



DEPARTMENT OF THE NAVY

COMMANDER
NAVY REGION HAWAII
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JBPHH, HAWAII 96860-5101

received via email on
8/21/2019

5090
Ser N45/0618
August 8, 2019

CERTIFIED NO: 7016 0910 0001 0898 4354

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

Dear Mr. Takaba:

**SUBJECT: RED HILL TANK COMPLEX
SOIL VAPOR SAMPLING RESULTS FOR JUNE 2019
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 June 18, 2019.

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 JP-5 or JP-8, 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 646 ppbv, 3,586 ppbv, and 4,895 ppbv, respectively. Tank 5 was emptied in January 2014 and has not contained fuel since that time. VOC concentrations in all down-gradient soil vapor monitors were below 290 ppbv.

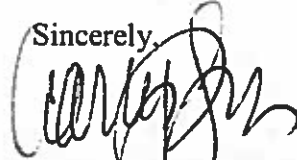
All other VOC concentrations measured in June were about 90 to 1,100 times below the action levels, with no consistent trends observed. NAVSUP FLC Pearl Harbor Causative Research Report is submitted as Enclosure 2. Possible reasons for the results are speculative and may include, but not be limited to, ongoing projects in the tunnel, groundwater level fluctuations, rainfall (or lack thereof), bi-product of biodegradation, and fuel movement in the tanks and piping.

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Soil vapor VOC concentration trends will continue to be monitored. The next soil vapor sampling event is scheduled for July 2019, and will include collecting samples from soil vapor monitoring probes beneath all active and accessible tanks.

If there are any questions regarding this matter, or if more information is needed, please contact Mr. Melvin Muraoka at (808) 471-3869.

Sincerely,

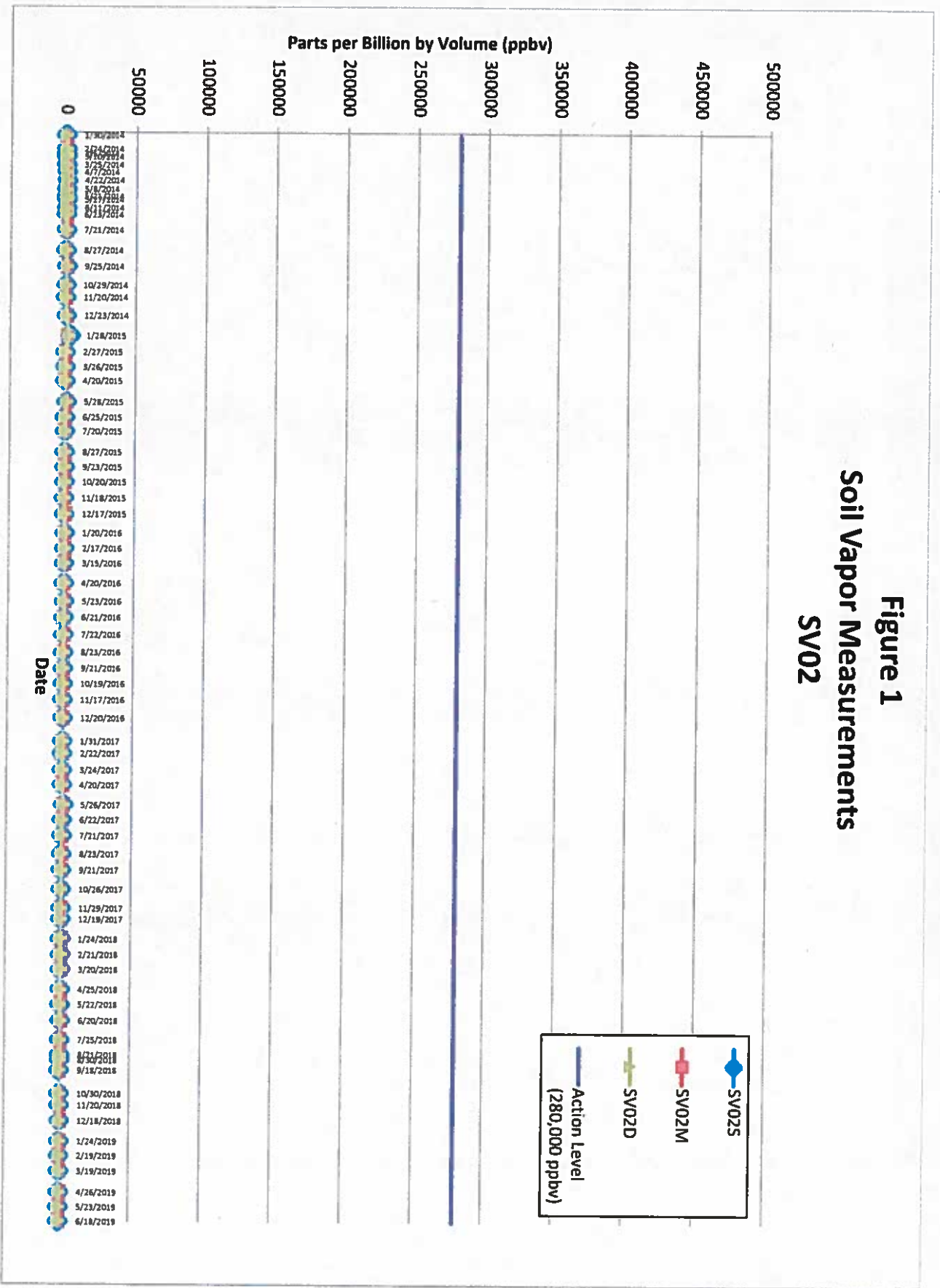


AARON Y. POENTIS
Director
Regional Environmental Department
By direction of the
Commander

- Enclosure: 1. Summary of Soil Vapor Sampling Results for Tanks 2 through 18 and 20 through June 2019 (18 pages)
2. NAVSUP FLC Pearl Harbor Causative Research Report IRT Red Hill Soil Vapor Monitoring Report for June 2019

Copy to: Mr. Omer Shalev, 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



ENCLOSURE(1)

