe	Dry → Saturated
7	CV-24167	163	160	7/11/2024	None to Little → Severe	Dry → Saturated
8	CV-24156	139	137	7/12/2024	None to Little → Severe	Dry → Saturated
9	CV-24168	172	170	7/12/2024	None to Little → Severe	Dry → Saturated
10	CV-24165	175	173	7/15/2024	None to Little → Severe	Dry → Saturated
11	CV-24151	116	79	7/16/2024	None to Little → Severe	Dry → Saturated
12	CV-24152	155	153	7/17/2024	None to Little → Severe	Dry → Saturated
13	CV-24207	187	185	7/17/2024	None to Little → Severe	Dry → Saturated
14	CV-24155	132	130	7/18/2024	None to Little → Severe	Dry → Saturated
15	CV-24171	178	176	7/18/2024	None to Little → Severe	Dry → Moist
16	CV-24149	140	108	7/24/2024	None to Little → Severe	Dry → Saturated
17	CV-24173	166	164	7/24/2024	None to Little → Severe	Dry → Saturated
18	CV-2468	170	168	7/25/2024	None to Little → Severe	Dry → Saturated
19	CV-2454	100	98	7/26/2024	None to Little → Severe	Dry → Saturated
20	CV-24148	129	127	7/30/2024	None to Little → Severe	Dry → Saturated
21	CV-24164	114	112	7/31/2024	None to Little → Severe	Dry → Saturated

GENERAL DRAWING NOTES:

1. NORTH ARROW SHOWN HERE IS REFERENCE TO THE CALIFORNIA STATE PLANE ZONE V COORDINATE SYSTEM, NAD 83.
2. THE LOCATION OF ANY EXISTING PIPING, VALVES, TIE-IN LOCATIONS AND OTHER FEATURES ARE APPROXIMATE AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY. ACTUAL FIELD CONDITIONS MAY VARY AND SUBJECT TO CHANGE BASED ON FUTURE FILL OPERATIONS, WASTE PLACEMENT, TOPOGRAPHIC FEATURES, AND OTHER SITE-SPECIFIC FACTORS.

DATE / REVISION / NO.

SHEET TITLE: REACTION AREA MAP JULY, 2024

PROJECT TITLE: CHIQUITA CANYON LANDFILL CASTAIC, CALIFORNIA

CLIENT: CHIQUITA CANYON LANDFILL CASTAIC, CALIFORNIA

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
8799 BALBOA AVENUE SUITE 290
SAN DIEGO, CA 92123
(858) 571-5500 FAX: (562) 427-0805

ACAD FILE: -
DWN. BY: SRM/JH
CHK. BY: JH/WCH
APP. BY: WCH
PROJ. NO. 01204123.35
DSN. BY: -

DATE: 08/02/2024

SCALE: AS SHOWN

SHEET: 1

ATTACHMENT B

Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks

for June 14, 2024 to July 25, 2024

From July 19, 2024, through July 25, 2024, all temperatures recorded and presented herein have stayed stable with previous week temperatures with no sensors showing major increases or decreases in temperature within the landfill and no sensors having any anomalies, outliers, data gaps, or malfunctions. There were no recorded temperature increases in the TMP field of 20°F or greater within 48 hours or 10°F increased in a week.

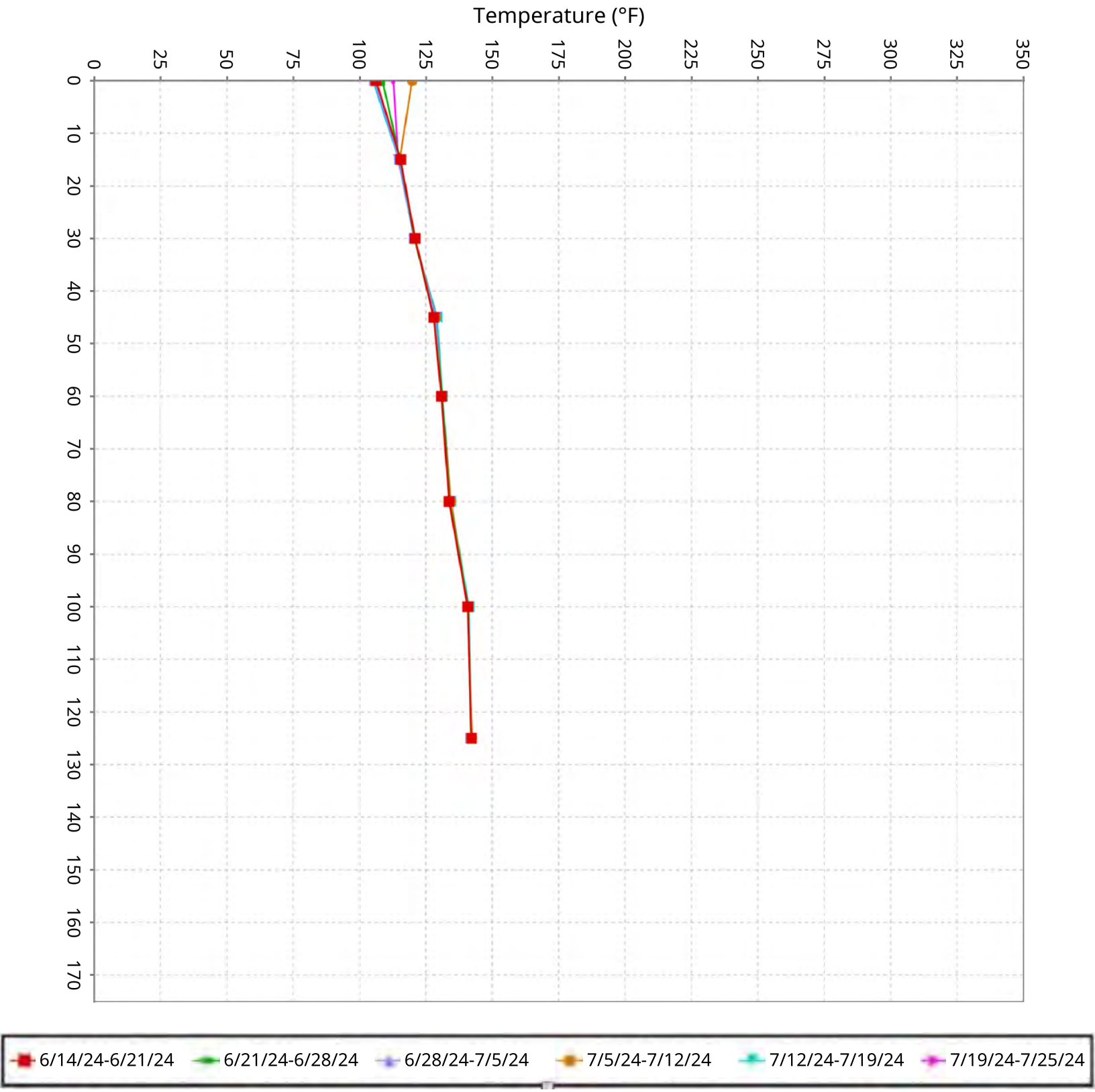
SCS ENGINEERS

07224053.00 | July 25, 2024

274 Granite Run Drive
Lancaster, PA 17601
717-550-6330

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-1

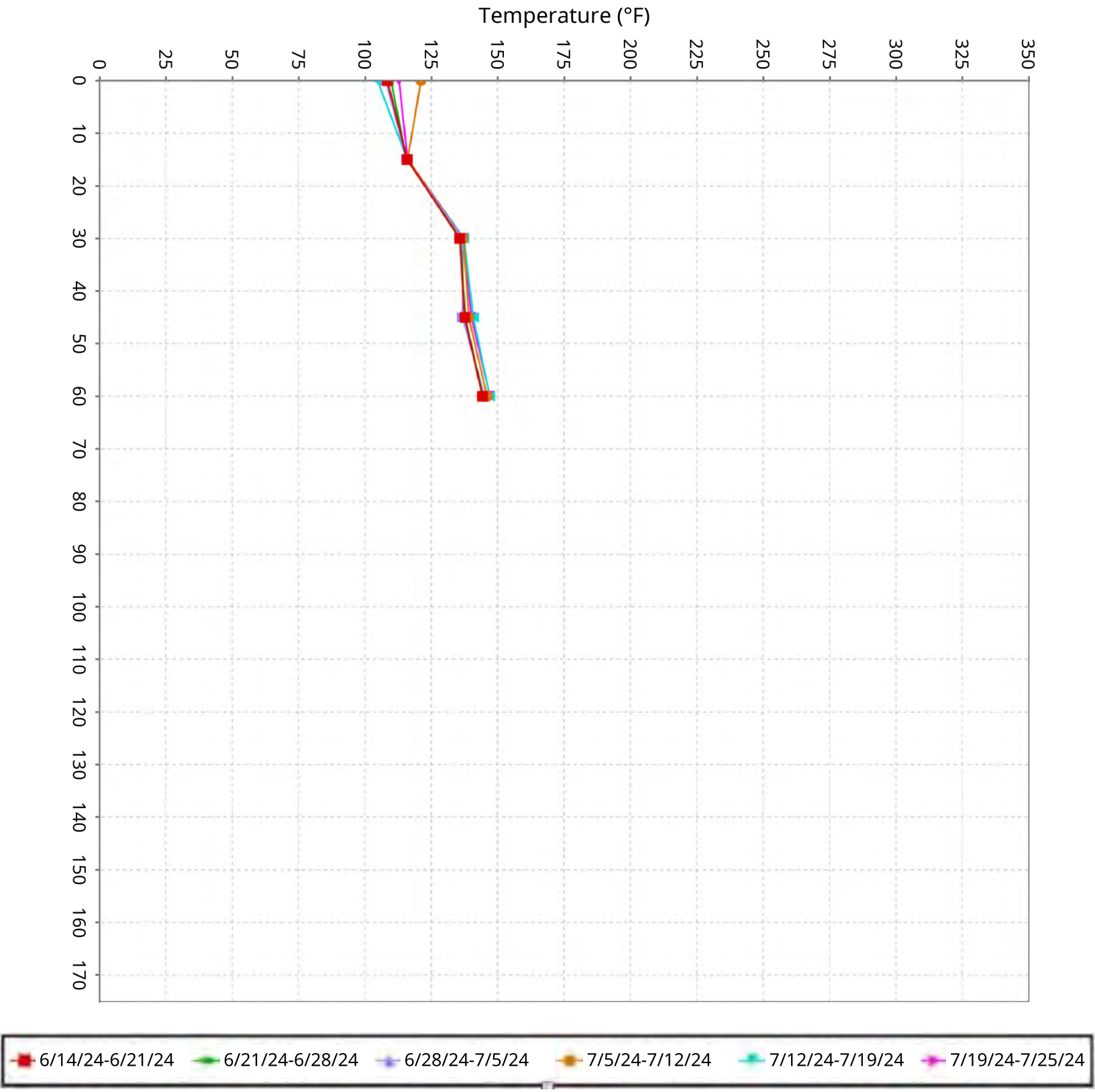
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-2

