



DEPARTMENT OF THE NAVY

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

5000-45A
N45
February 17, 2021

CERTIFIED NO: 9489 0090 0027 6232 2145 18

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 DECEMBER
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 December 16, 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 as an enclosure.

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 0, 966, and 665 ppbv, respectively. VOC concentrations in all down-gradient soil vapor monitors were below 892 ppbv.

All other VOC concentrations measured in December were from 90 to 10,000 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 January 27, 2021 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 February 23, 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,



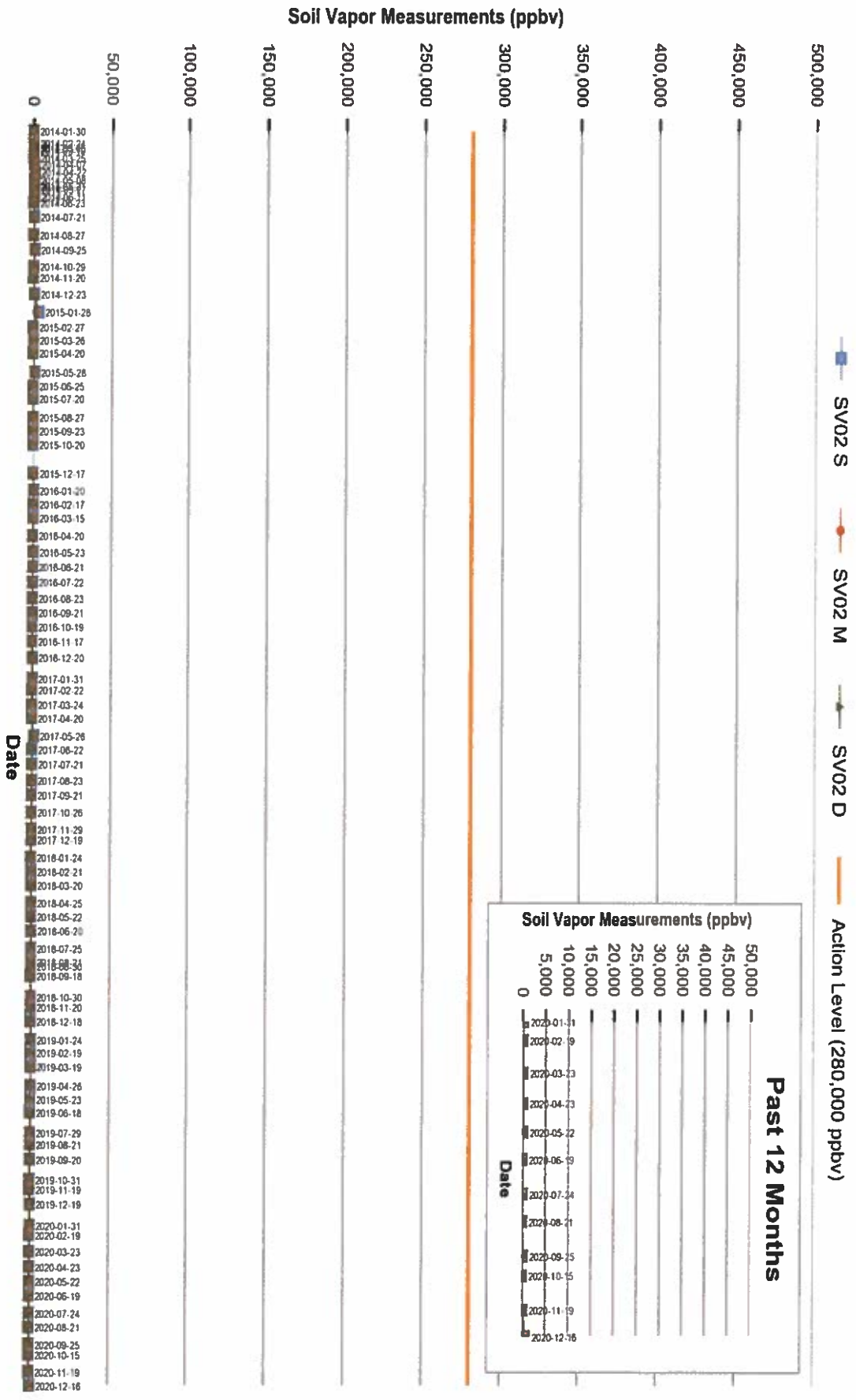
SHERRI R. ENG
Director
Regional Environmental Department
By direction of the
Commander

Enclosure: Graphical Summary of Soil Vapor Sampling Results for Tanks 2 - 18 and 20 through December 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

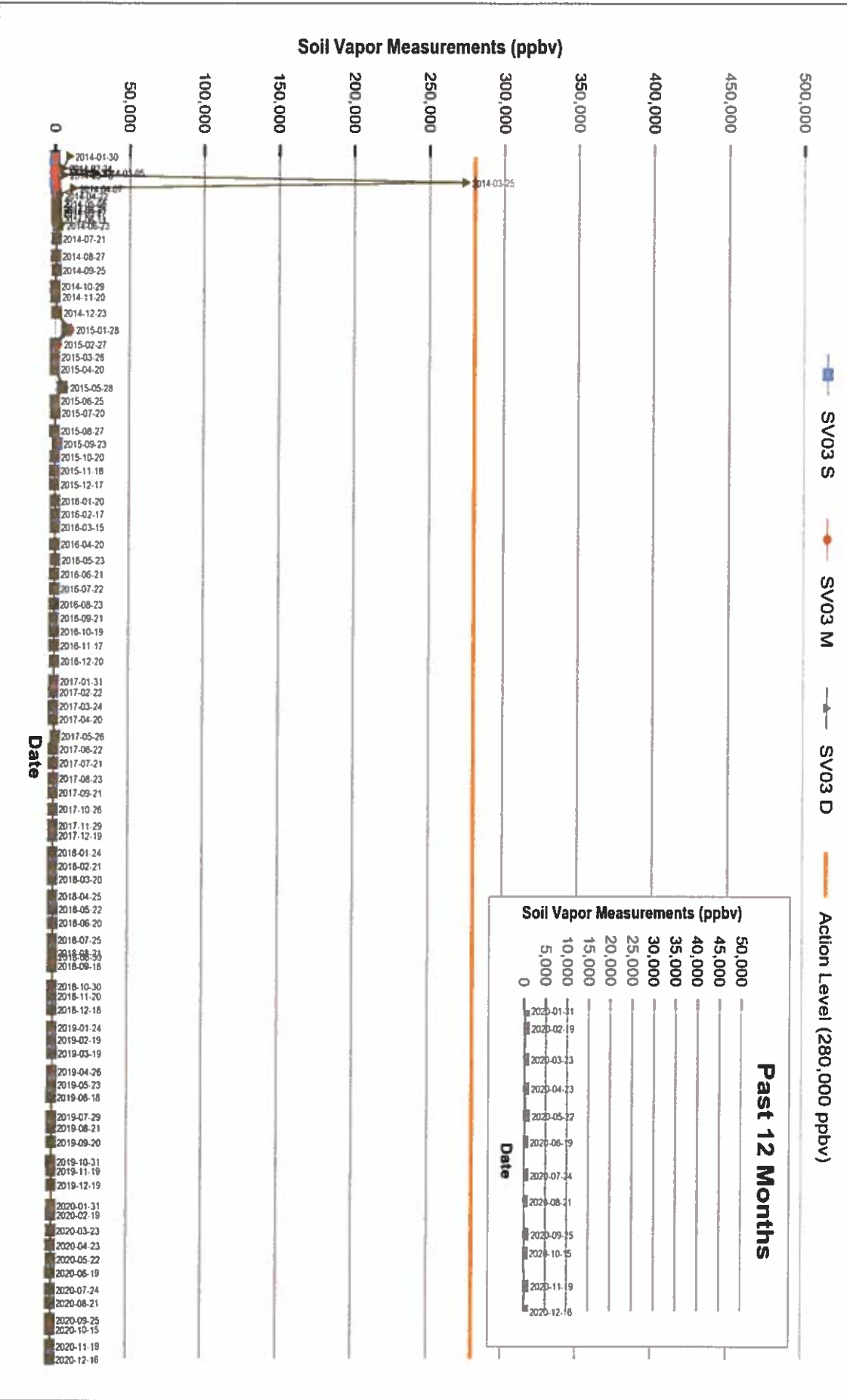
Figure 1
Red Hill - Tank 02 (F-24)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

