



**DEPARTMENT OF THE NAVY**  
COMMANDER  
NAVY REGION HAWAII  
850 TICONDEROGA ST STE 110  
JBPHH, HAWAII 96860-5101

APR 15 2021 *AA*

5000-45A  
N45  
April 12, 2021

**CERTIFIED NO: 9489 0090 0027 6232 2132 52**

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 MARCH 2021  
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 March 26, 2021. Tanks 1 and 19 are inactive and not included in the sampling network.

Soil vapor VOC concentrations were measured in the field using a photo-ionization detector. The soil vapor sampling results are presented graphically in 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 for SVMPs beneath tanks containing F-24 or JP-5 is 280,000 ppbv and 14,000 ppbv in SVMPs beneath tanks containing marine diesel fuel.

At Tank 5, the concentrations of VOCs detected in the front, middle and outer edge soil vapor monitoring probes were 0, 365, and 1,175 ppbv, respectively. VOC concentrations measured in all down-gradient tank soil vapor monitoring probes were 0 to 79 ppbv.

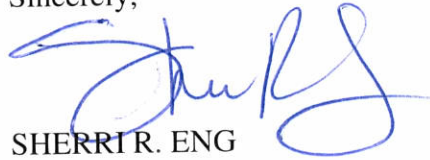
All other VOC concentrations measured in March were below the action levels, with no consistent trends observed.

Soil vapor VOC concentrations will continue to be monitored on a monthly basis. The next soil vapor sampling event is scheduled for the week of April 19, 2021, and will include collecting samples from soil vapor monitoring probes beneath all active and accessible tanks.

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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,

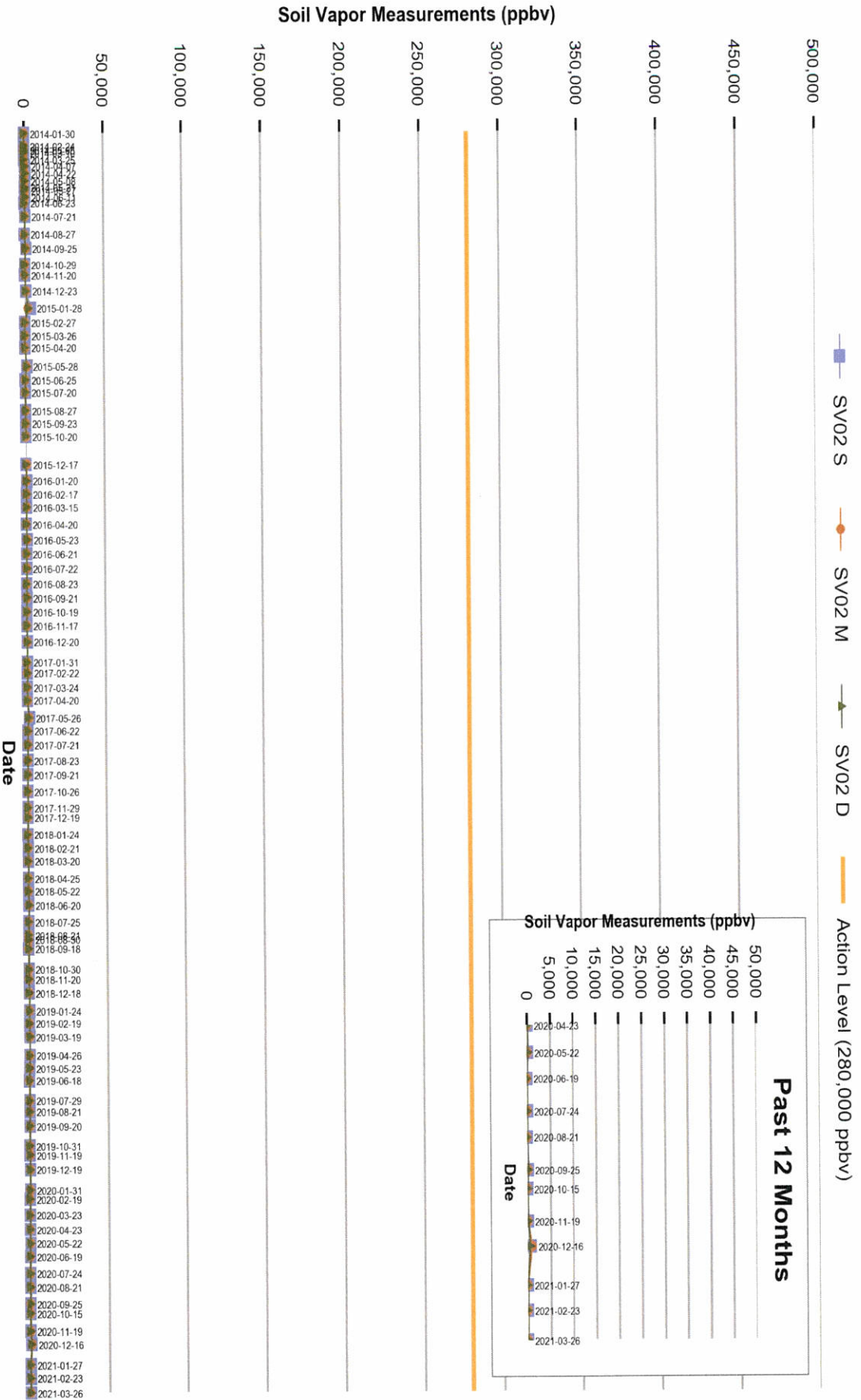


SHERRIL R. ENG  
Director  
Regional Environmental Department  
By direction of the  
Commander

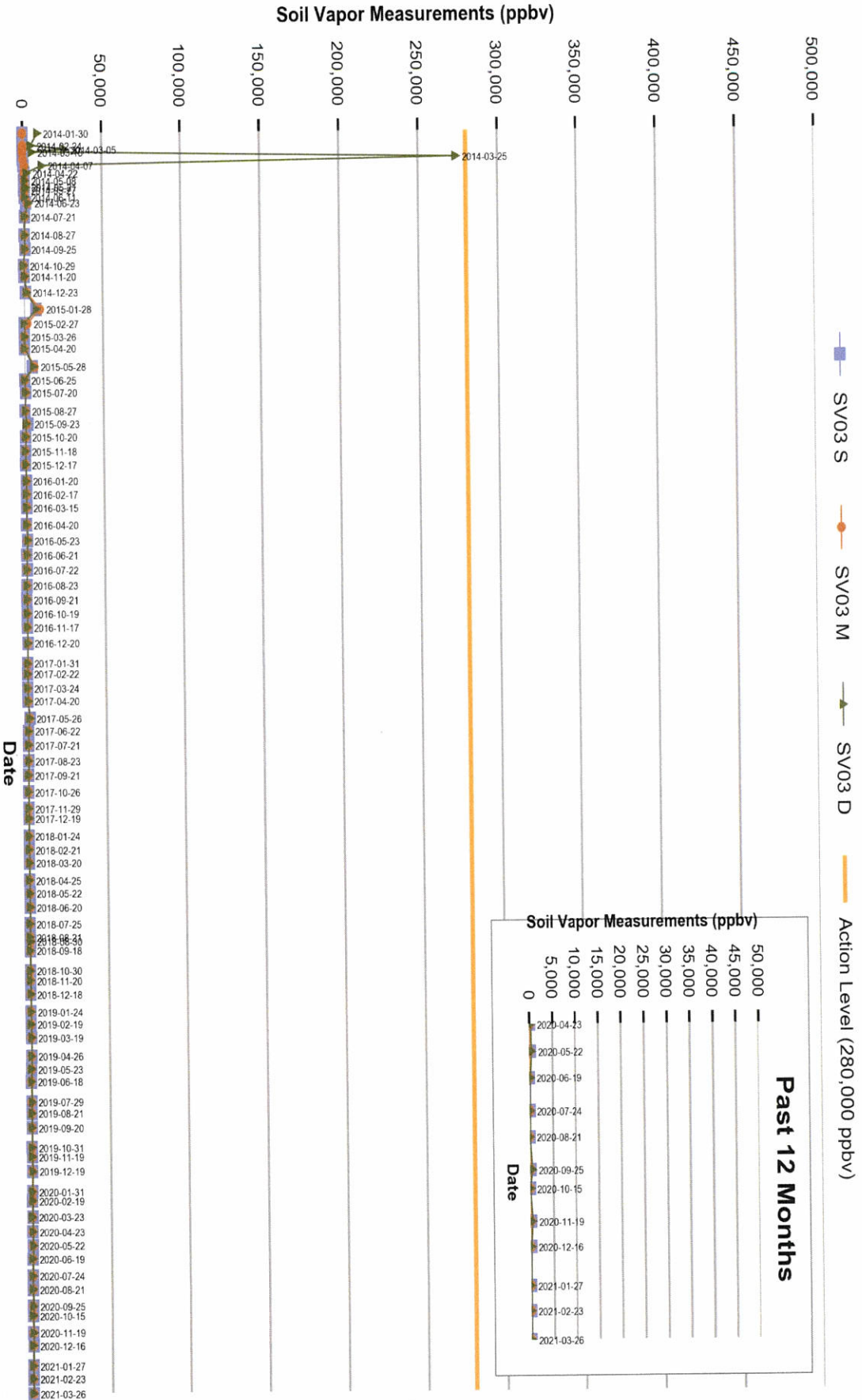
Enclosure: Graphical Summary of Soil Vapor Sampling Results for Tanks 2 - 18 and 20  
Data represented through March 2021 (18 pages)