Figure 2
Soil Vapor Measurements
SV03

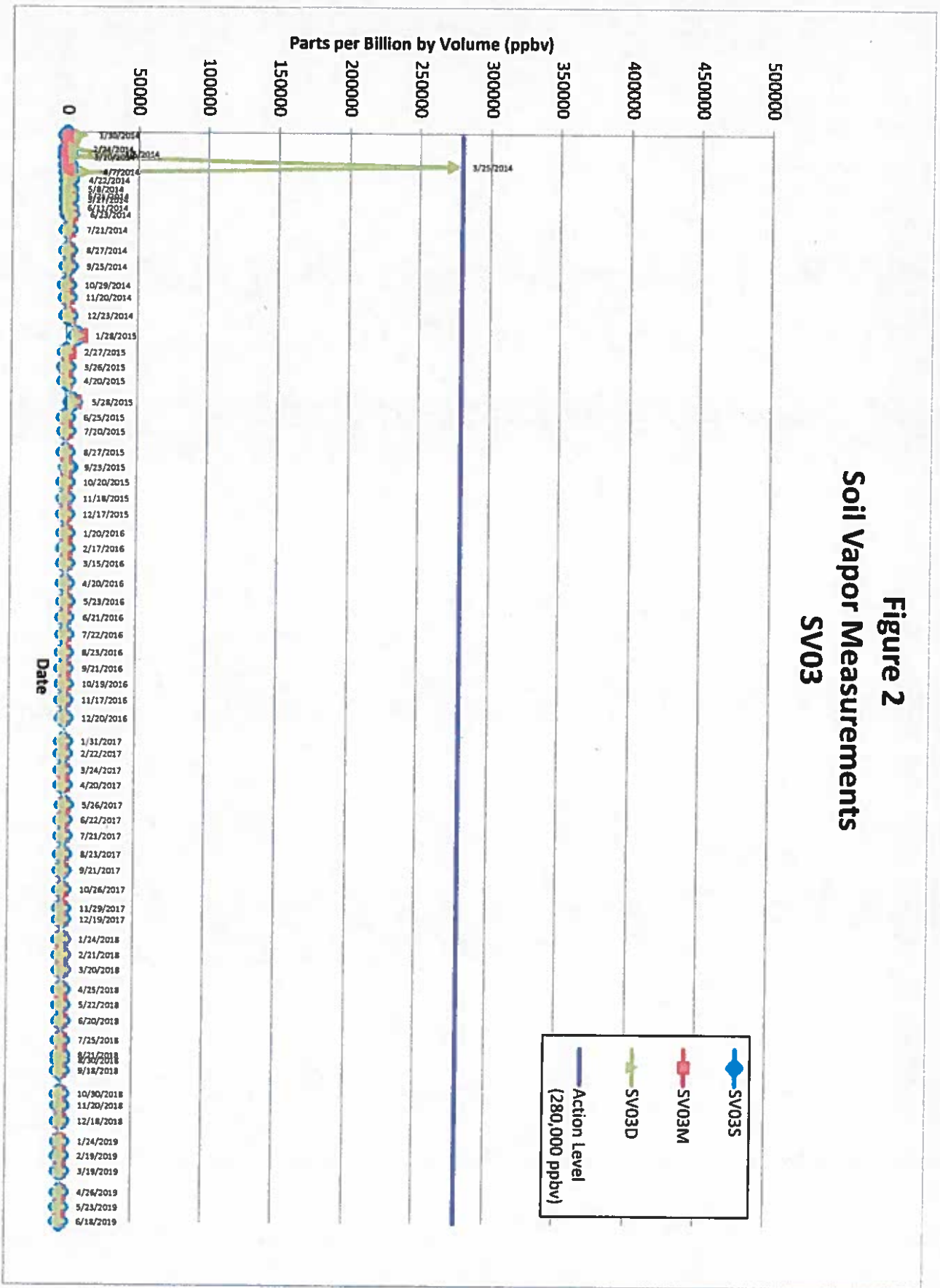
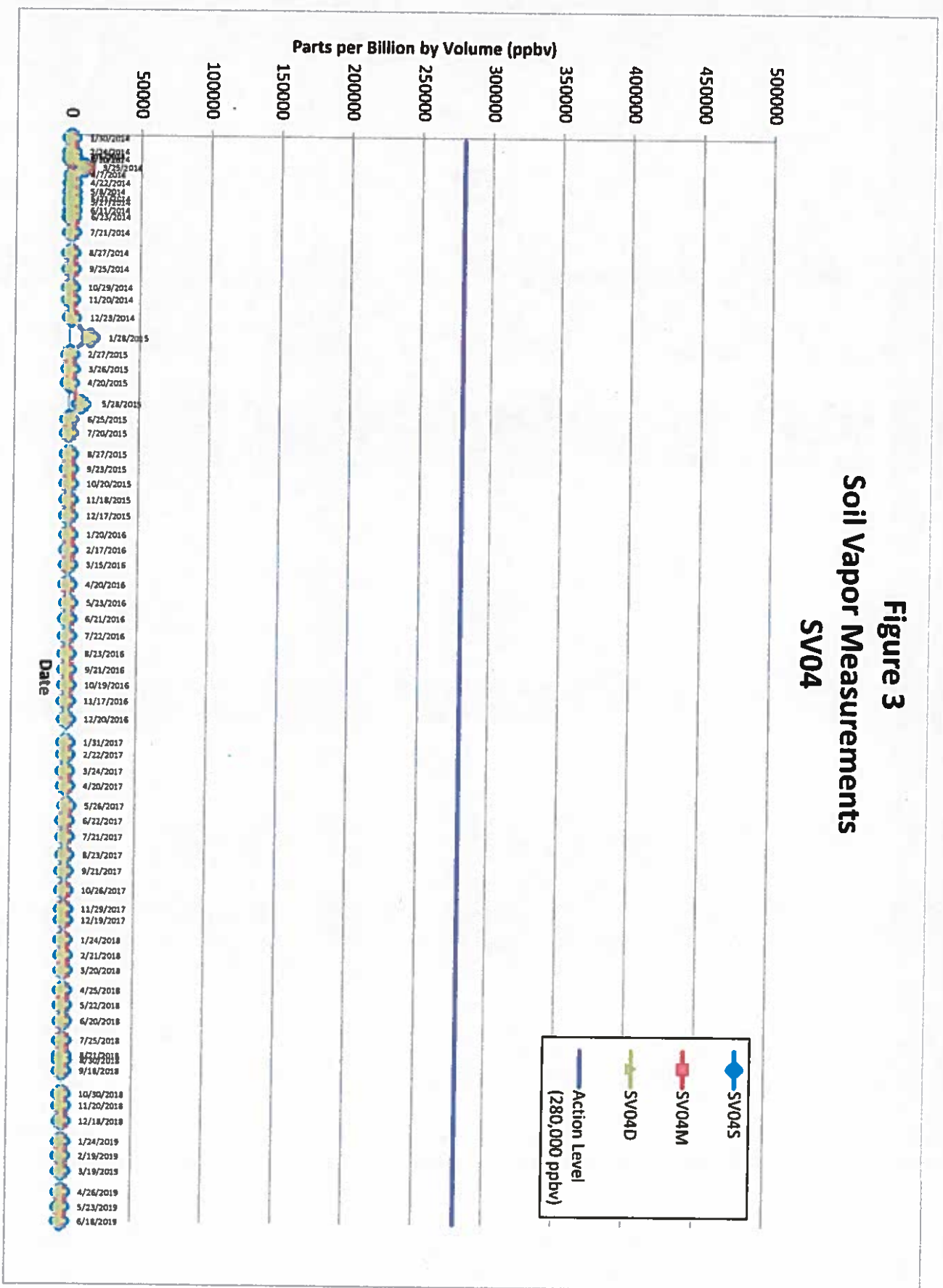


