



JAN 29 2021 *cen*

DEPARTMENT OF THE NAVY

COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
JBP HH, HAWAII 96860-5101

5000-45A
N45
January 25, 2021

CERTIFIED NO: 9489 0090 0027 6232 2383 09

Mr. Richard Takaba
Hawaii State Department of Health
Environmental Management Division
Solid and Hazardous Waste Branch
Underground Storage Tank Section
2827 Waimano Home Road #100
Pearl City, HI 96782

Dear Mr. Takaba:

**SUBJECT: RED HILL TANK COMPLEX
SOIL VAPOR SAMPLING RESULTS FOR NOVEMBER 2020
DOH FACILITY ID NO. 9-102271
DOH RELEASE ID NO. 990051, 010011, 020028, AND 140010**

Soil vapor samples were collected from beneath all active and accessible Red Hill tanks on November 19, 2020. Tanks 1 and 19 are inactive and not included in the sampling network. Tank 17 is temporarily closed for clean, inspect, and repair (CIR) and was not accessible for sampling.

Soil vapor VOC concentrations were measured in the field using a photo-ionization detector. The soil vapor sampling results are presented graphically in Enclosure 1.

A conservative approach to assess the integrity of the associated tank system is to establish action thresholds for VOC concentrations in soil vapor monitoring points (SVMPs) beneath tanks as 50 percent of the calculated vapor concentration from fuel-saturated water. These action thresholds are 280,000 ppbv for SVMPs beneath tanks containing jet fuel (F-24 or JP-5) and 14,000 ppbv for SVMPs beneath tanks containing marine diesel fuel (F-76).

At Tank 5 (containing F-24), the concentrations of VOCs detected in the front, middle and outer edge soil vapor monitoring probes were 228, 991, and 1080 ppbv, respectively. VOC concentrations in all down-gradient soil vapor monitors were below 391 ppbv.

All other VOC concentrations measured in November were from 70 to 2,900 times below the action levels, with no consistent trends observed.

Soil vapor VOC concentration trends will continue to be monitored on a monthly basis. Soil vapor samples were collected on December 16, 2020 from beneath all active and accessible Red

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Hill tanks. Results will be submitted under a separate cover. The next soil vapor sampling event is scheduled for the end of January 2021.

If there are any questions regarding this matter, or if more information is needed, please contact Ms. Susan Lohr at (808) 471-4619 or Ms. Dayna Fujimoto at (808) 471-4805.

Sincerely,



SHERRIL R. ENG
Director
Regional Environmental Department
By direction of the
Commander

Enclosure: 1. Graphical Summary of Soil Vapor Sampling Results for Tanks 2 - 18 and 20 through November 2020 (18 pages)

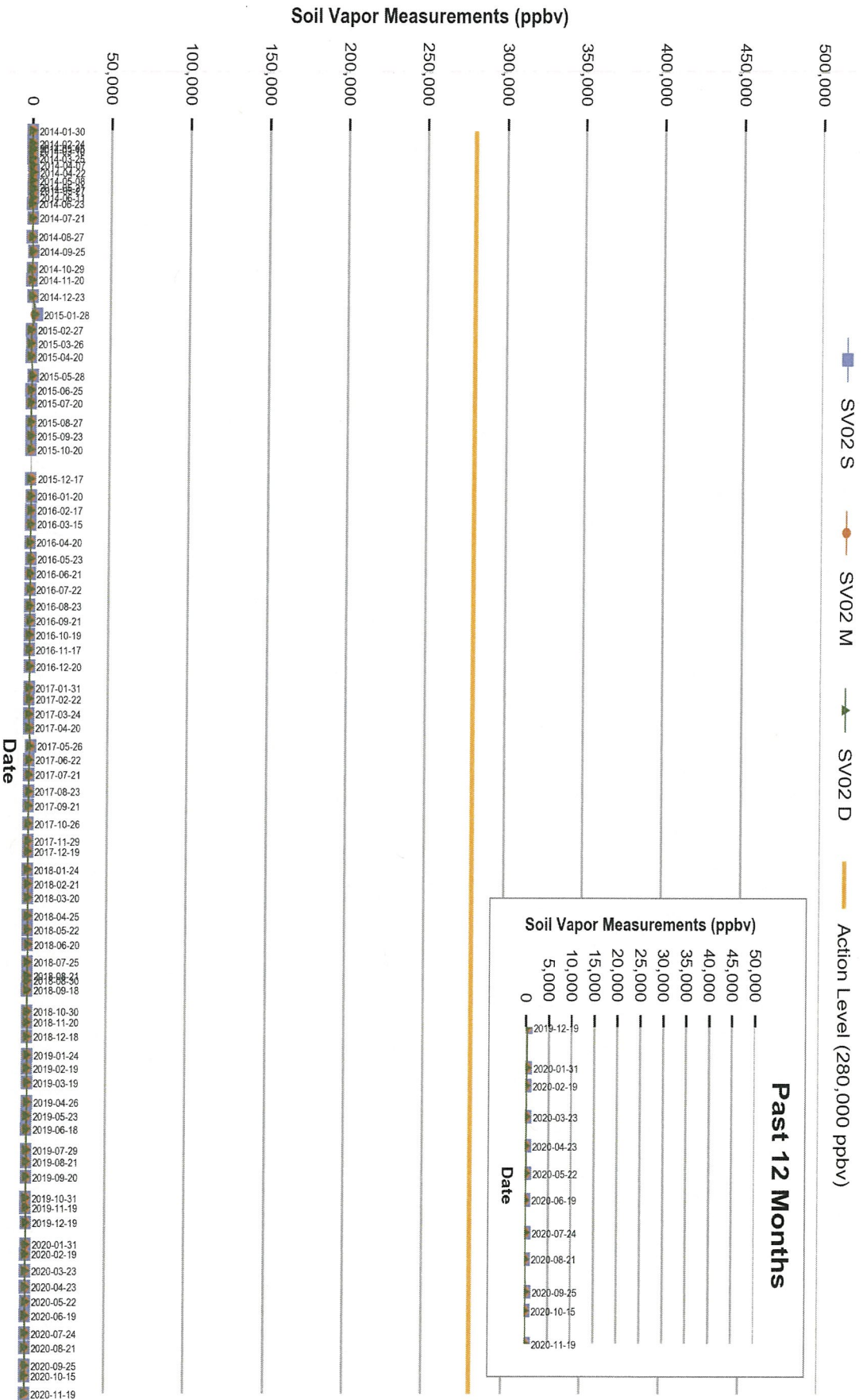
Copy to:

Mr. Steve Linder, U.S. EPA Region 9, Underground Storage Tank Program Office

Mr. John Floyd, NAVSUP FLC Pearl Harbor

Mr. Ralph Wells, DLA Energy Pacific

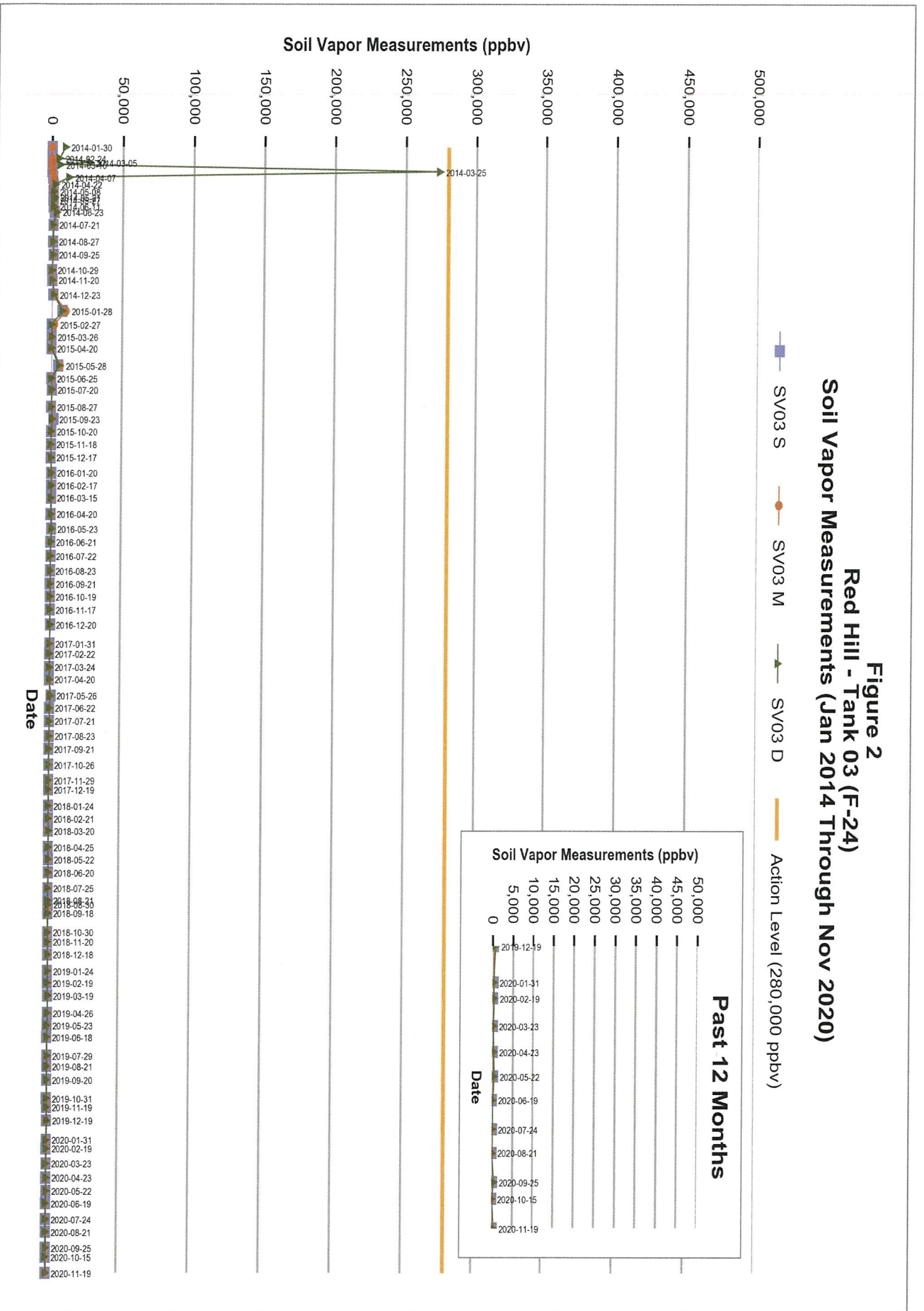
Figure 1
Red Hill - Tank 02 (F-24)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