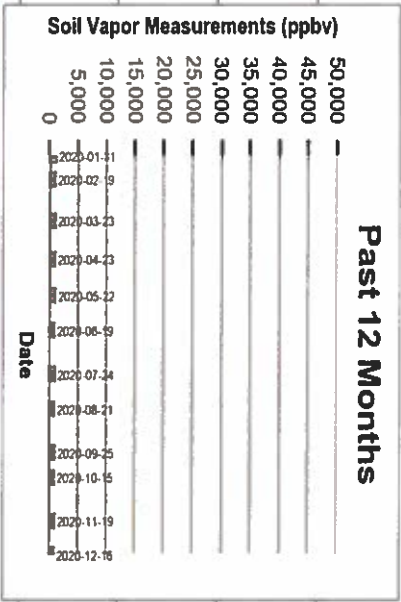
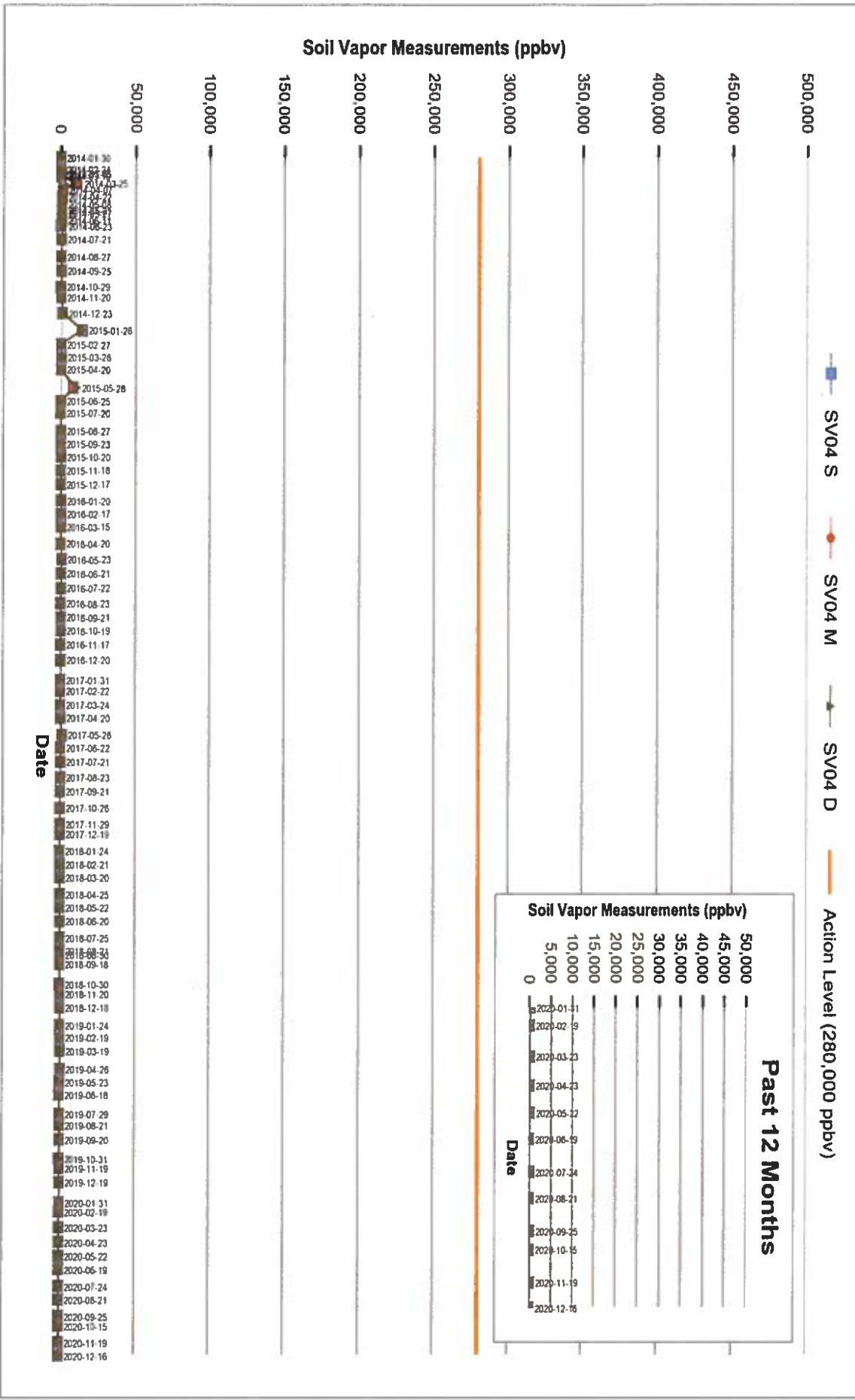
Figure 2
Red Hill - Tank 03 (F-24)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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 Dec 2020)

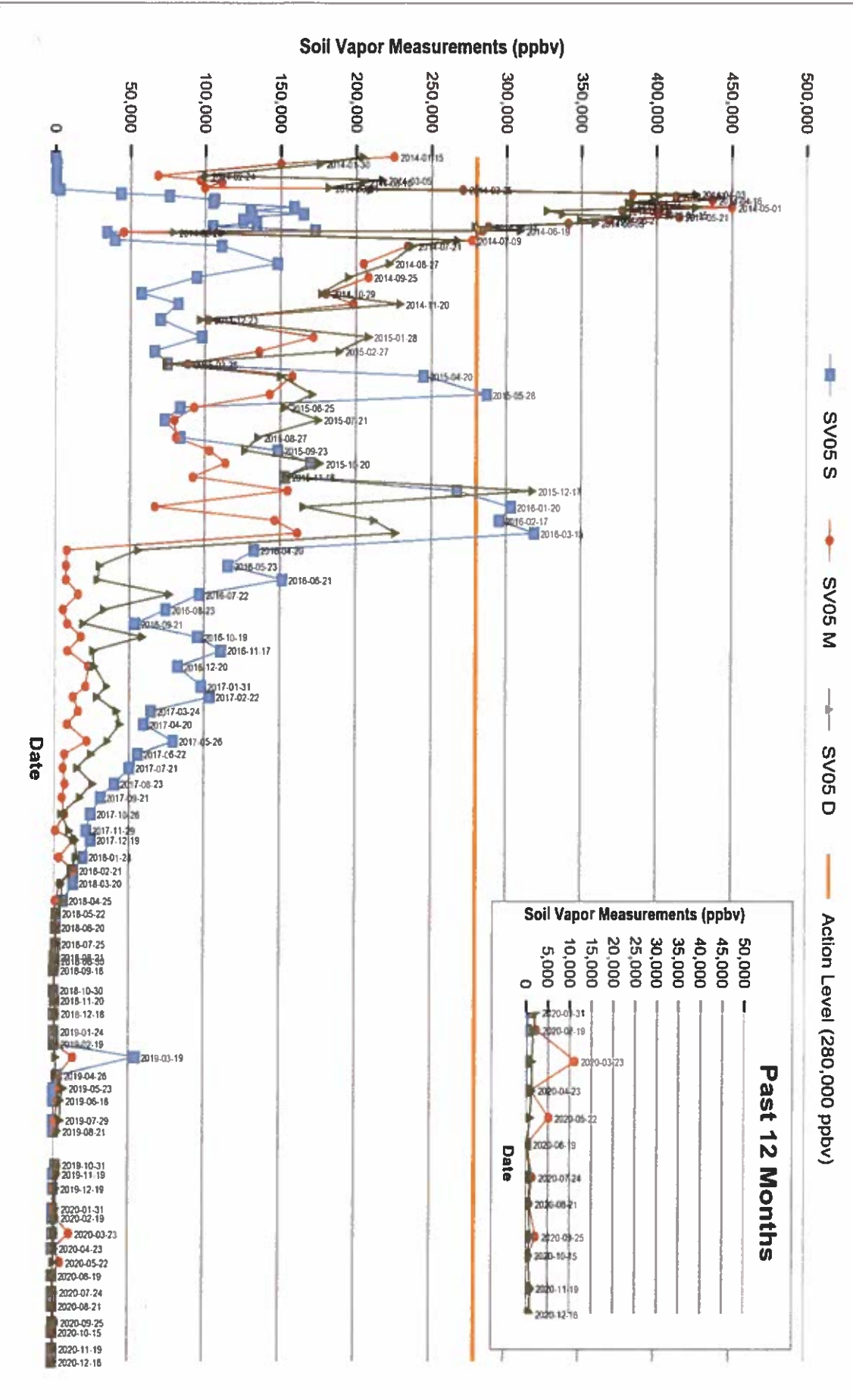


Notes (where applicable):

ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24

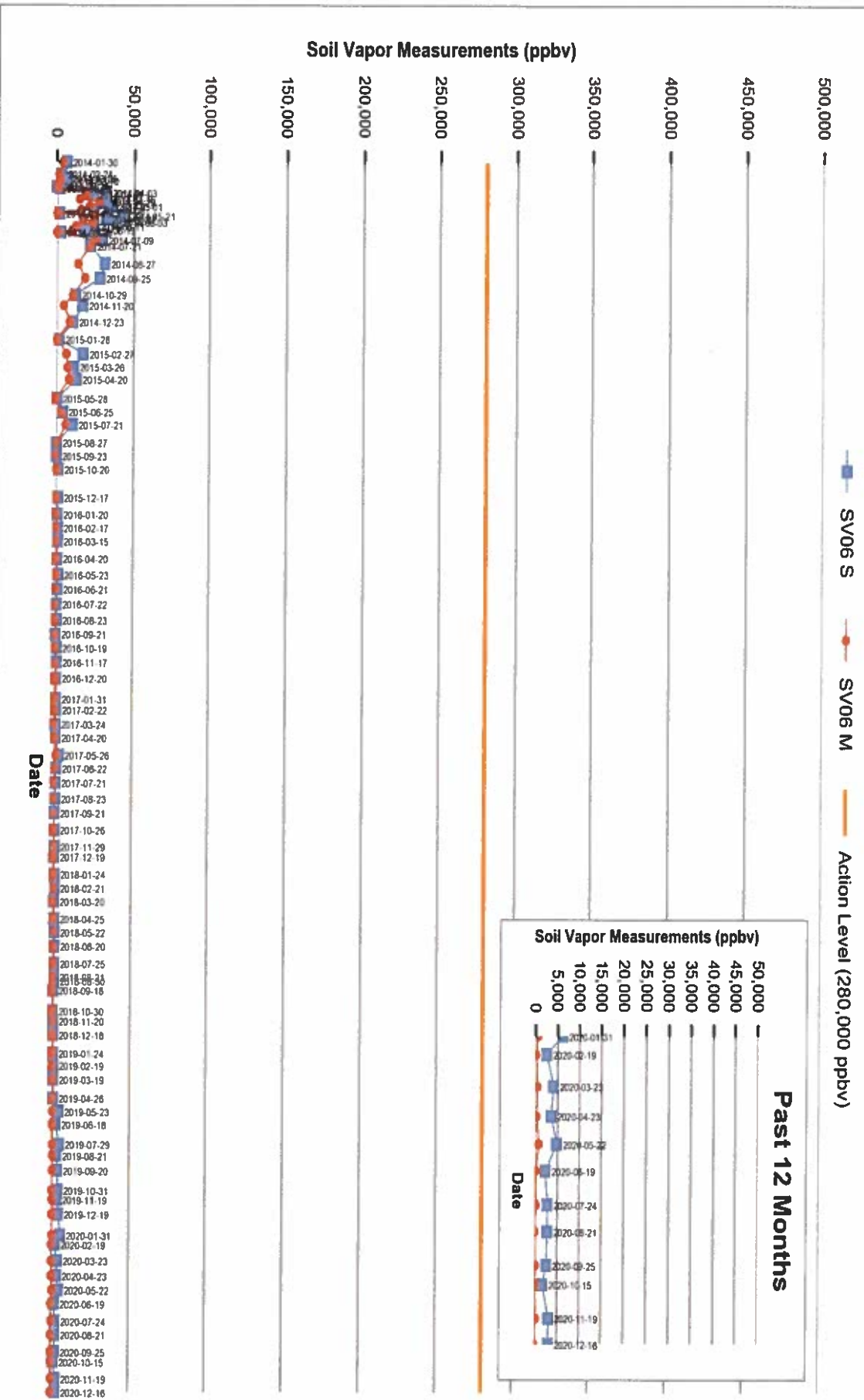
JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