Copies 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 Mar 2021)**



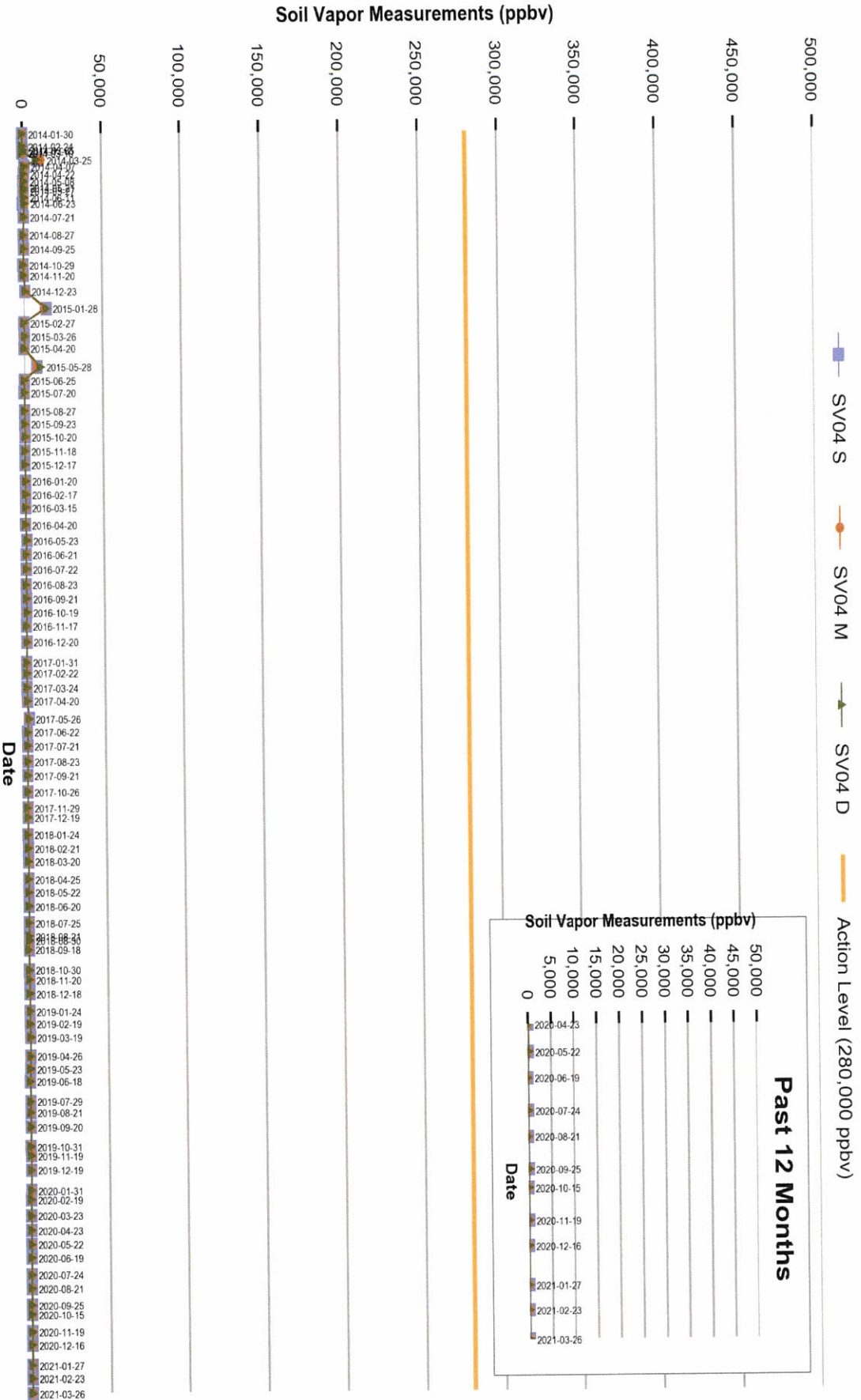
**Figure 2**  
**Red Hill - Tank 03 (F-24)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

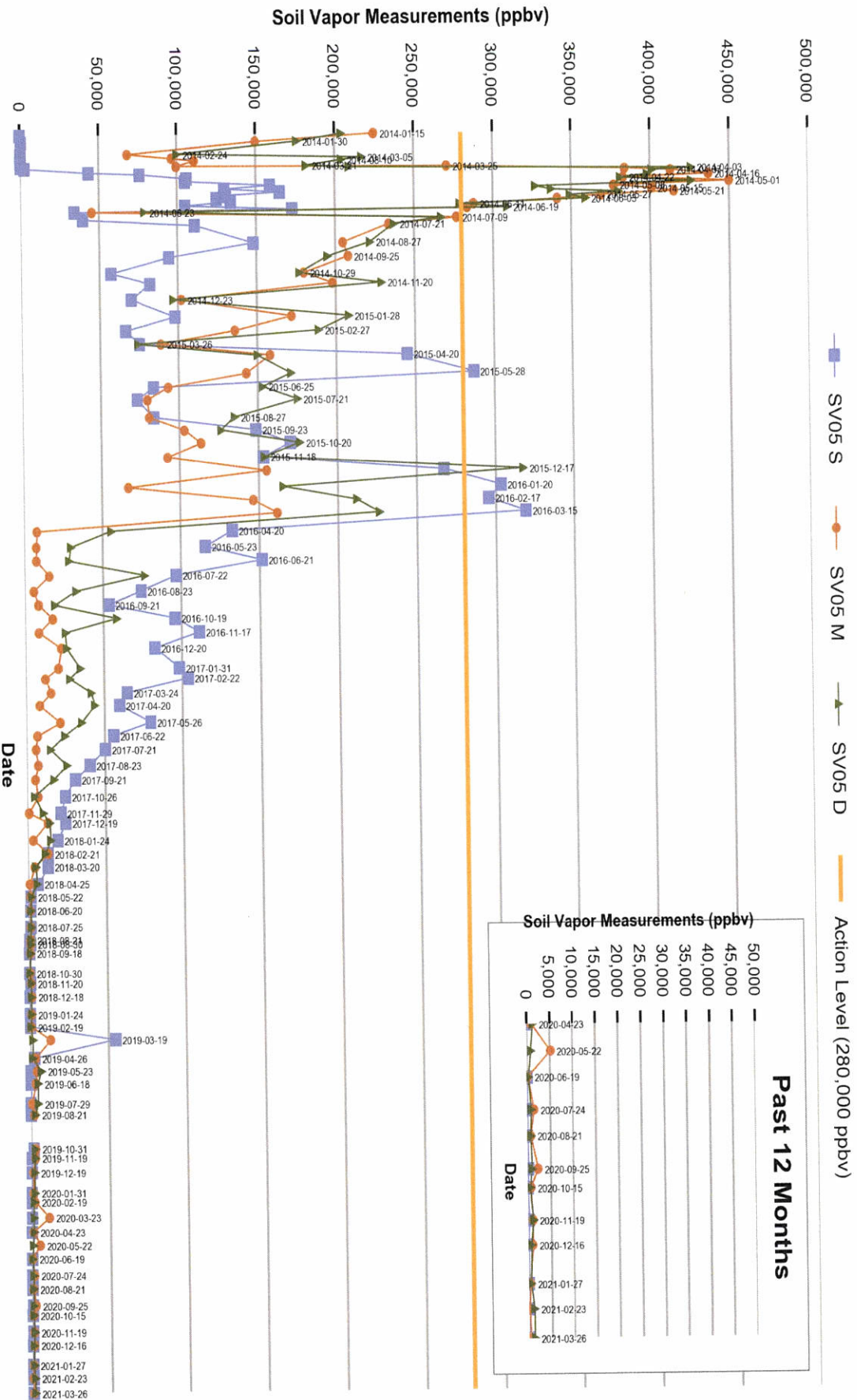
**Figure 3**  
**Red Hill - Tank 04 (F-24)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