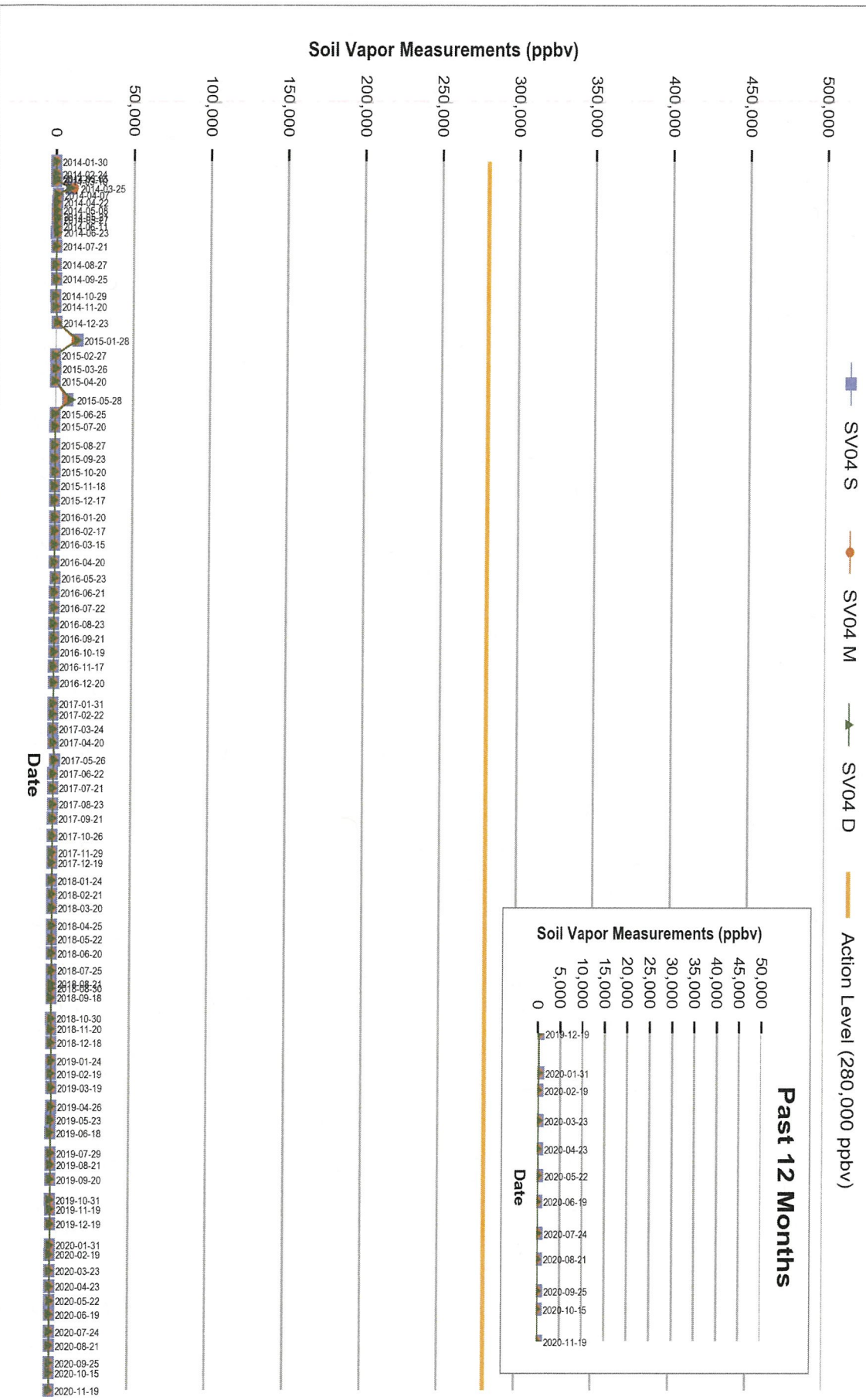
Figure 2
Red Hill - Tank 03 (F-24)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

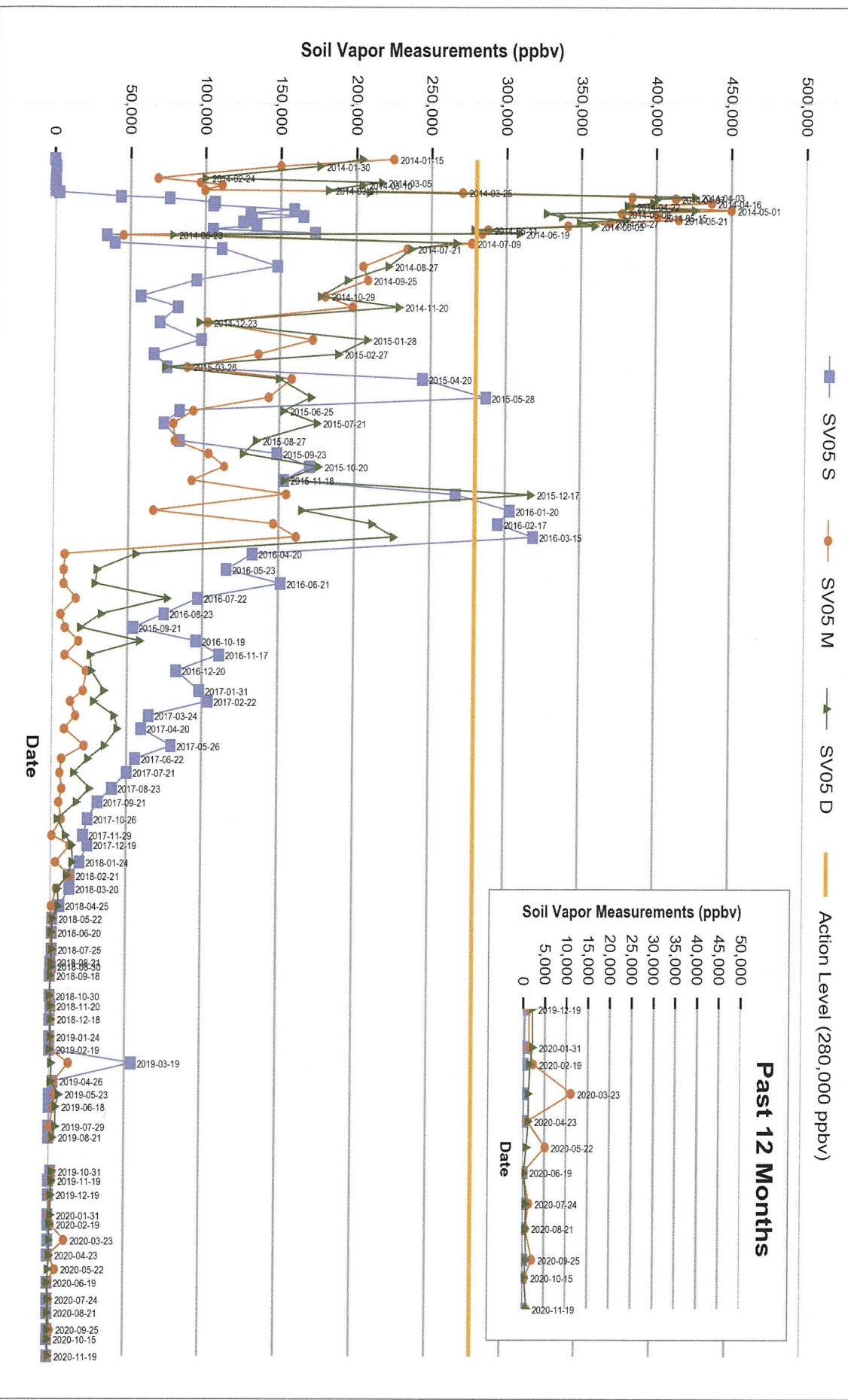
Figure 3
Red Hill - Tank 04 (F-24)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (Where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