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

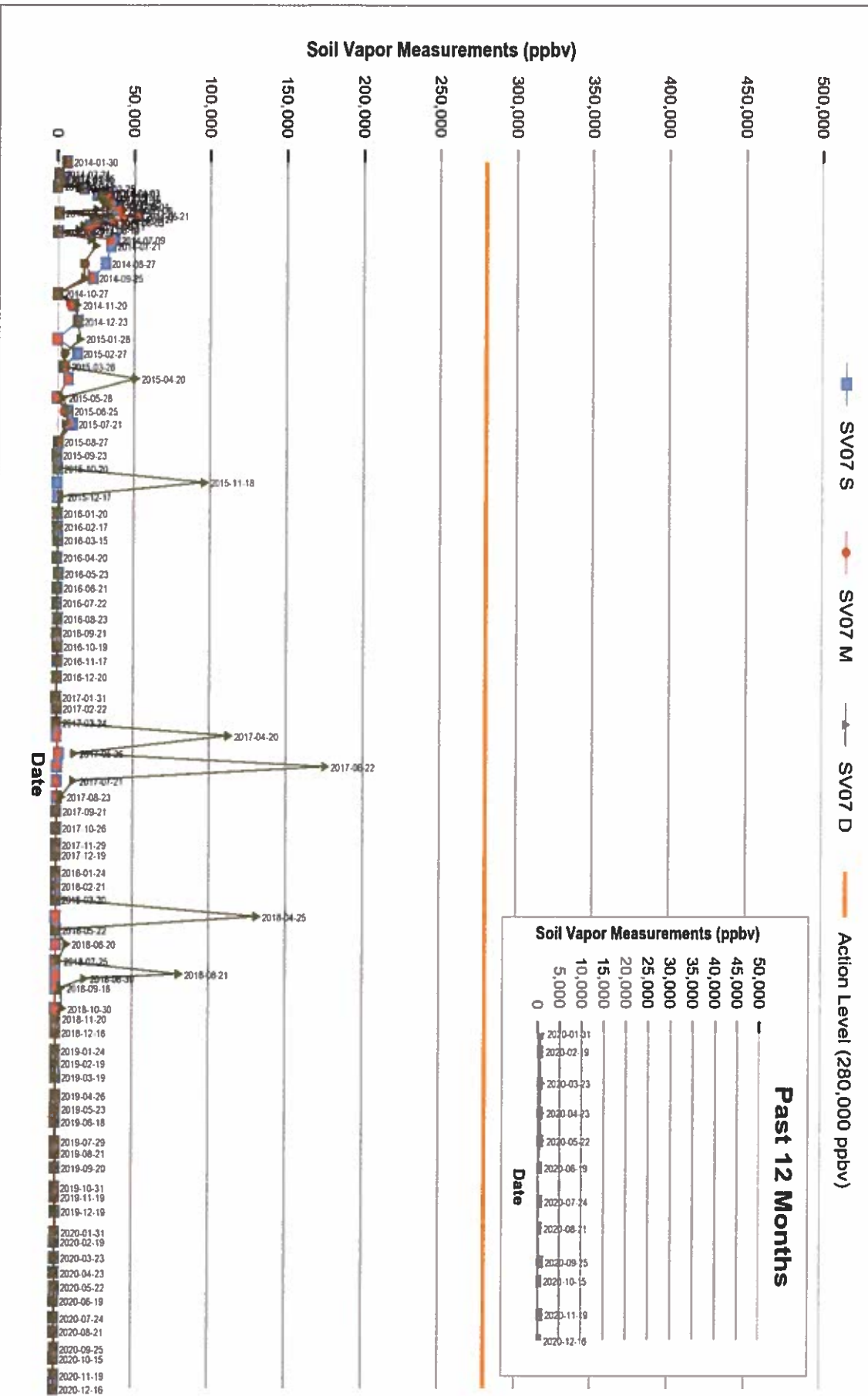
Figure 5
Red Hill - Tank 06 (F-24)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

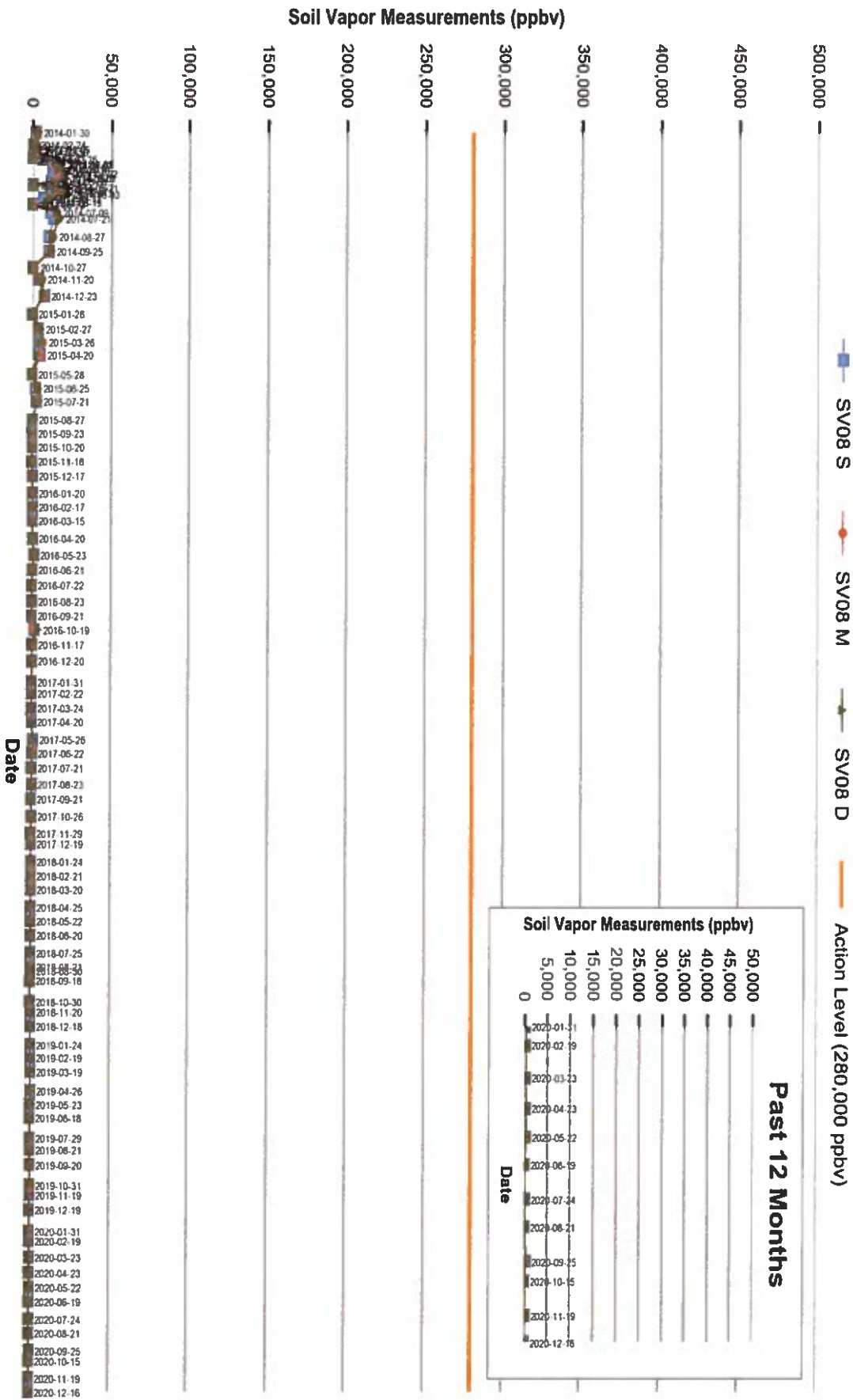
Figure 6
Red Hill - Tank 07 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

