



DEPARTMENT OF THE NAVY

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

AUG 27 2020

5000-45A  
N45  
August 19, 2020

**CERTIFIED NO: 7015 0640 0002 4678 0417**

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 JULY  
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 July 24, 2020.

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

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

At Tank 5, the concentrations of VOCs detected in the front, middle and outer edge soil vapor monitoring probes were 92, 1480, and 855 ppbv, respectively. VOC concentrations in all down-gradient soil vapor monitors were below 101 ppbv.

All other VOC concentrations measured in July were about 32 to 4,200 times below the action levels, with no consistent trends observed.

Soil vapor VOC concentration trends will continue to be monitored. The next soil vapor sampling event is scheduled for August 2020, and will include collecting samples from soil vapor monitoring probes beneath all active and accessible tanks.

5000-45A  
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If there are any questions regarding this matter, or if more information is needed, please contact Mr. Cory Waki at (808) 471-3866.

Sincerely,

**Darrel**  
**Frame**

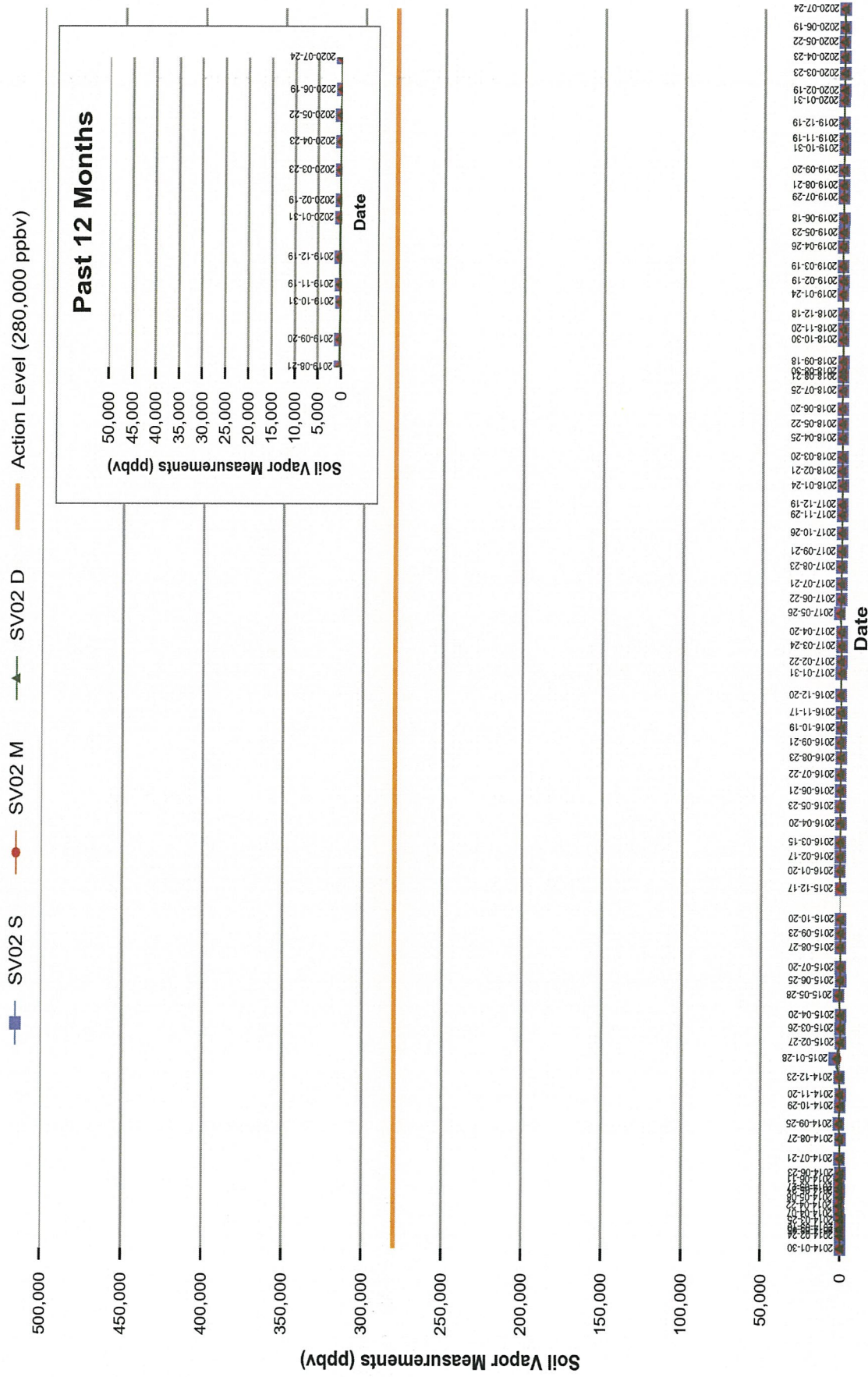
Digitally signed  
by Darrel Frame  
Date: 2020.08.19  
17:27:44 -10'00'

DARREL E. FRAME  
CDR, CEC, USN  
Acting Director  
Regional Environmental Department  
By direction of the  
Commander

Enclosure: 1. Summary of Soil Vapor Sampling Results for Tanks 2 through 18 and 20 through July 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

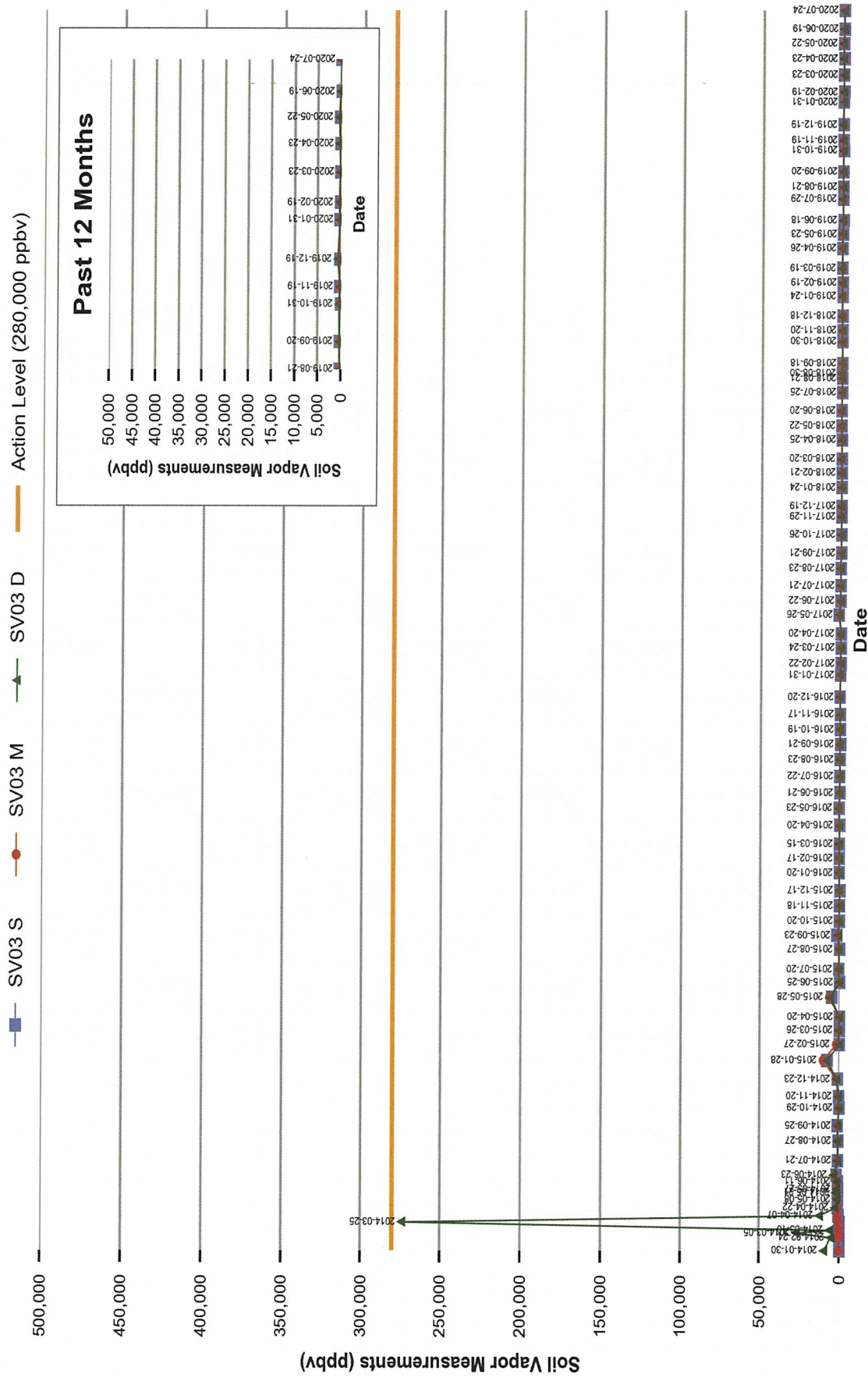
**Figure 1**  
**Soil Vapor Measurements - SV02 (F-24)**