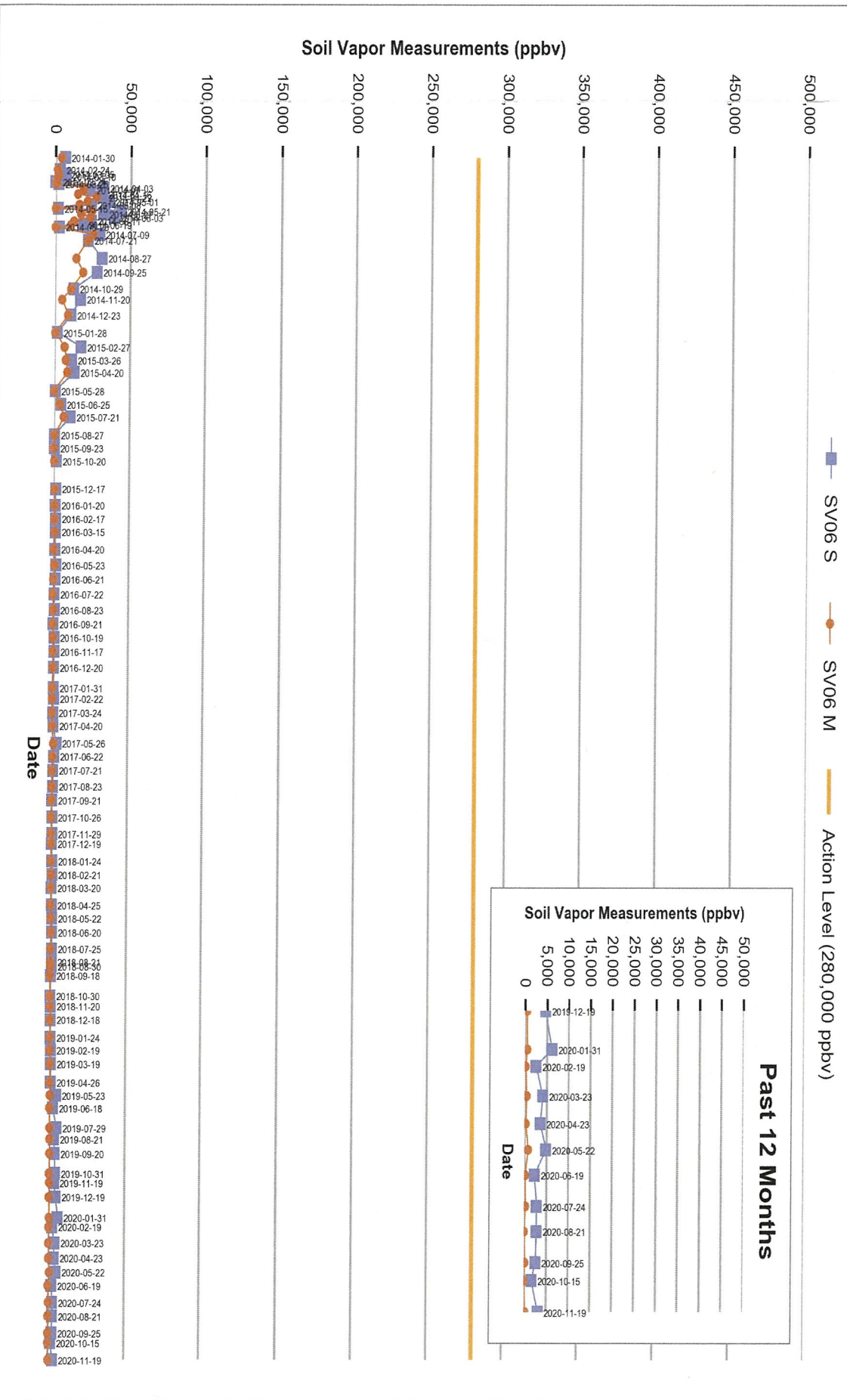
Figure 4
Red Hill - Tank 05 (F-24)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

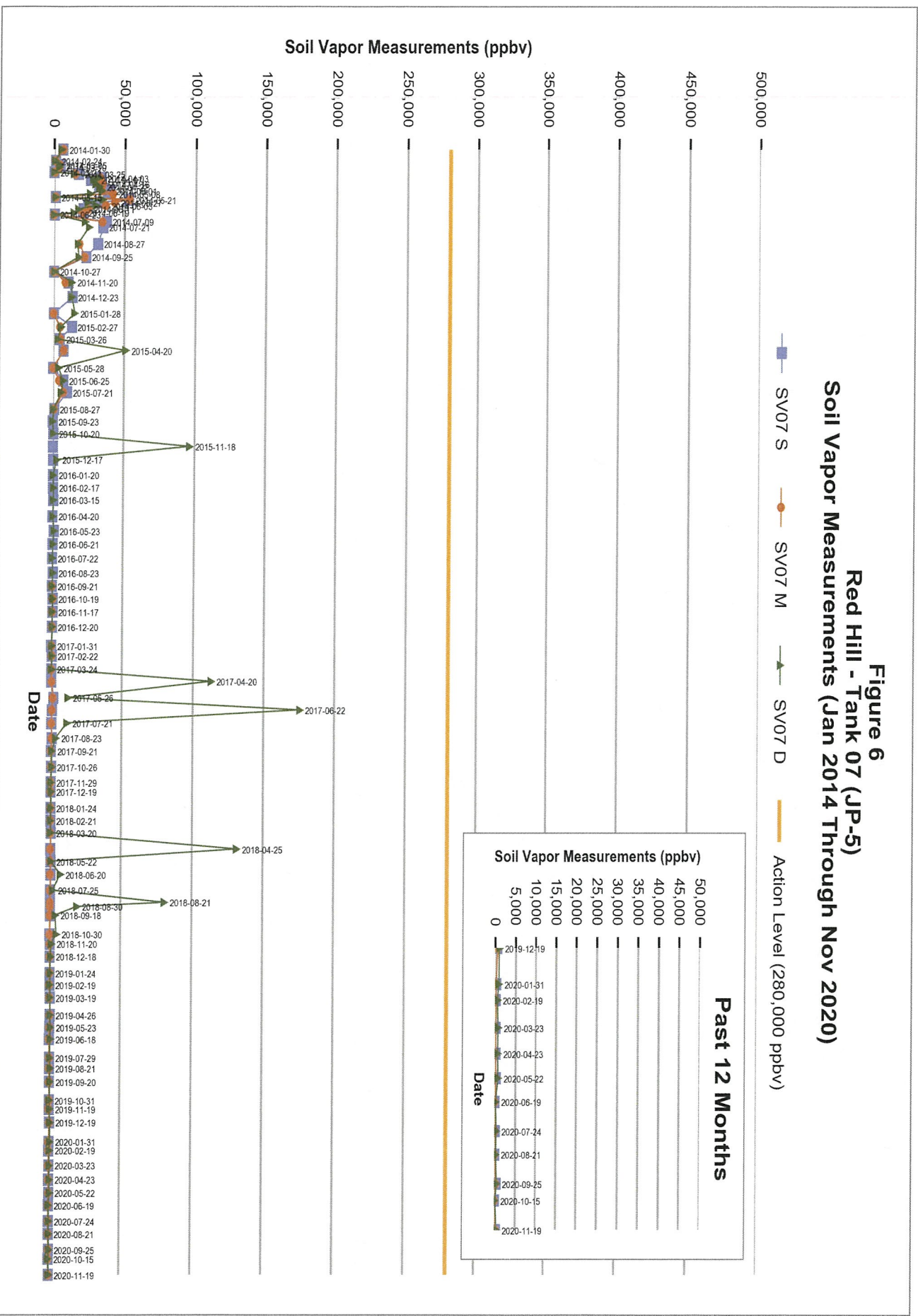
Figure 5
Red Hill - Tank 06 (F-24)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

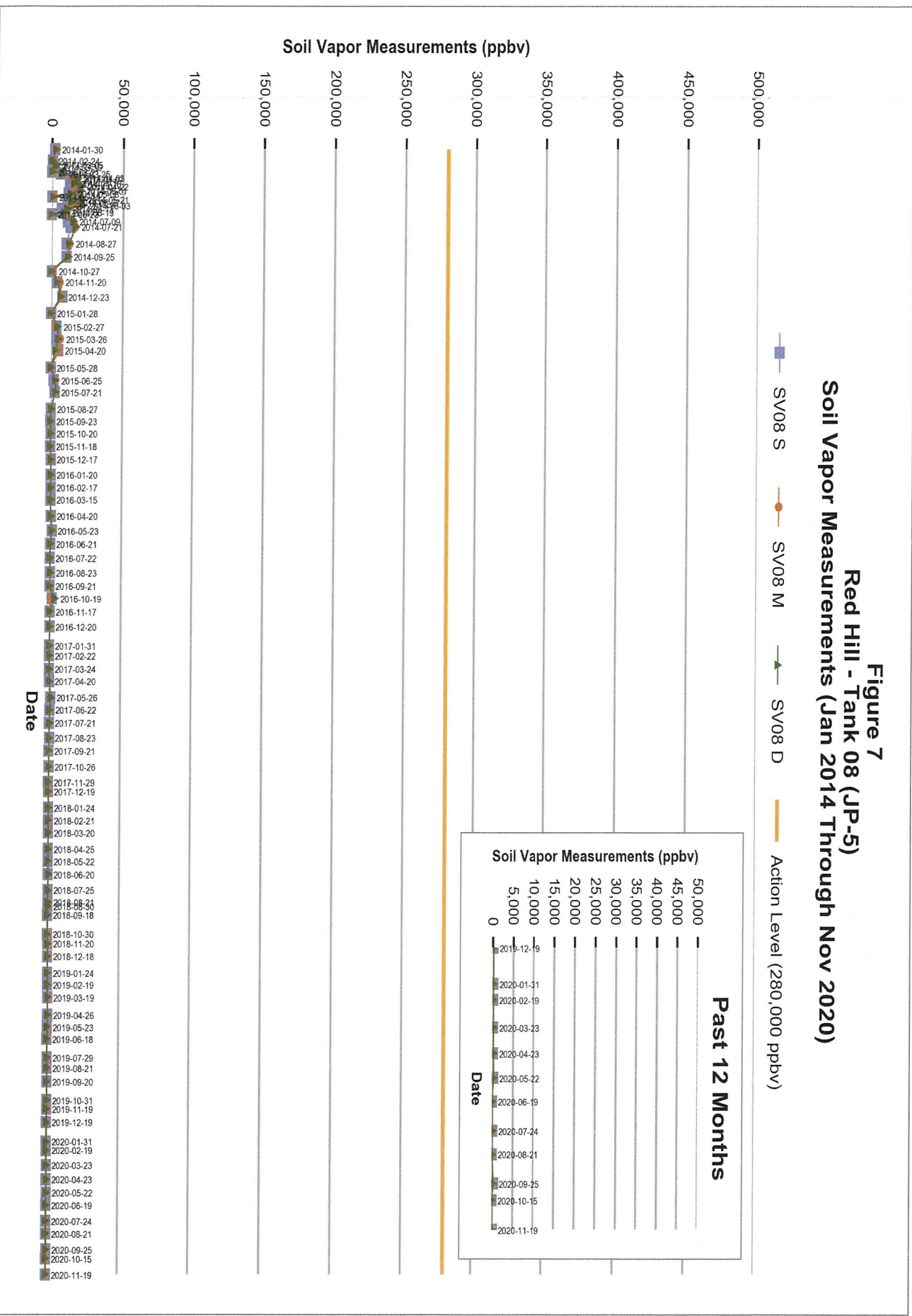
Figure 6
Red Hill - Tank 07 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