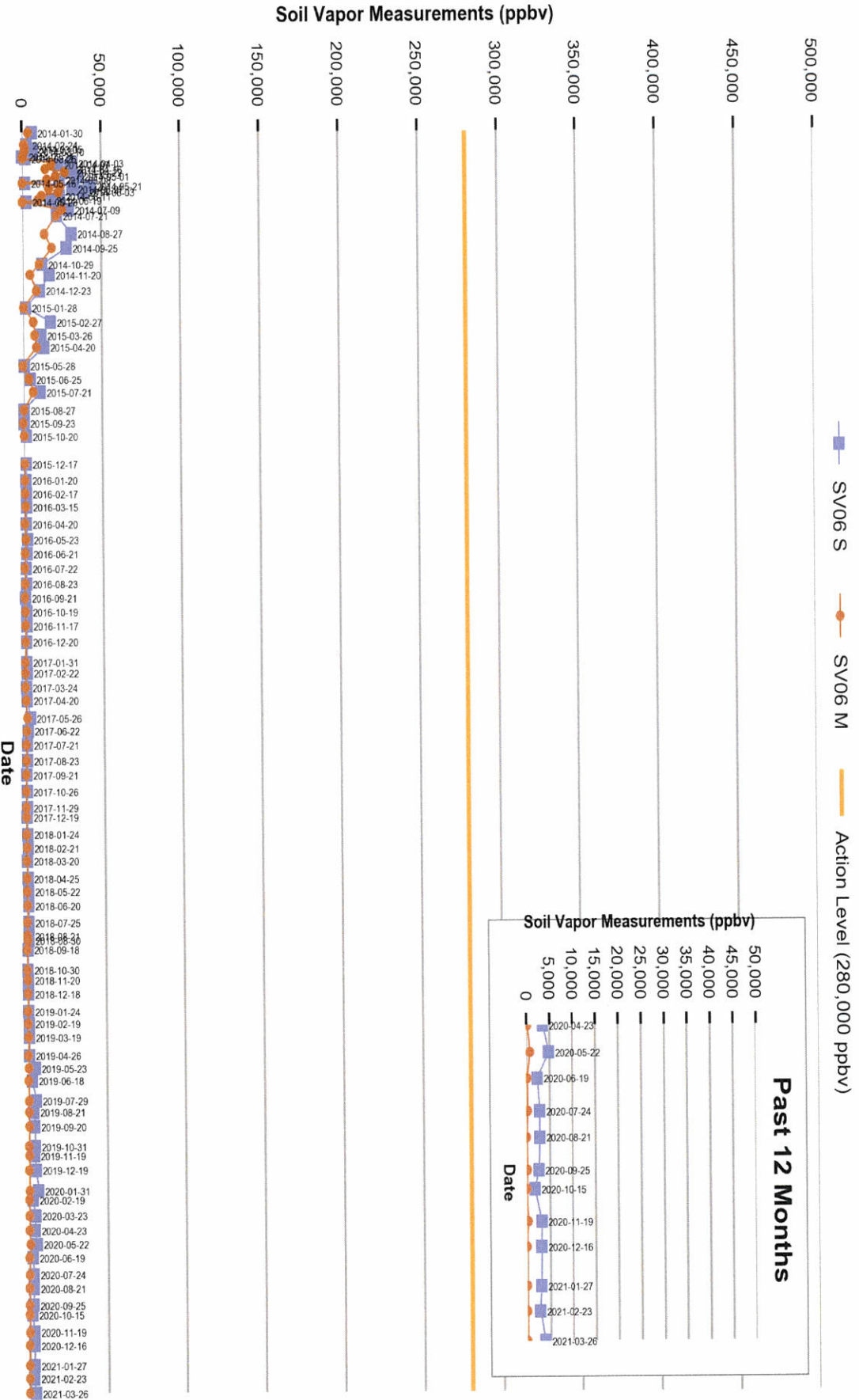
**Figure 4**  
**Red Hill - Tank 05 (F-24)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

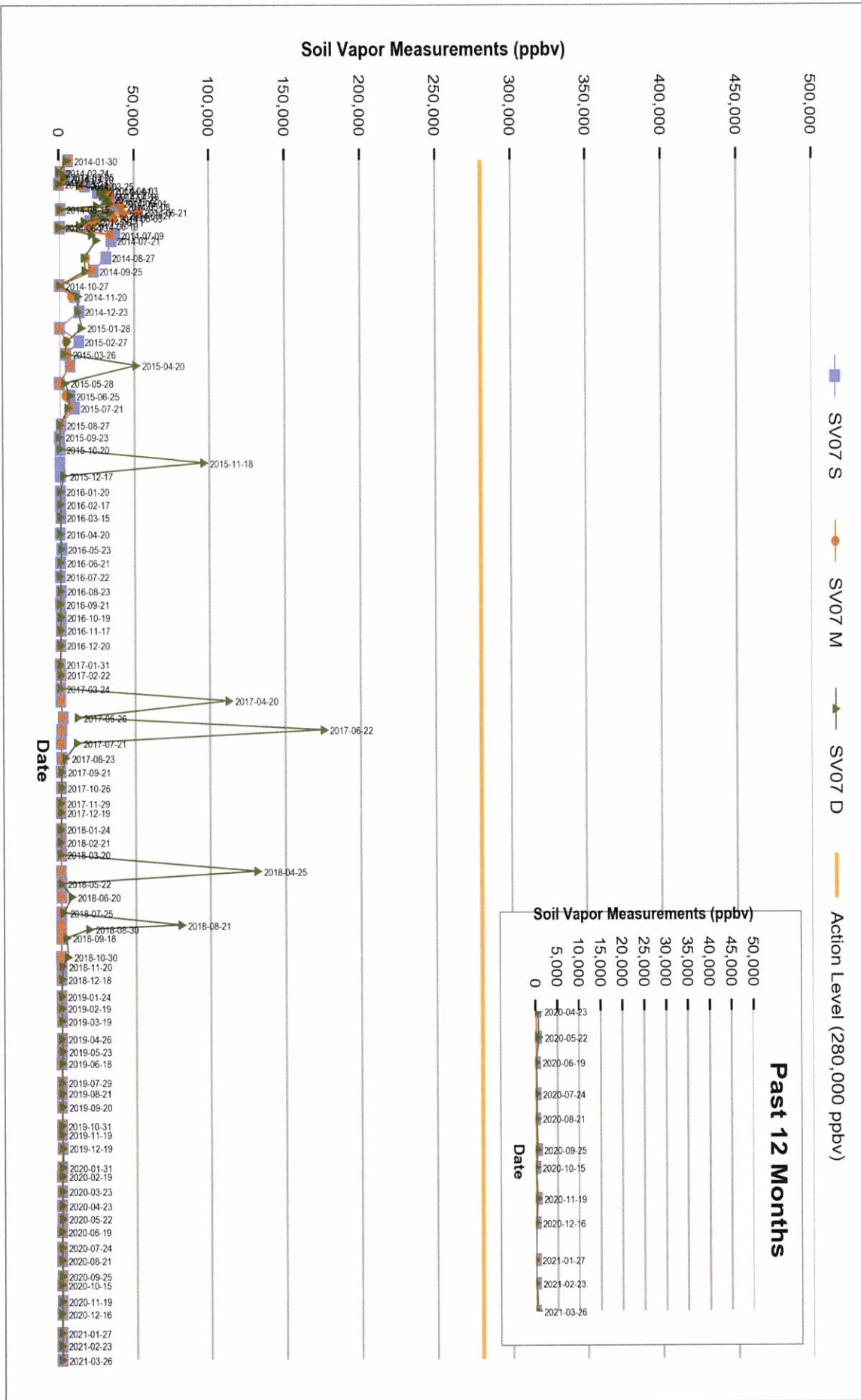
**Figure 5**  
**Red Hill - Tank 06 (F-24)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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 Mar 2021)**

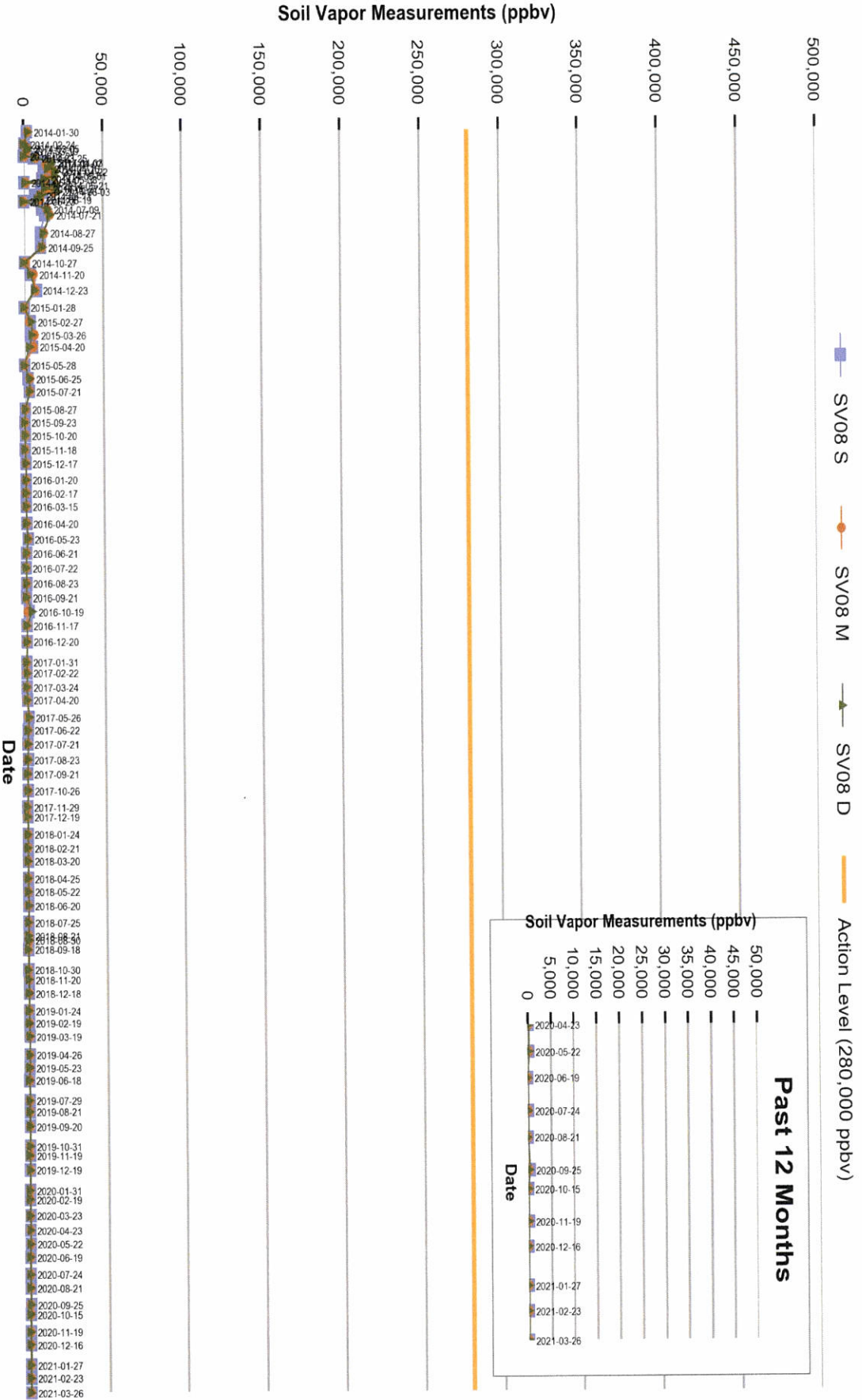


Notes (where applicable):  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24