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

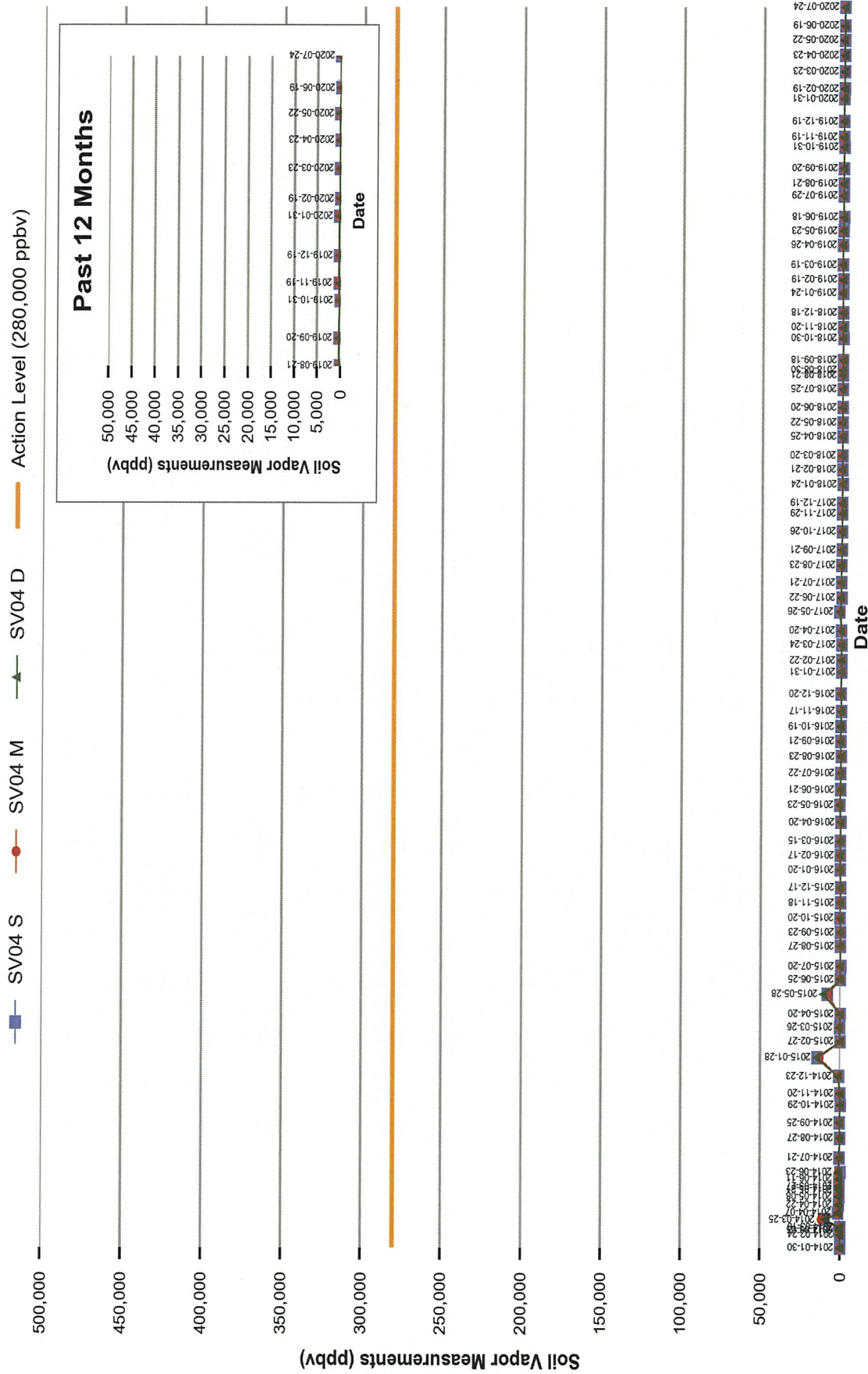
**Figure 2**  
**Soil Vapor Measurements - SV03 (F-24)**



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  
Soil Vapor Measurements - SV04 (F-24)**



Notes (where applicable):