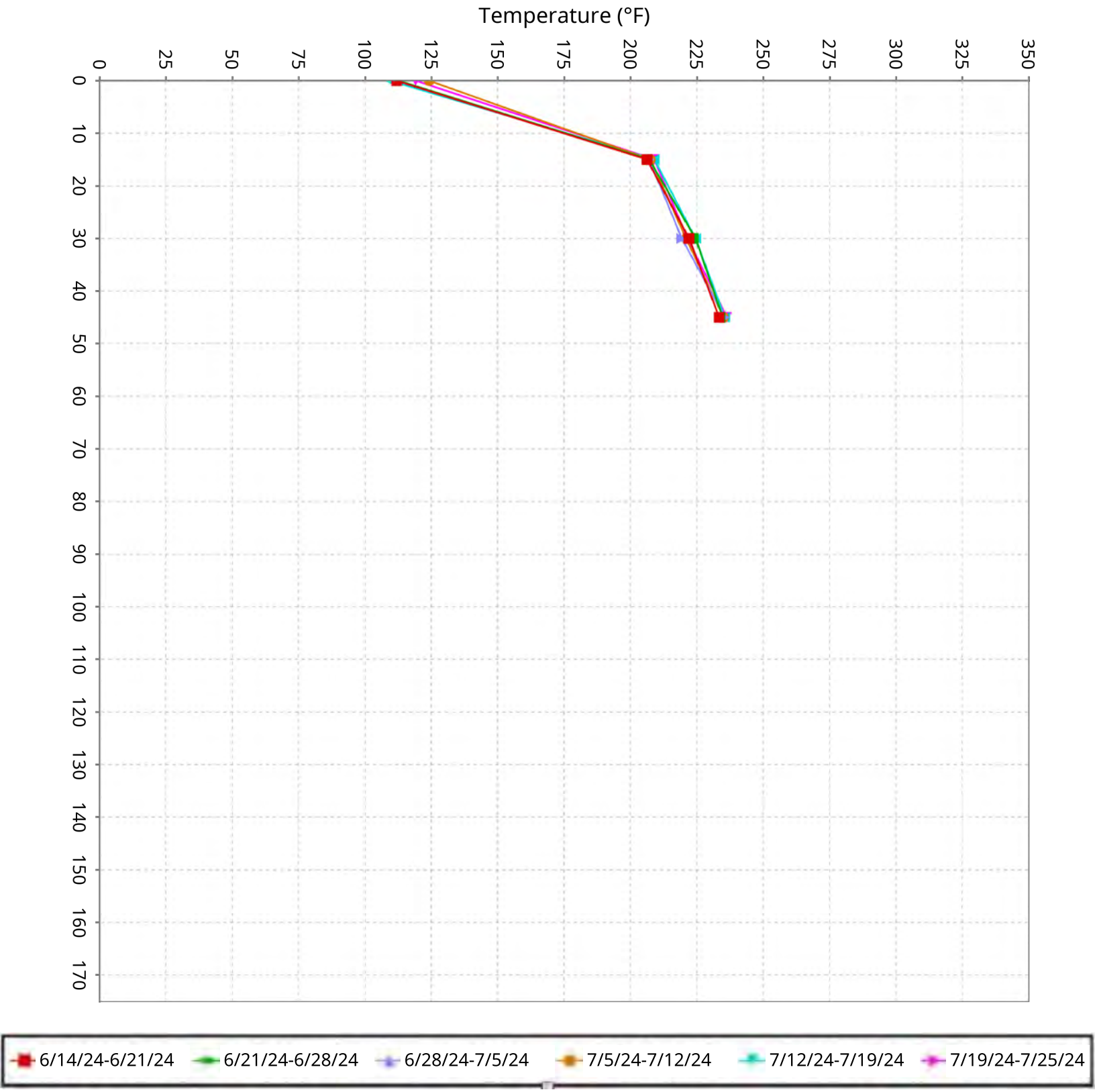
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-3

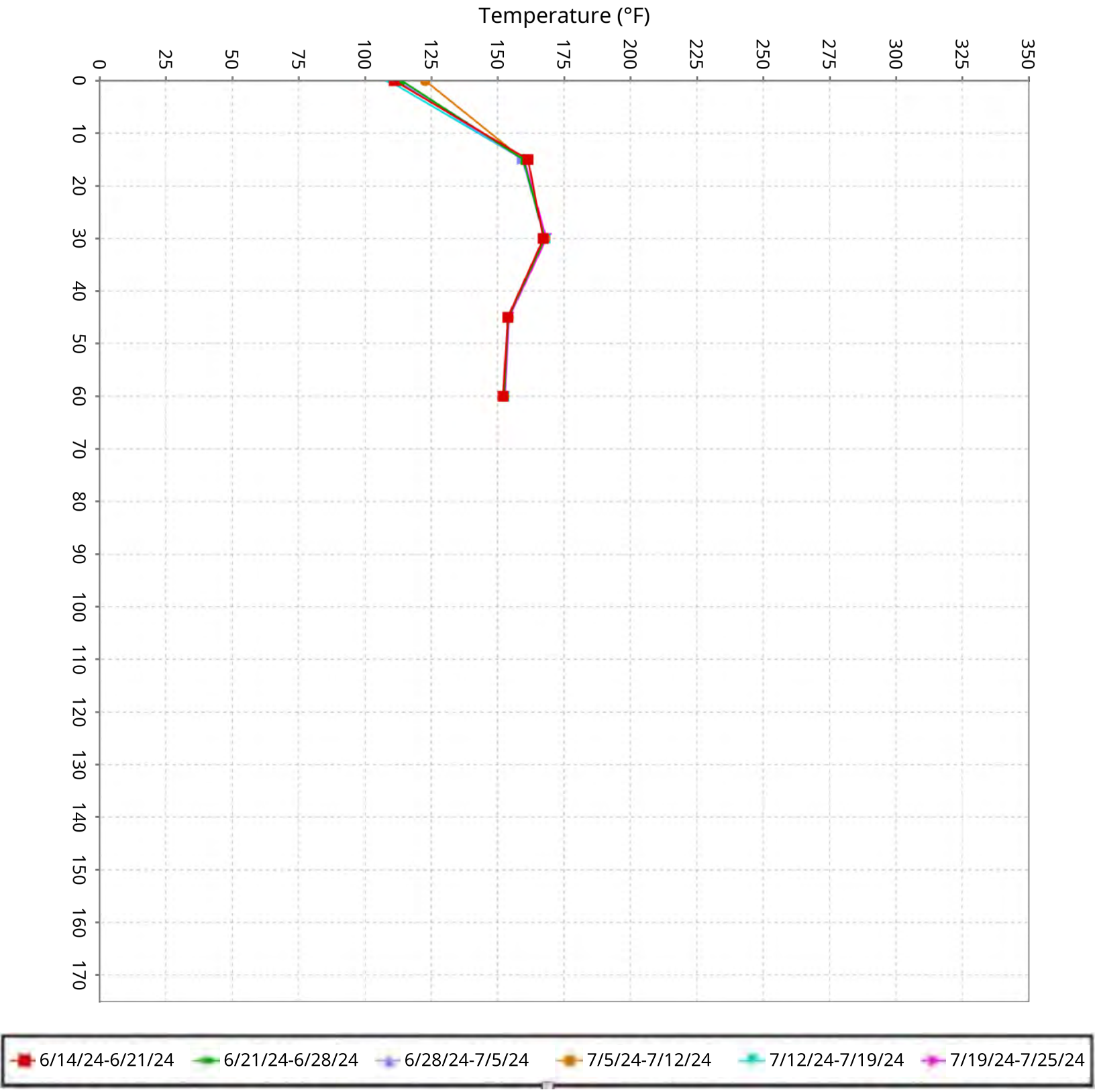
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-4

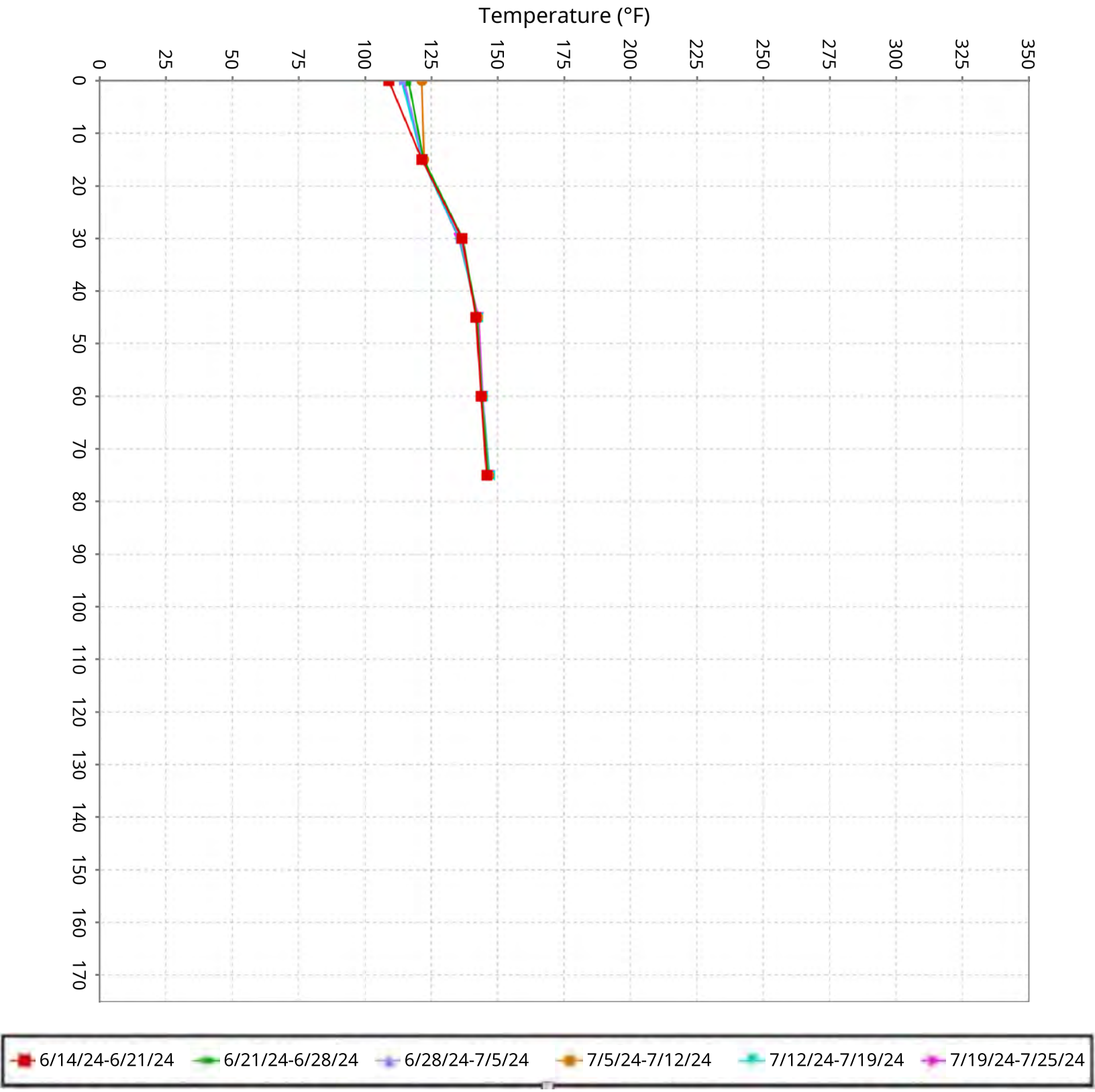
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-5