Figure 3
Soil Vapor Measurements
SV04



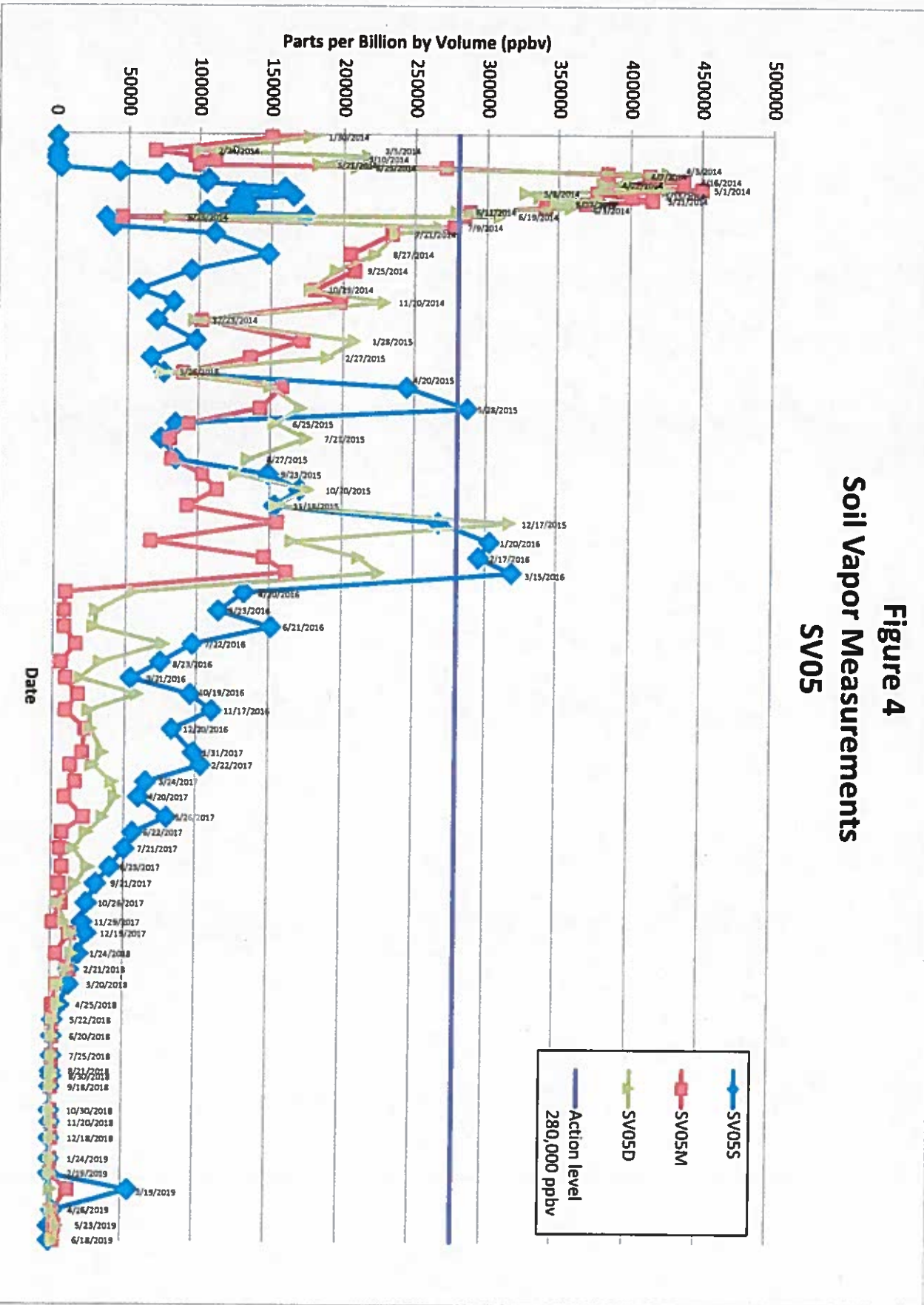


Figure 4
Soil Vapor Measurements
SV05

Figure 5
Soil Vapor Measurements
SV06

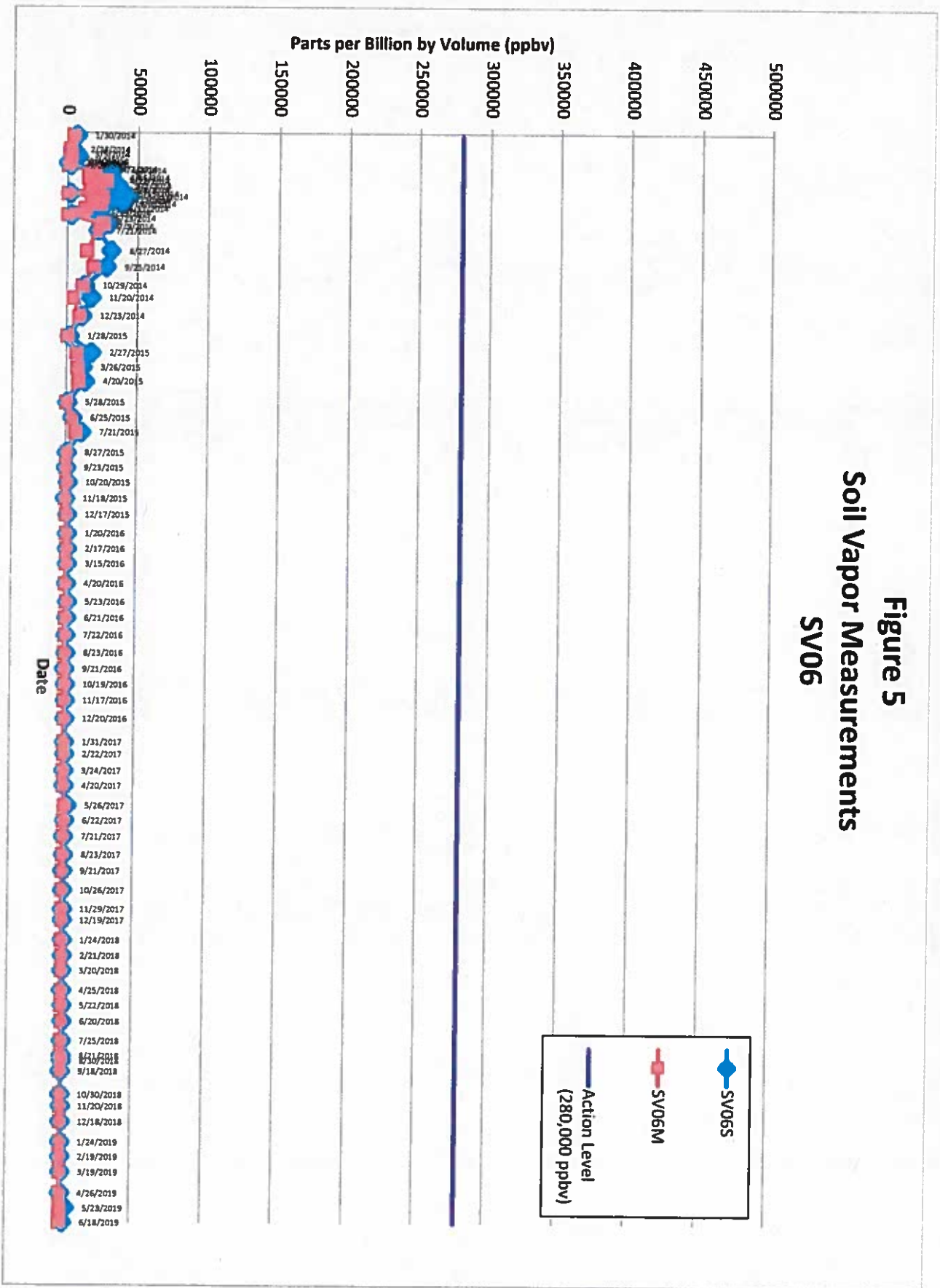