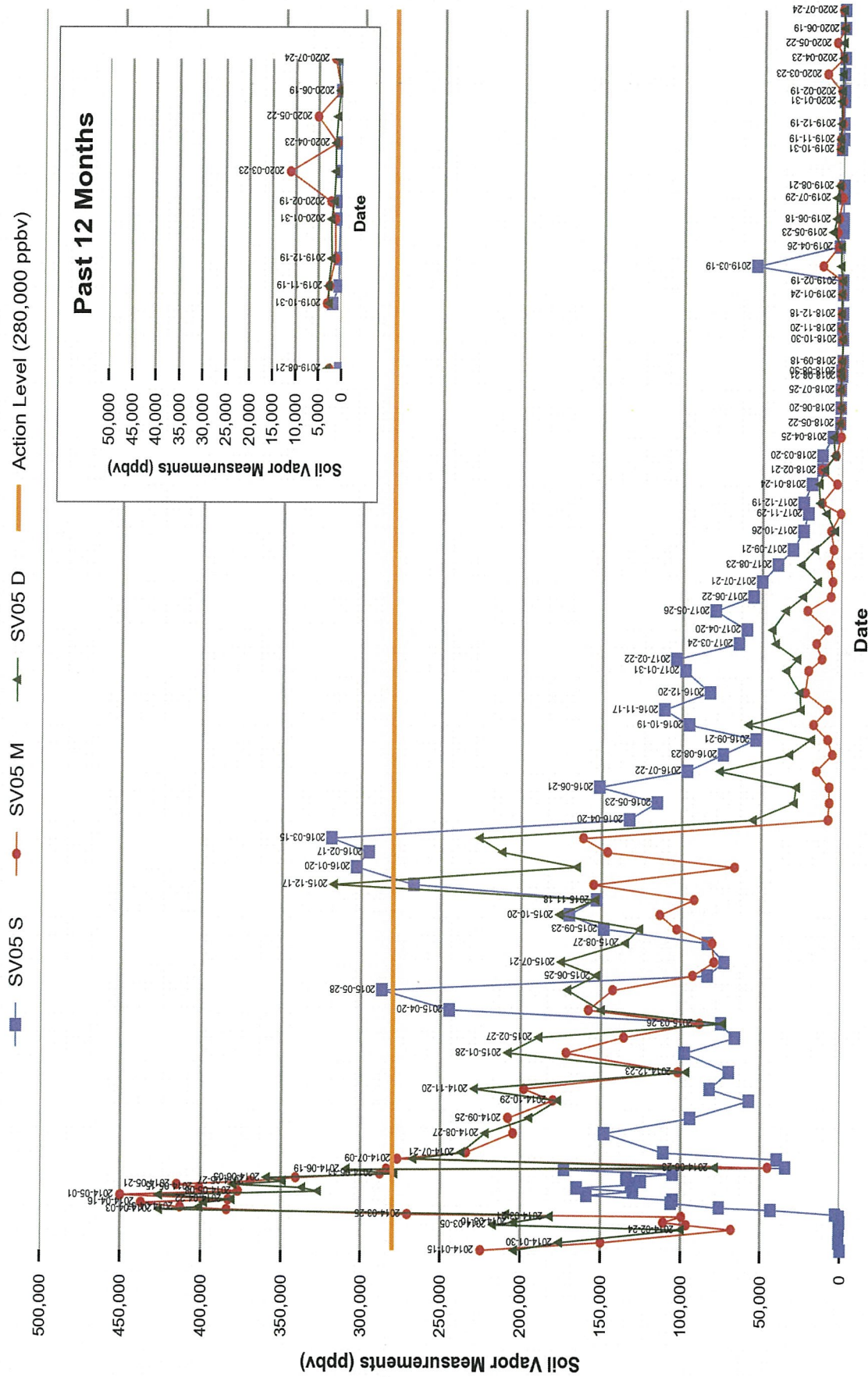
ppbv: Parts Per Billion by Volume

F-24: Jet Fuel, Fuel Number 24

JP-5: Jet Fuel, Propellant Number 5

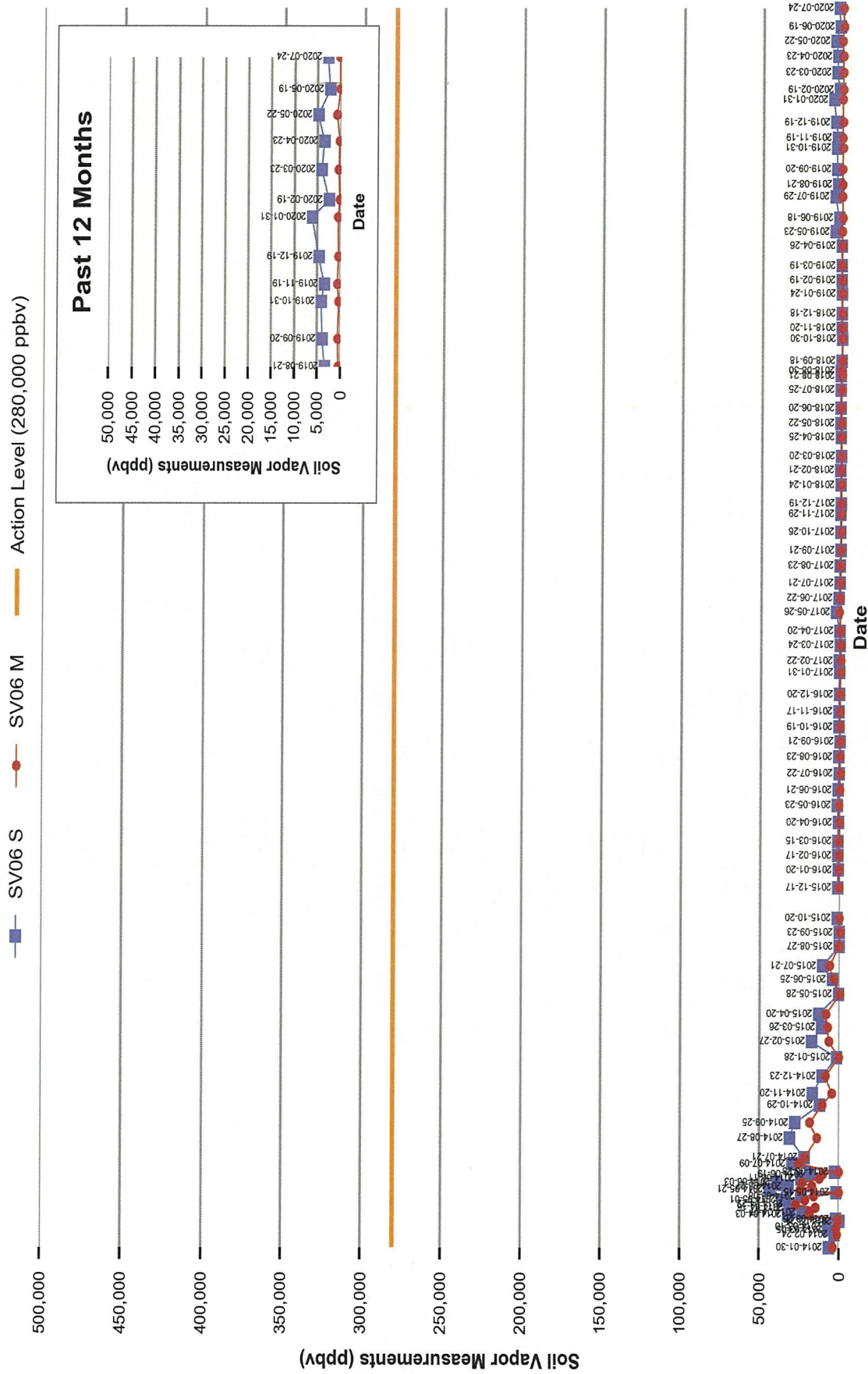
F-76: Marine Diesel, Fuel Number 76

**Figure 4**  
**Soil Vapor Measurements - SV05 (F-24)**



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

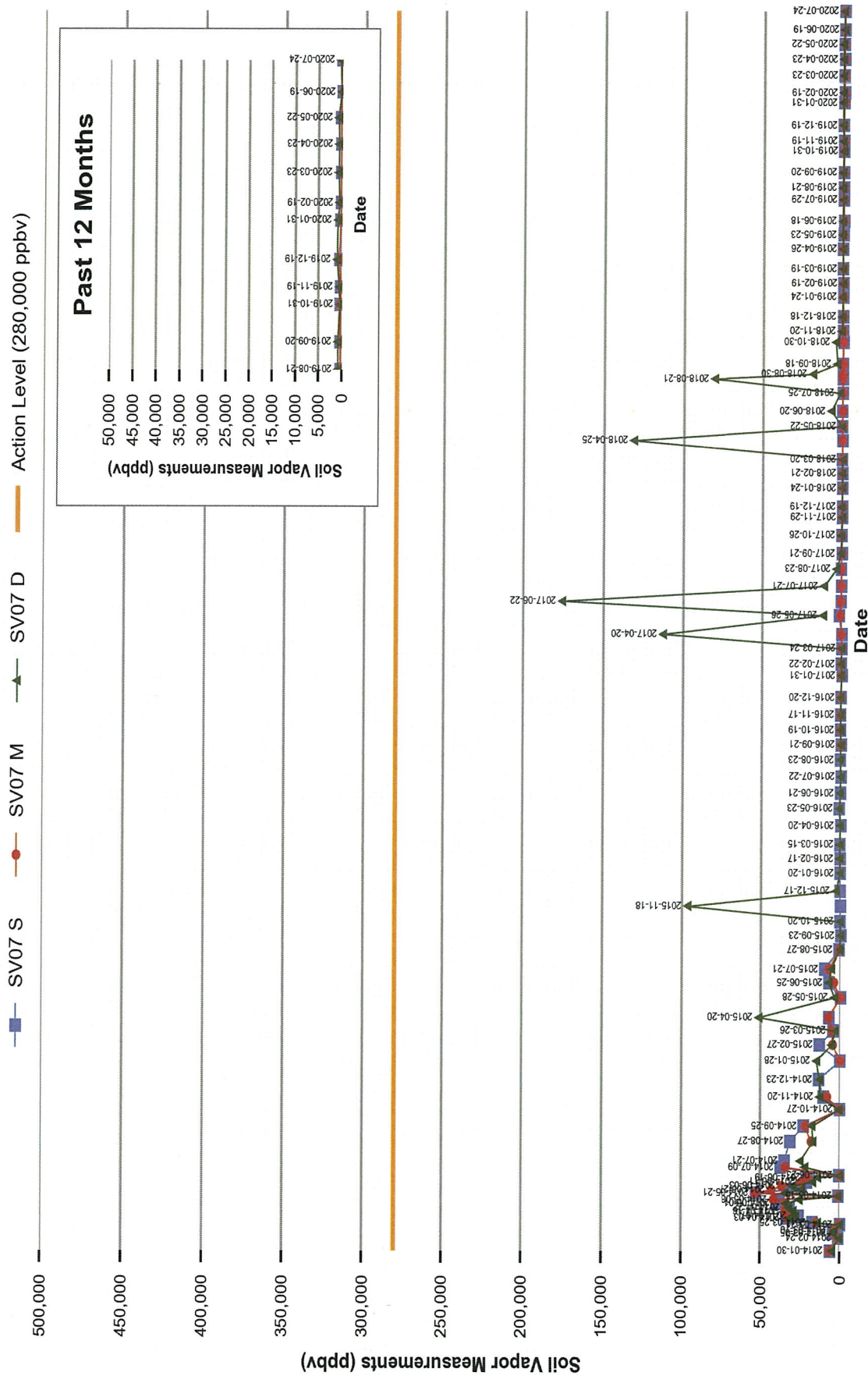
**Figure 5**  
**Soil Vapor Measurements - SV06 (F-24)**



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

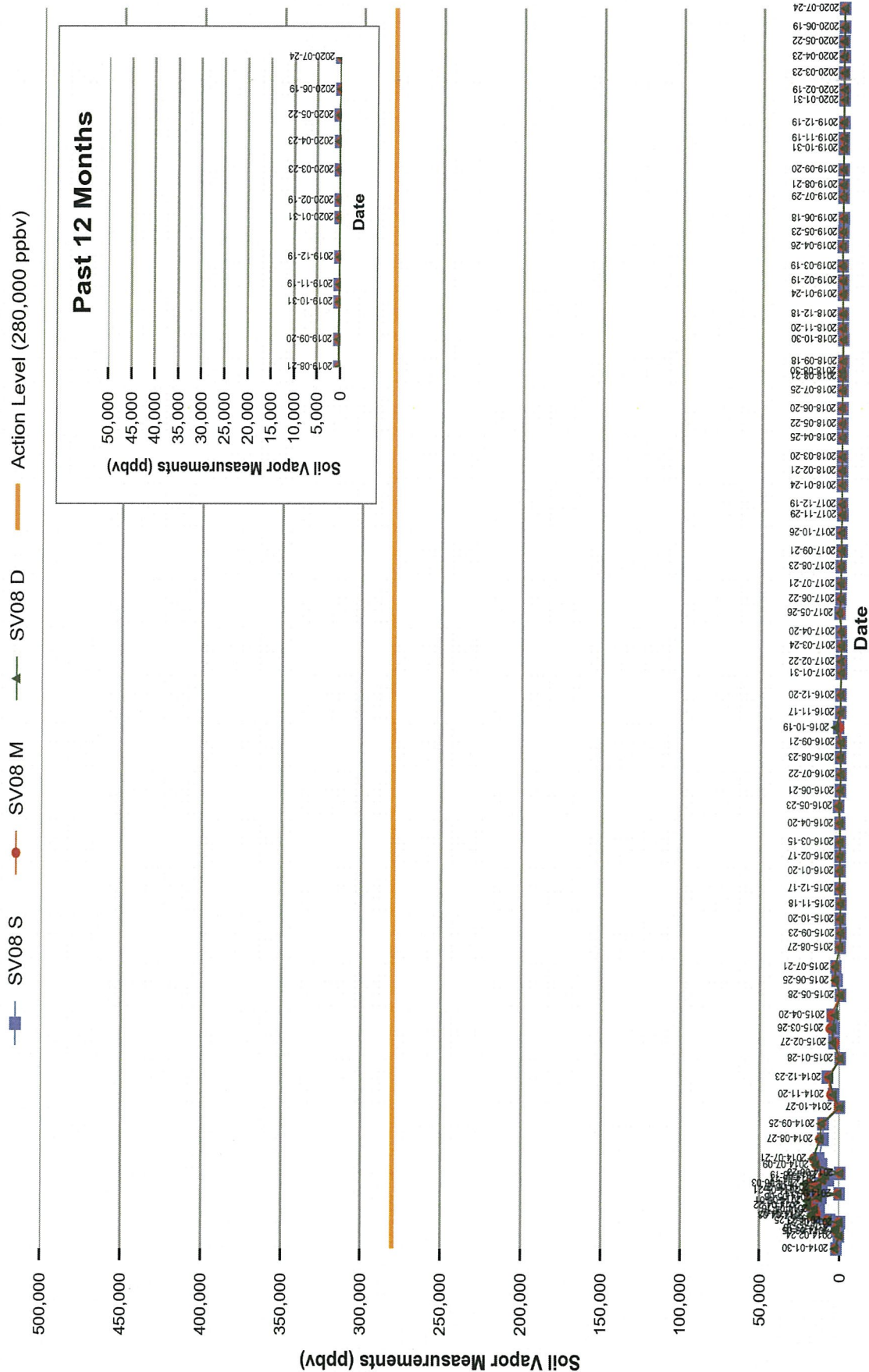
**Figure 6**  
**Soil Vapor Measurements - SV07 (JP-5)**