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



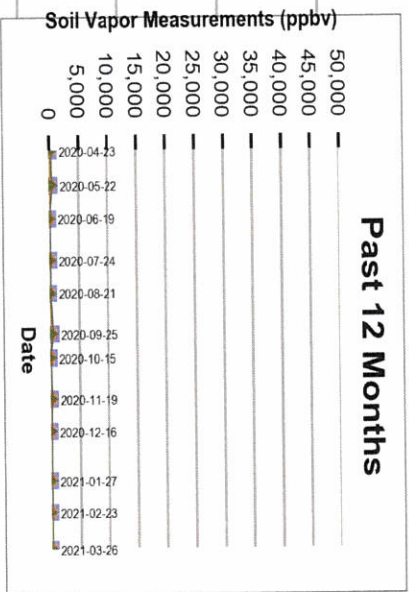
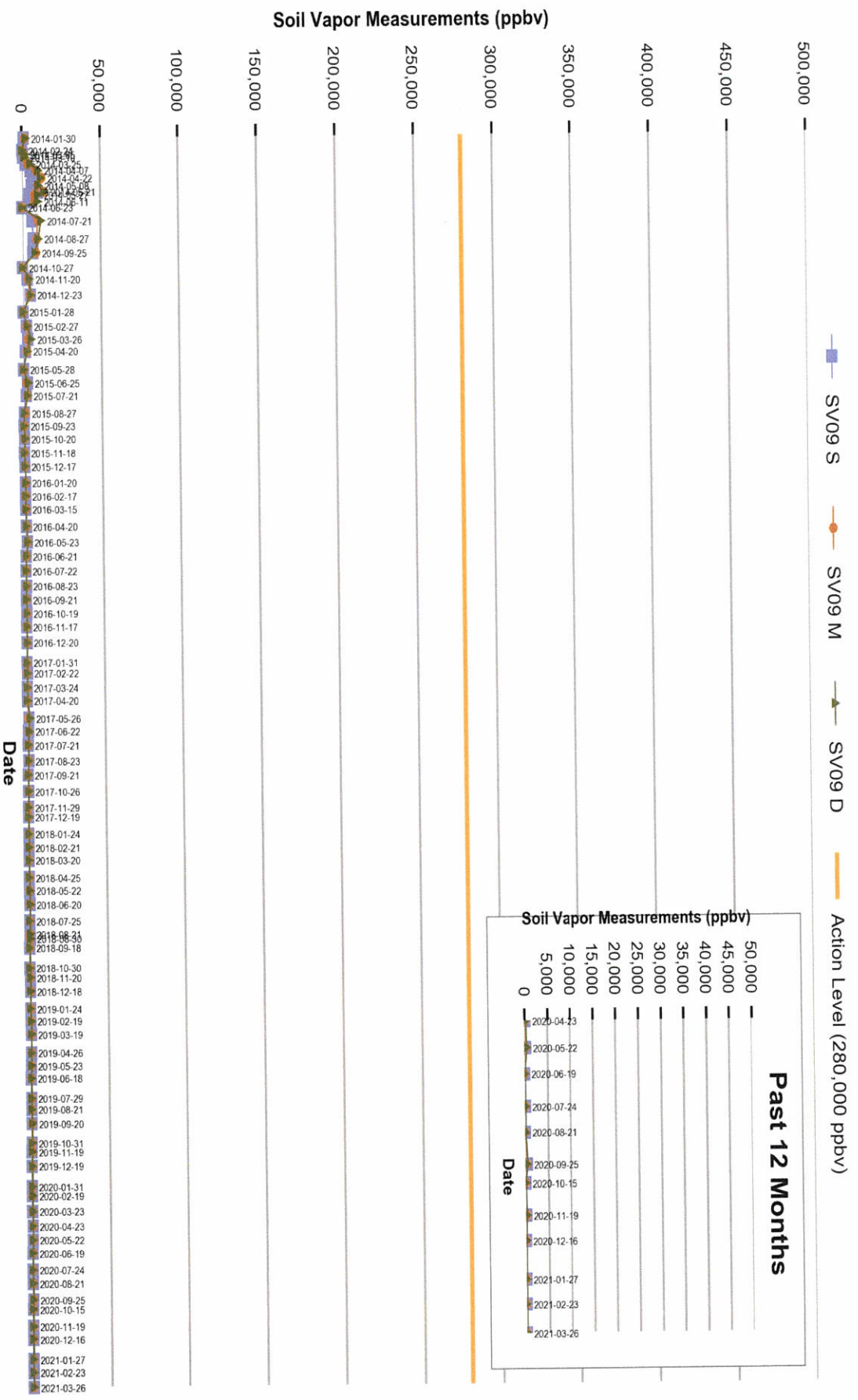
**Figure 7**  
**Red Hill - Tank 08 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

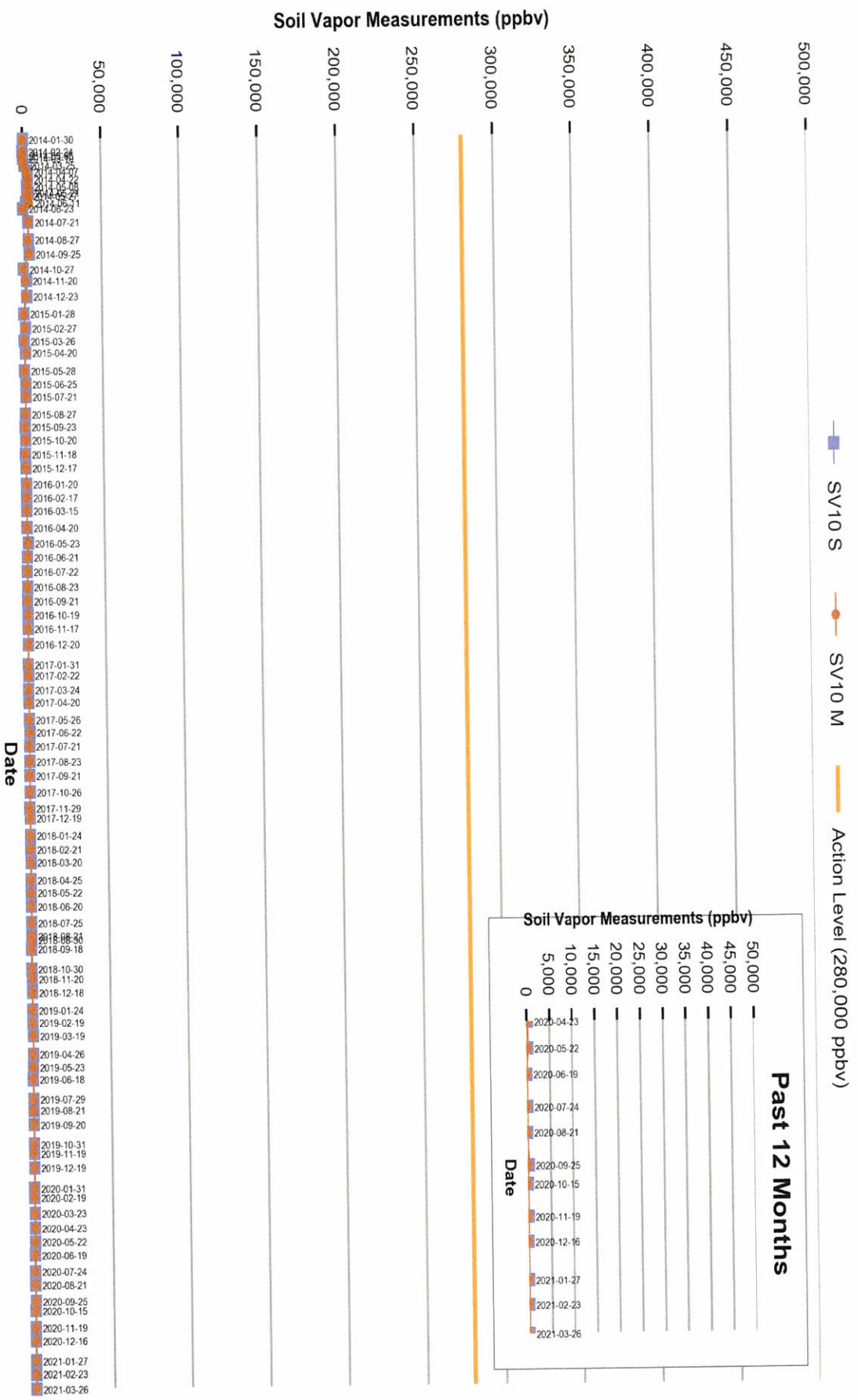
**Figure 8**  
**Red Hill - Tank 09 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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 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