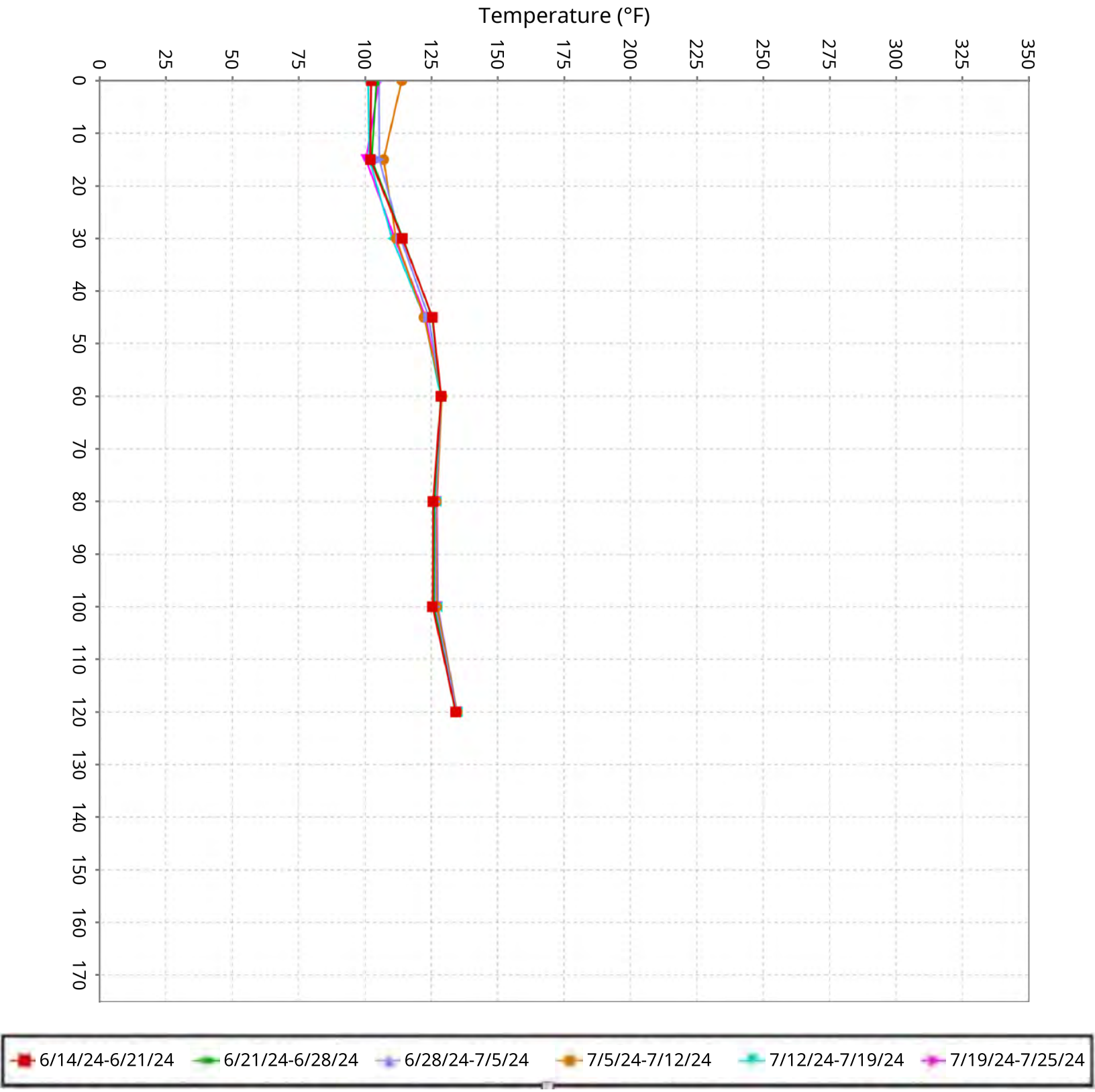
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-6

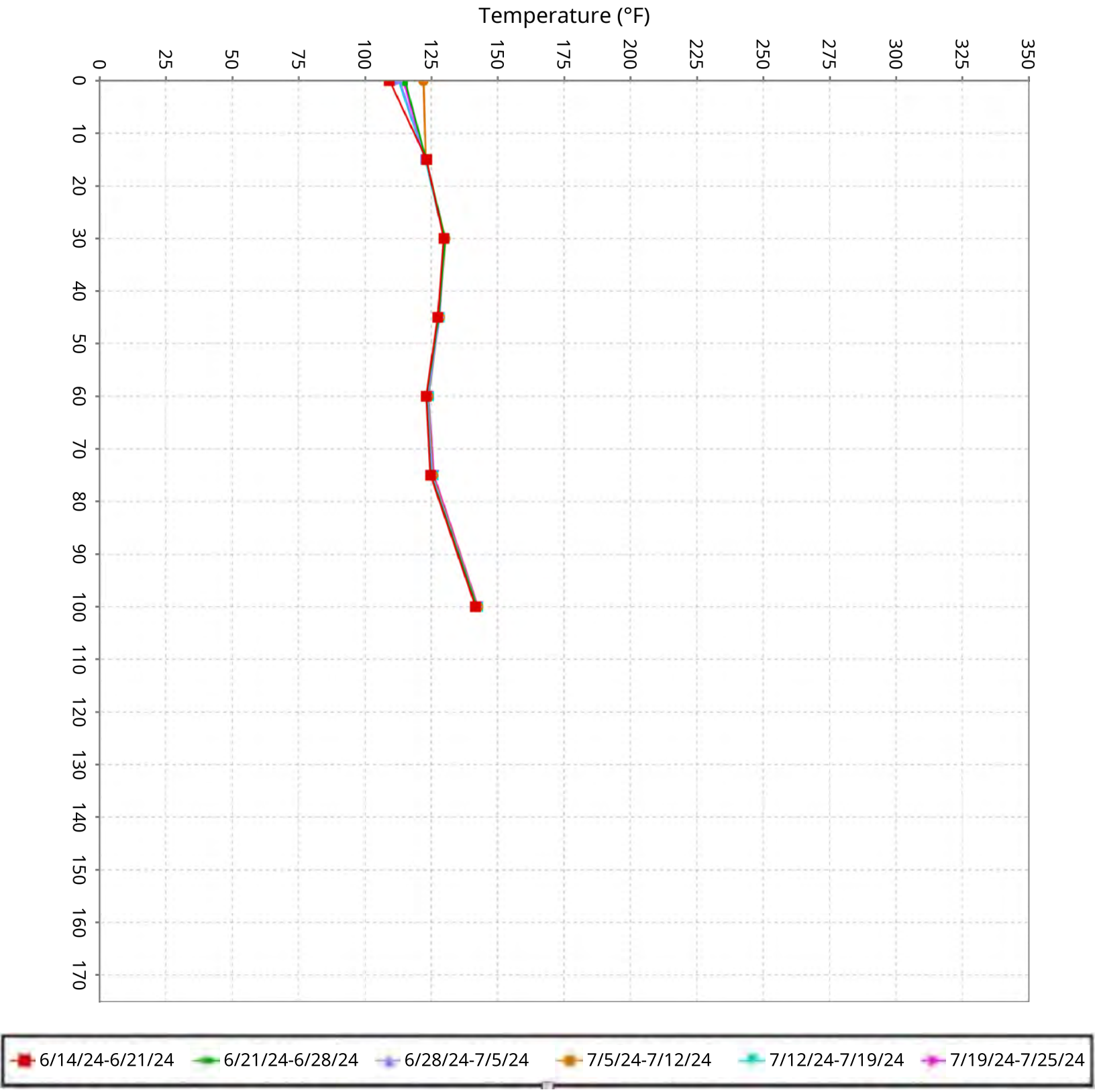
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-7

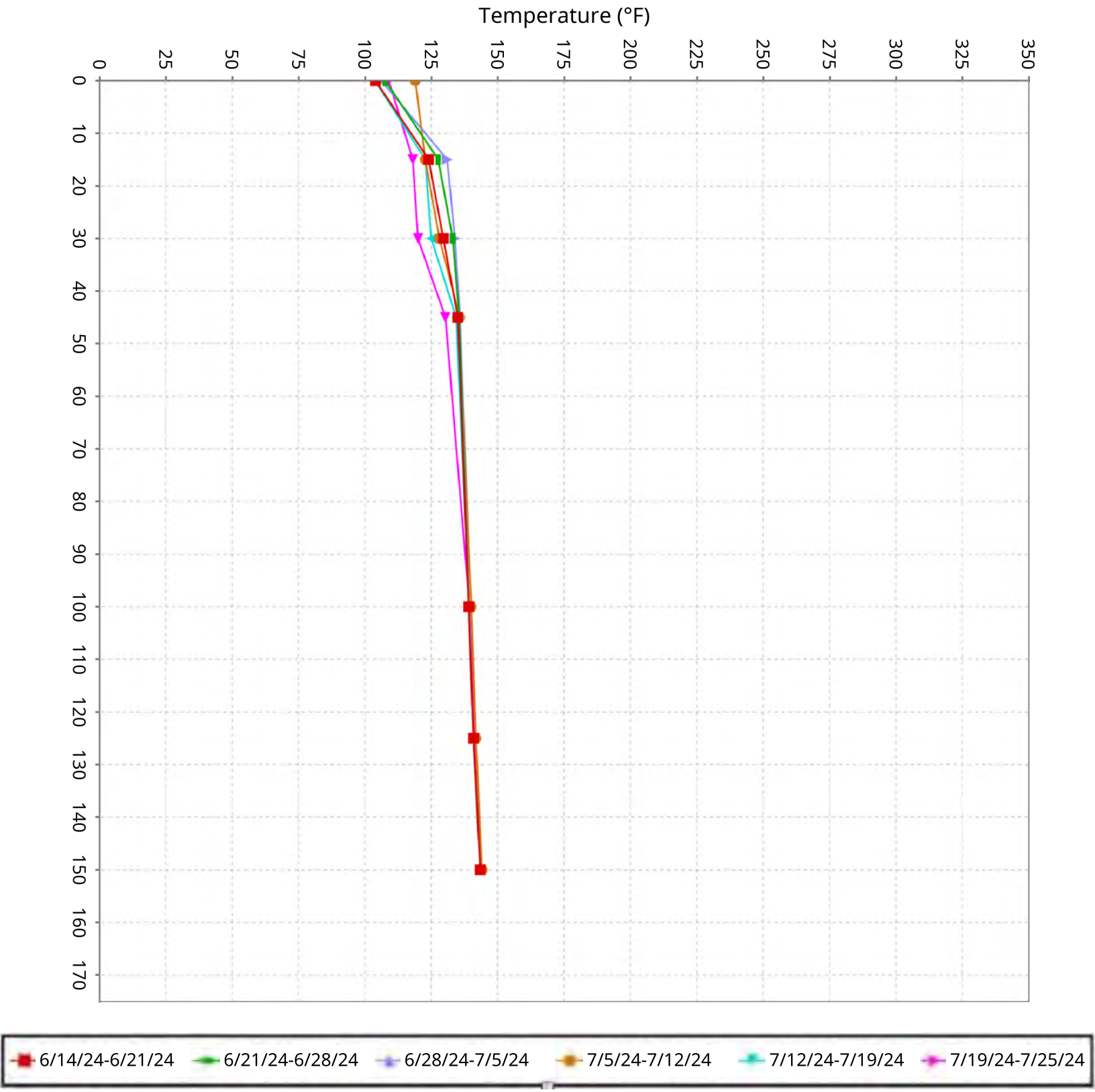
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-8