Notes (where applicable):  
 JP-5: Jet Fuel, Propellant Number 5  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24  
 F-76: Marine Diesel, Fuel Number 76

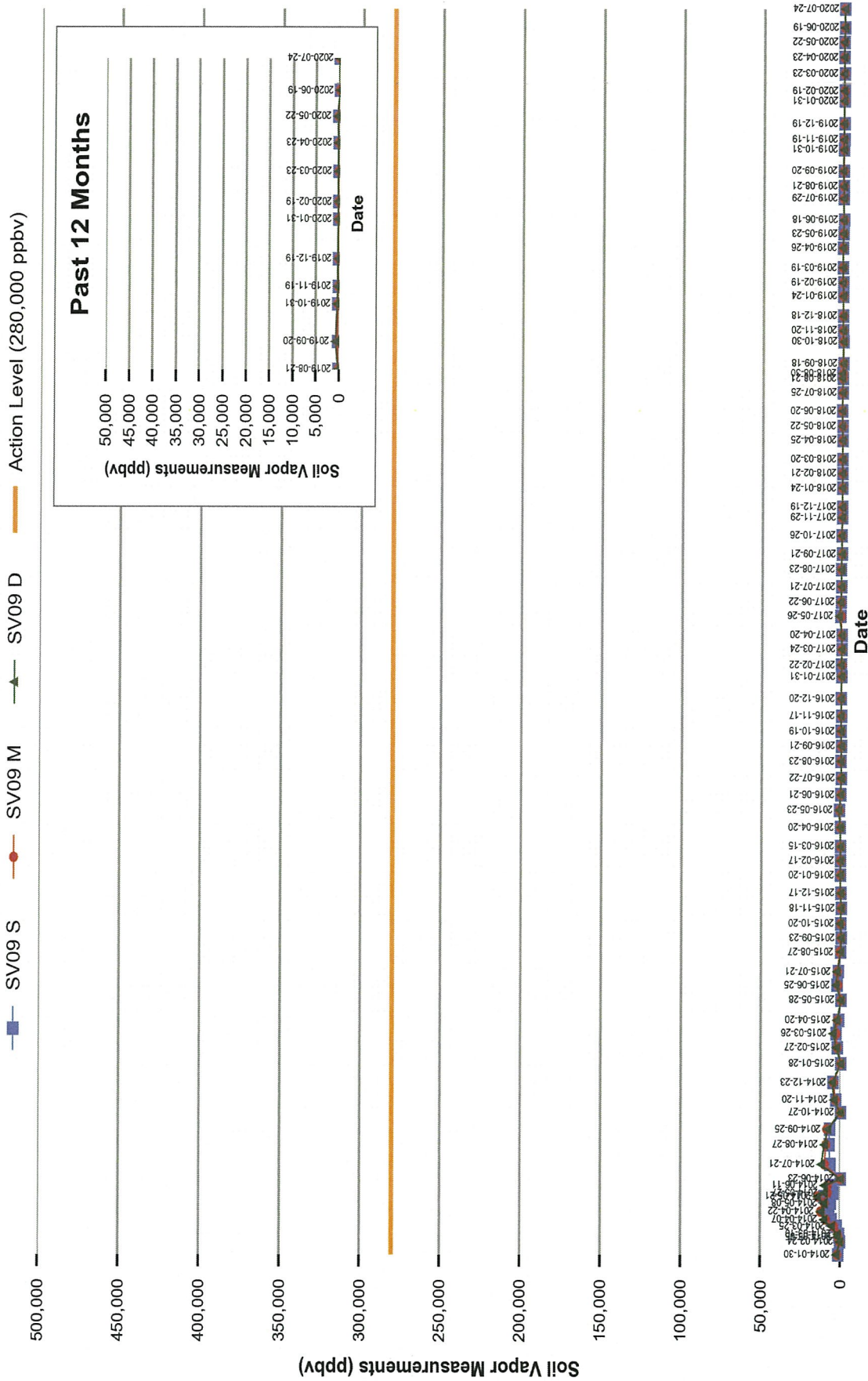


**Figure 7**  
**Soil Vapor Measurements - SV08 (JP-5)**



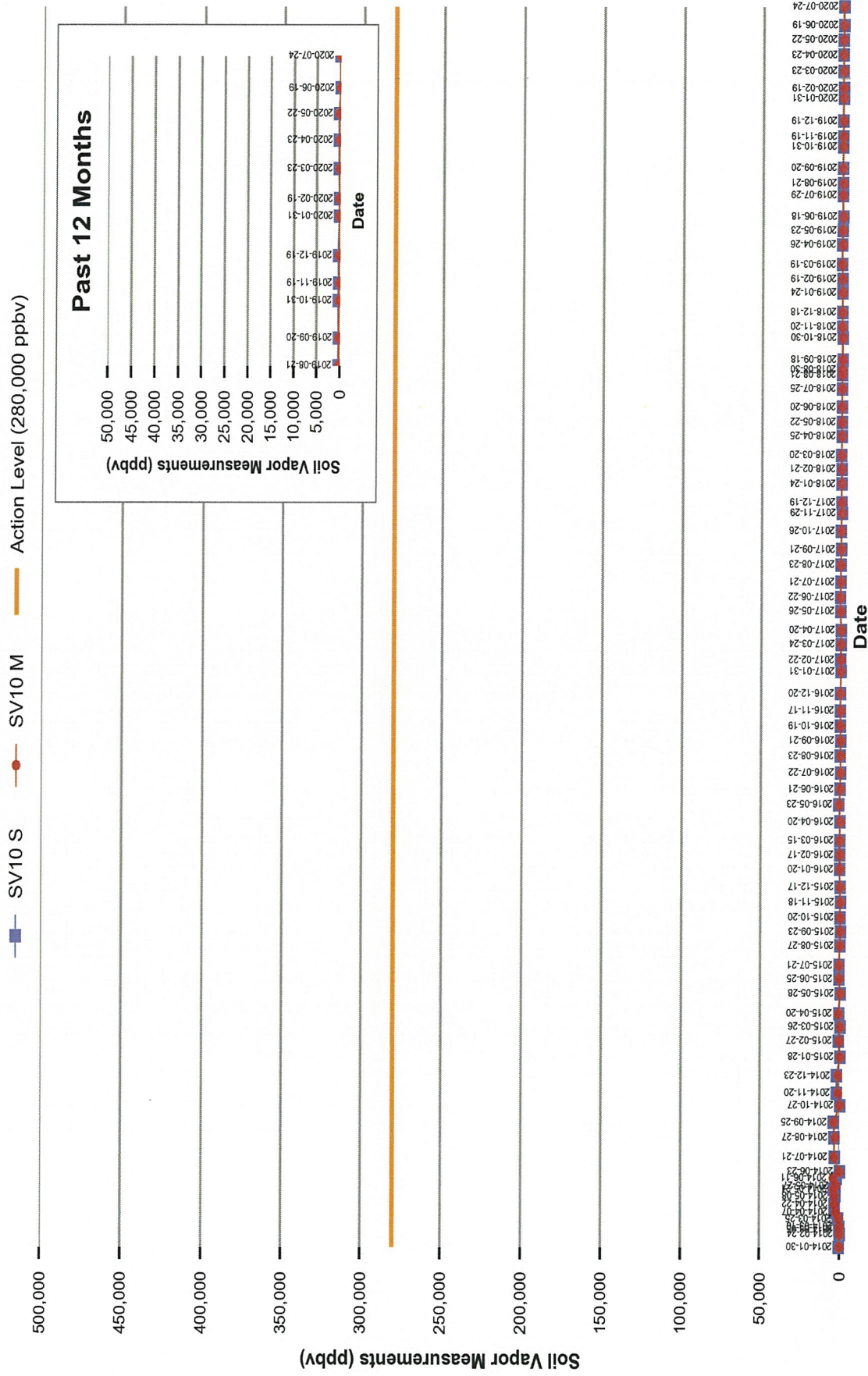
Notes (where applicable):  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24  
 JP-5: Jet Fuel, Propellant Number 5  
 F-76: Marine Diesel, Fuel Number 76