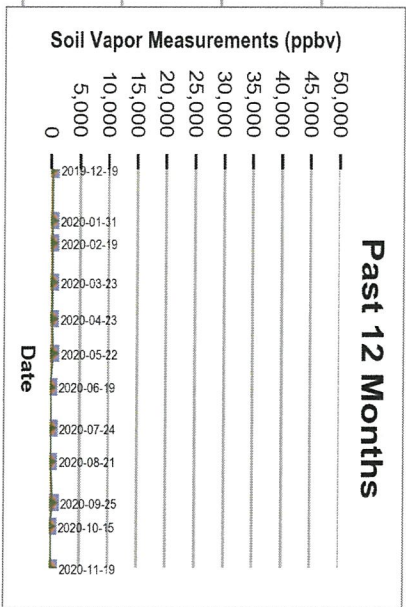
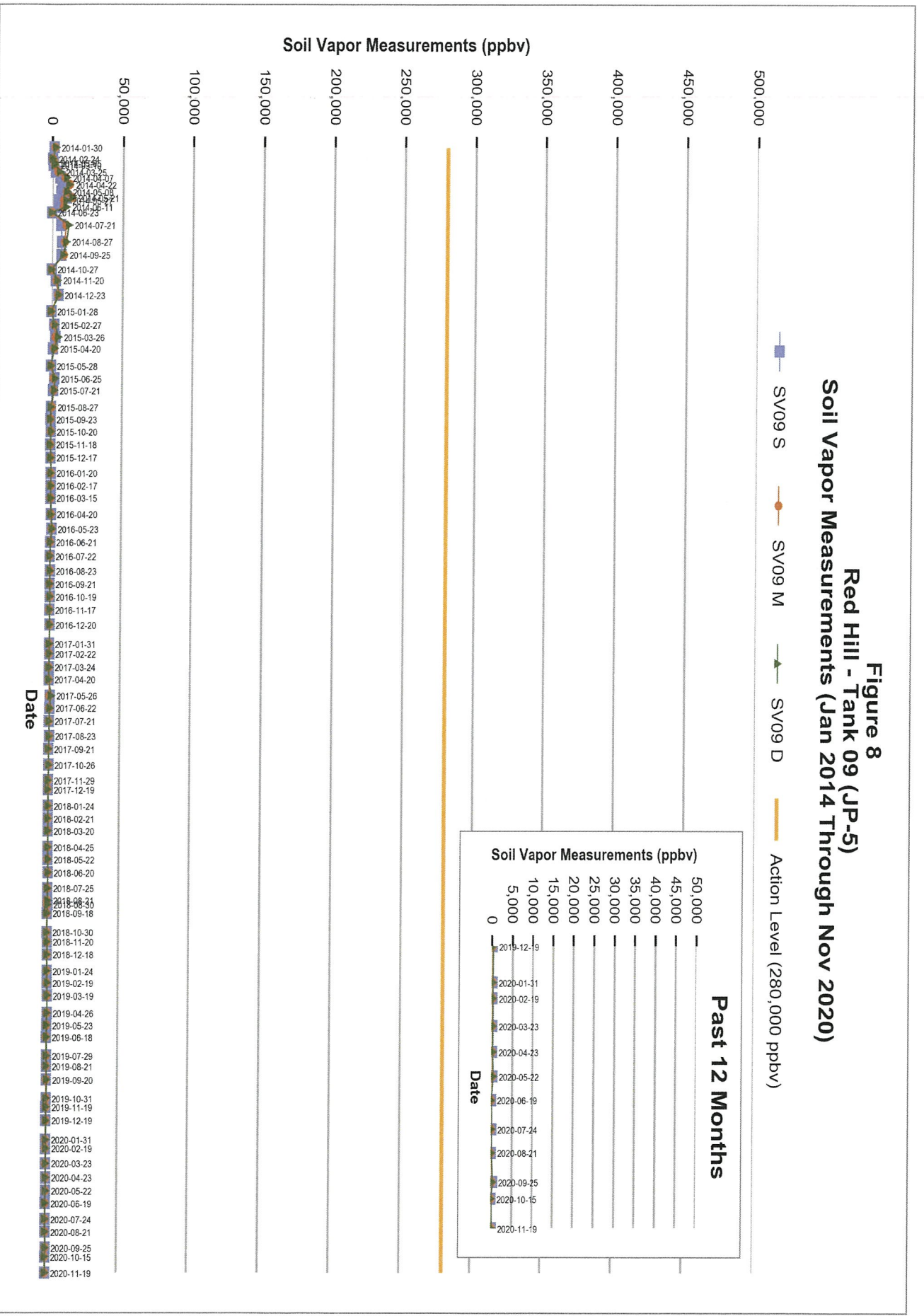
Figure 7
Red Hill - Tank 08 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

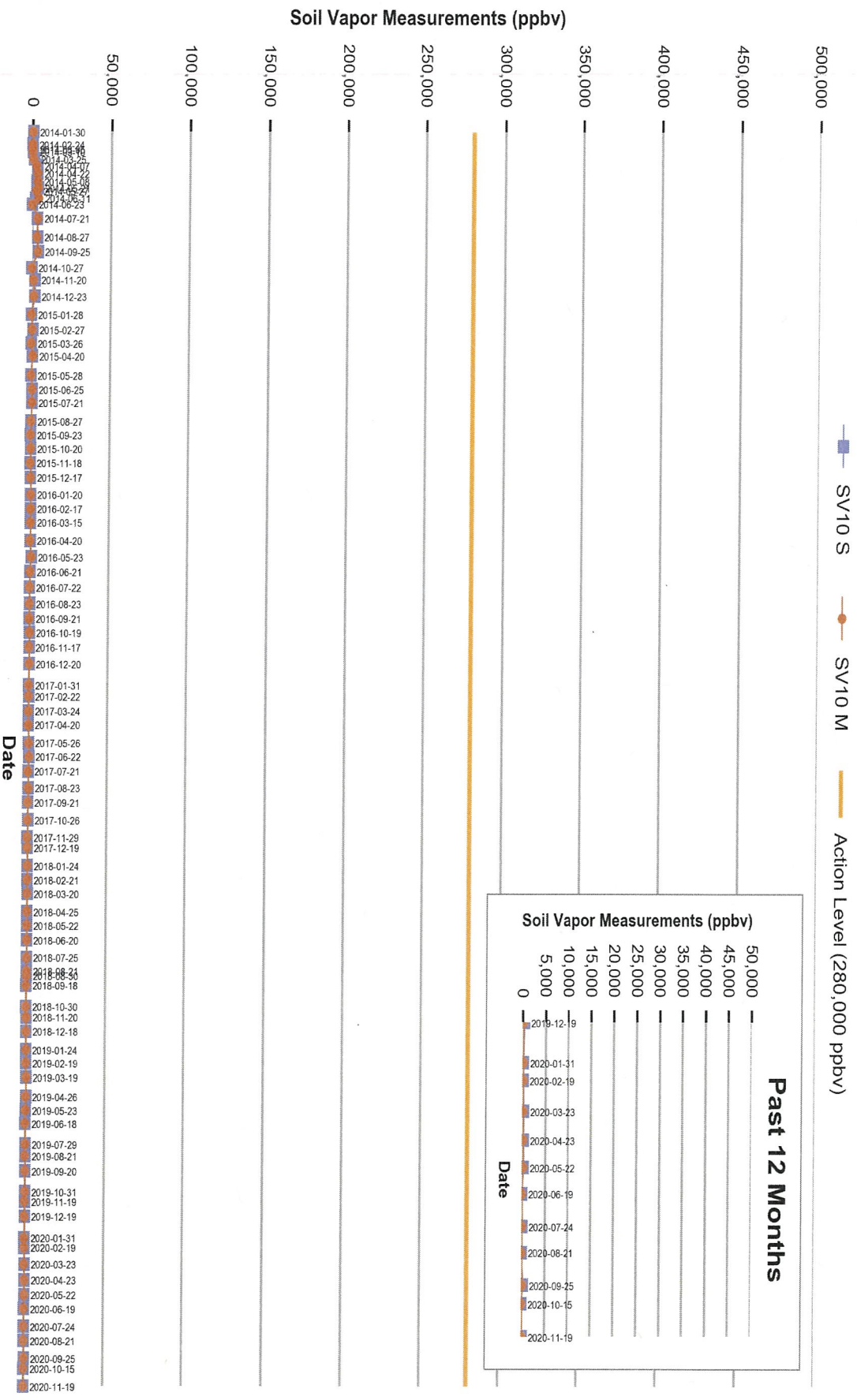
Figure 8
Red Hill - Tank 09 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