Figure 6
Soil Vapor Measurements
SV07

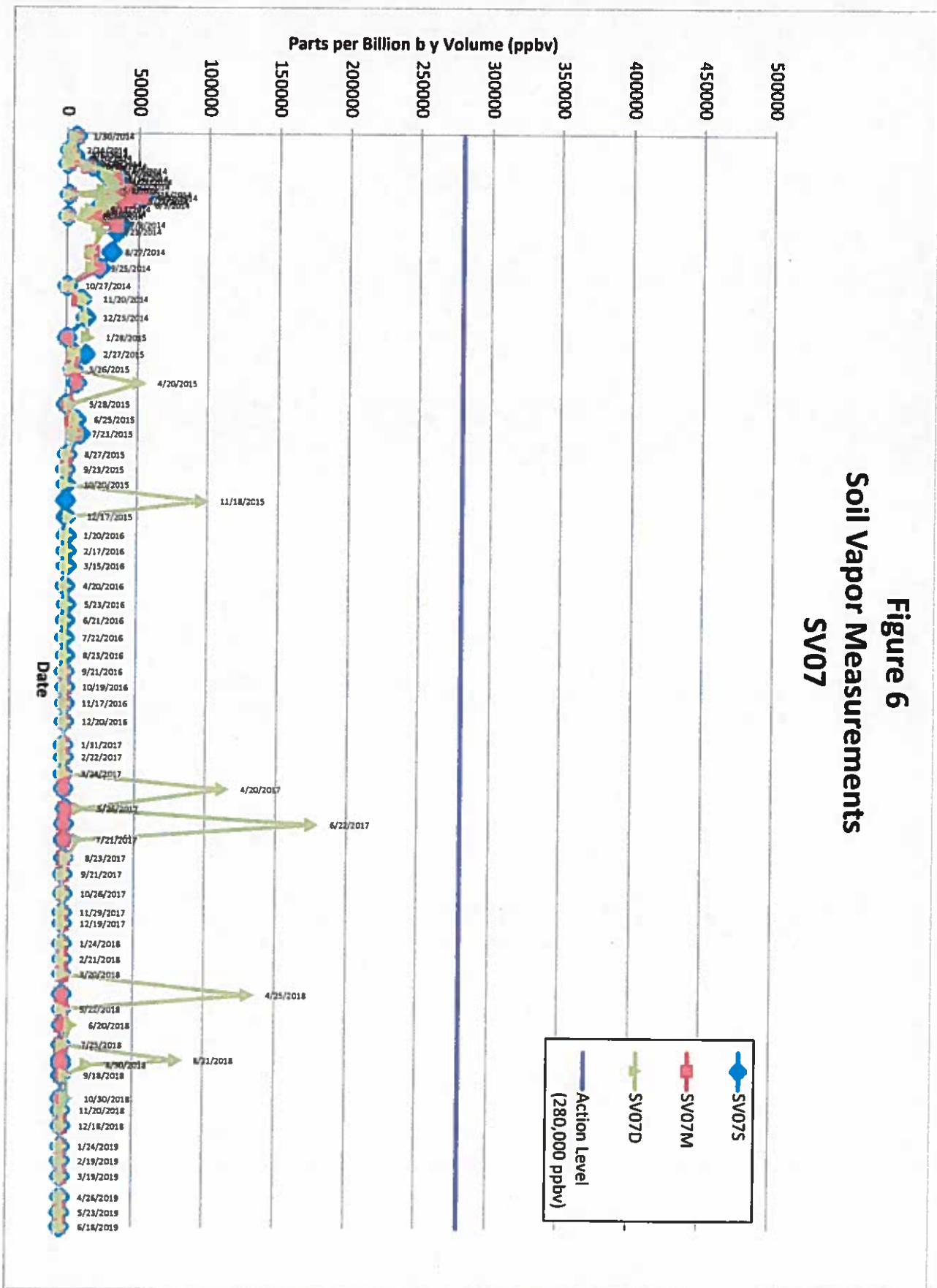


Figure 7
Soil Vapor Measurements
SV08

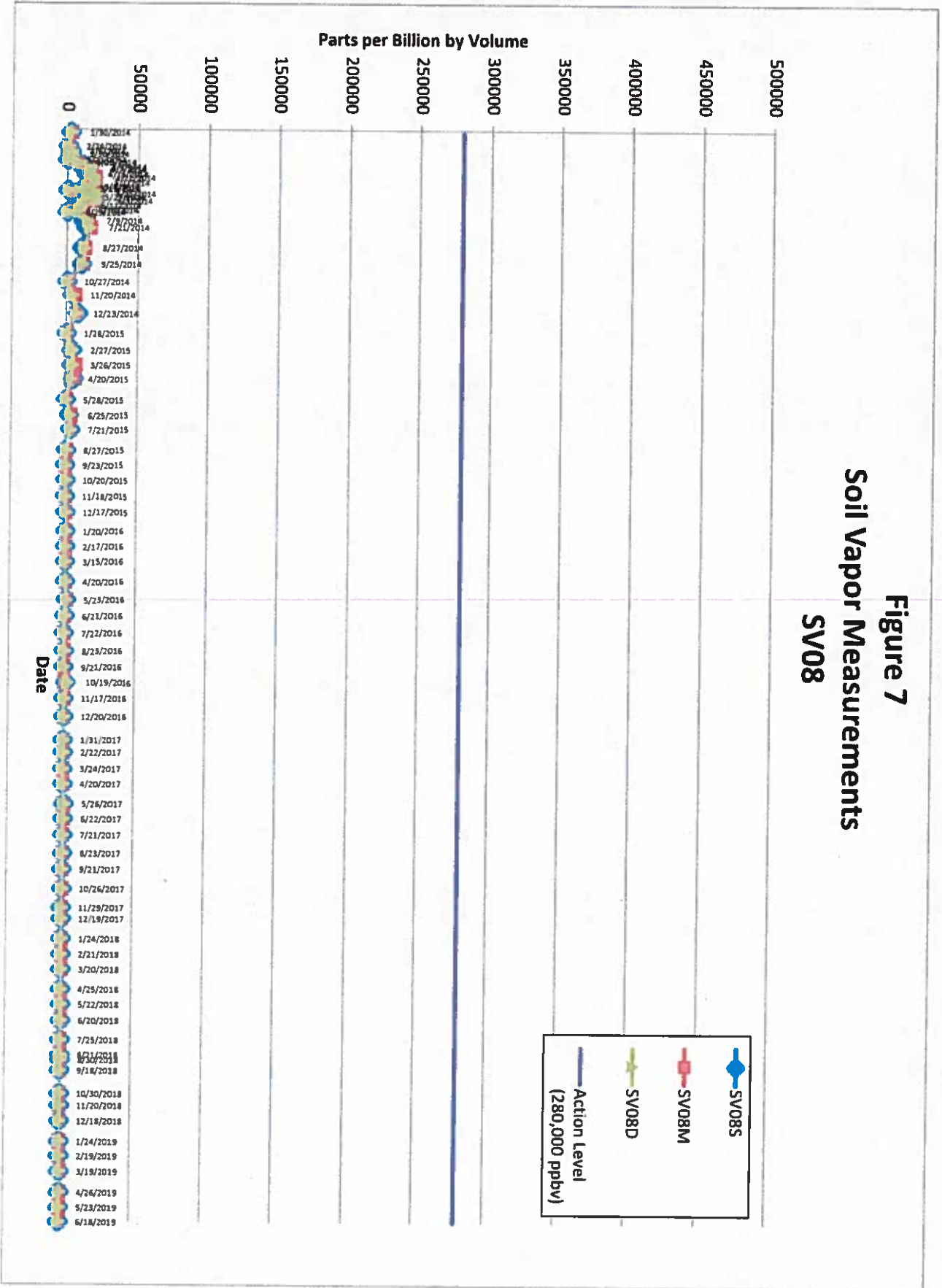


Figure 8
Soil Vapor Measurements
SV09