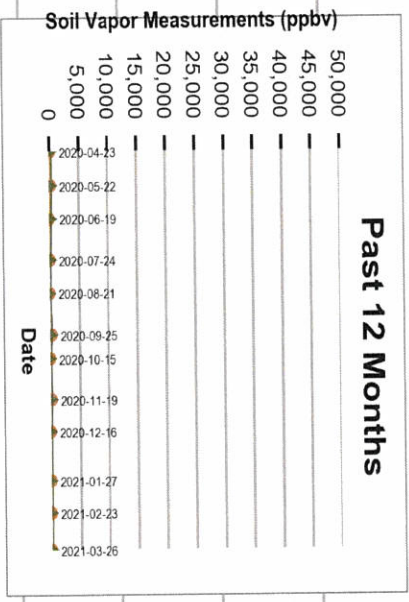
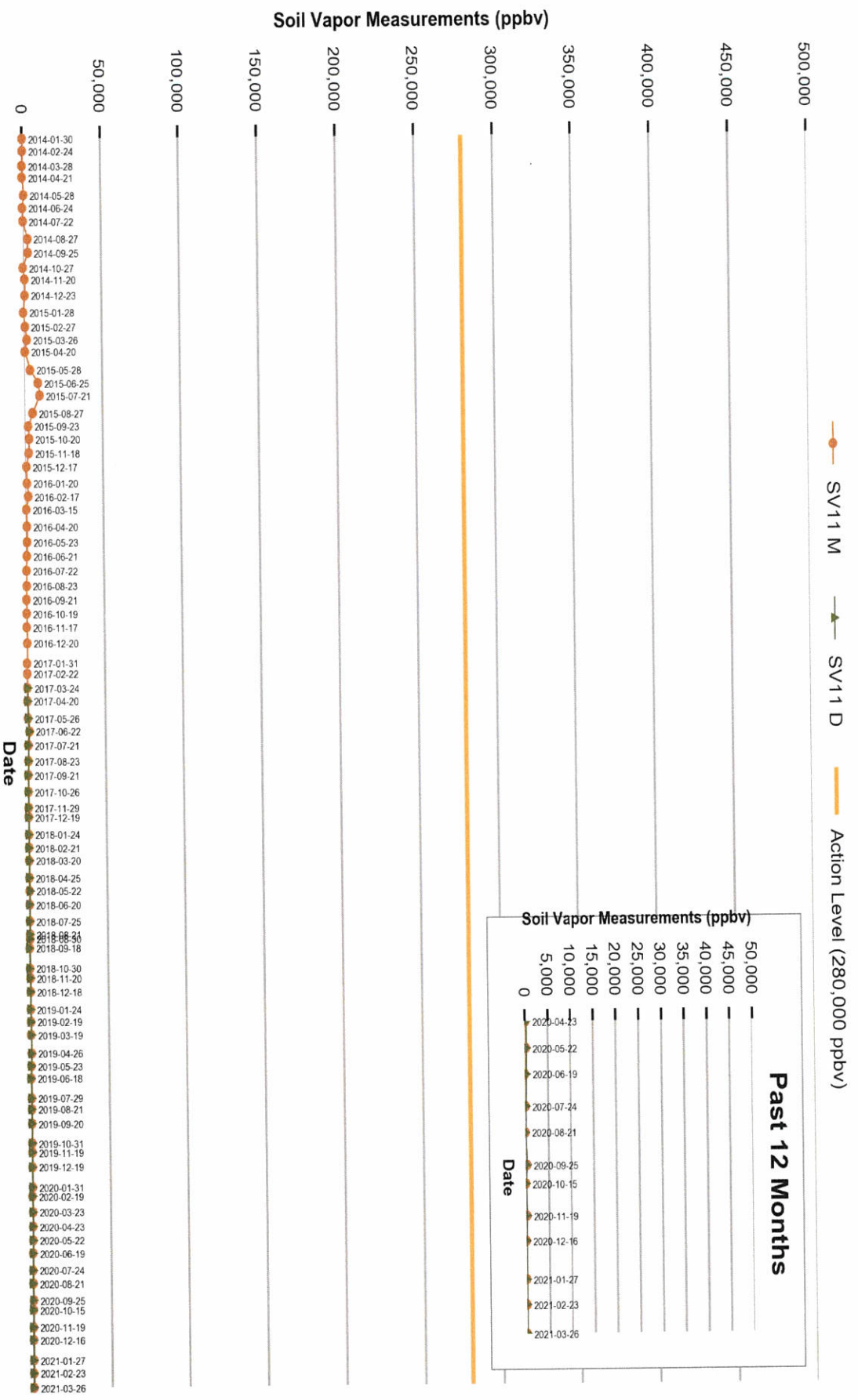
**Figure 9**  
**Red Hill - Tank 10 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

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 F-76: Marine Diesel, Fuel Number 76

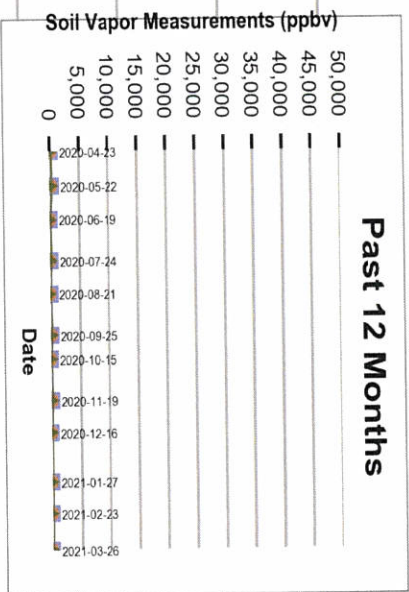
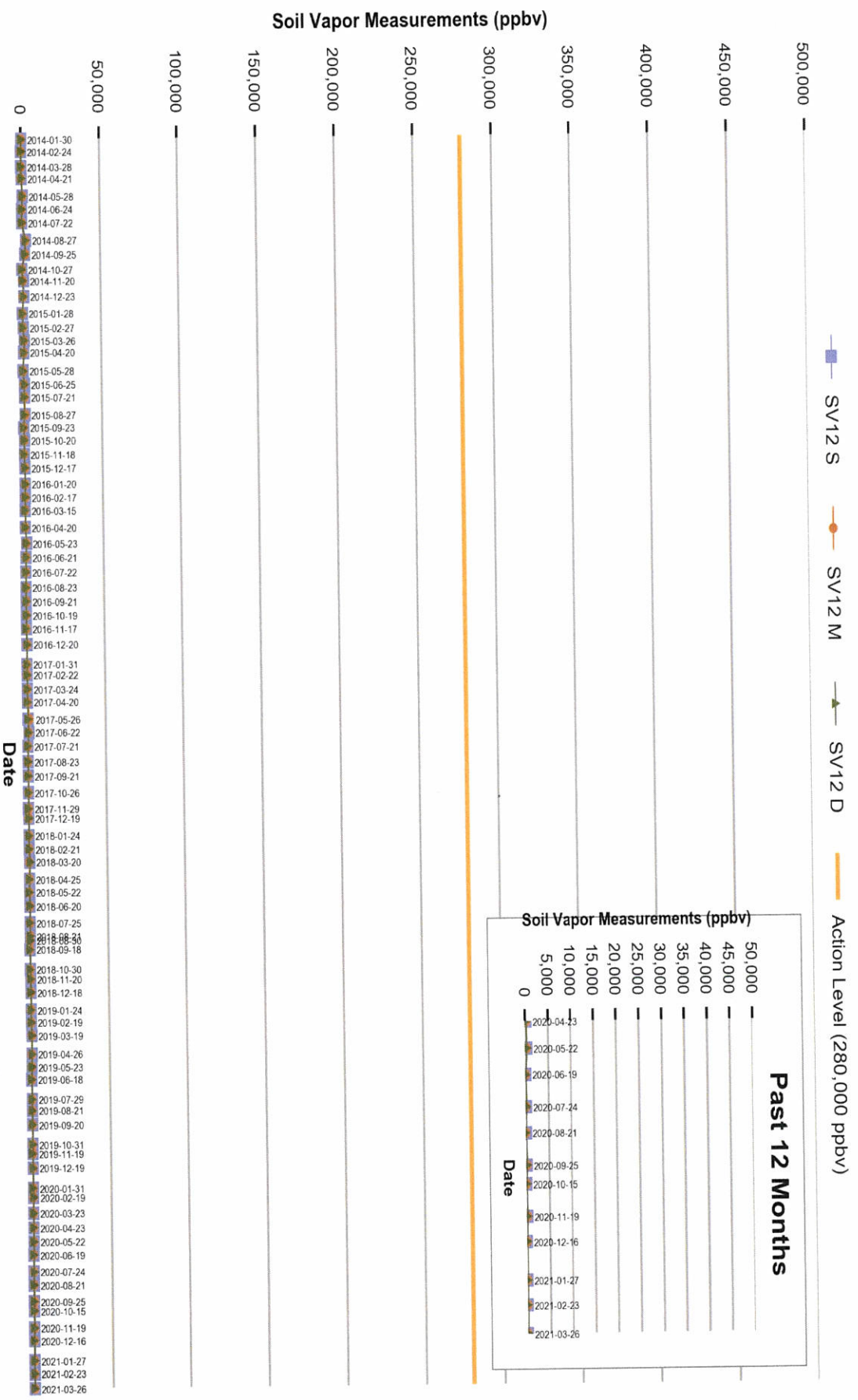
**Figure 10**  
**Red Hill - Tank 11 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