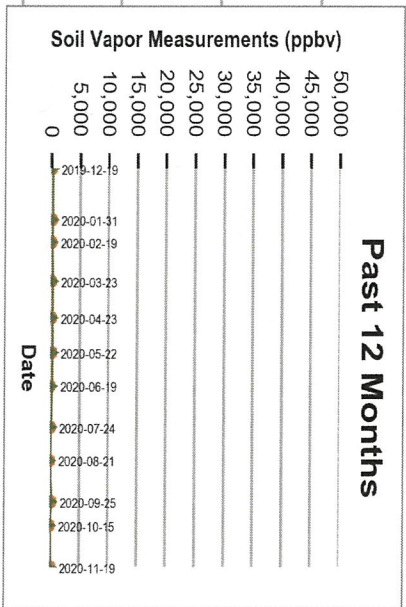
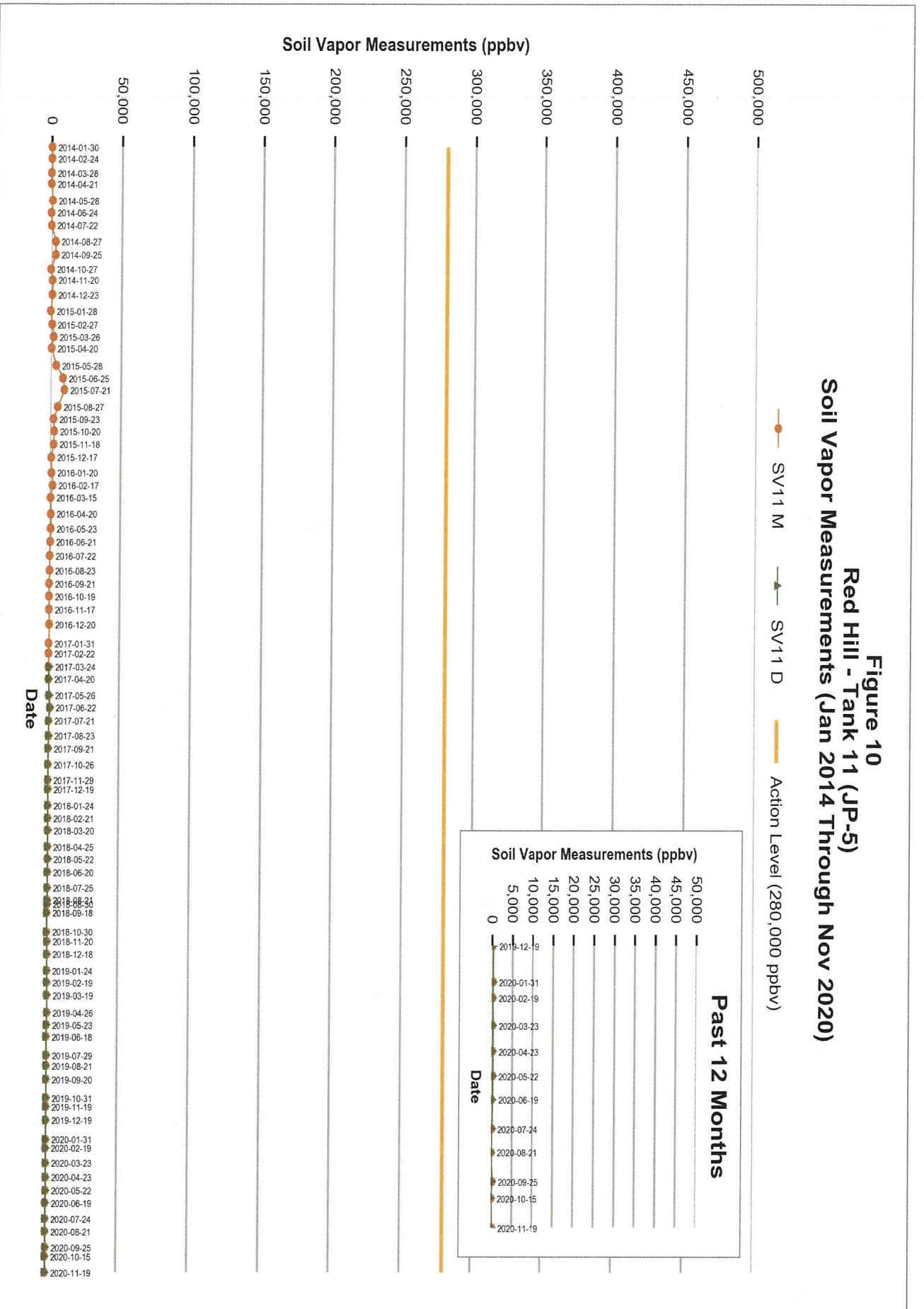
Figure 9
Red Hill - Tank 10 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

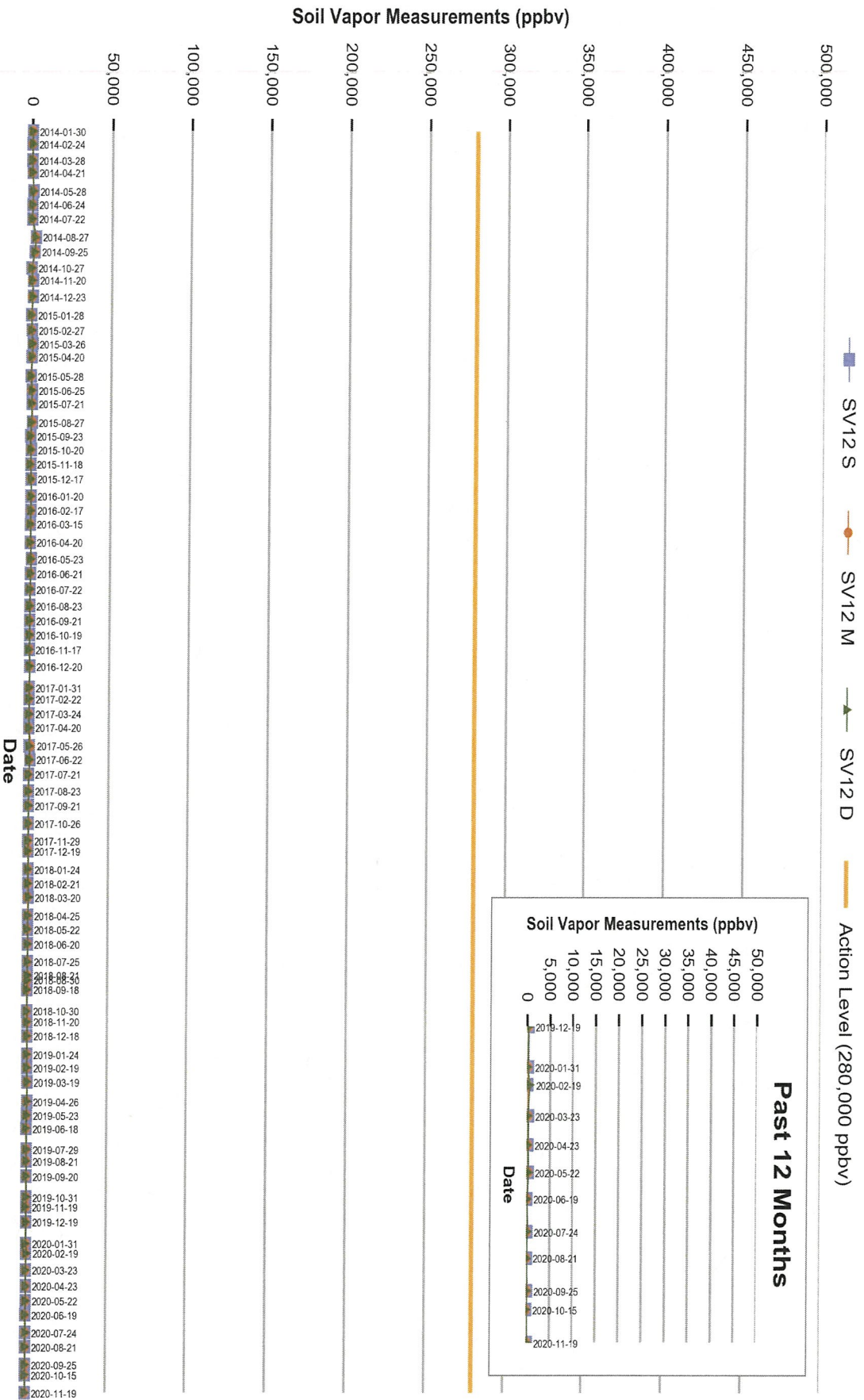
Figure 10
Red Hill - Tank 11 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