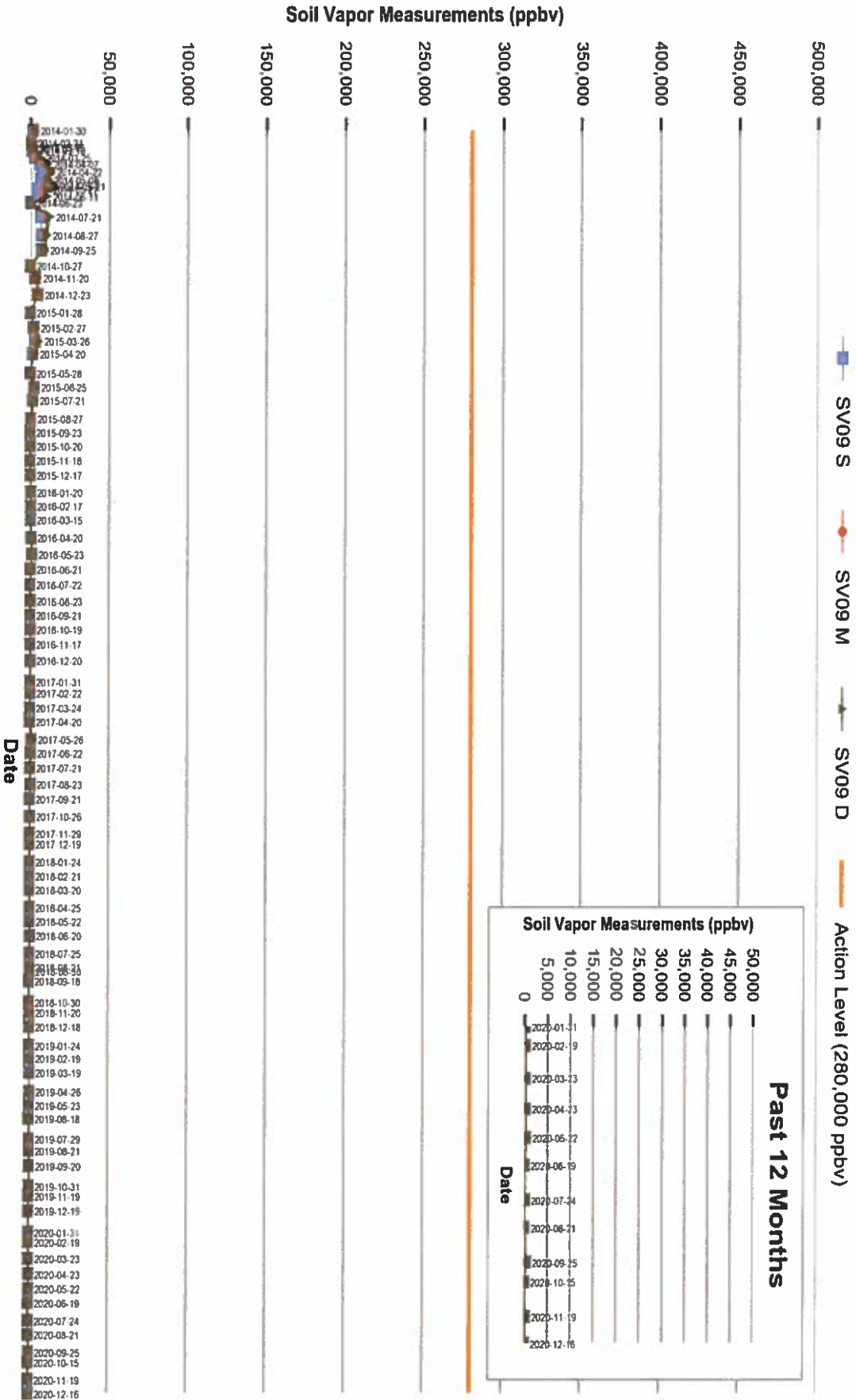
Figure 7
Red Hill - Tank 08 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

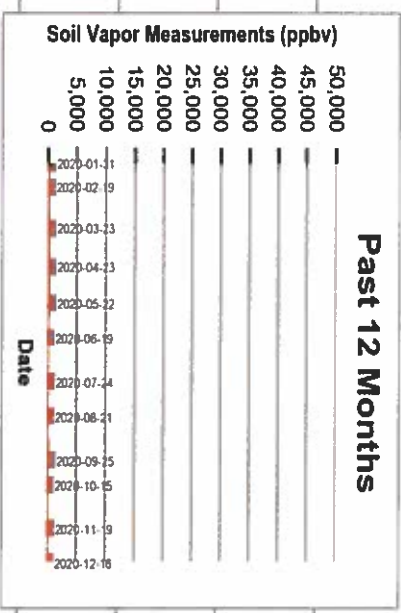
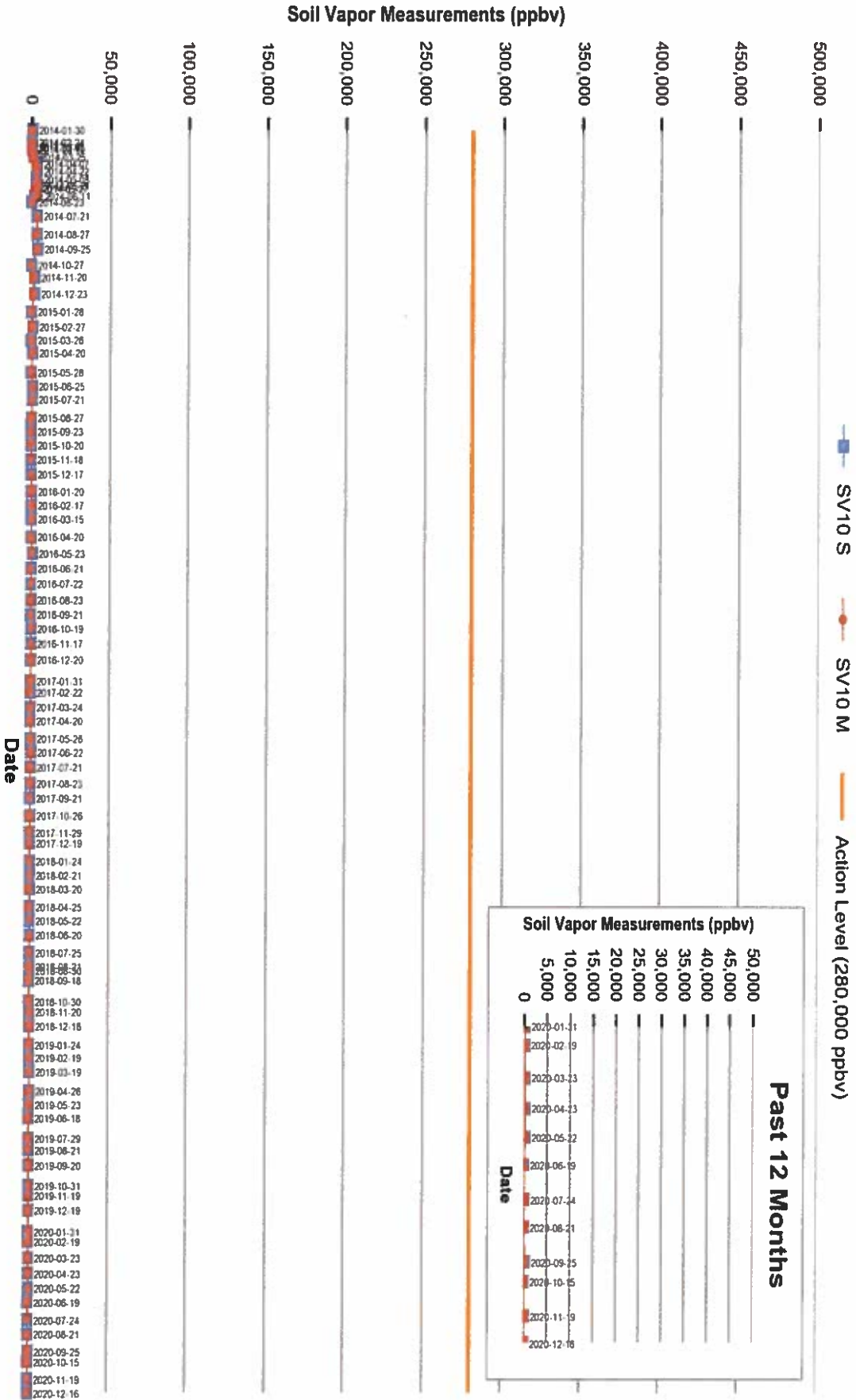
**Figure 8
Red Hill - Tank 09 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)**