**Figure 8**  
**Soil Vapor Measurements - SV09 (JP-5)**



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

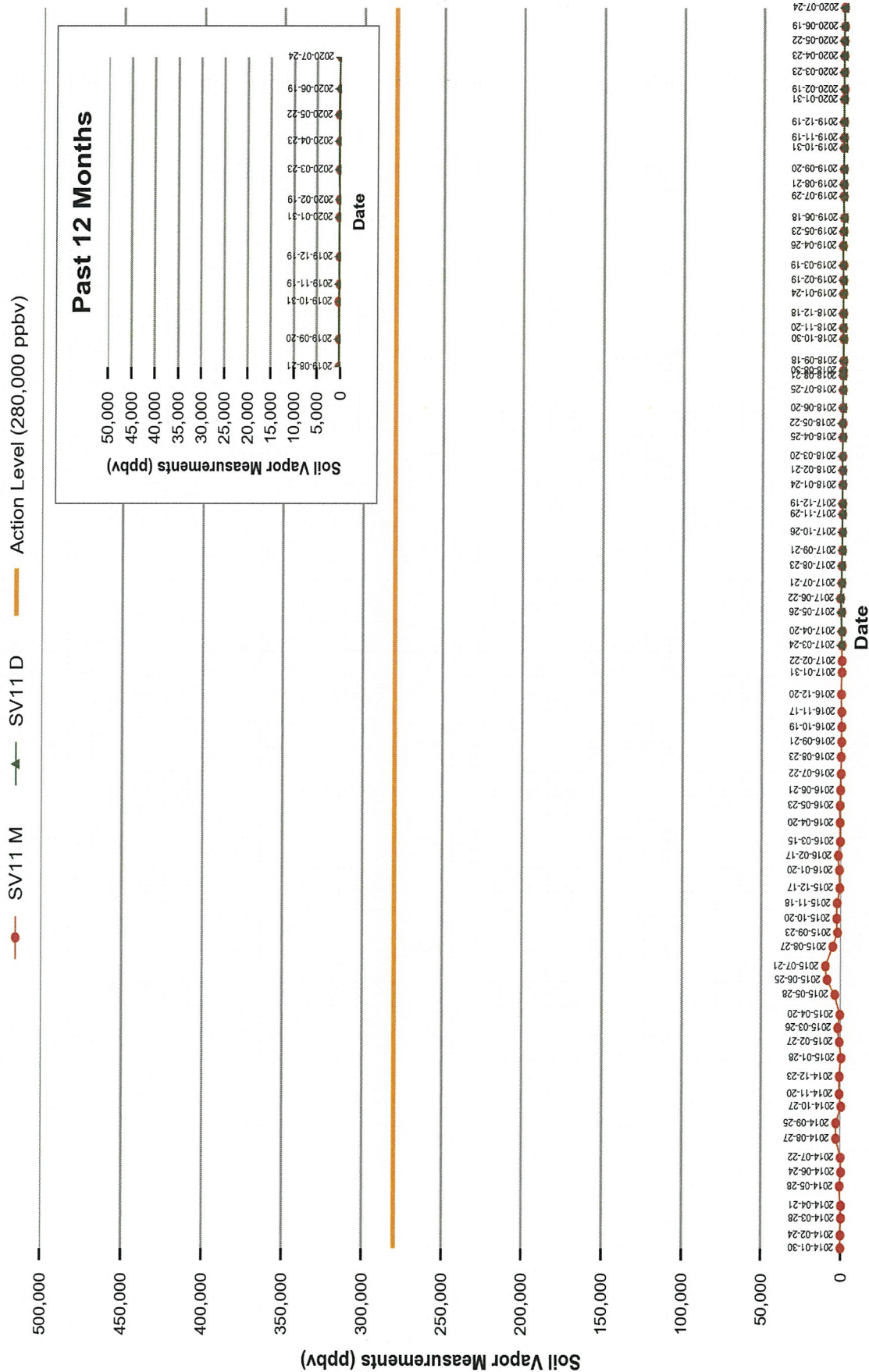
**Figure 9  
Soil Vapor Measurements - SV10 (JP-5)**



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

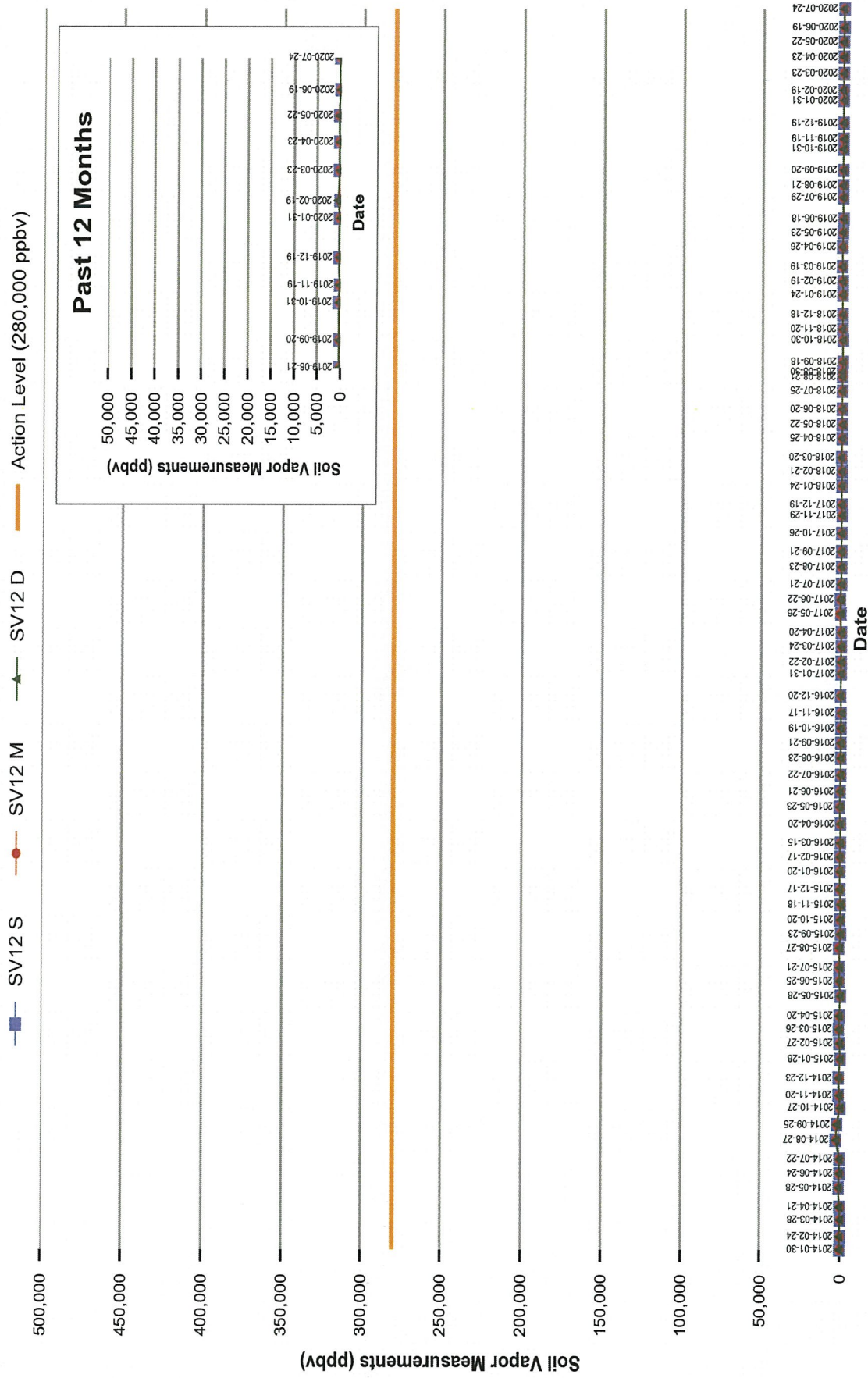
**Figure 10**  
**Soil Vapor Measurements - SV11 (JP-5)**