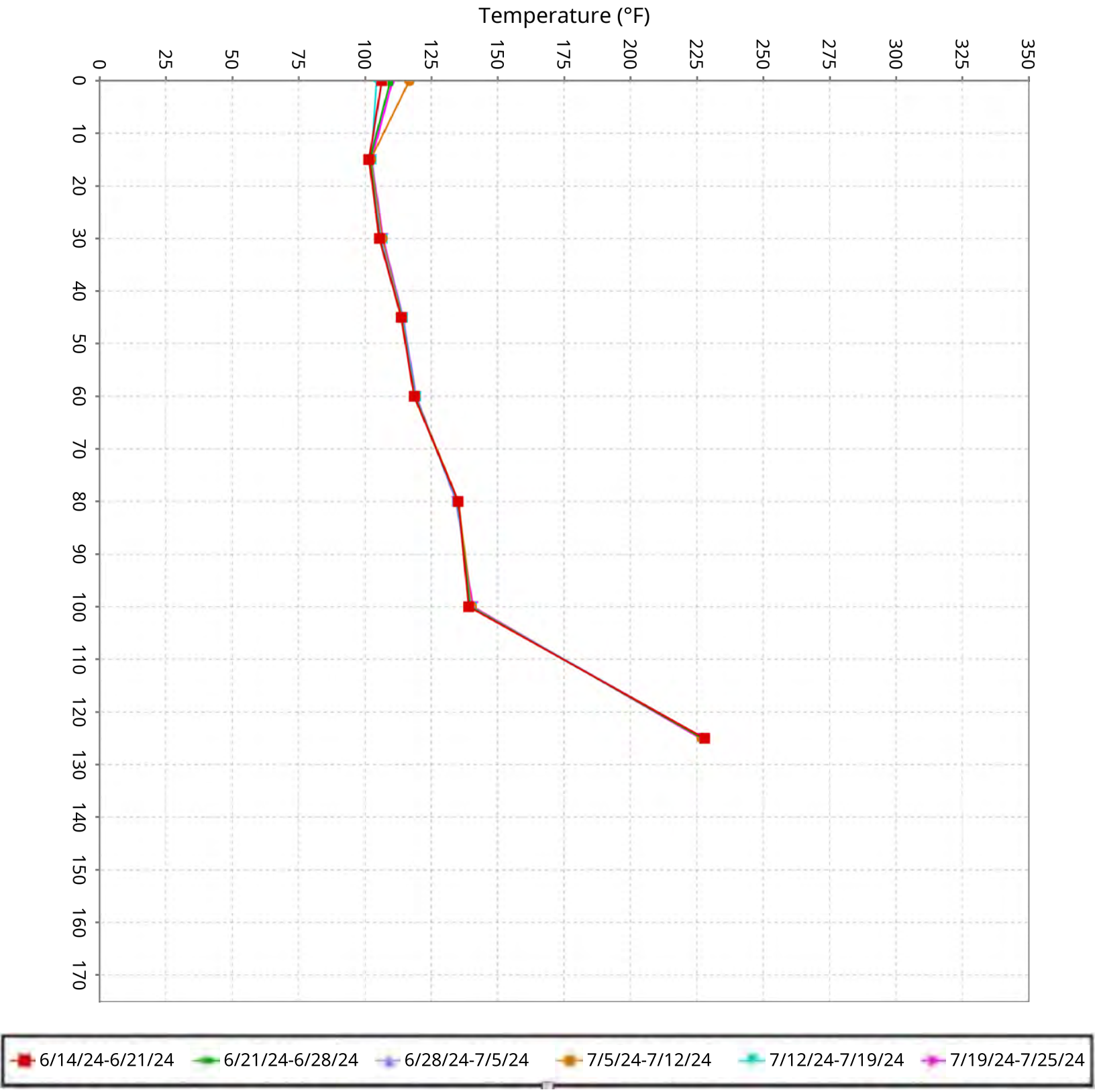
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-9

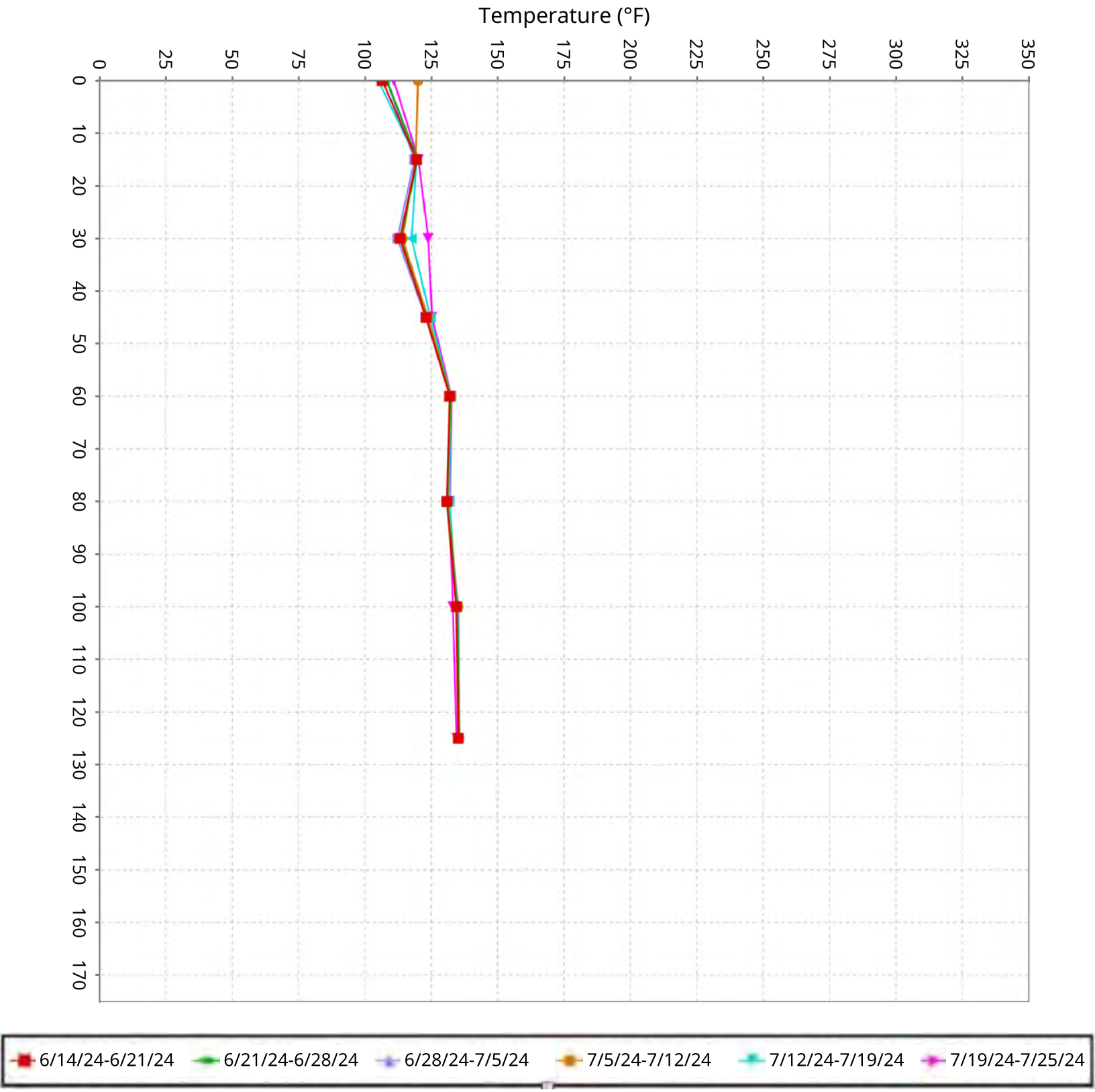
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-10

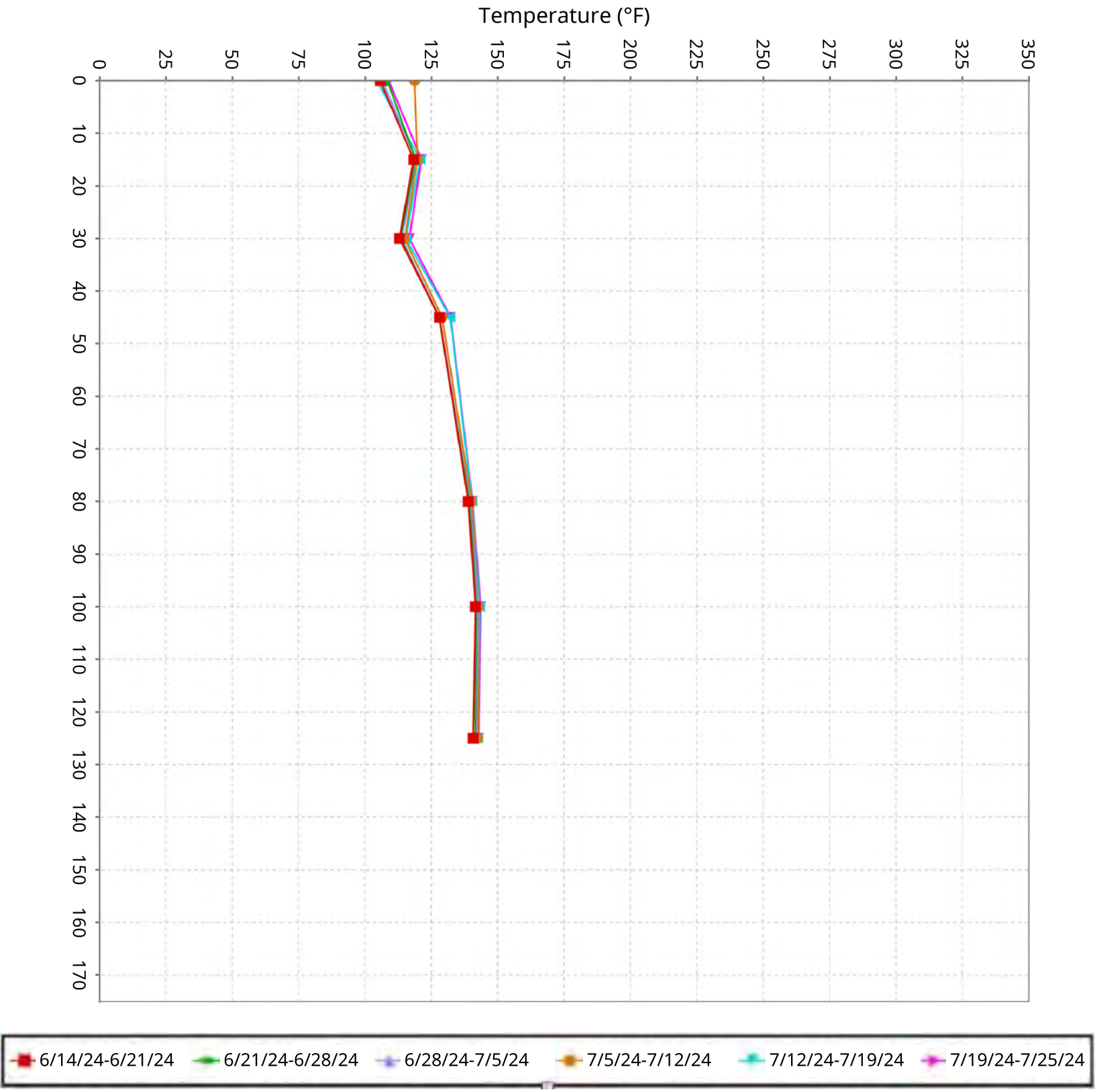
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-11