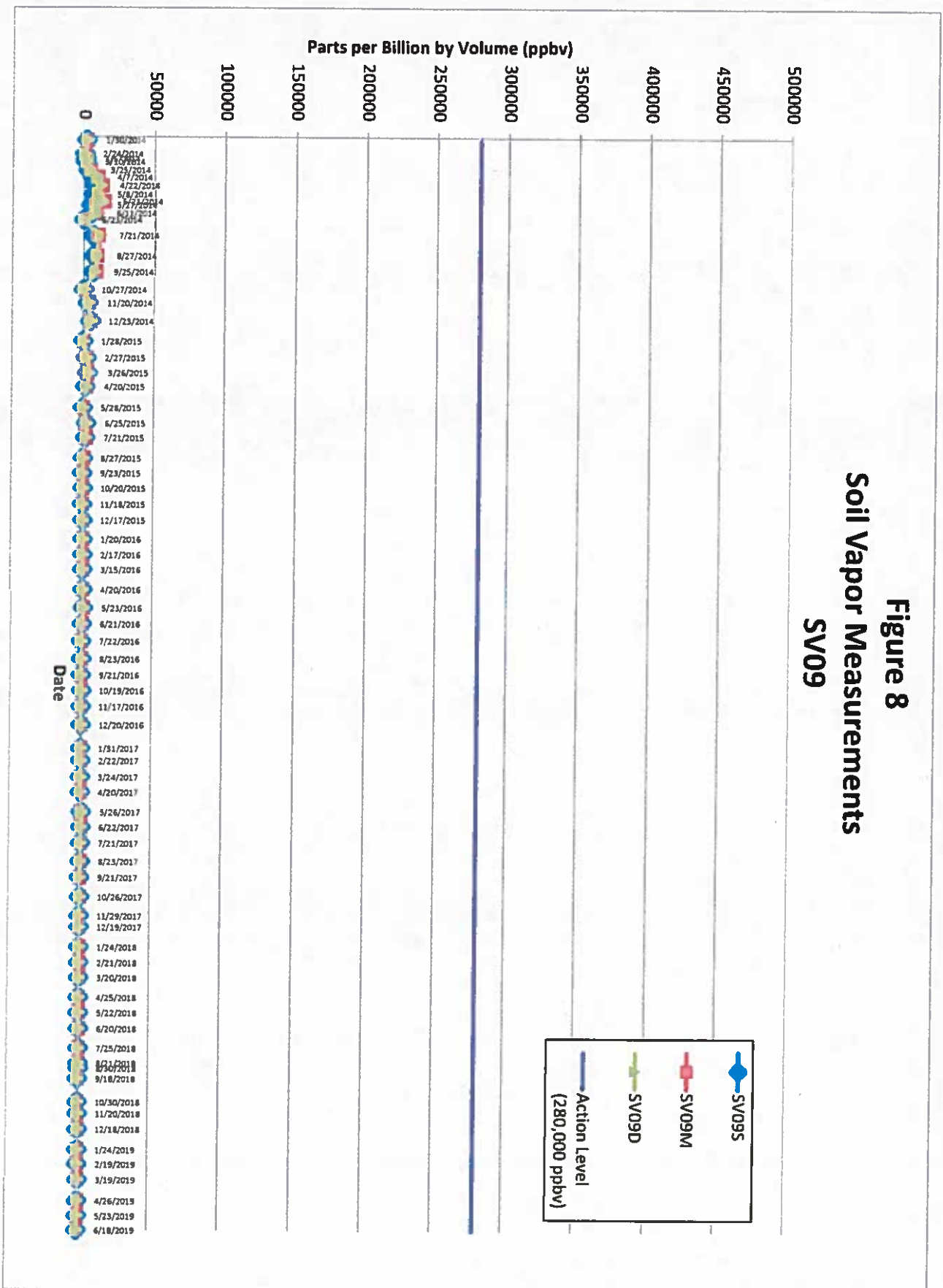


Figure 9
Soil Vapor Measurements
SV10

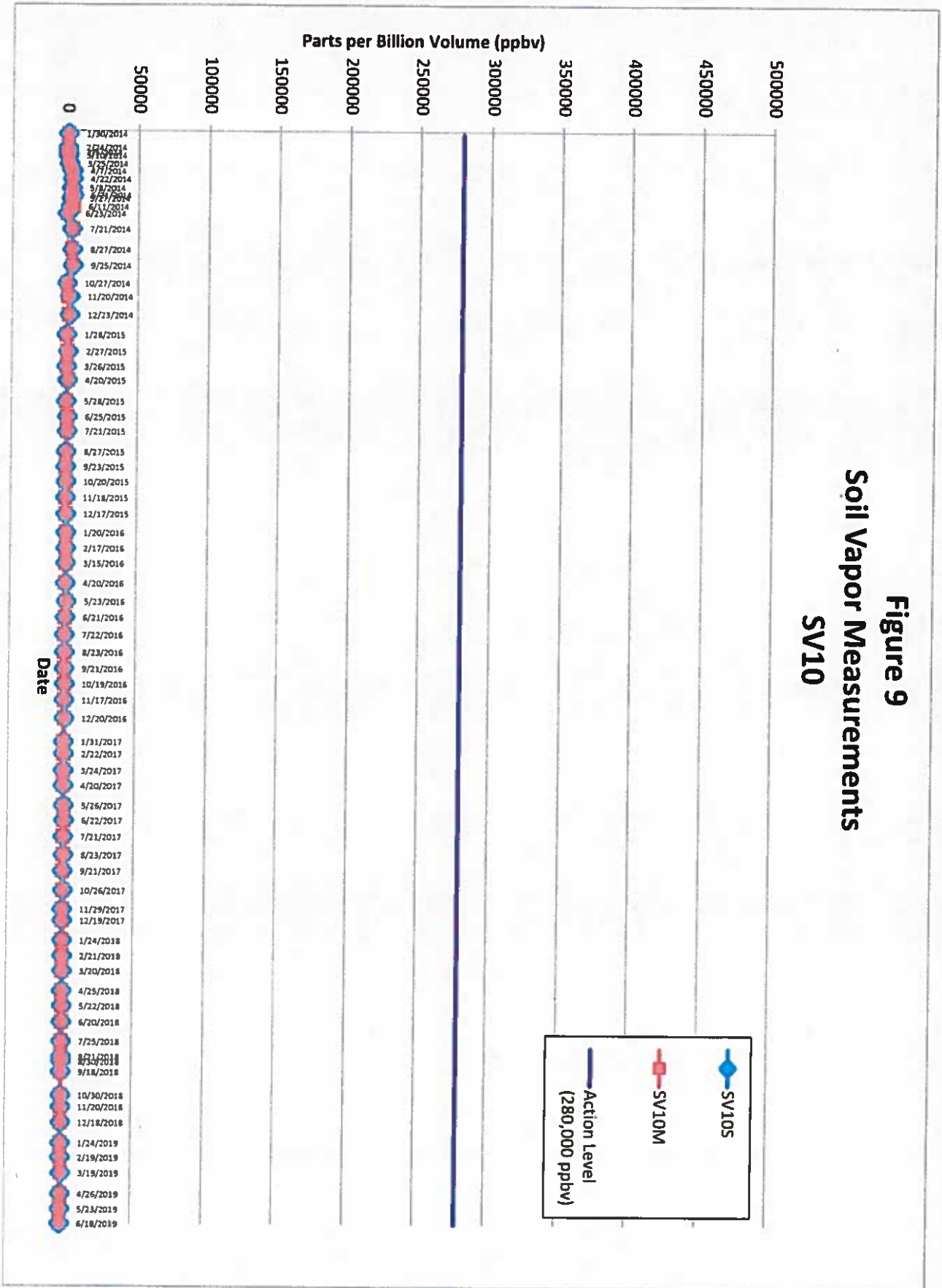


Figure 10
Soil Vapor Measurements
SV11

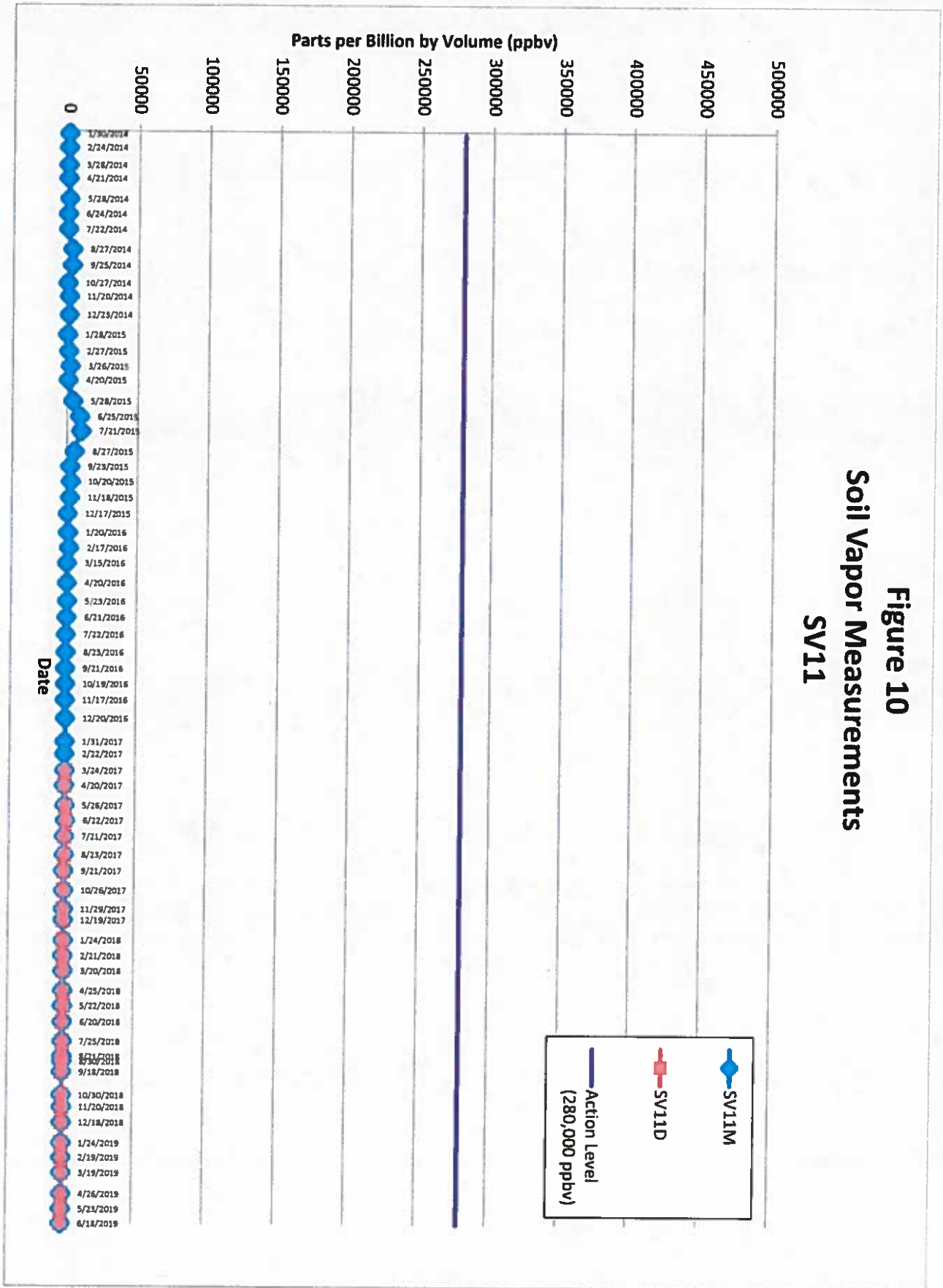