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

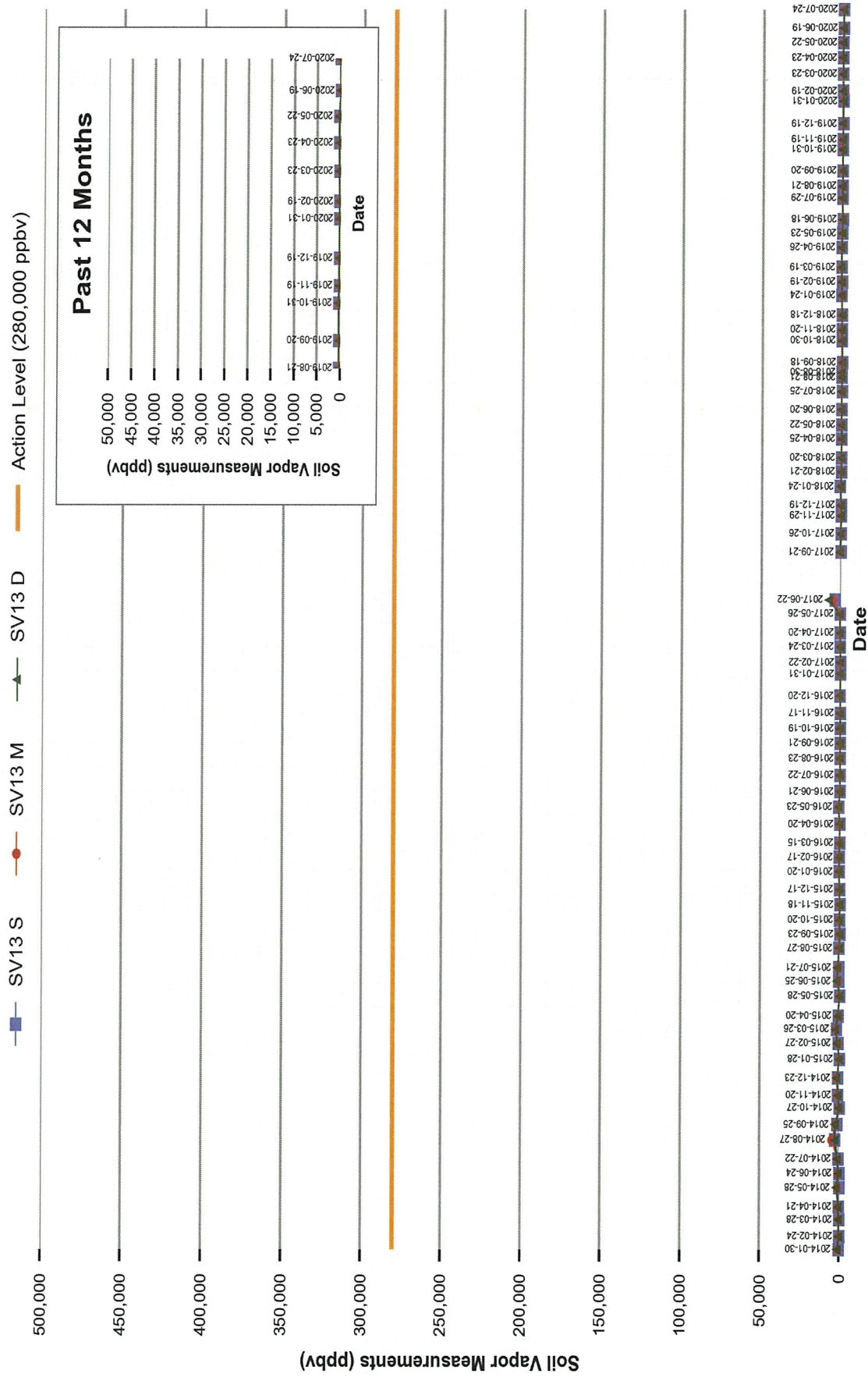
**Figure 11**  
**Soil Vapor Measurements - SV12 (JP-5)**



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

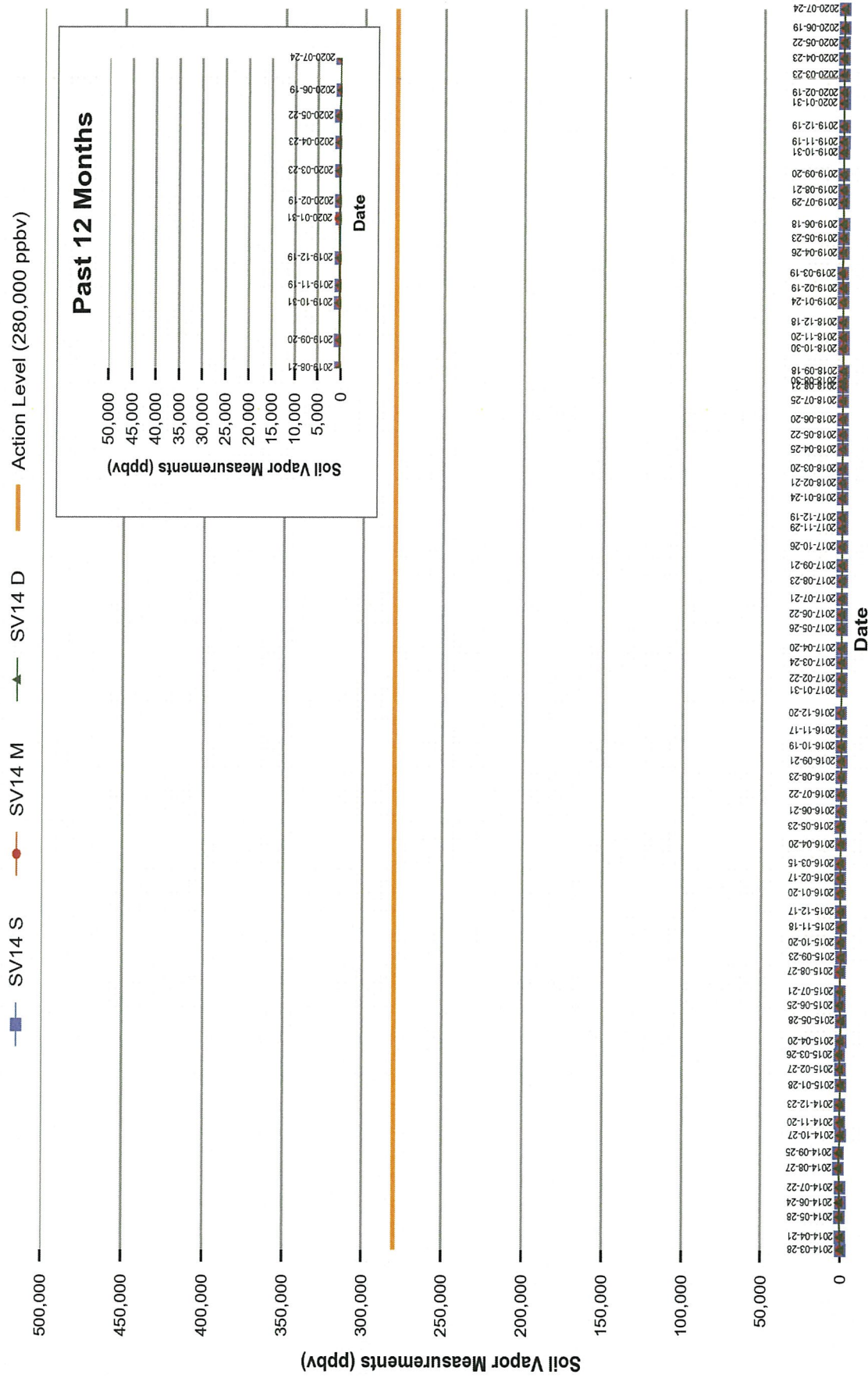
**Figure 12**  
**Soil Vapor Measurements - SV13 (JP-5)**