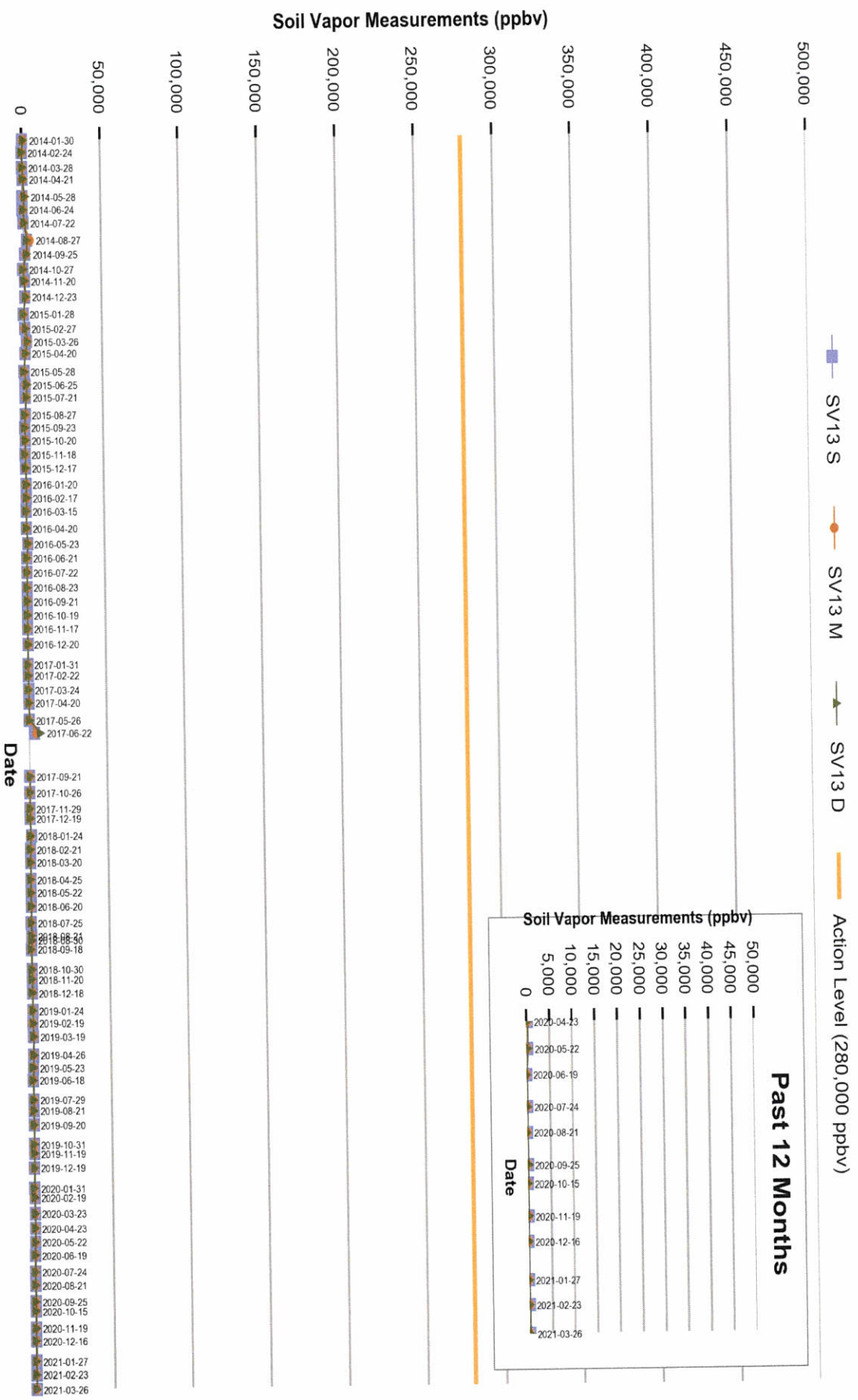
**Figure 11**  
**Red Hill - Tank 12 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

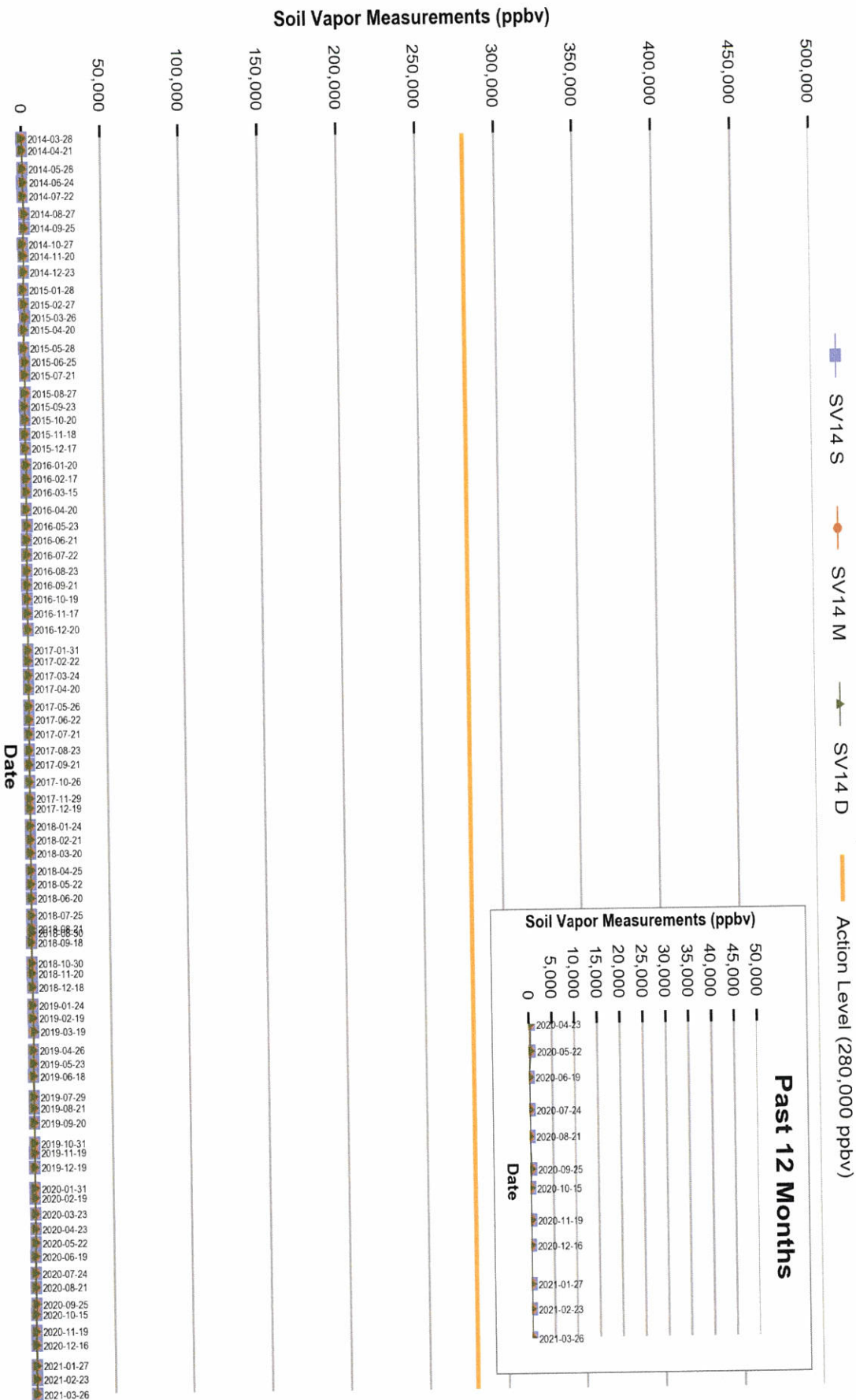
**Figure 12**  
**Red Hill - Tank 13 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