Figure 11
Soil Vapor Measurements
SV12

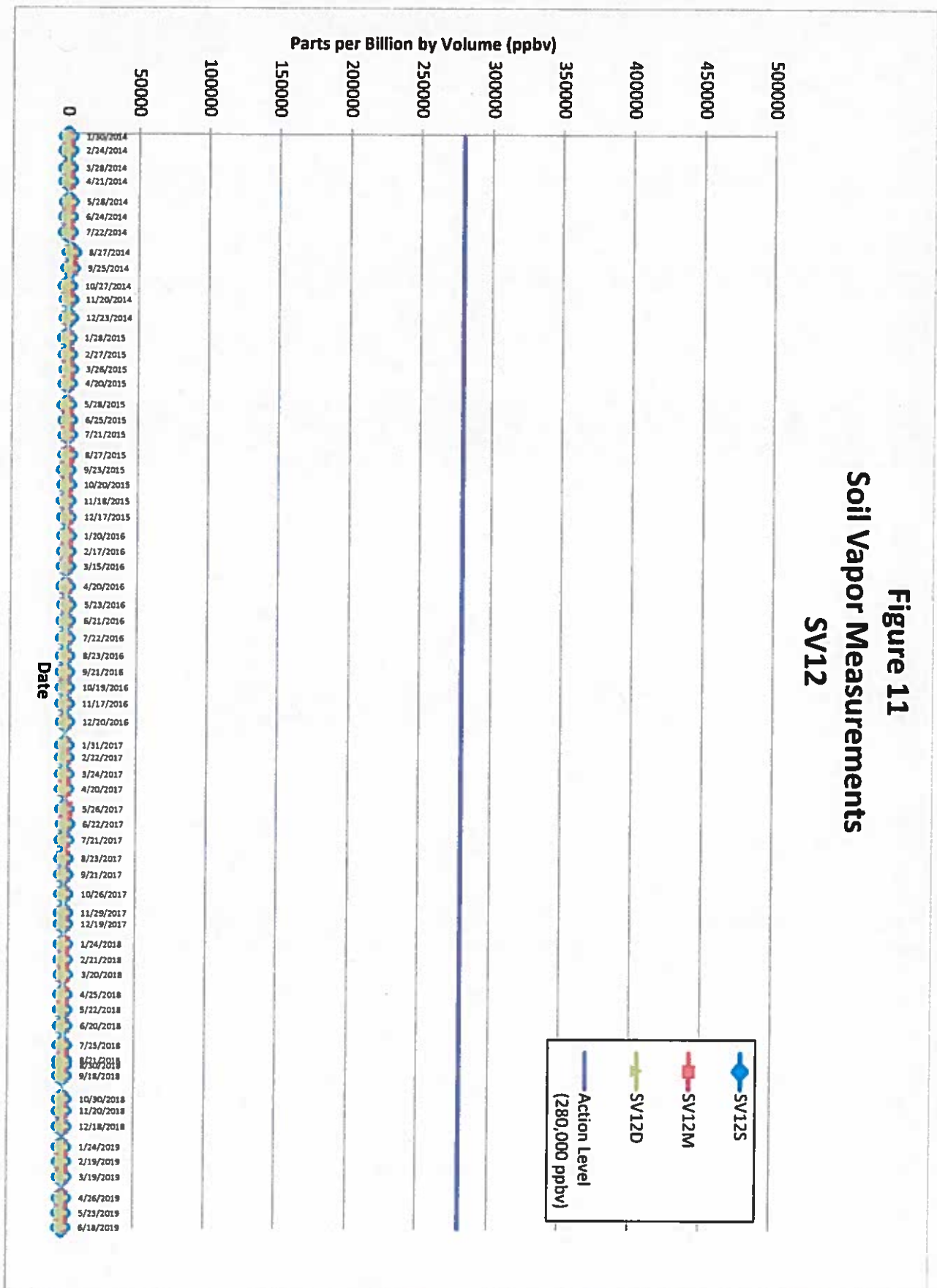


Figure 12
Soil Vapor Measurements
SV13

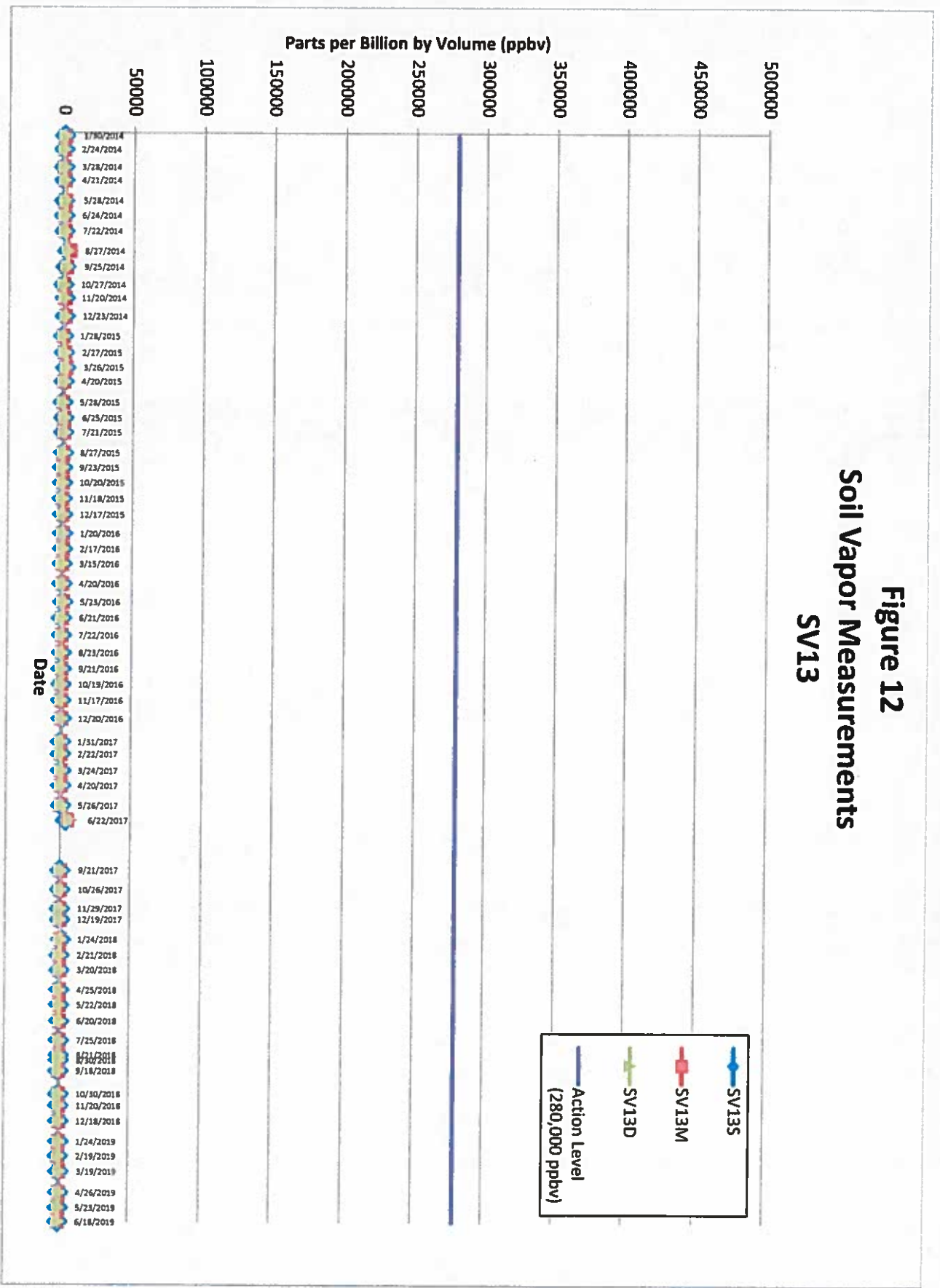
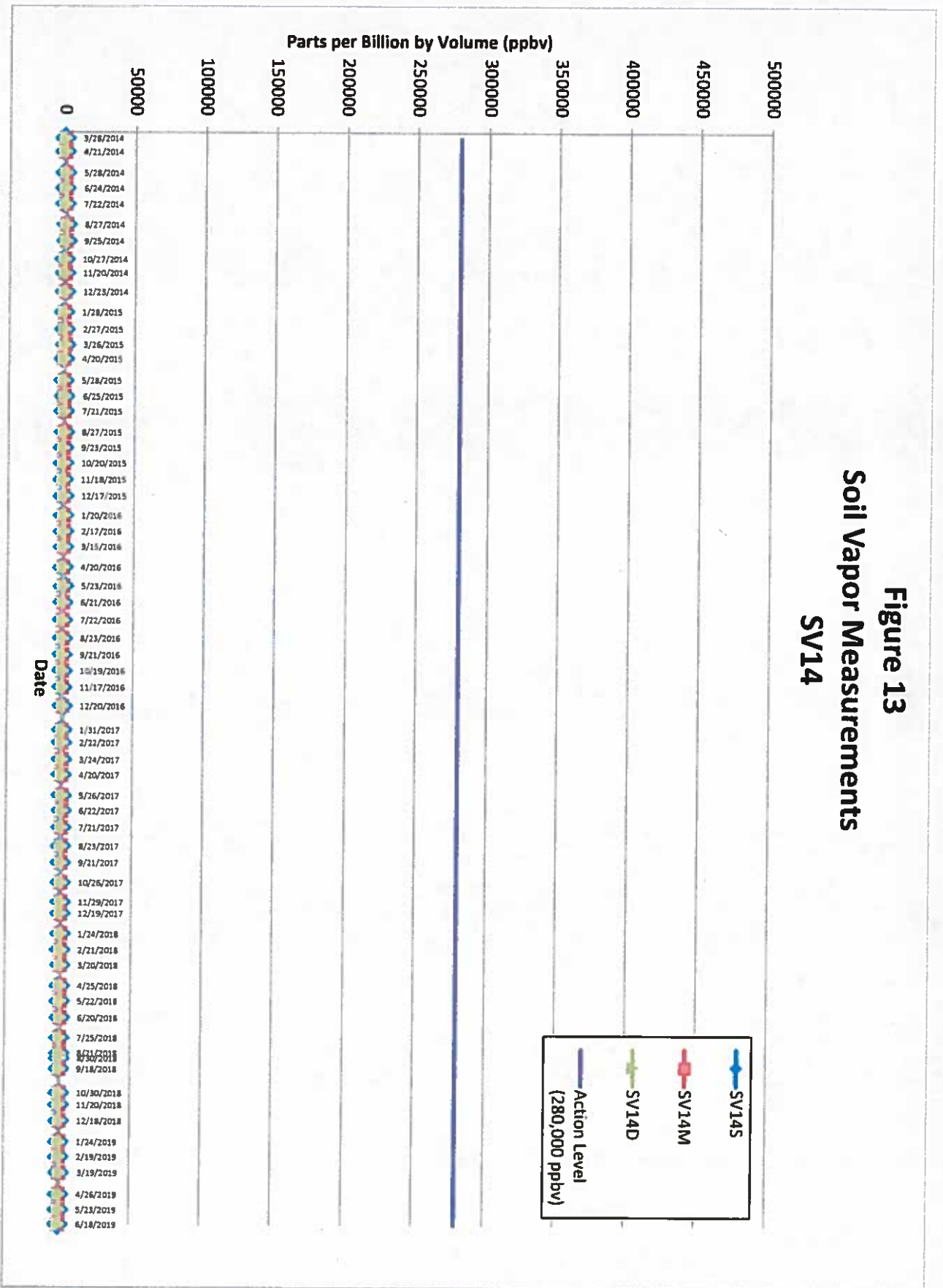