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

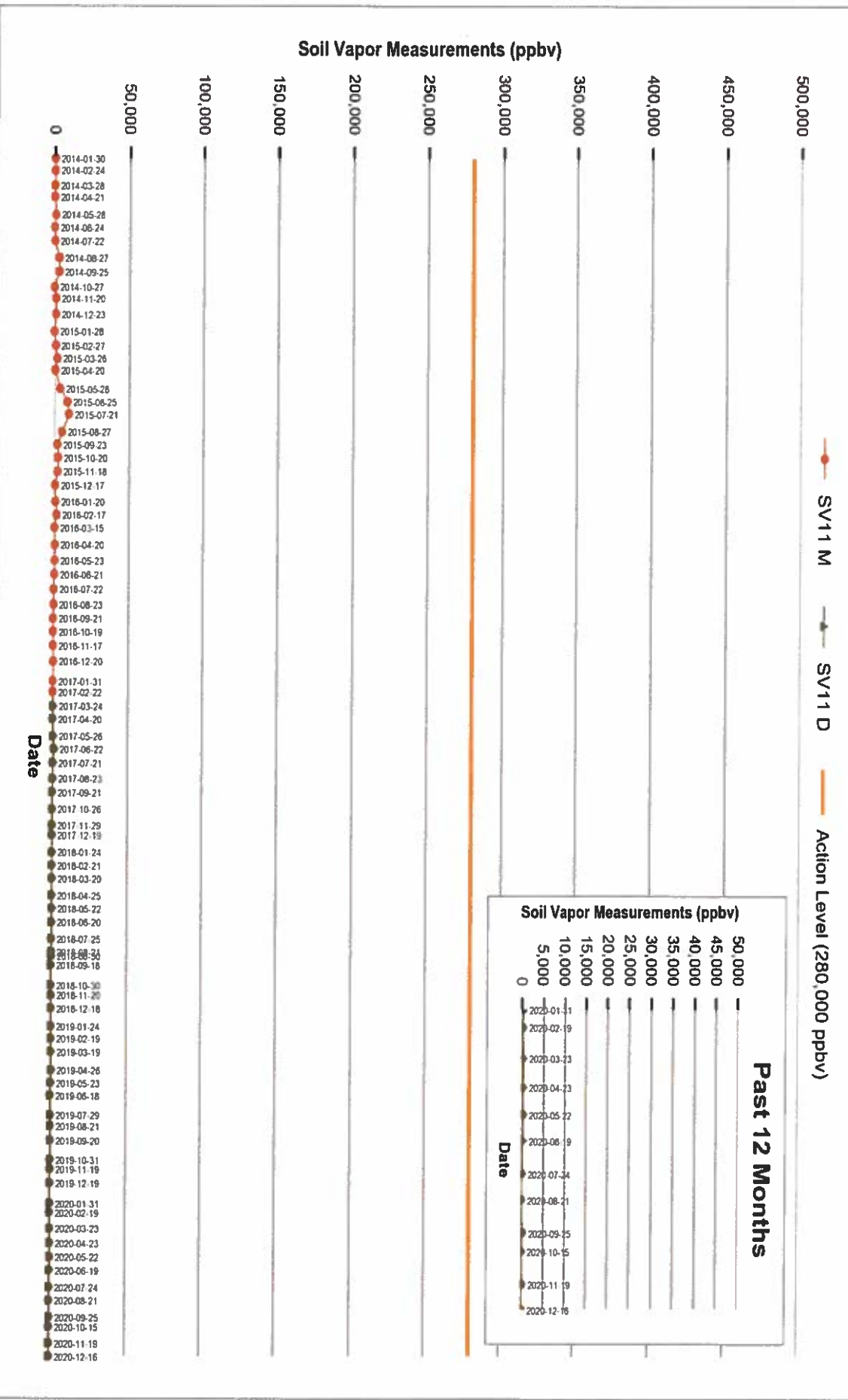
Figure 9
Red Hill - Tank 10 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

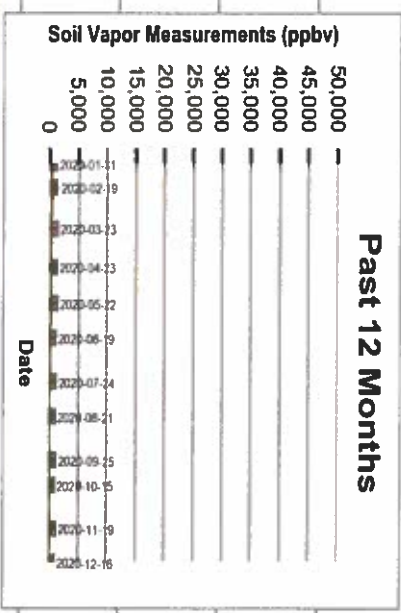
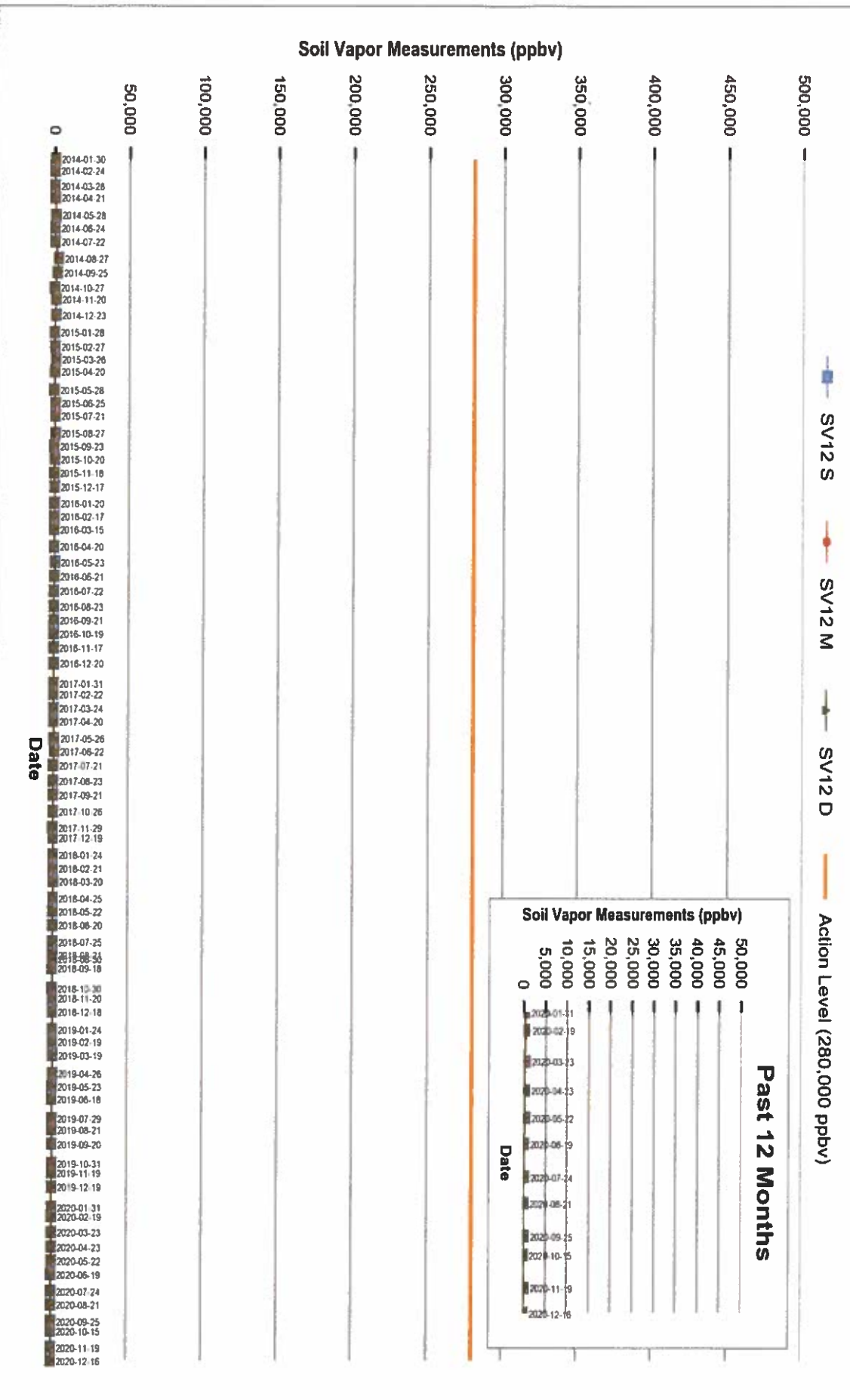
JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