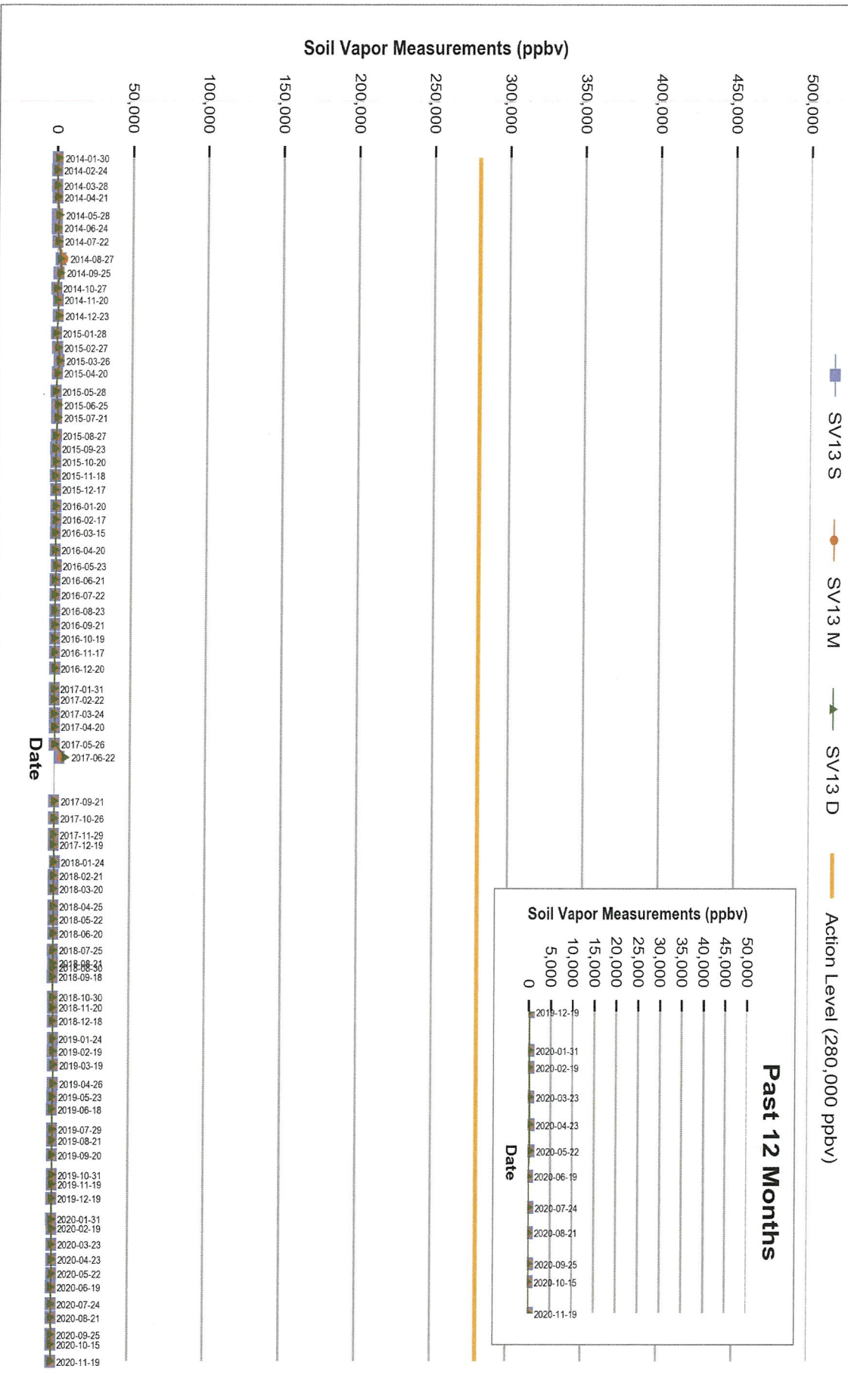
Figure 11
Red Hill - Tank 12 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

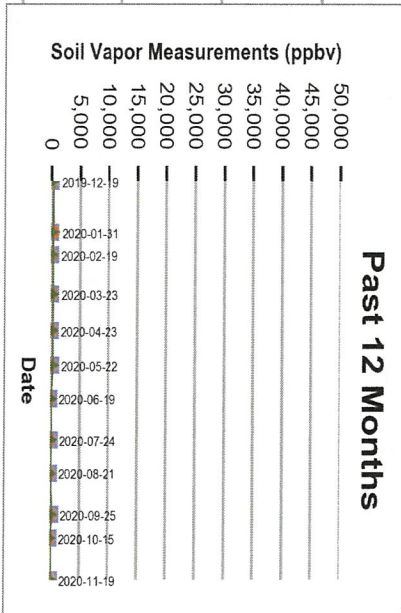
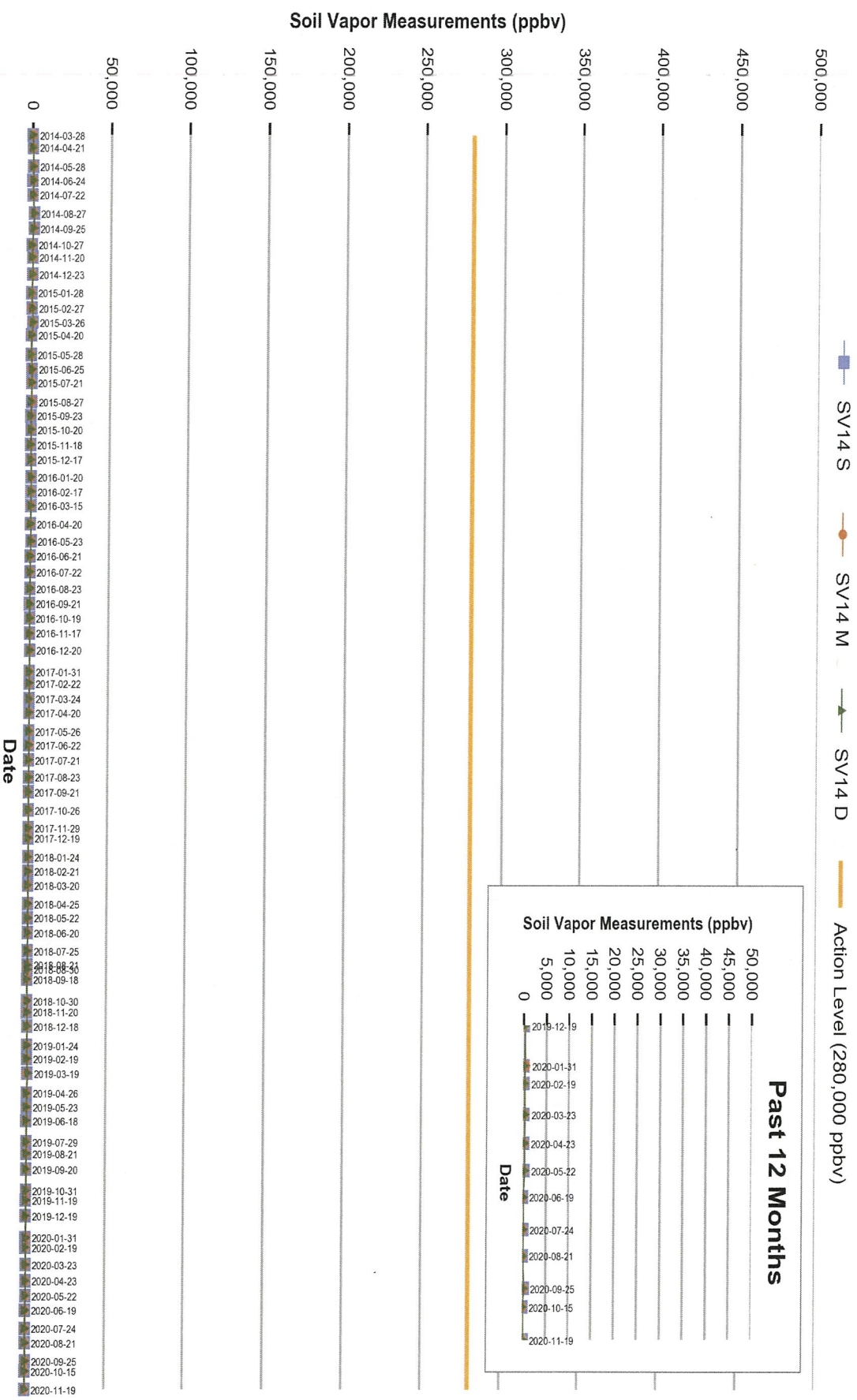
Figure 12
Red Hill - Tank 13 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

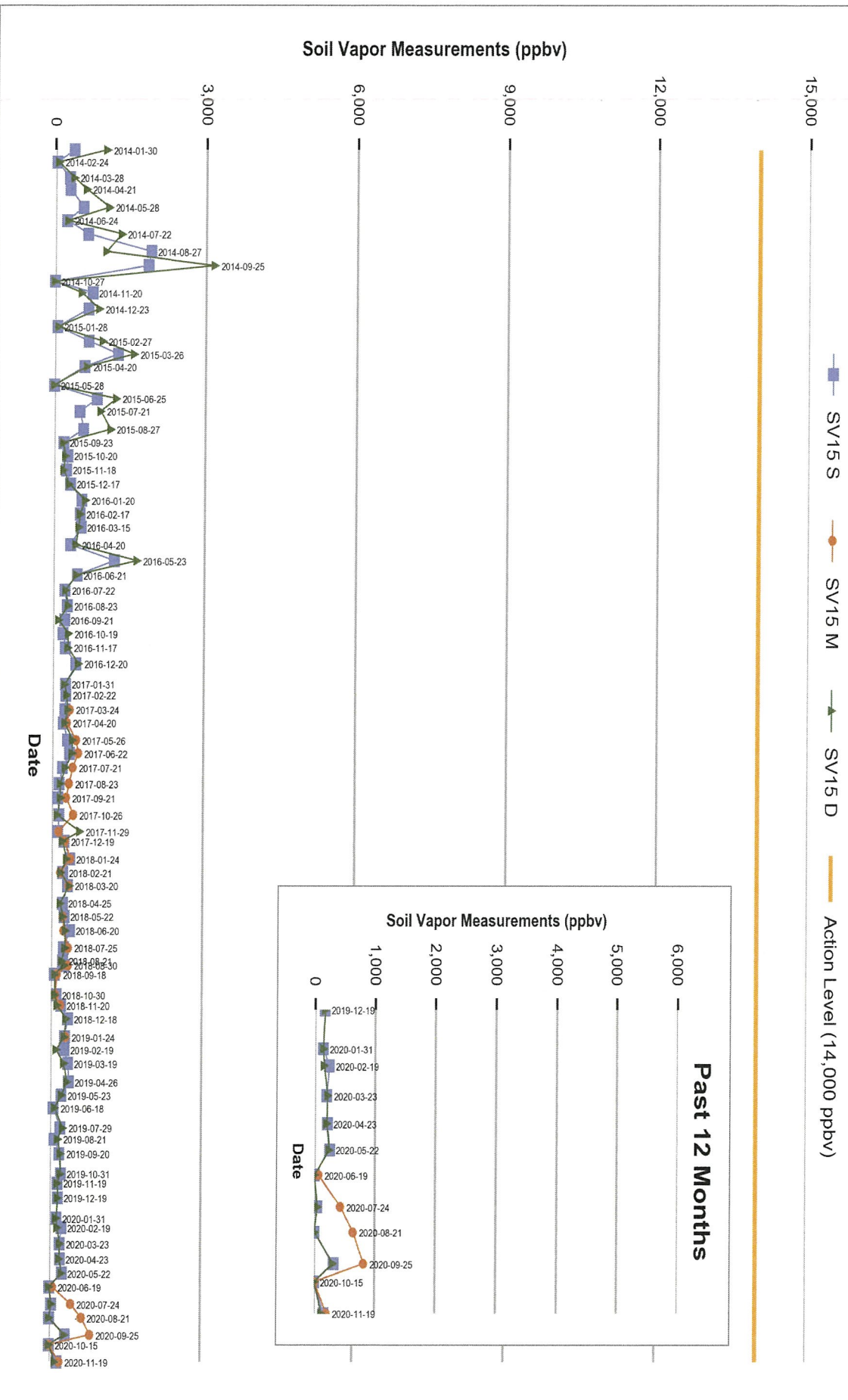
Figure 13
Red Hill - Tank 14 (JP-5)
Soil Vapor Measurements (Mar 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