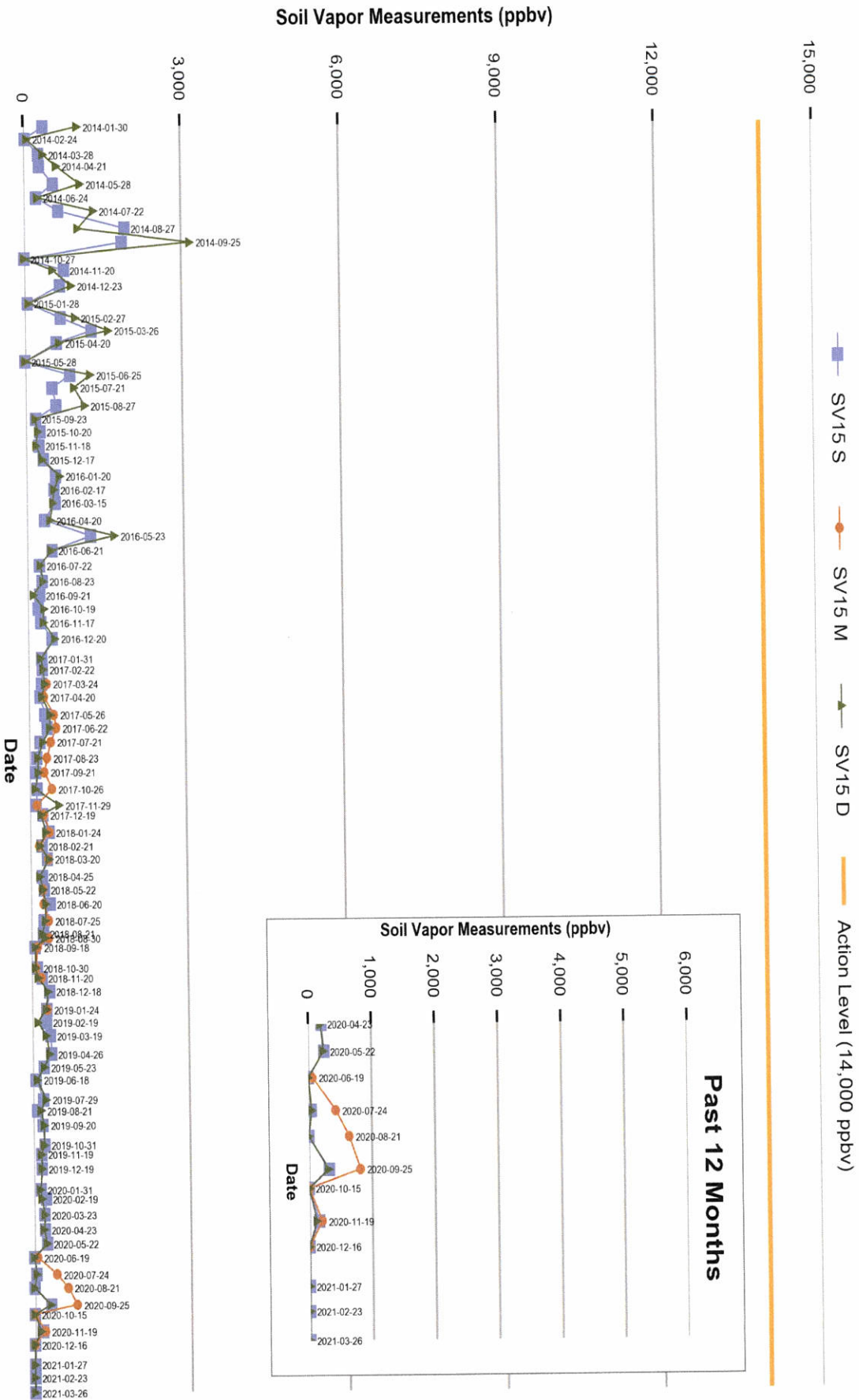
**Figure 13**  
**Red Hill - Tank 14 (JP-5)**  
**Soil Vapor Measurements (Mar 2014 Through Mar 2021)**



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 Mar 2021)**

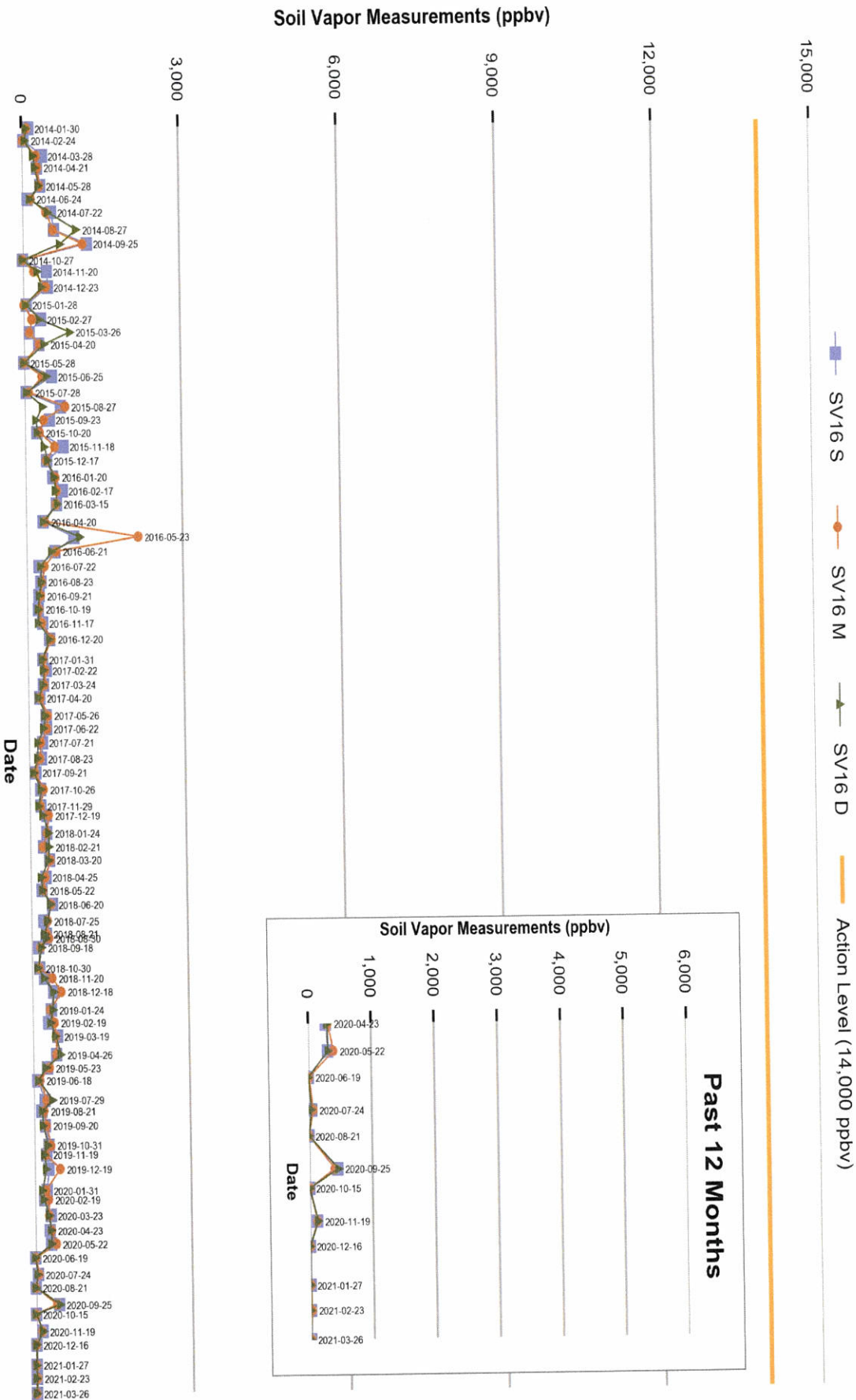


Notes (where applicable):  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24

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



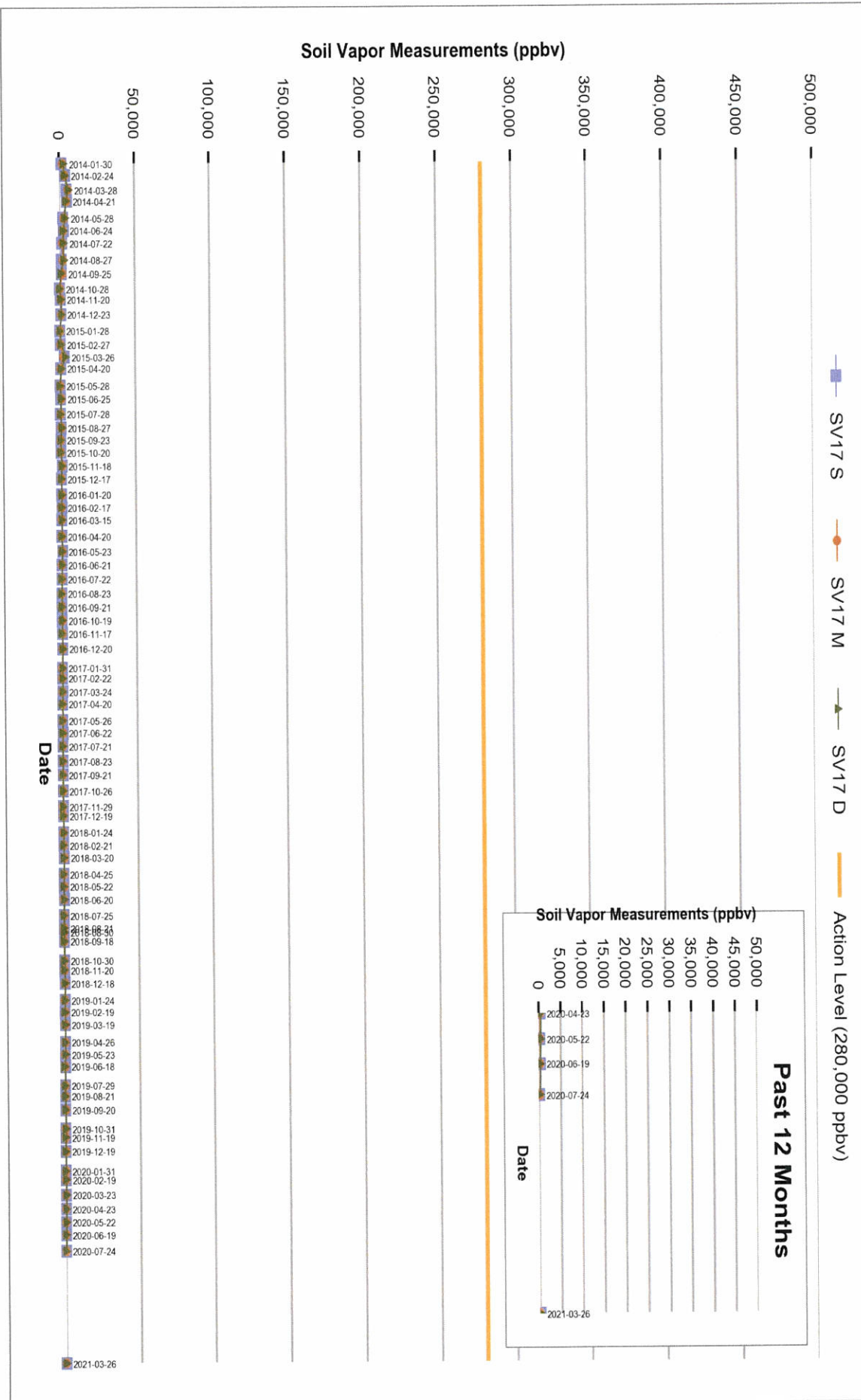
**Figure 15**  
**Red Hill - Tank 16 (F-76)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