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

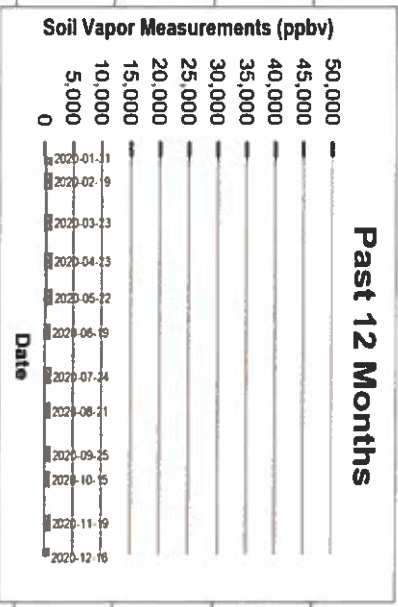
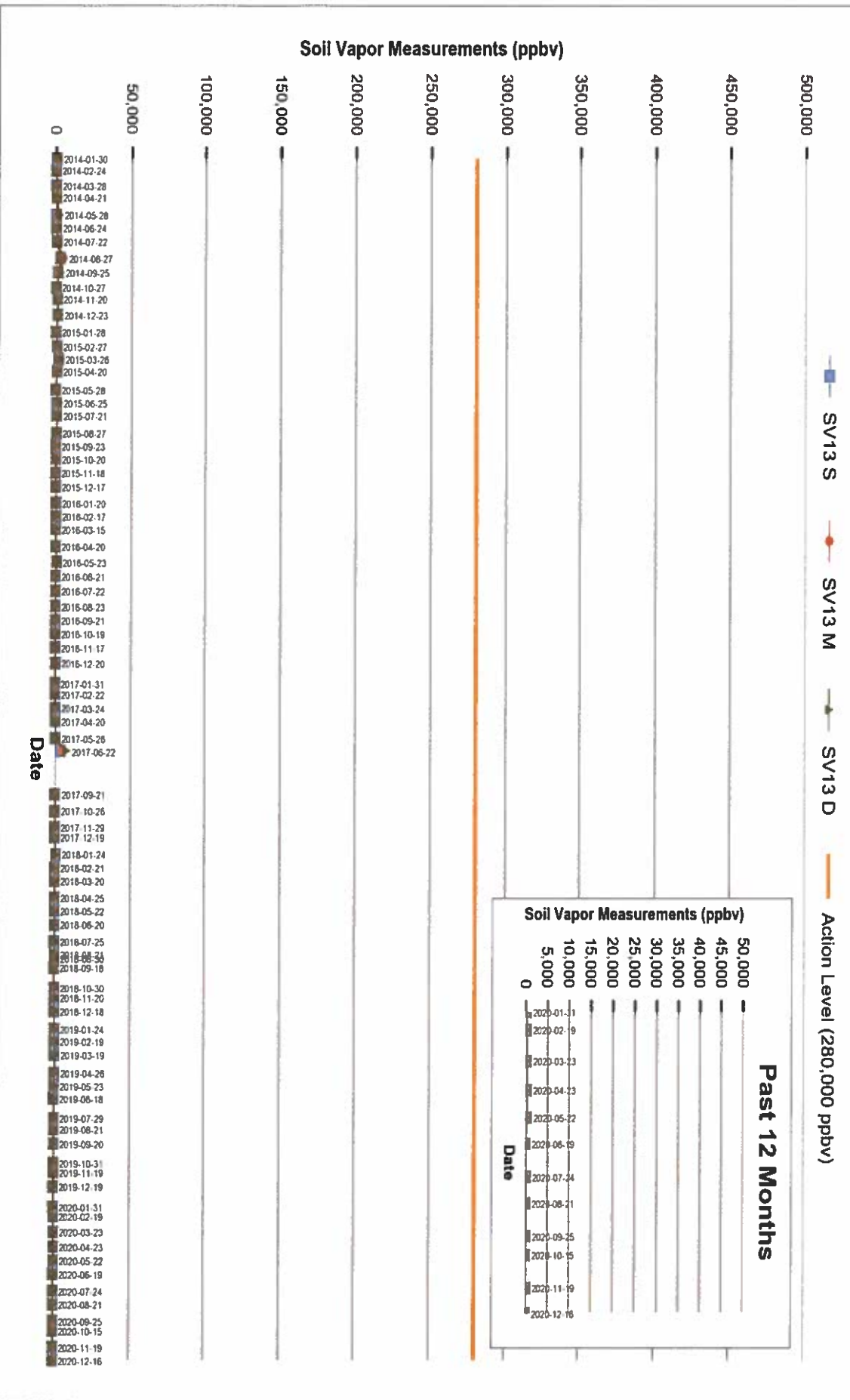
Figure 11
Red Hill - Tank 12 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

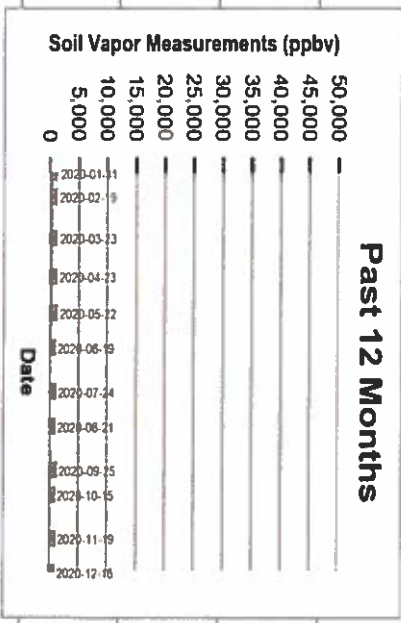
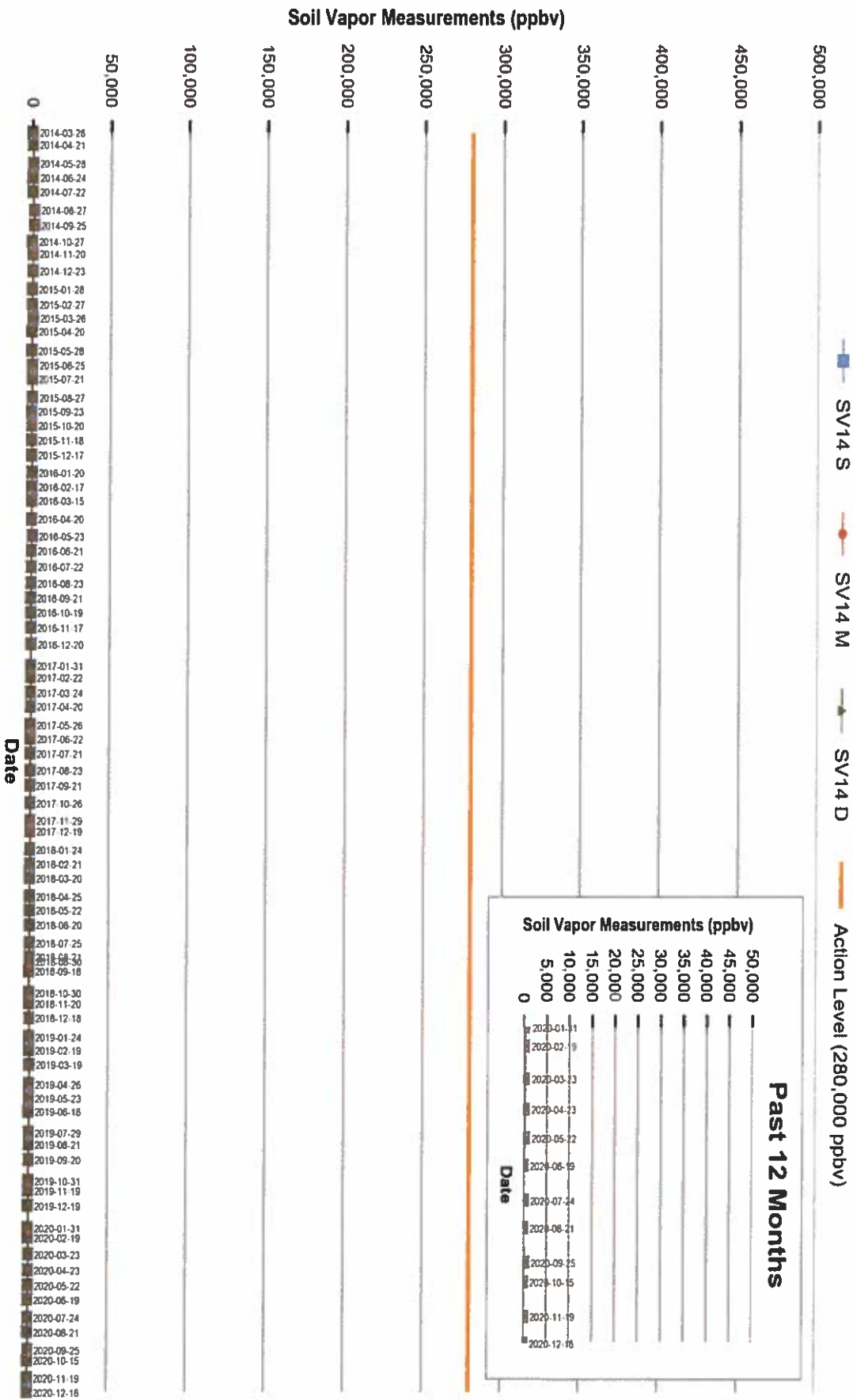
Figure 12
Red Hill - Tank 13 (JP-5)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