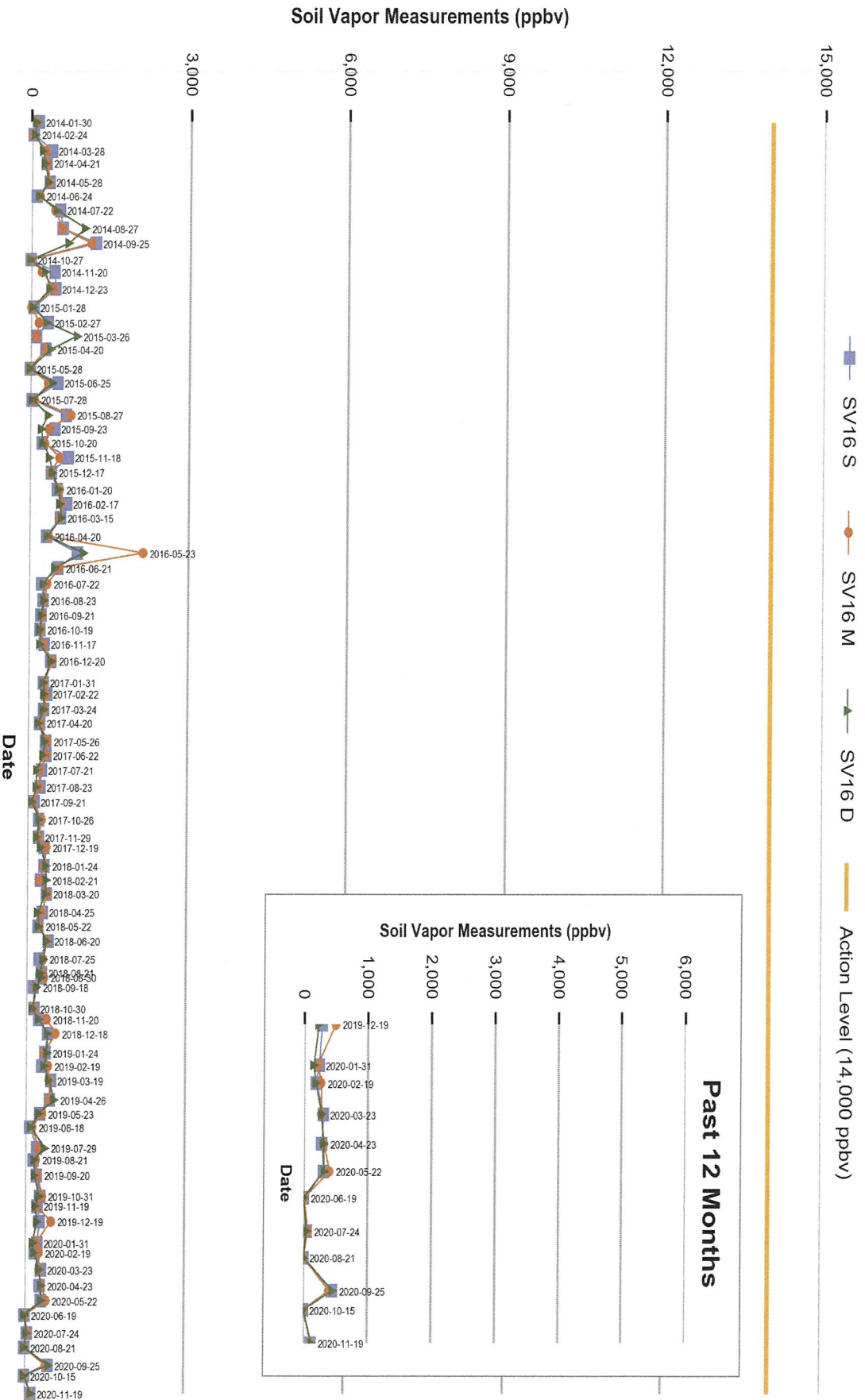
Figure 14
Red Hill - Tank 15 (F-76)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (Where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

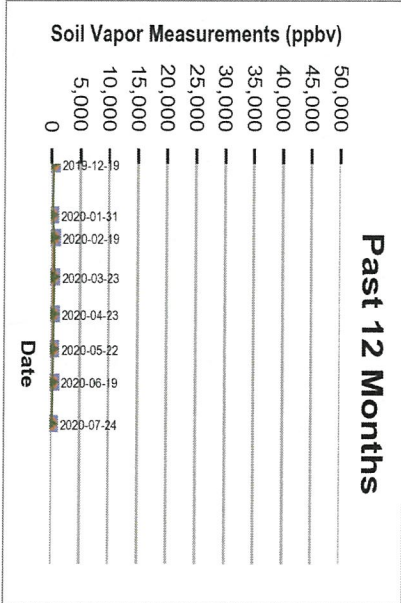
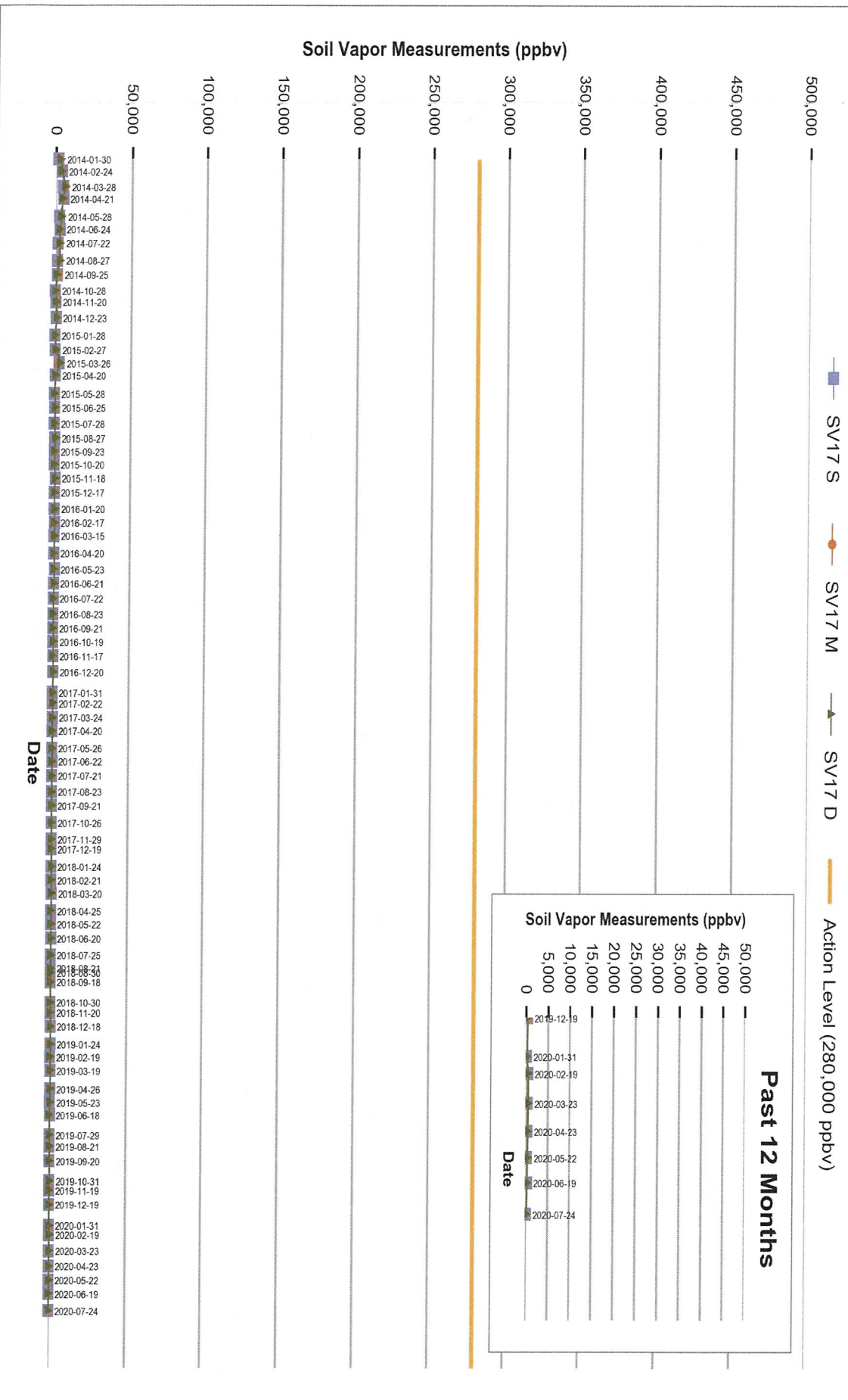
Figure 15
Red Hill - Tank 16 (F-76)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