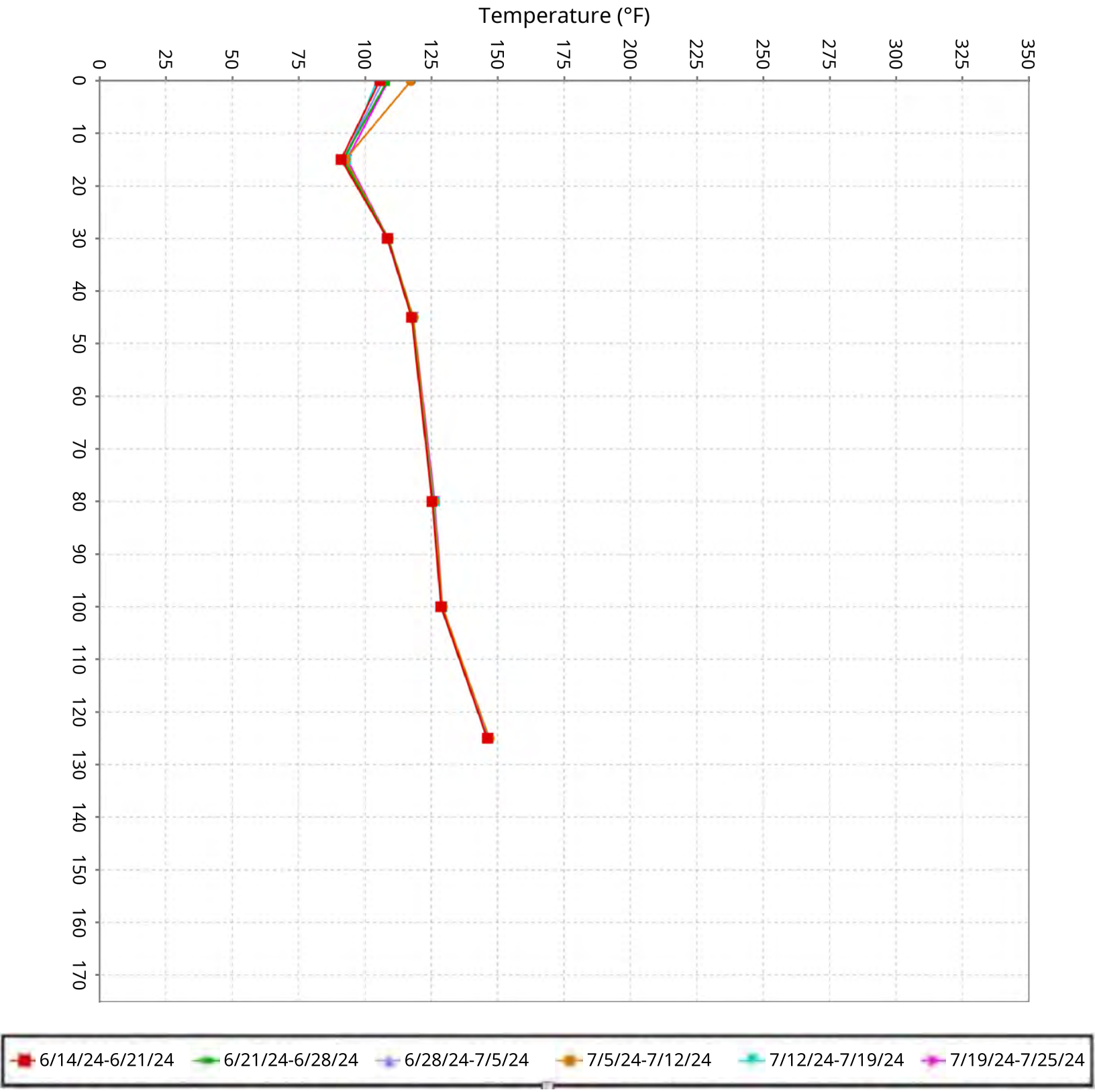
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-12

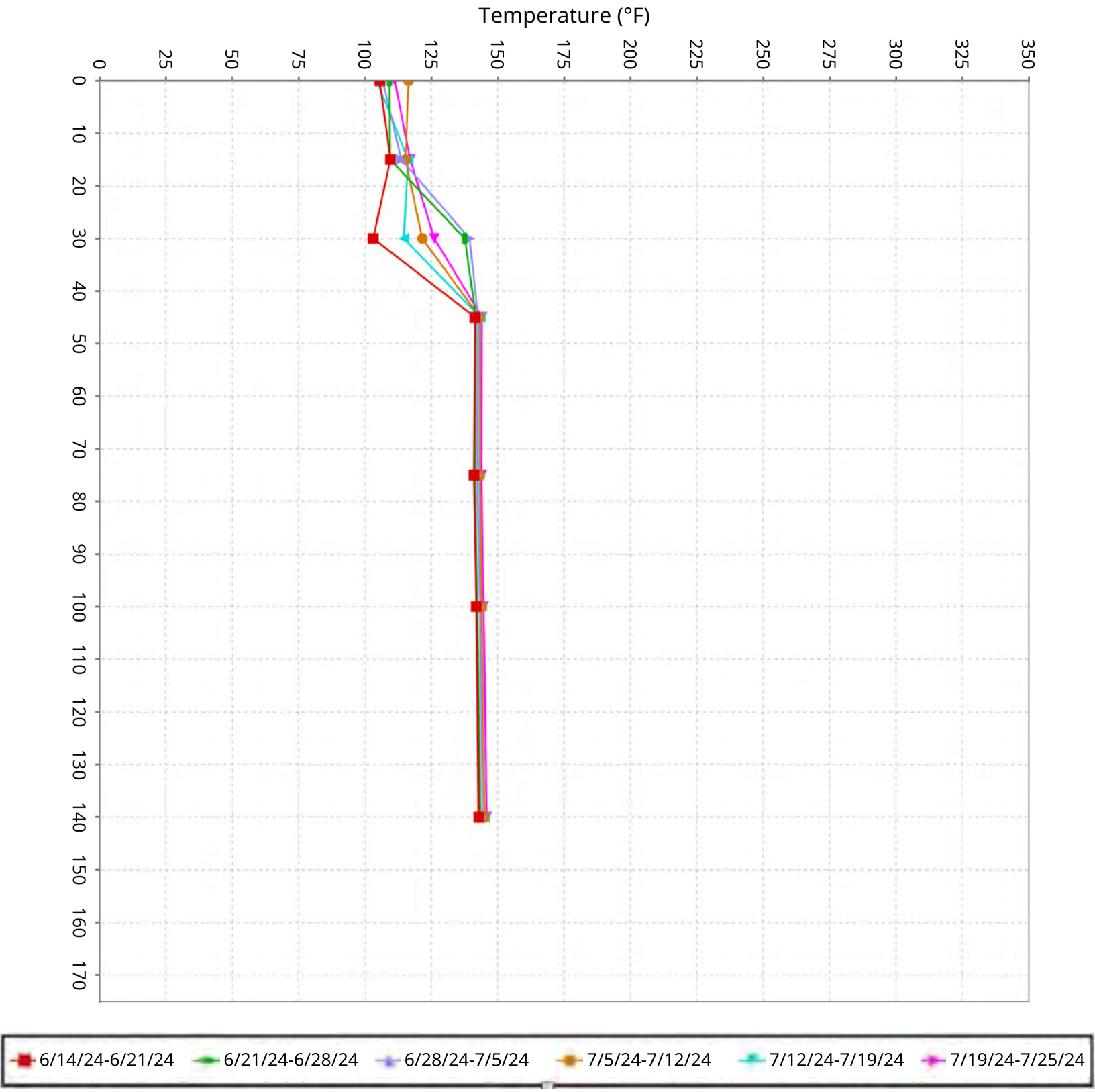
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-13

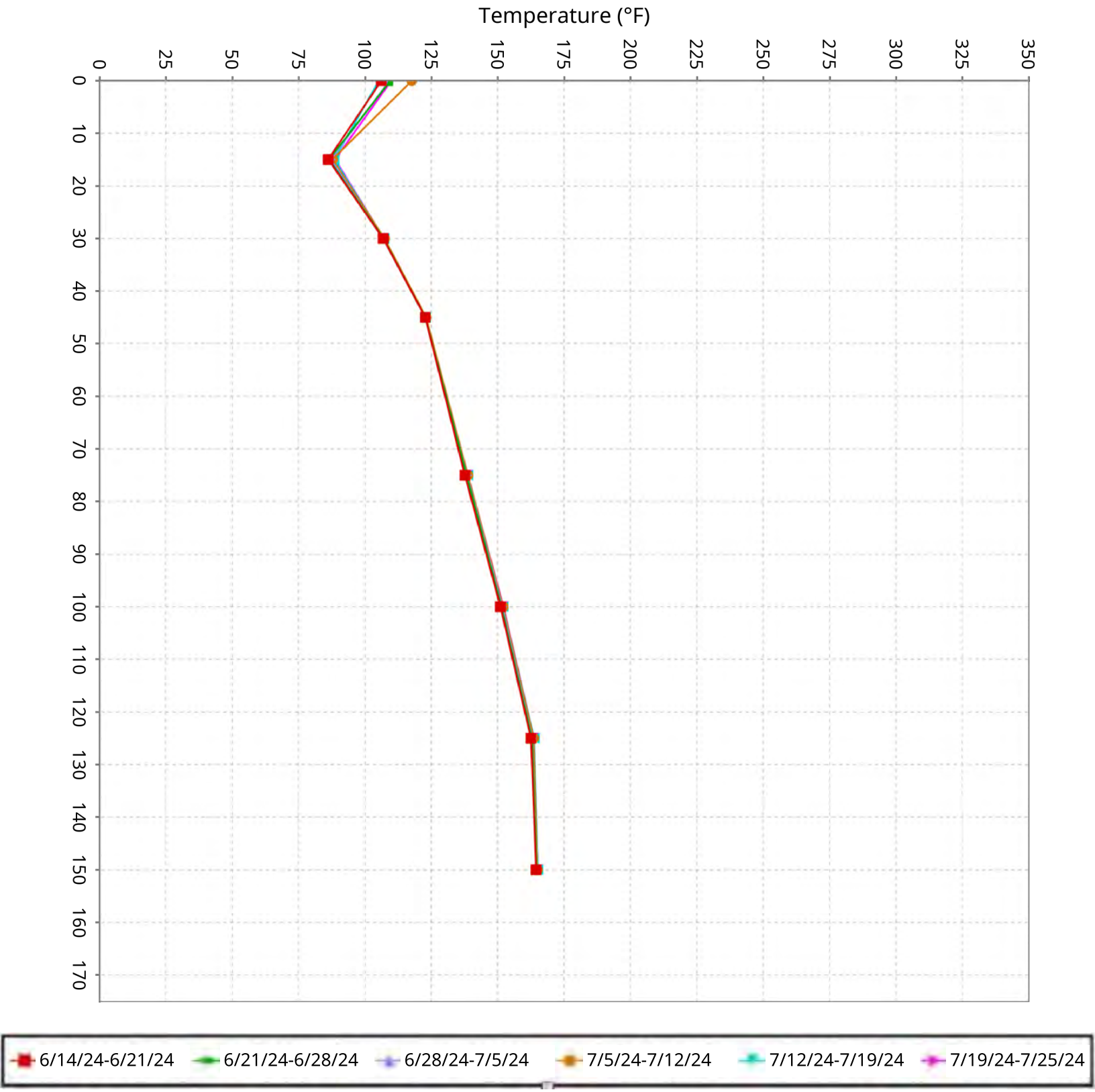
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-14