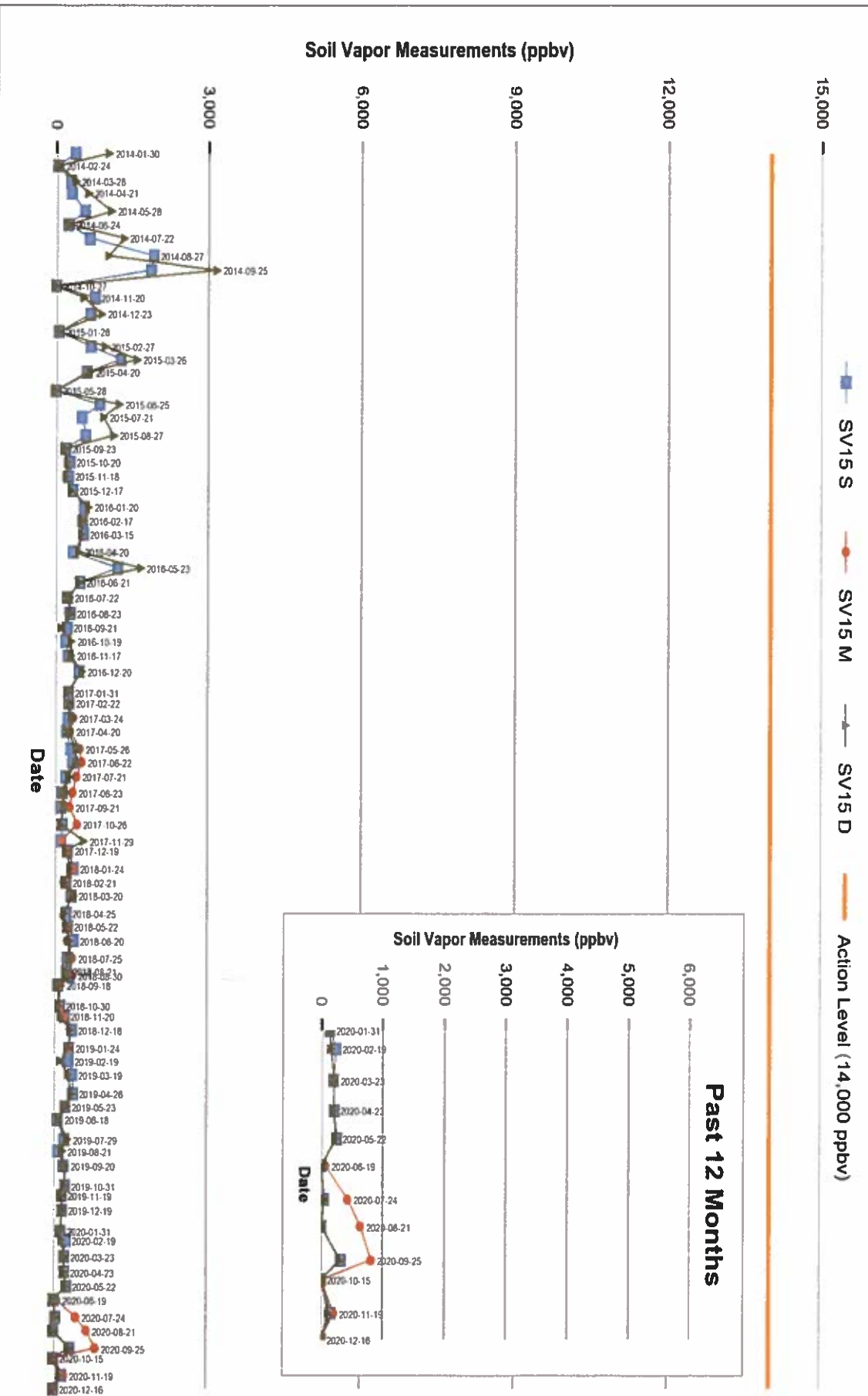
Figure 13
Red Hill - Tank 14 (JP-5)
Soil Vapor Measurements (Mar 2014 Through Dec 2020)



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

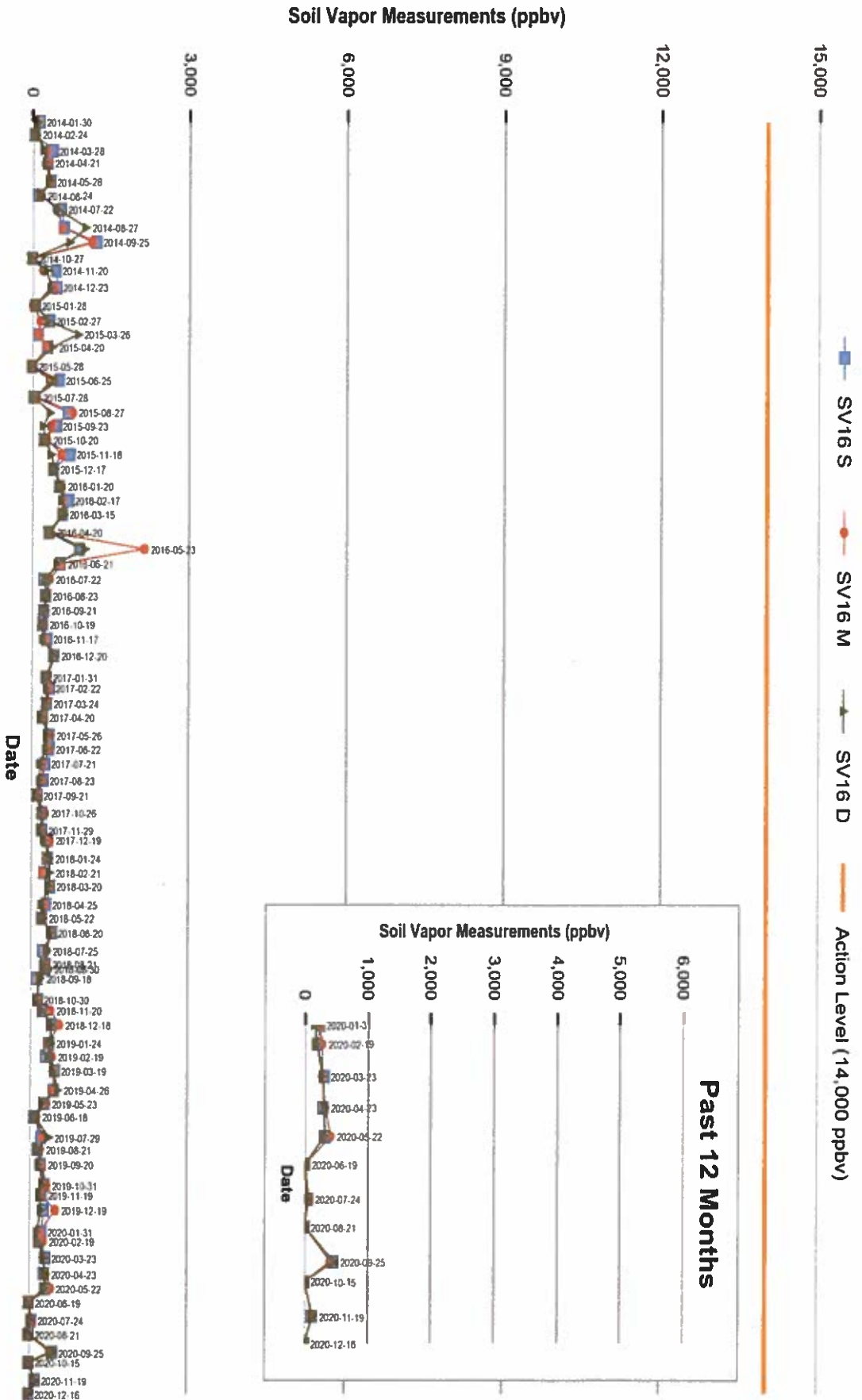
Figure 14
Red Hill - Tank 15 (F-76)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

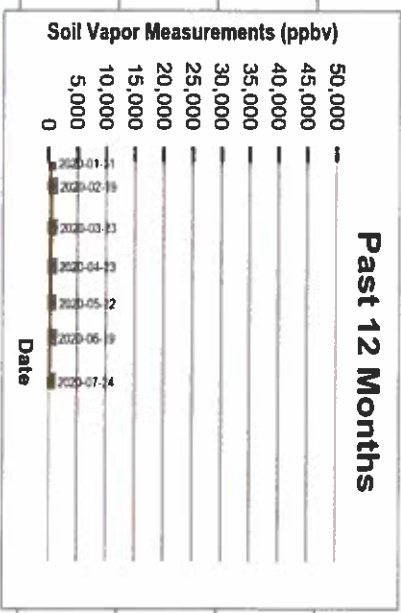
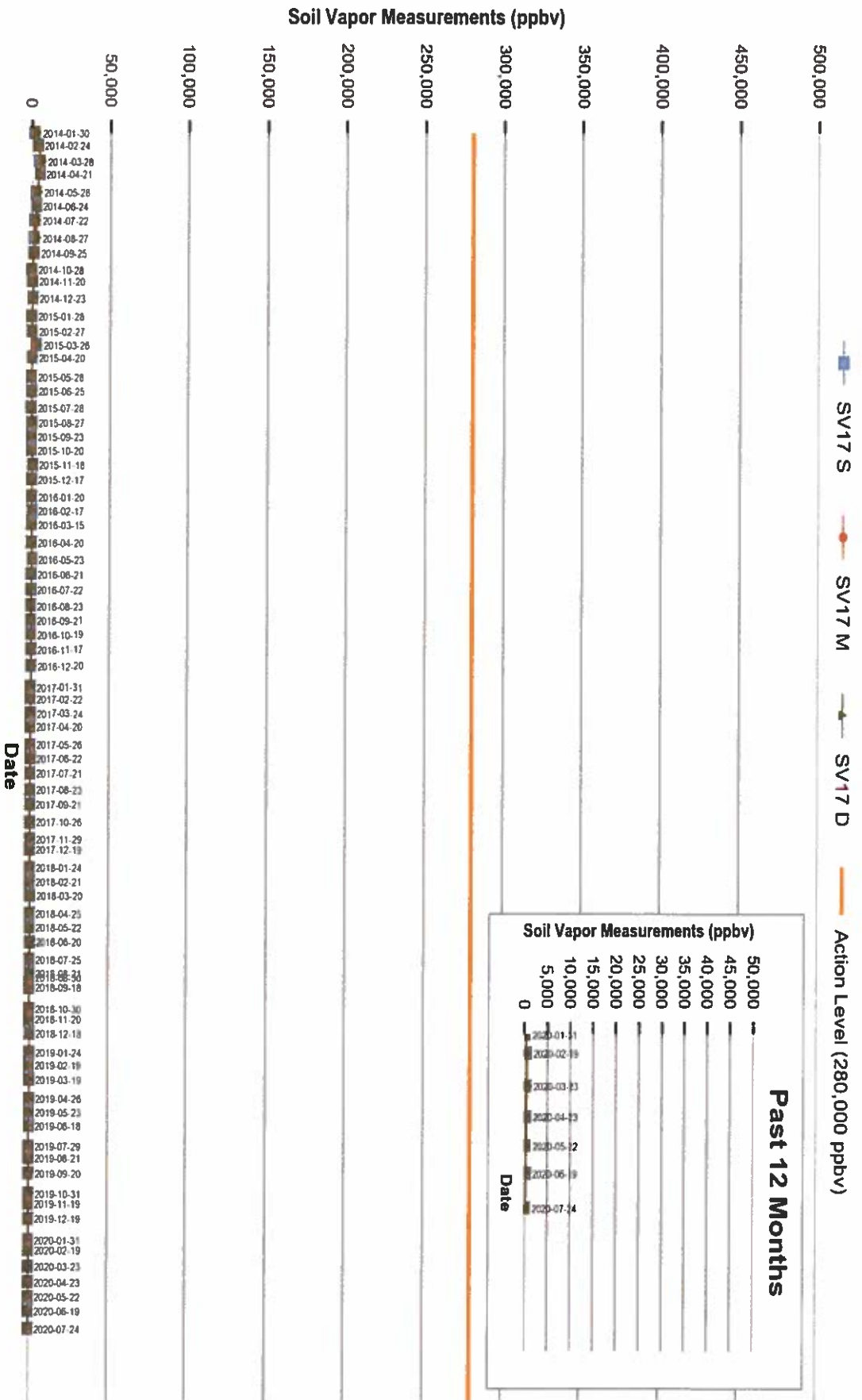
Figure 15
Red Hill - Tank 16 (F-76)
Soil Vapor Measurements (Jan 2014 Through Dec 2020)