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

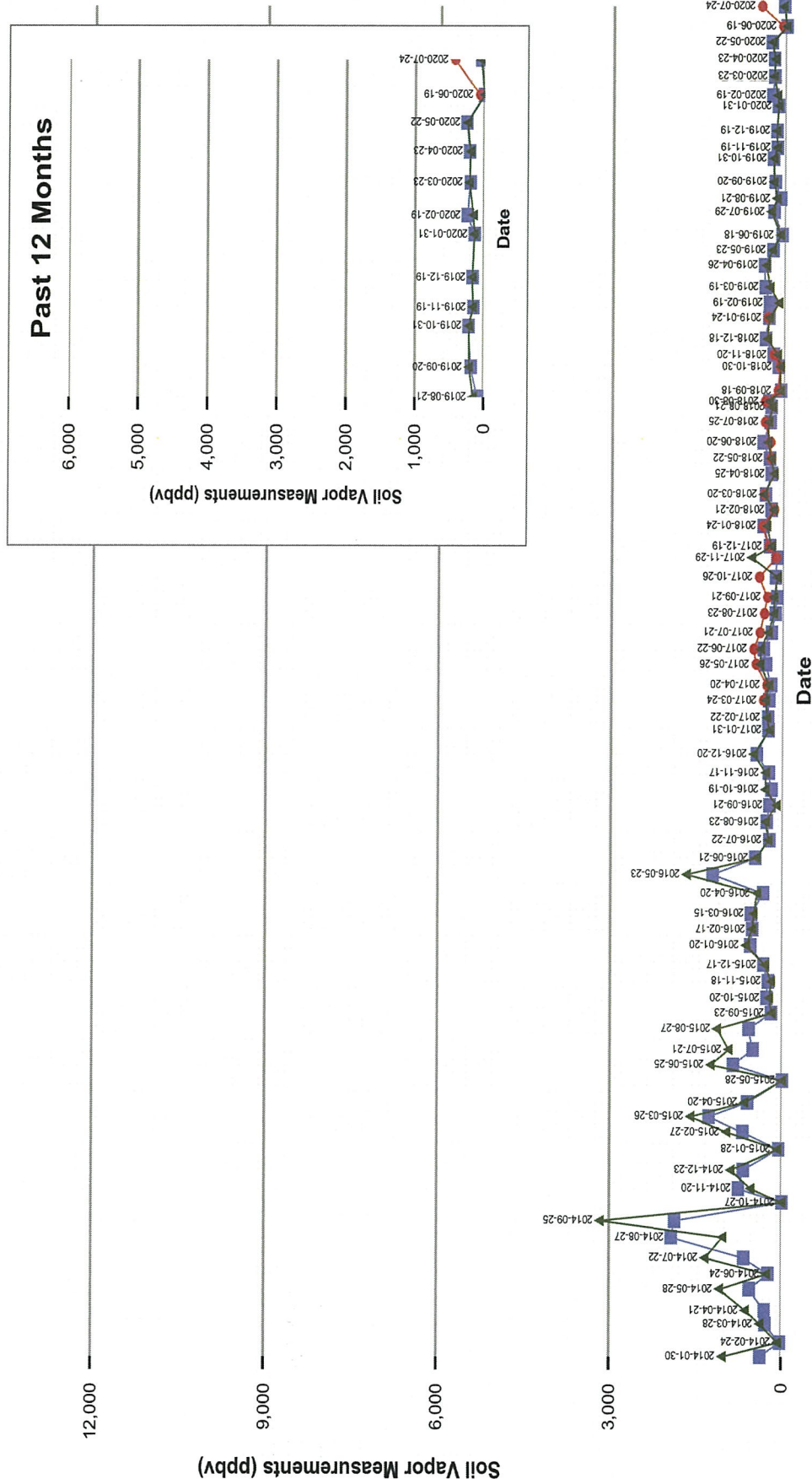
**Figure 13**  
**Soil Vapor Measurements - SV14 (JP-5)**



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**  
**Soil Vapor Measurements - SV15 (F-76)**

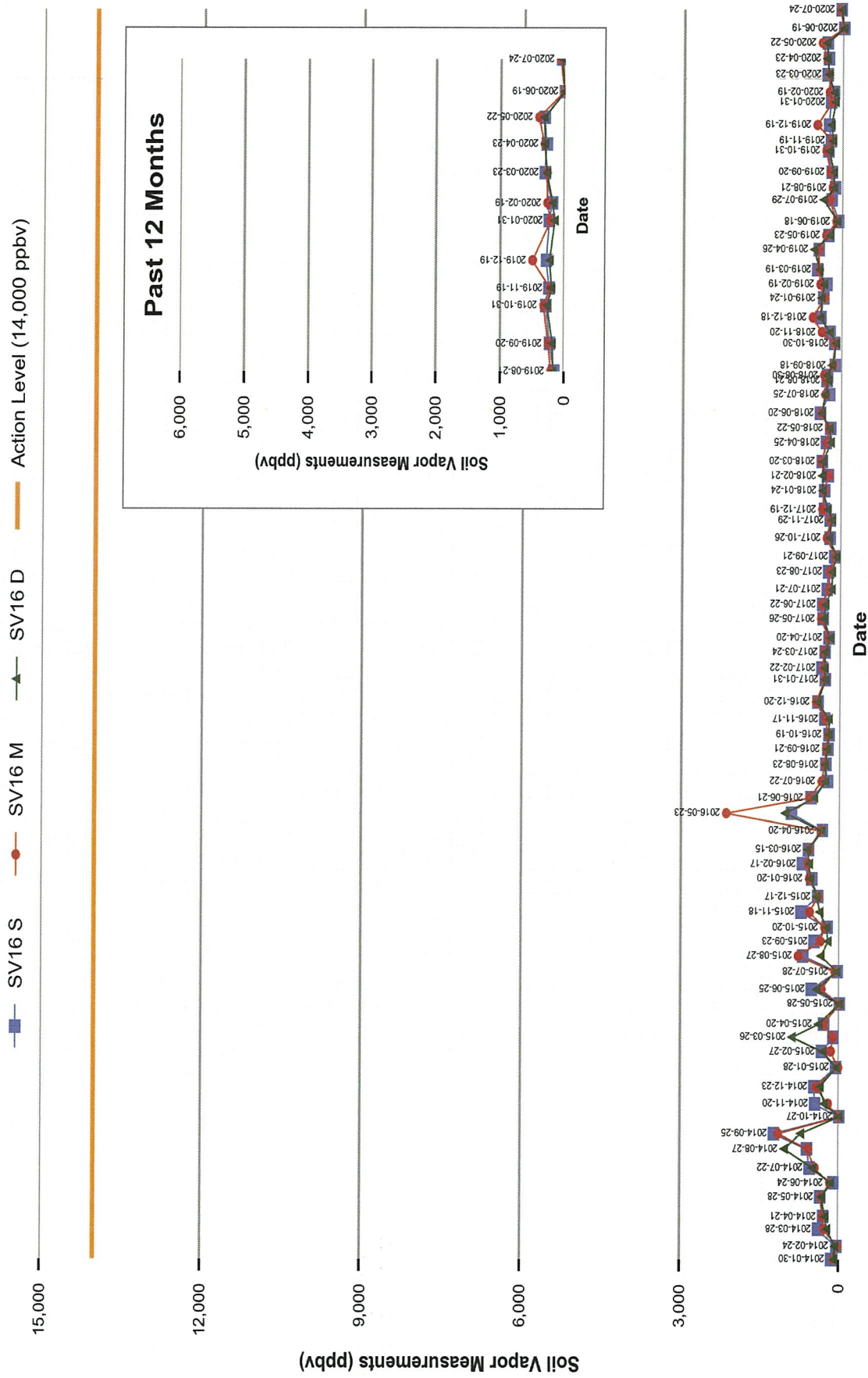
■ SV15 S   
 ● SV15 M   
 ▲ SV15 D   
  Action Level (14,000 ppbv)