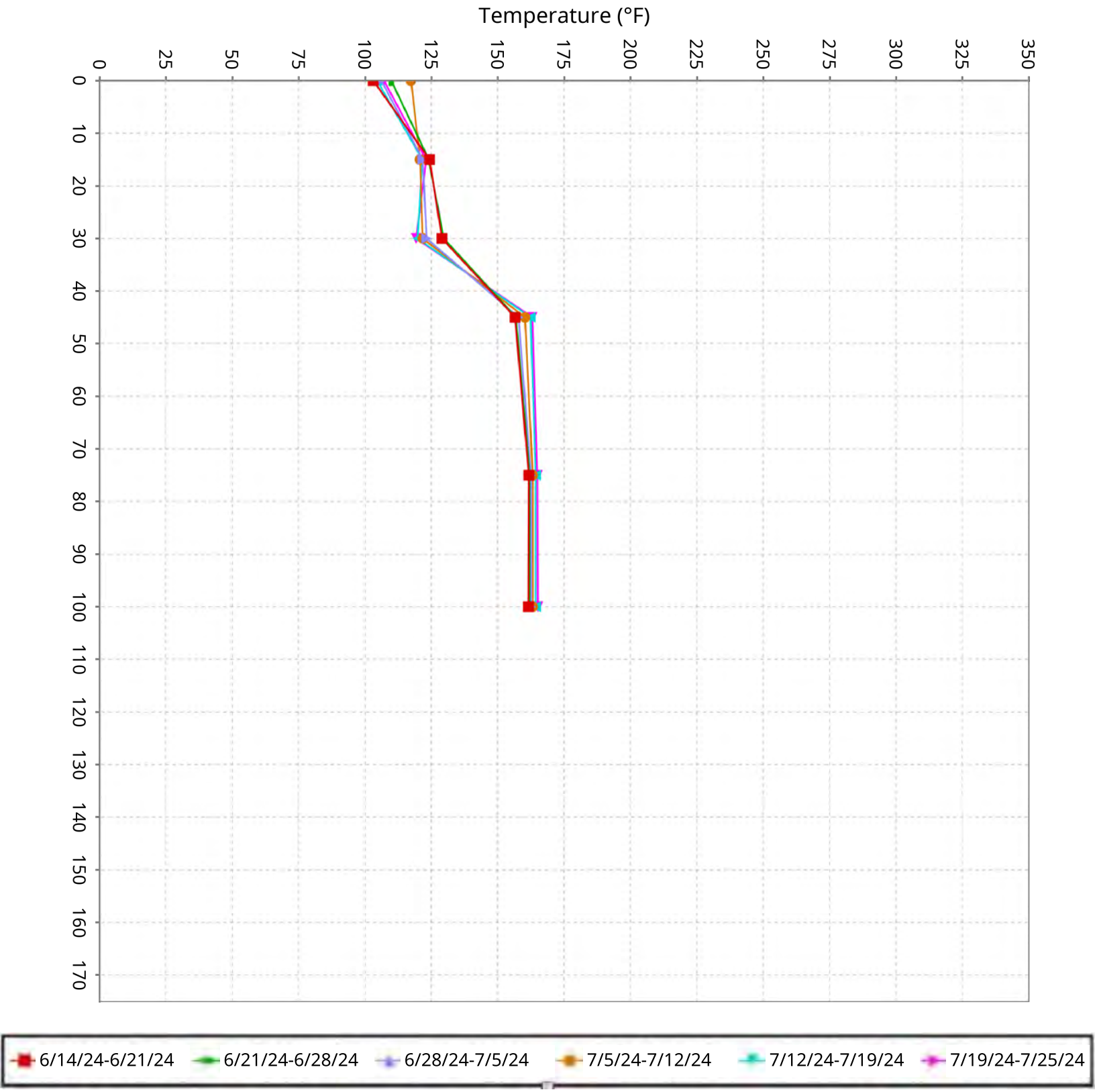
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-15

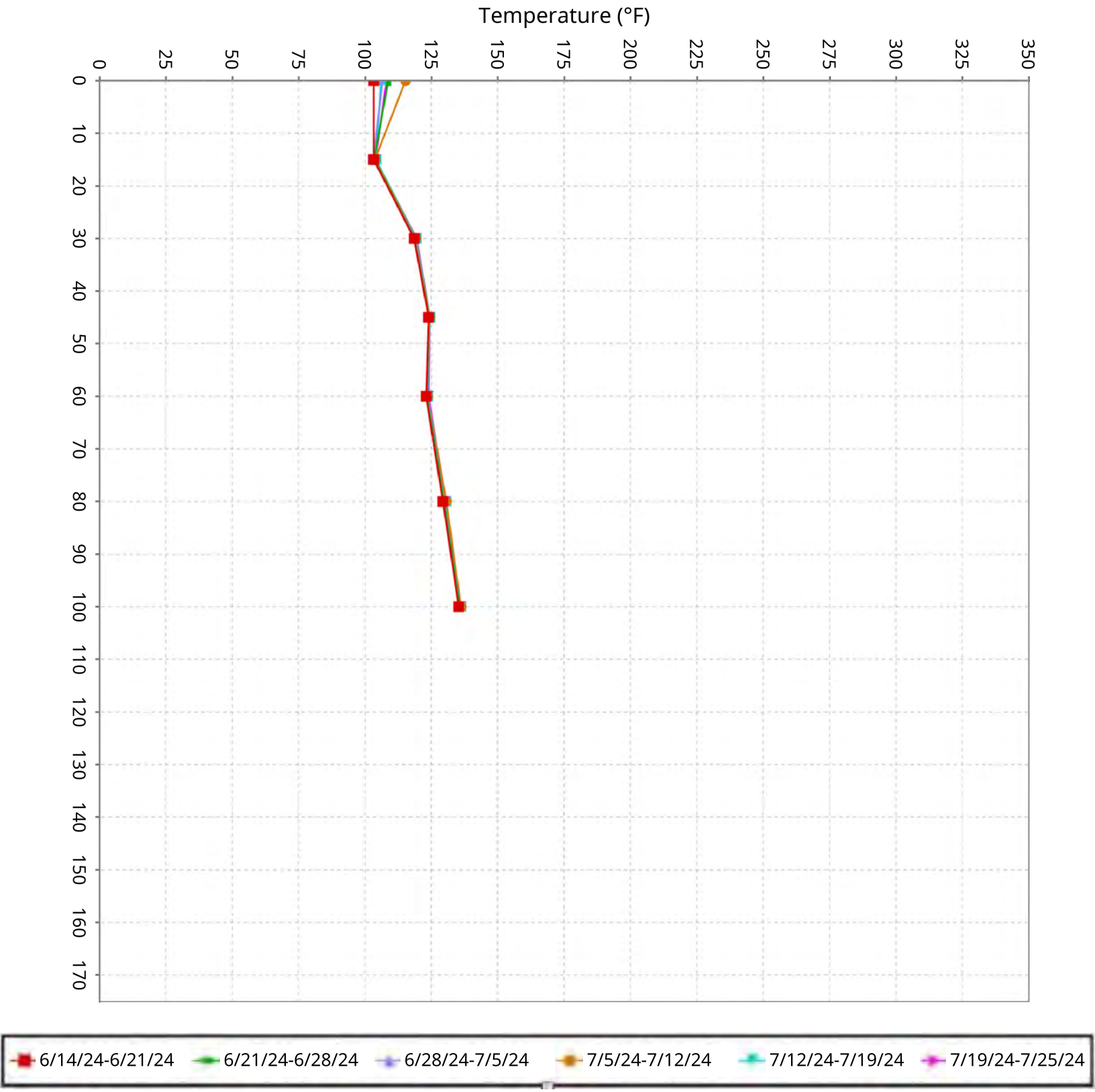
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-16

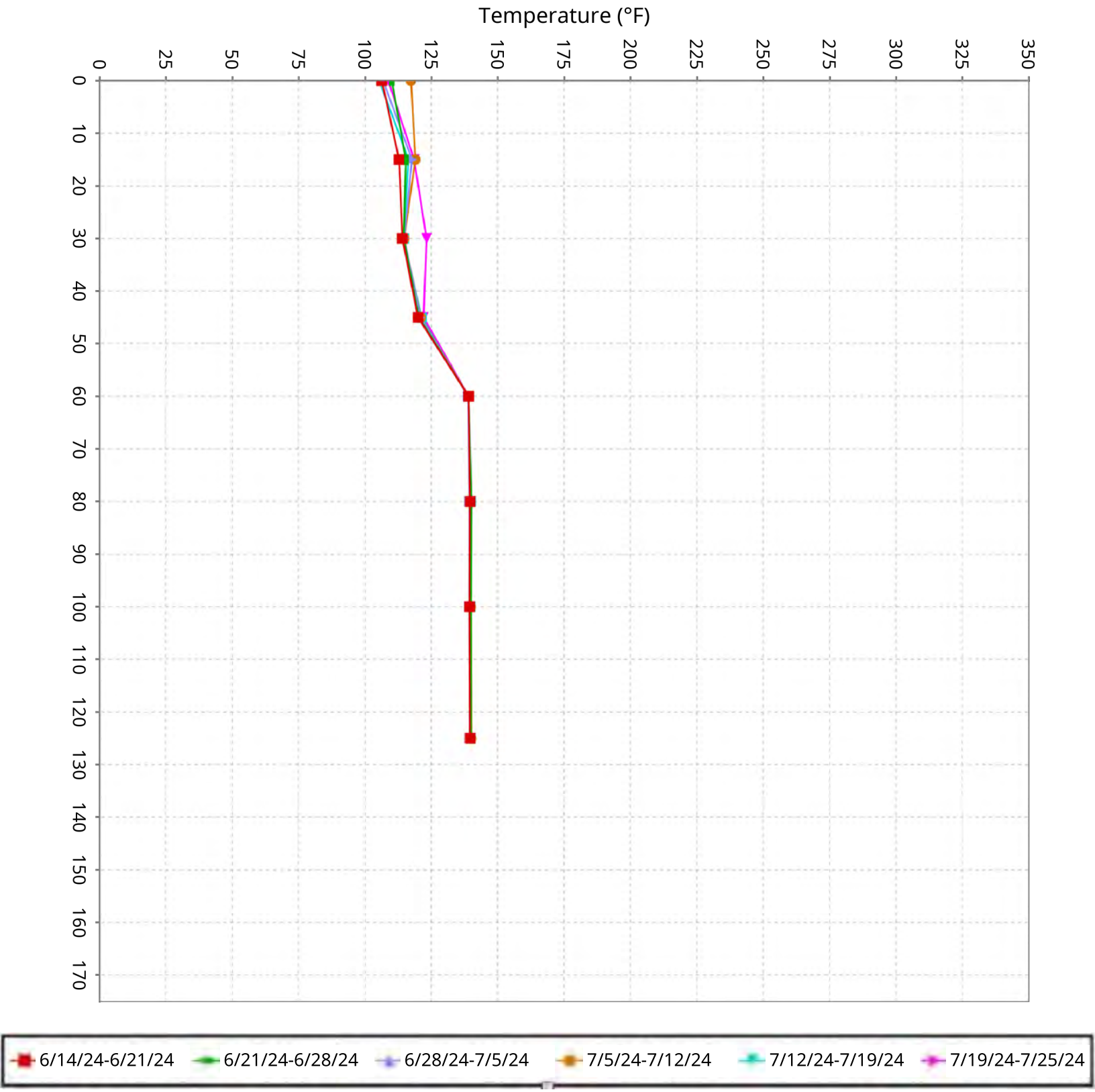
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-17