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

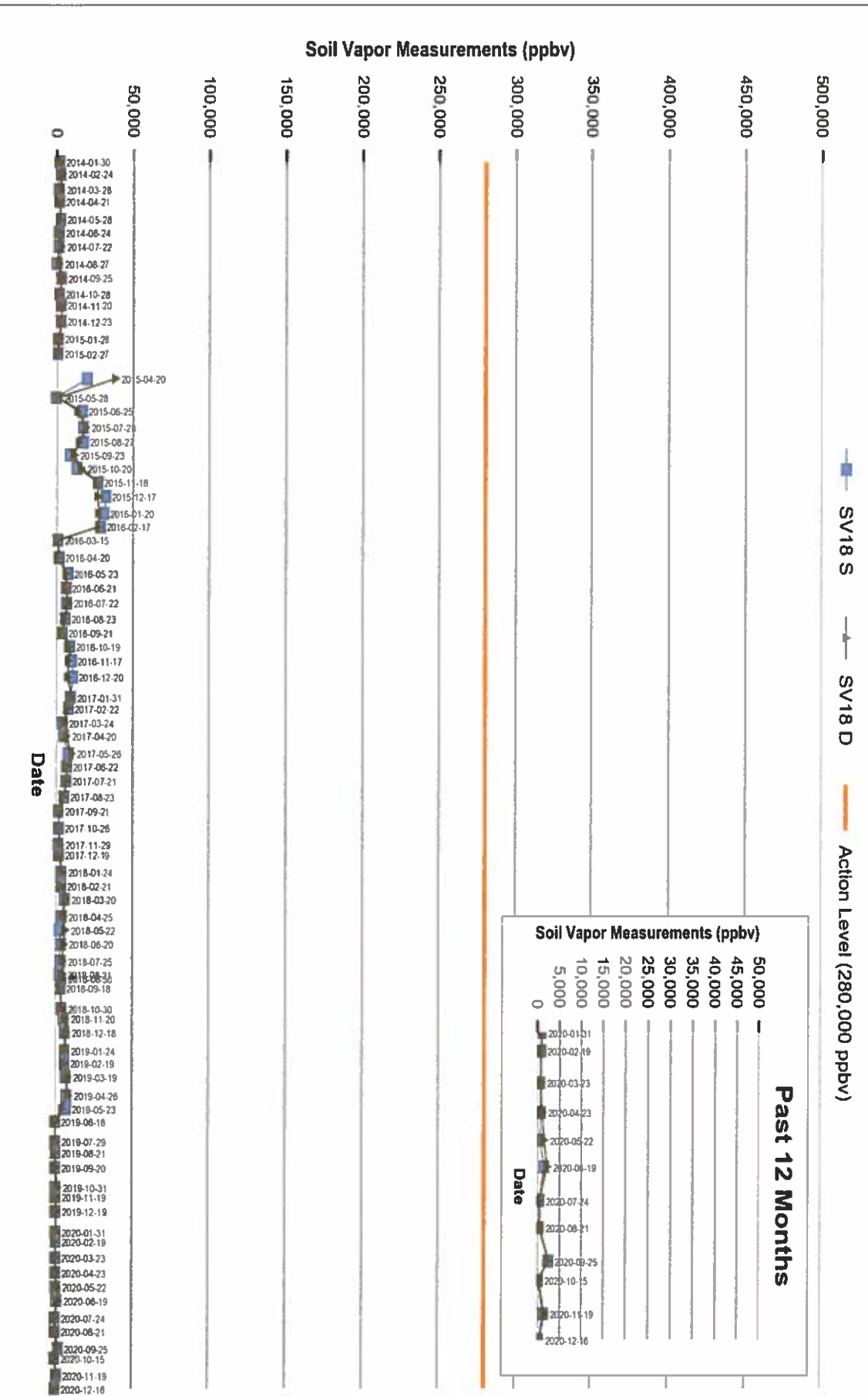
JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76

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



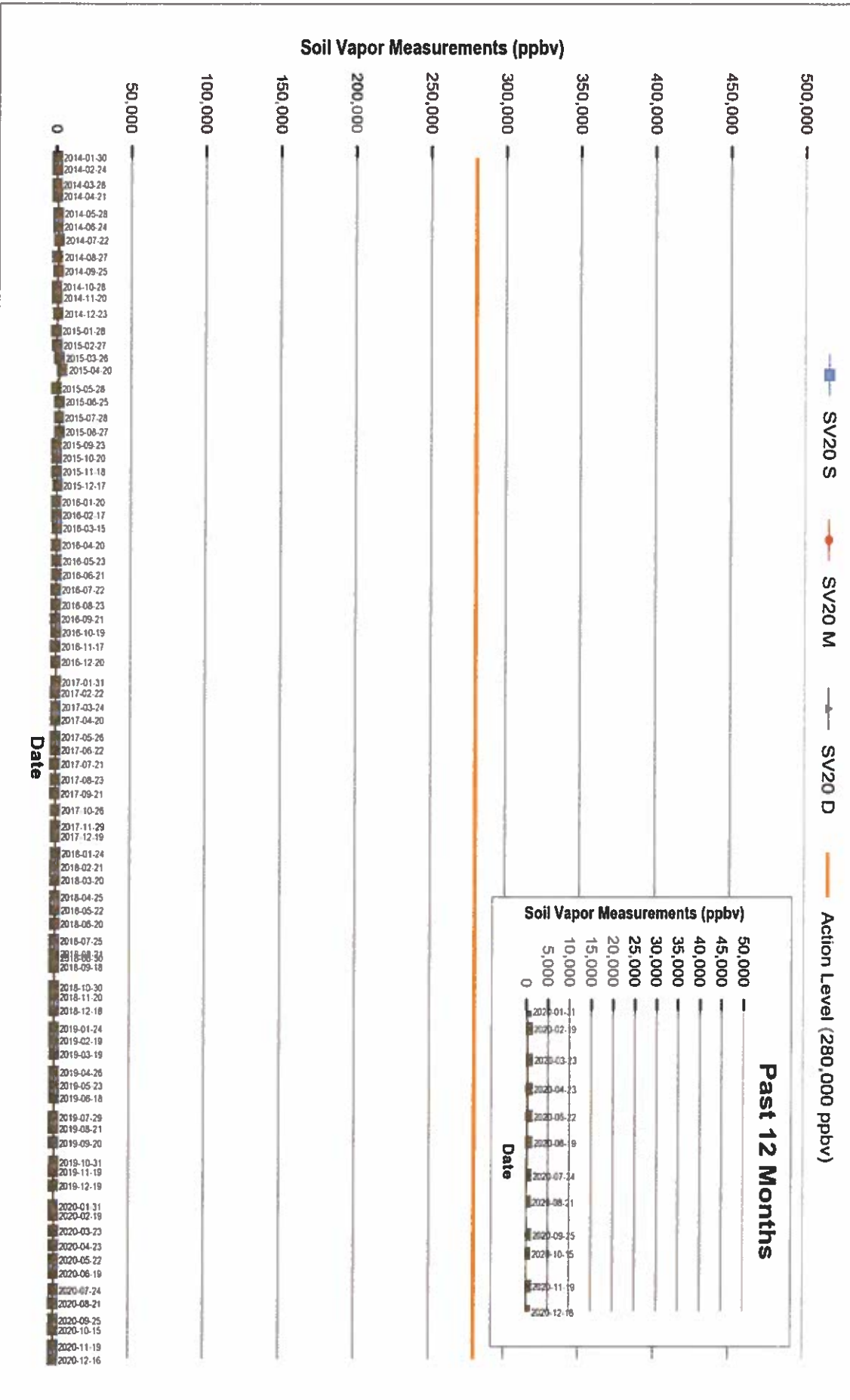
Notes (where applicable):
 ppbv: Parts Per Billion by Volume
 F-24: Jet Fuel, Fuel Number 24
 JP-5: Jet Fuel, Propellant Number 5
 F-76: Marine Diesel, Fuel Number 76
 Tank 17 is undergoing clean, inspect & repair (CIR) and has not been accessible during the August, September, October, November, and December monitoring events.

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