Figure 16
Red Hill - Tank 17 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)

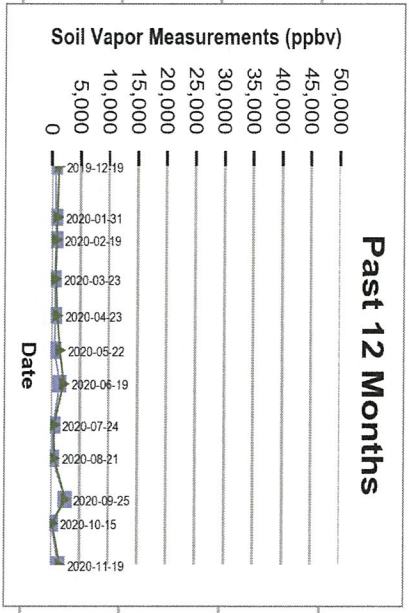
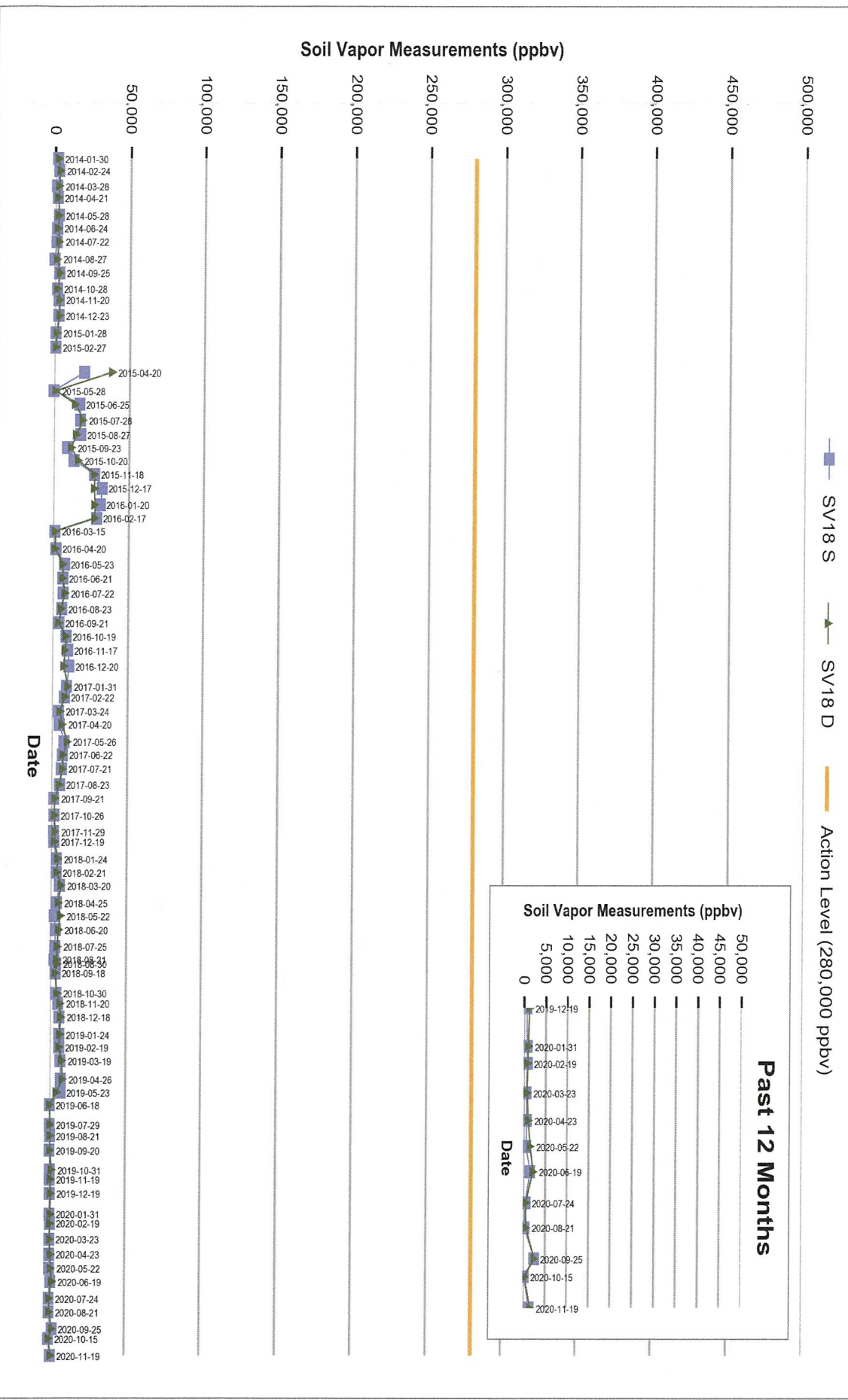


Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

Tank 17 is undergoing clean, inspect & repair (CIR) and has not been accessible during the August, September, October, and November monitoring events.

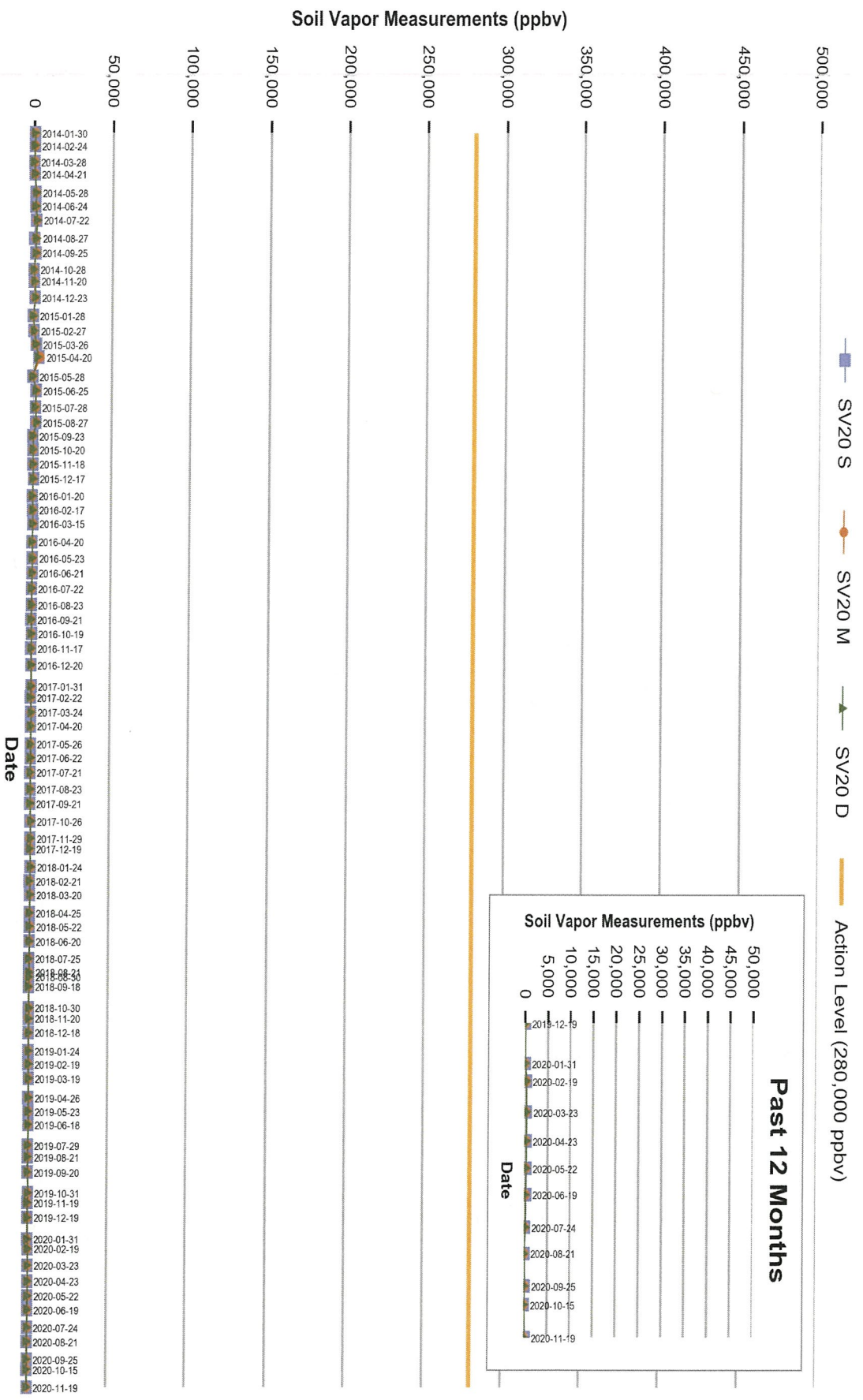
Figure 17
Red Hill - Tank 18 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

Figure 18
Red Hill - Tank 20 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Nov 2020)



Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76