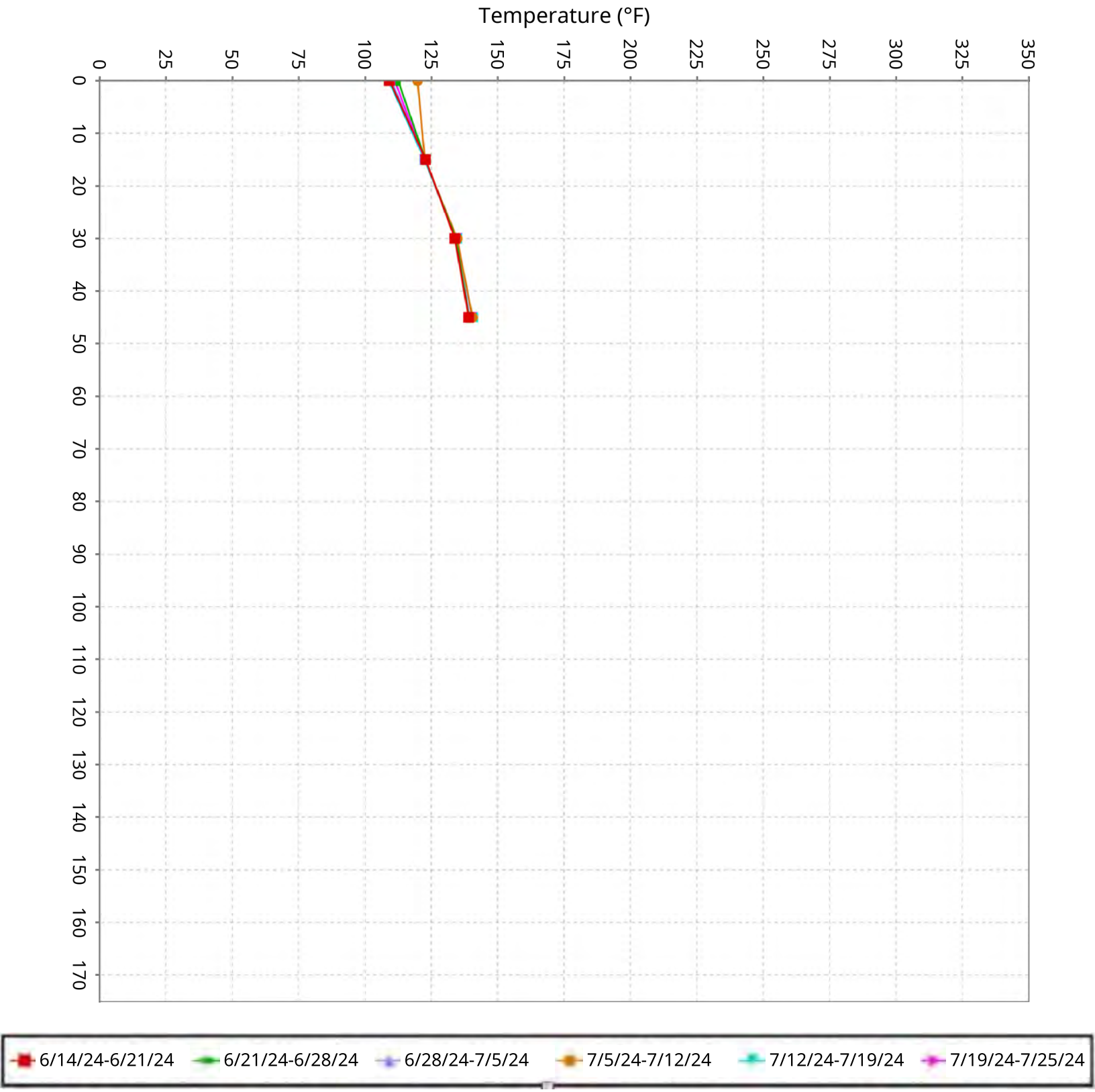
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-18

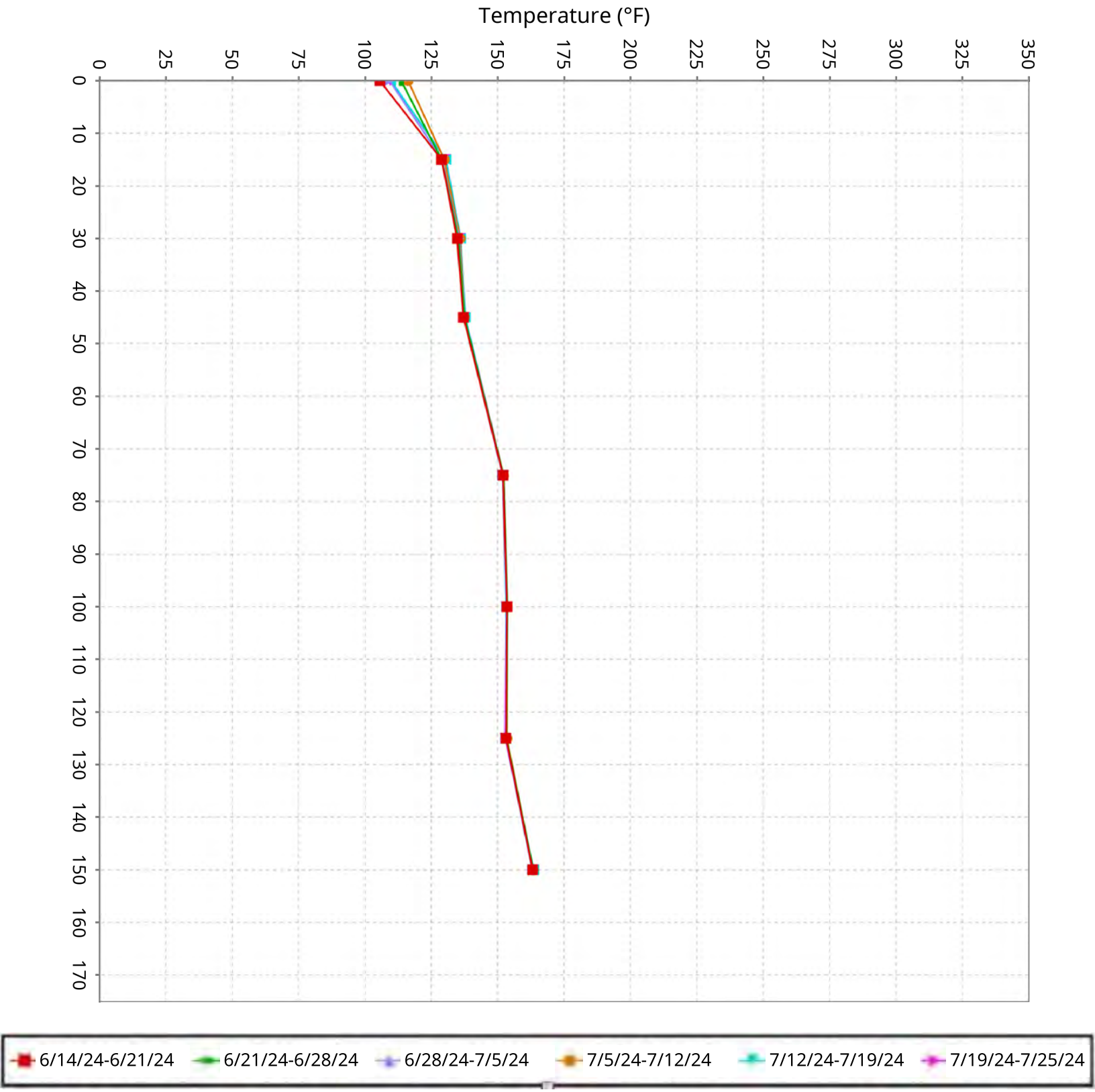
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-19

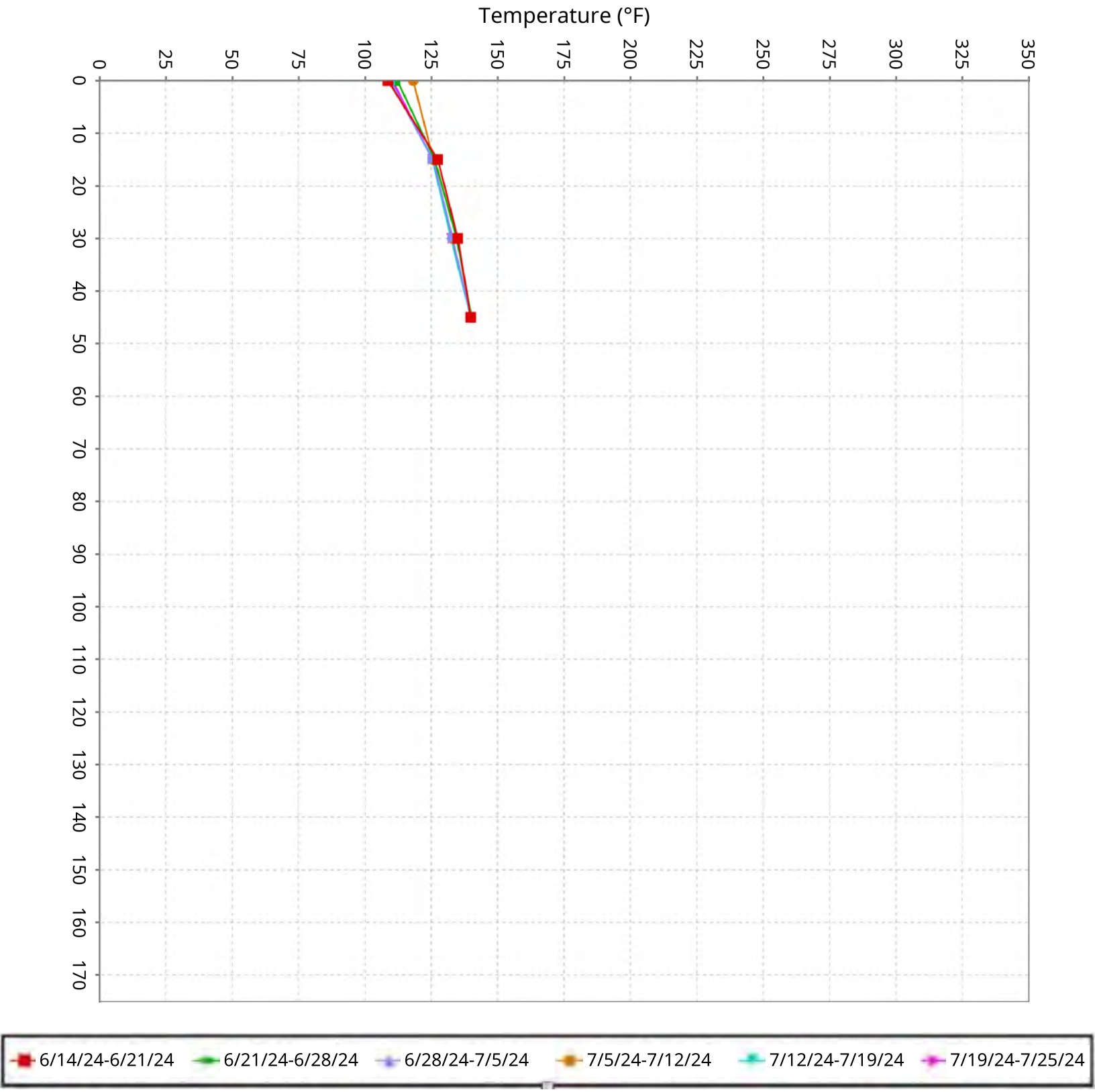
Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