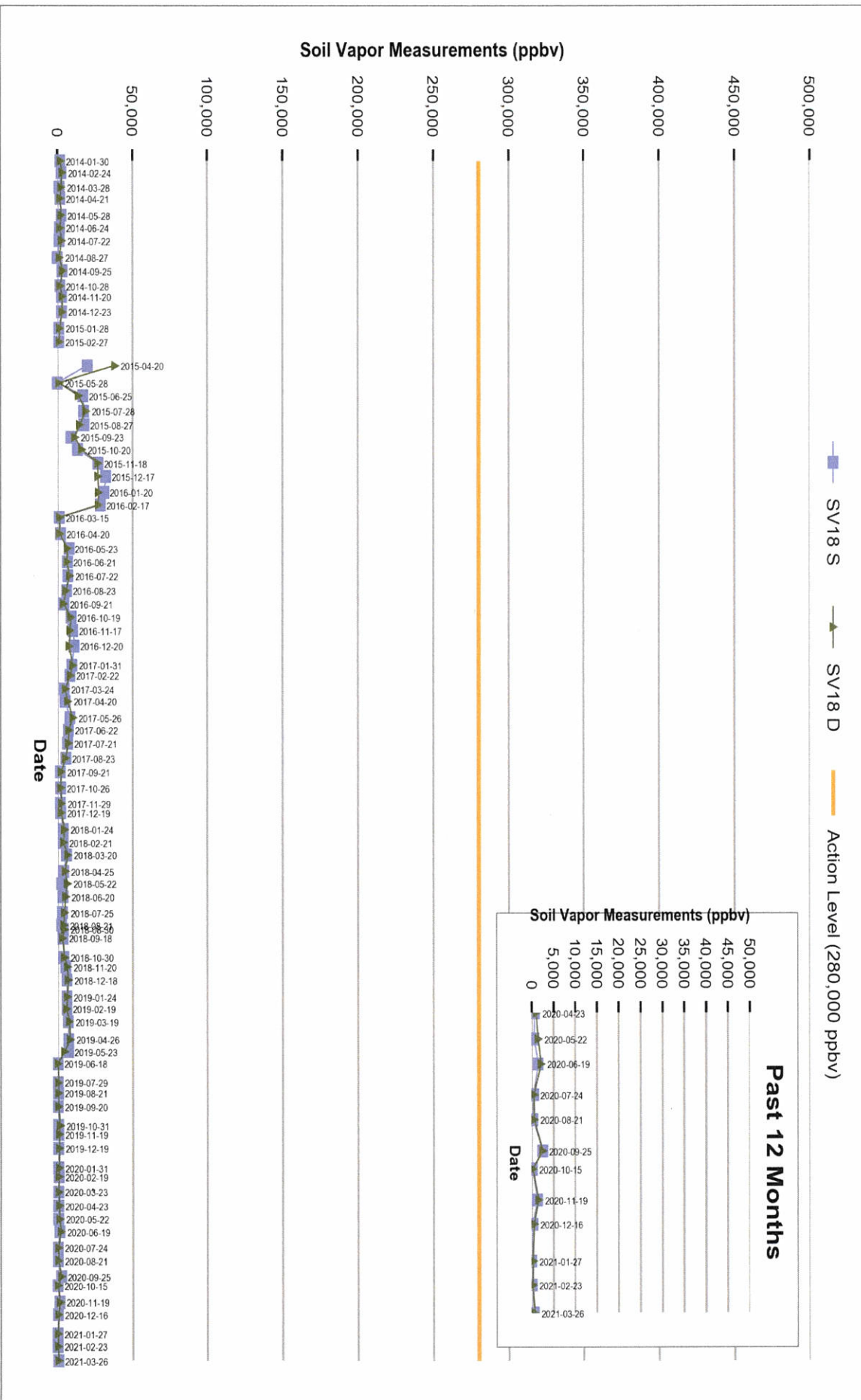
**Figure 16**  
**Red Hill - Tank 17 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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

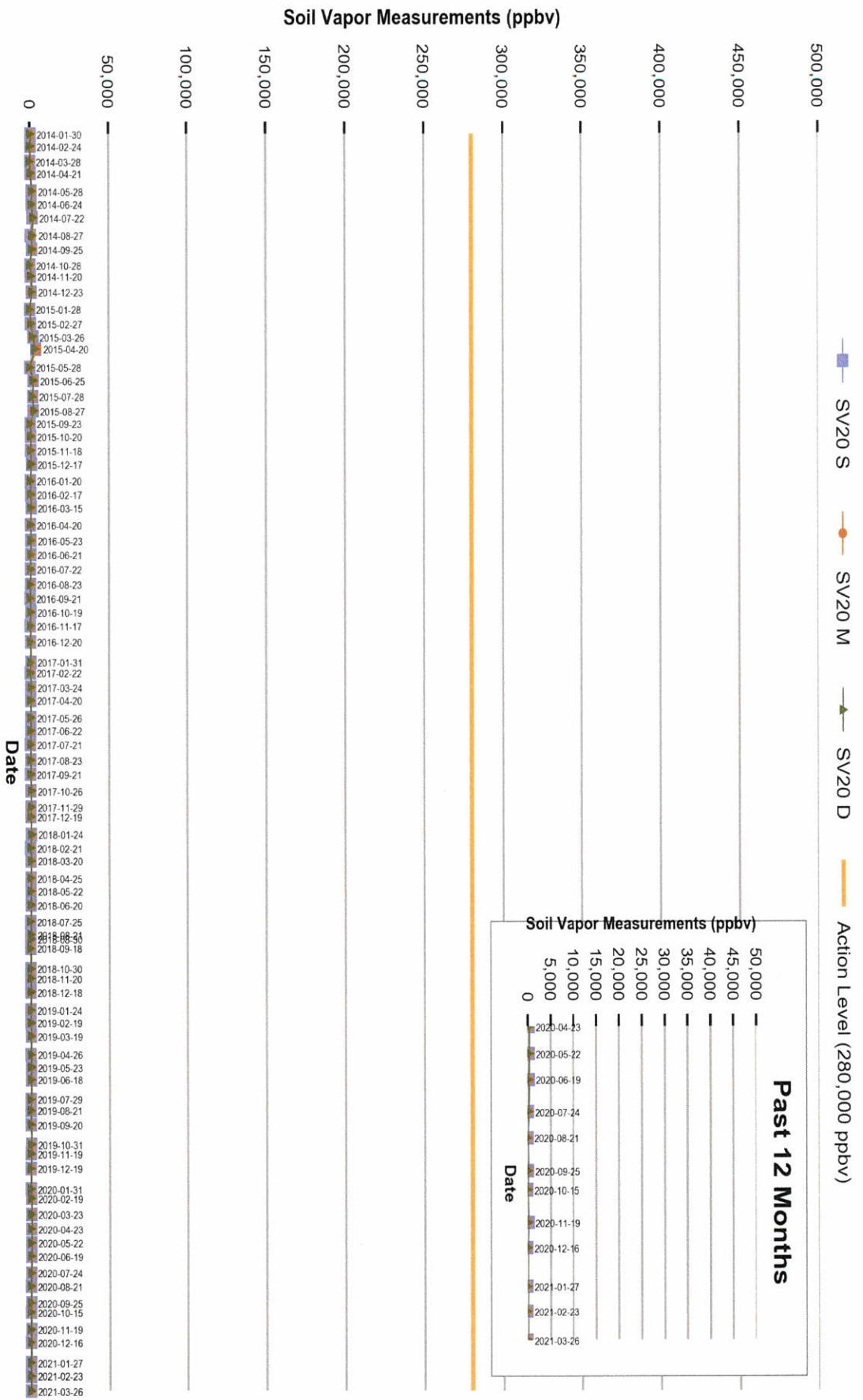
**Figure 17**  
**Red Hill - Tank 18 (JP-5)**  
**Soil Vapor Measurements (Jan 2014 Through Mar 2021)**



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 Mar 2021)**



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