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

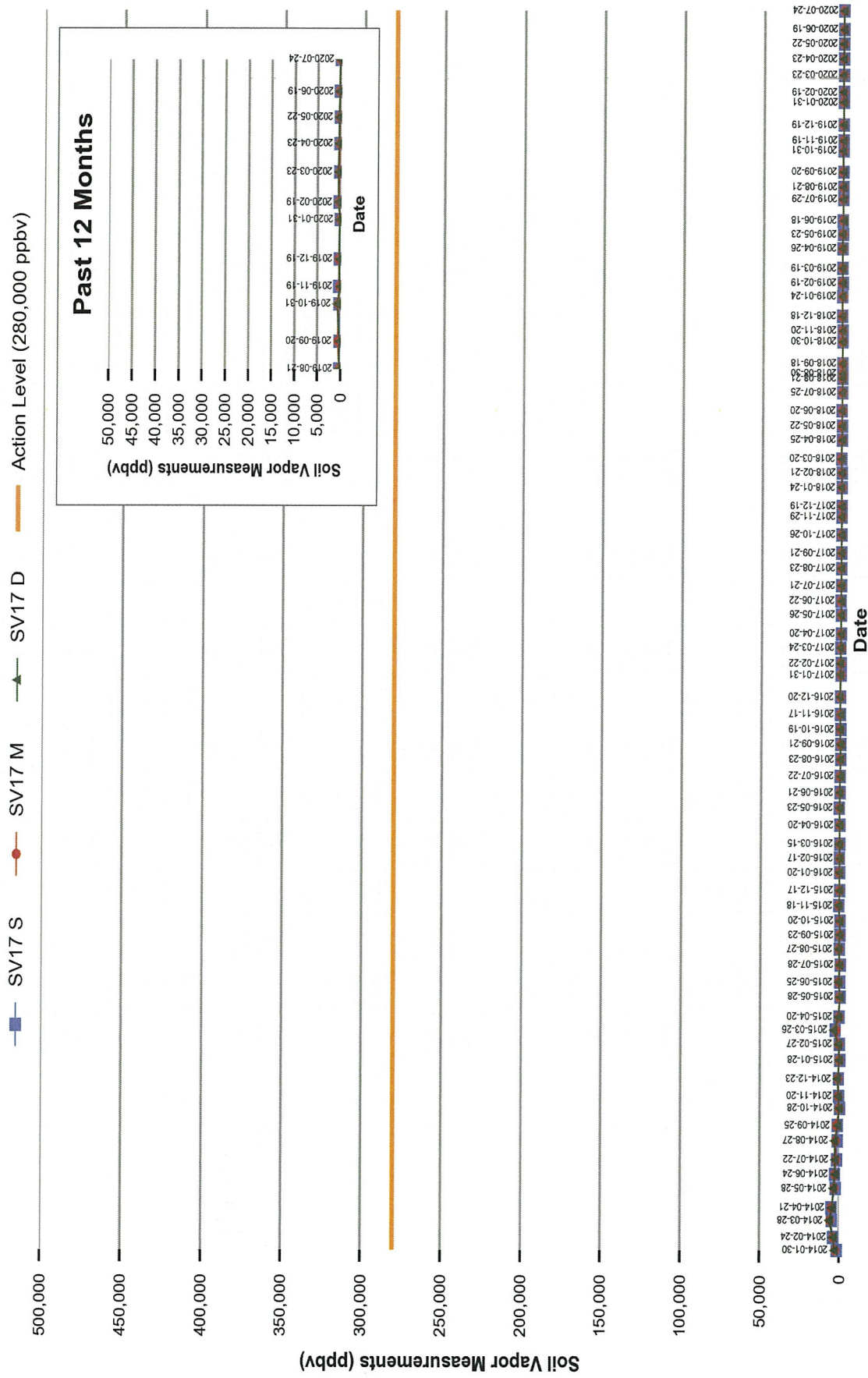


**Figure 15**  
**Soil Vapor Measurements - SV16 (F-76)**



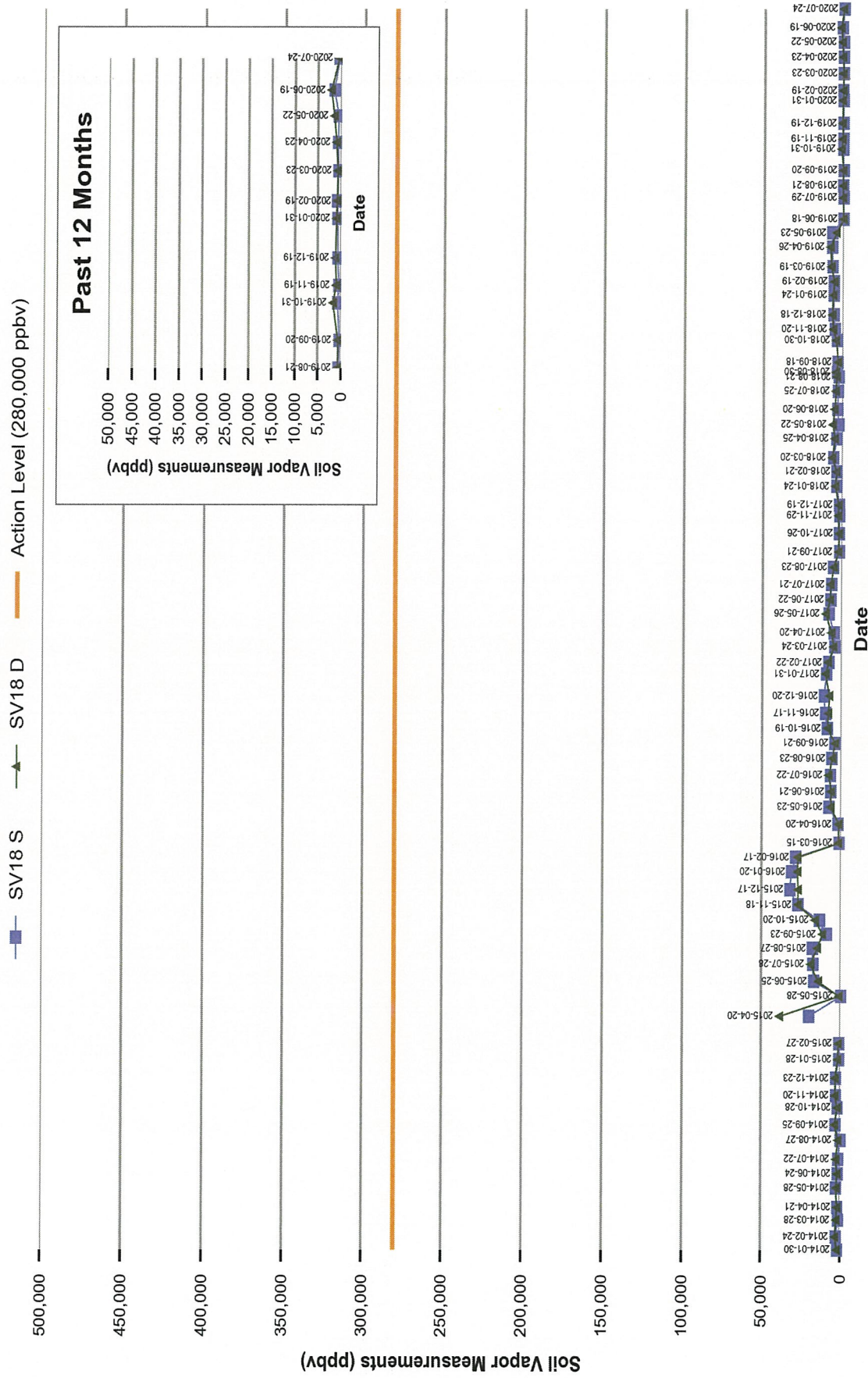
Notes (where applicable):  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24  
 JP-5: Jet Fuel, Propellant Number 5  
 F-76: Marine Diesel, Fuel Number 76

**Figure 16**  
**Soil Vapor Measurements - SV17 (JP-5)**



Notes (where applicable):  
 JP-5: Jet Fuel, Propellant Number 5  
 ppbv: Parts Per Billion by Volume  
 F-24: Jet Fuel, Fuel Number 24  
 F-76: Marine Diesel, Fuel Number 76

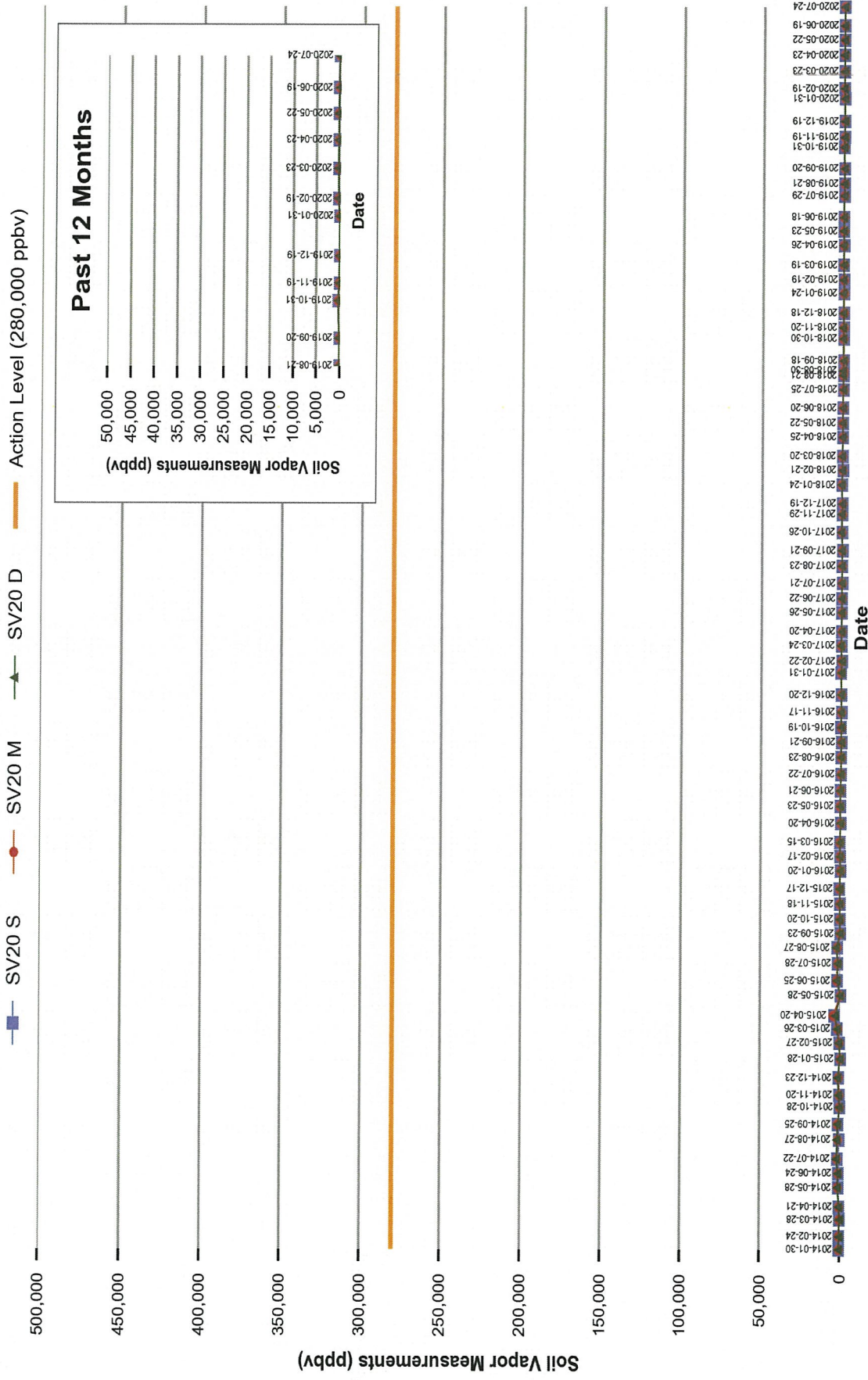
**Figure 17**  
**Soil Vapor Measurements - SV18 (JP-5)**



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**  
**Soil Vapor Measurements - SV20 (JP-5)**



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