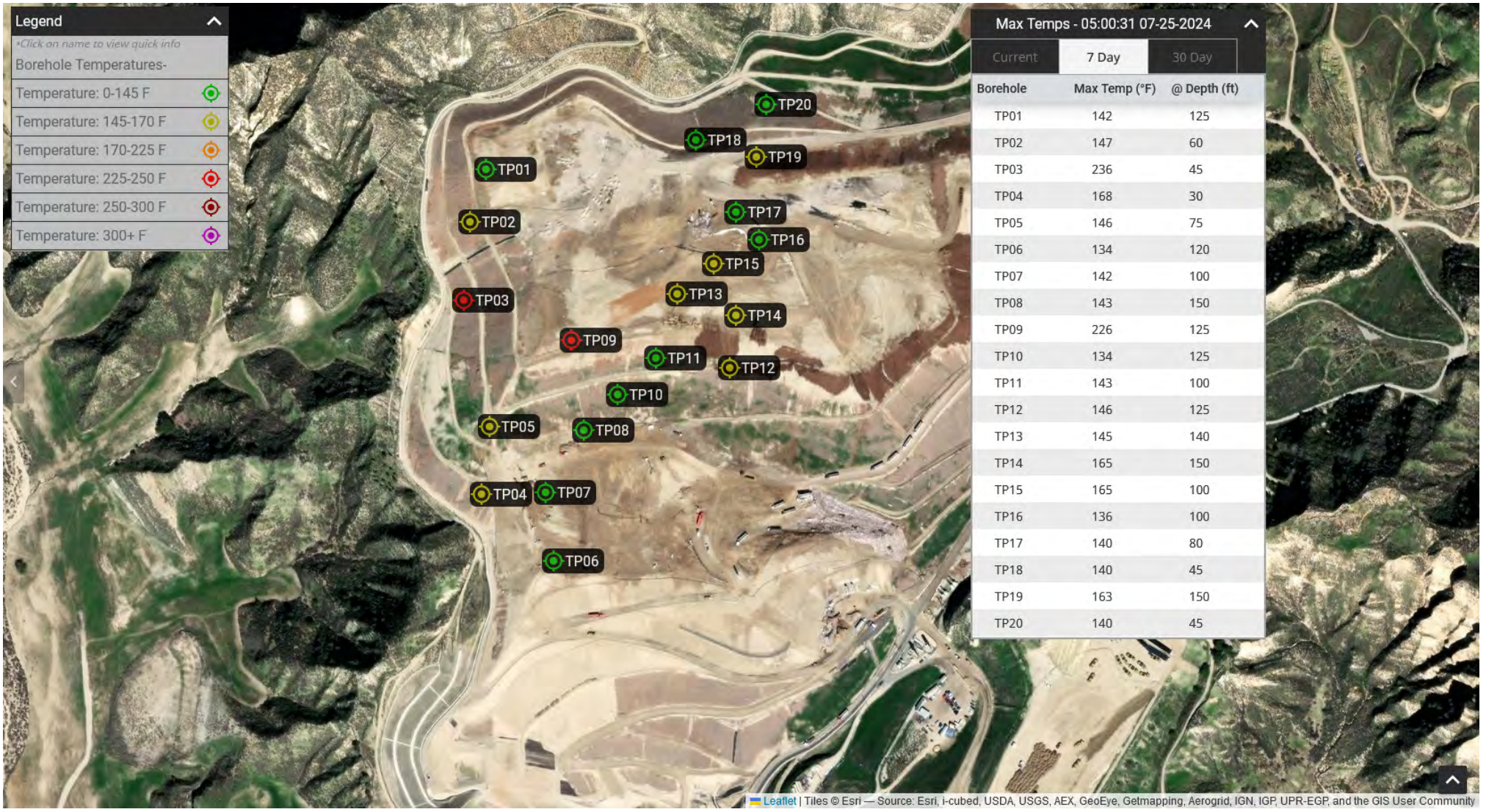
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-20

Maximum data for June 14, 2024 to July 25, 2024



SCS ENGINEERS

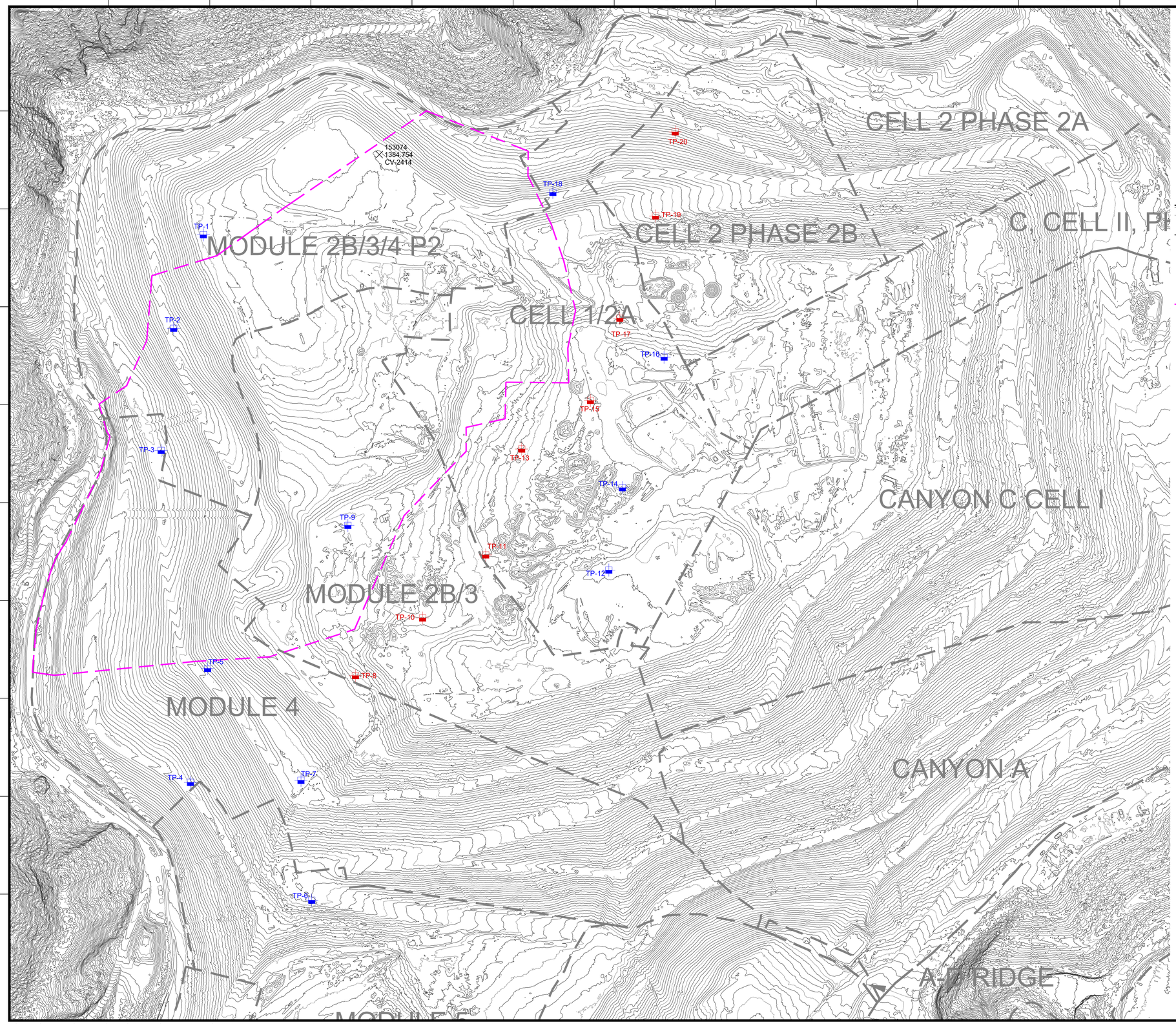
Maximum Vertical Temperature Map from Temperature Probes at Chiquita Landfill



Max Temps - 05:00:31 07-25-2024

Current | 7 Day | 30 Day

Borehole	Max Temp (°F)	@ Depth (ft)
TP01	142	125
TP02	147	60
TP03	236	45
TP04	168	30
TP05	146	75
TP06	134	120
TP07	142	100
TP08	143	150
TP09	226	125
TP10	134	125
TP11	143	100
TP12	146	125
TP13	145	140
TP14	165	150
TP15	165	100
TP16	136	100
TP17	140	80
TP18	140	45
TP19	163	150
TP20	140	45



N

GRAPHIC SCALE

130 65 0 130 260 390

SCALE: 1"=130'

LEGEND

1150	EXISTING TOPOGRAPHIC CONTOUR
	EXISTING CELL LIMITS (APPROXIMATE)
TP-XX	INSTALLED TEMPERATURE PROBES - STANDALONE
TP-XX	INSTALLED TEMPERATURE PROBES INSTALLED WITHIN WELL CASING
	REACTION AREA BOUNDARY (APPROX) - BASED ON DATA REVIEW

GENERAL DRAWING NOTES:

1. EXISTING TOPOGRAPHIC SURVEY INFORMATION SHOWN WAS PROVIDED BY PROPELLER. AERIAL PHOTOGRAPHY DATED JUNE 12, 2024.
2. NORTH ARROW SHOWN HERE IS REFERENCE TO THE CALIFORNIA STATE PLANE ZONE V COORDINATE SYSTEM, NAD 83.

NO.	REVISION	DATE

SHEET TITLE: OVERALL INSTALLED TEMPERATURE PROBE SITE PLAN

PROJECT TITLE: TEMPERATURE PROBE INSTALLATION PROJECT CHIQUITA LANDFILL CASTAIC, CALIFORNIA

CLIENT: CHIQUITA CANYON LANDFILL CASTAIC, CALIFORNIA

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
8799 BALBOA AVENUE SUITE 290
SAN DIEGO, CA 92123
(858) 571-5500 FAX. (562) 427-0805

PROJ. NO: 01204123.35 | DSN. BY: JH/SRM | DWN. BY: AEK | CHK. BY: WCH | APP. BY: WCH

ACAD FILE: ENGINEERS

DATE: 06/14/2024

SCALE: AS SHOWN

SHEET: 1

C:\Users\akarram\Desktop\Work\Chiquita\Temp Probes\2024 CCLF Temp.Probe AK_2024-06-14.dwg Jun 14, 2024 - 11:49am By: akarram