Figure 13
Soil Vapor Measurements
SV14



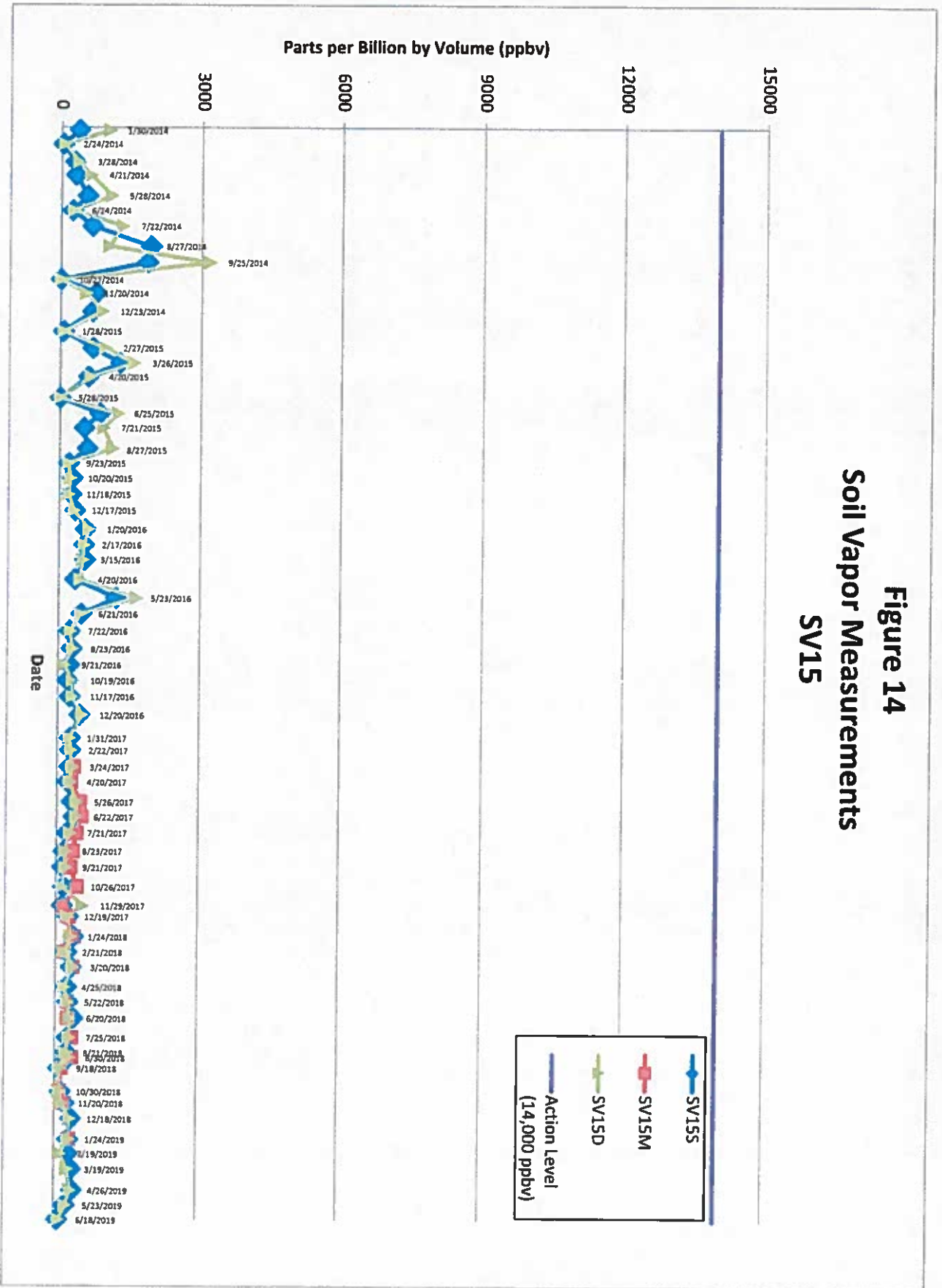


Figure 14
Soil Vapor Measurements
SV15

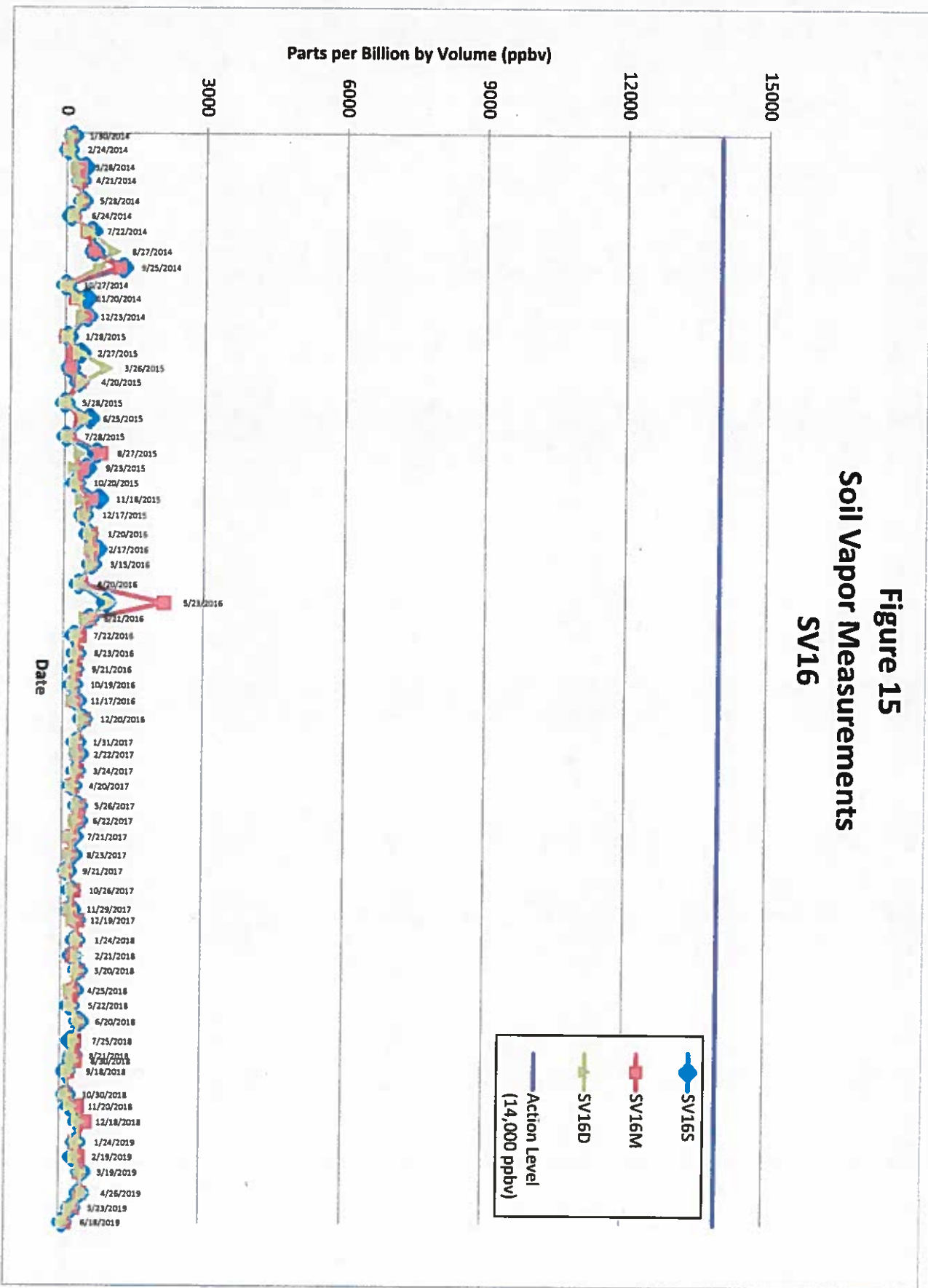


Figure 15
Soil Vapor Measurements
SV16

Figure 16
Soil Vapor Measurements
SV17

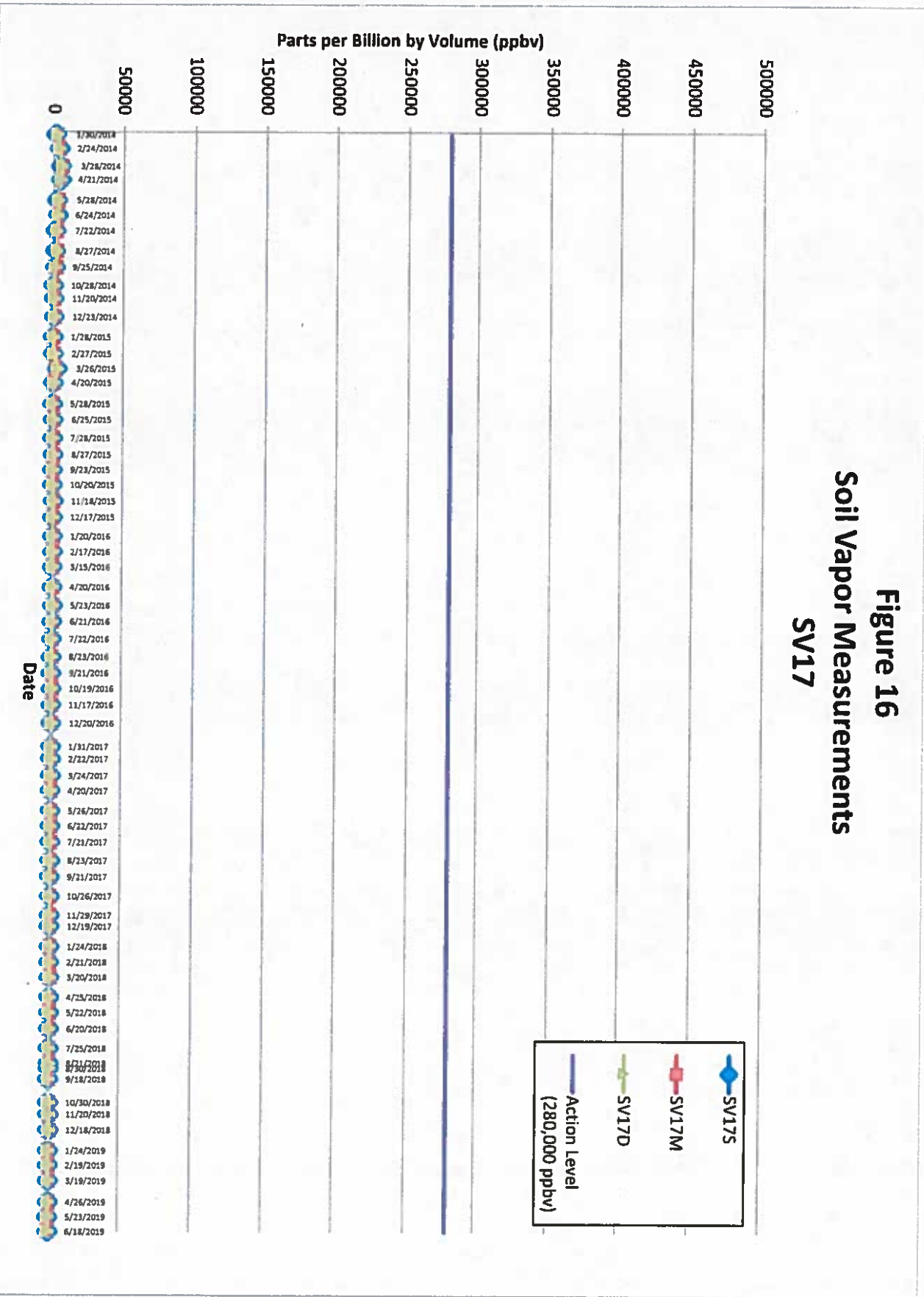


Figure 17
Soil Vapor Measurements
SV18

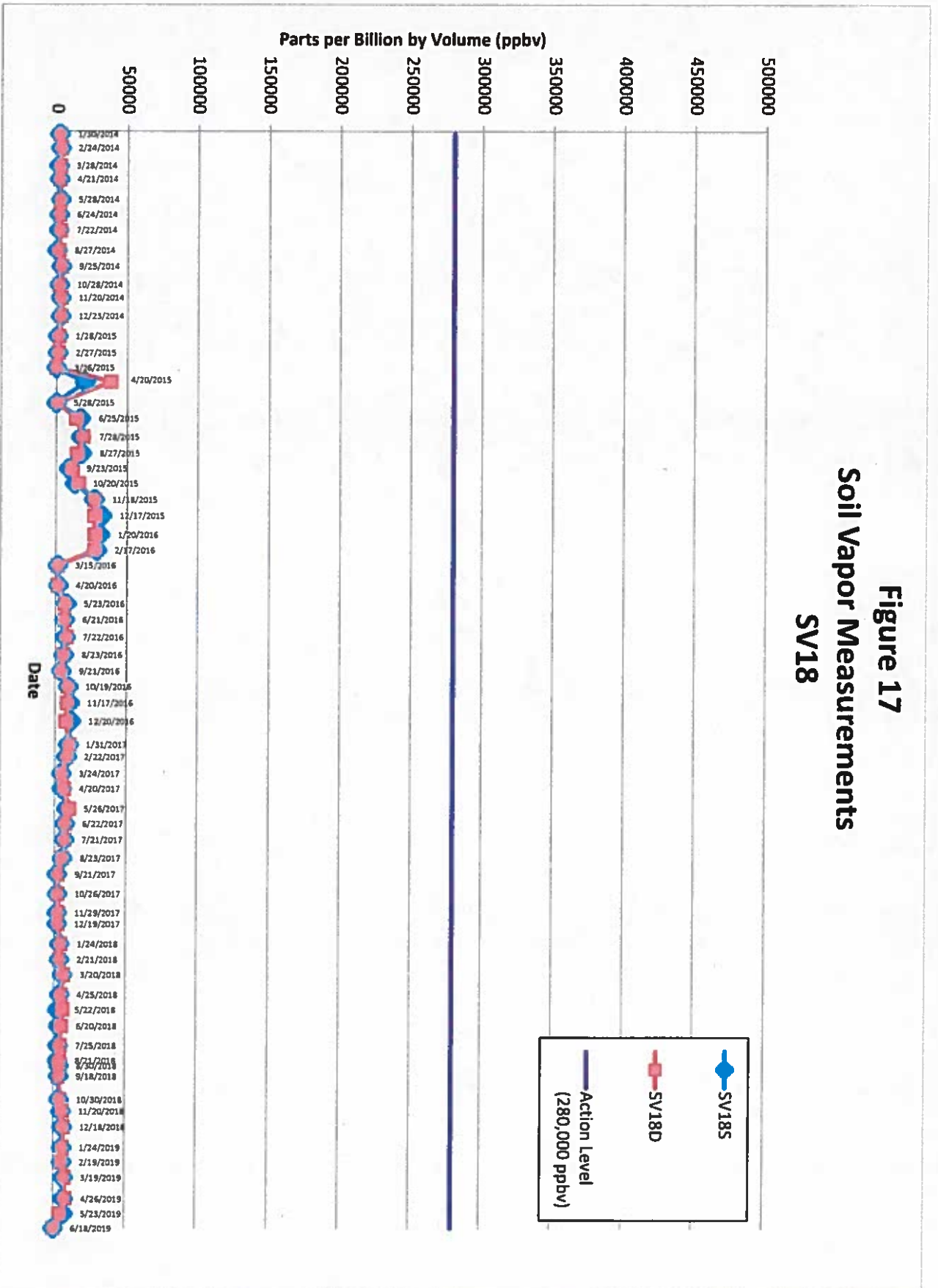
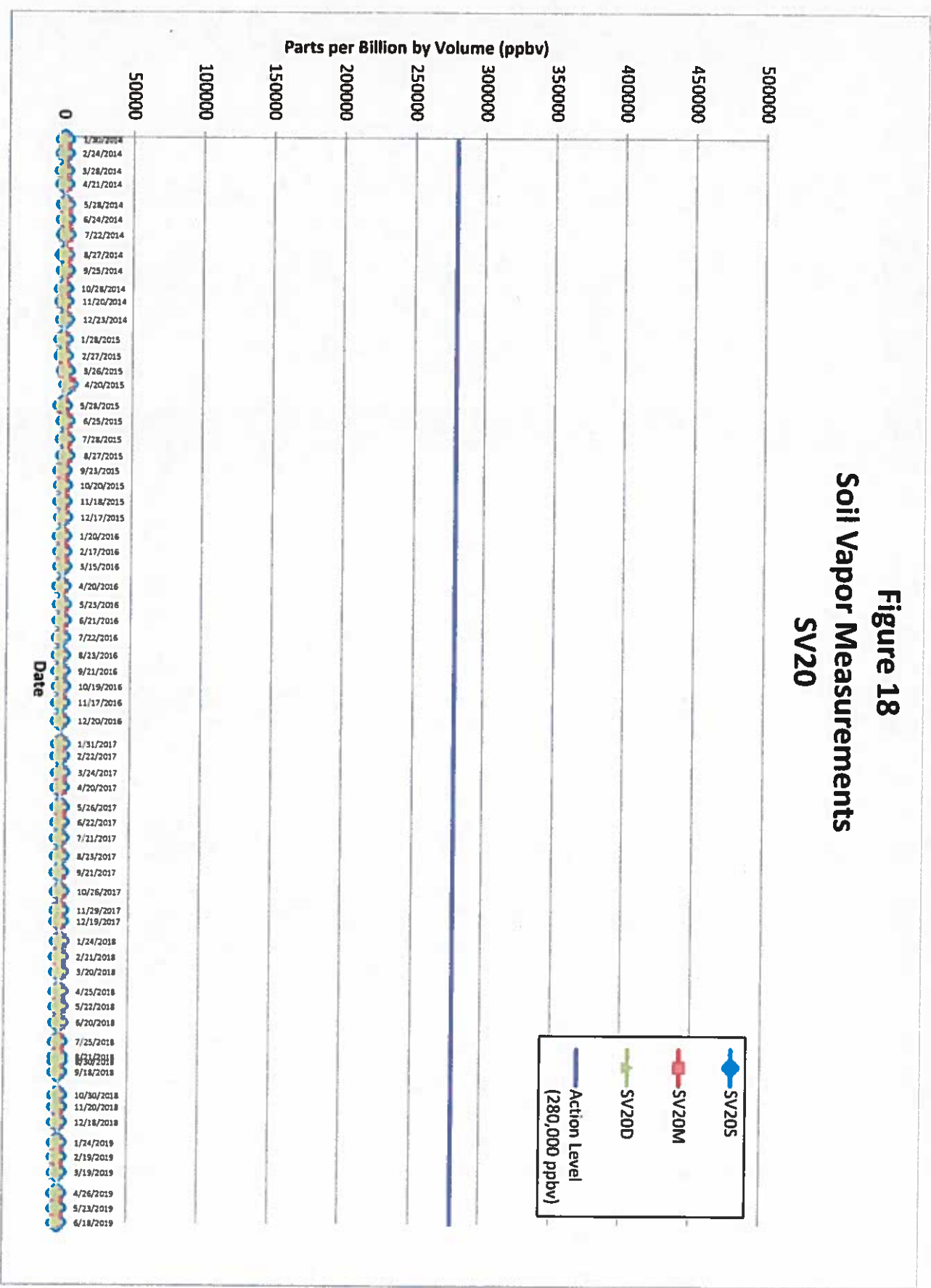


Figure 18
Soil Vapor Measurements
SV20



06 Aug 2019

From: Deputy Director, Fuel Department, NAVSUP FLC Pearl Harbor, HI
To: Environmental Department, NAVFAC Pearl Harbor, HI

Subj: NAVSUP FLC PEARL HARBOR CAUSATIVE RESEARCH REPORT IRT RED HILL
SOIL VAPOR MONITORING REPORT FOR JUNE 2019

Ref: (a) Red Hill Bulk Fuel Storage Facility Groundwater Protection Plan
(b) Red Hill Soil Vapor Monitoring Report for Round 135, dtd 24 June 2019

1. Ref (a) requires NAVSUP FLCPH investigate possible fuel leaks. Refs (b) reported the following soil vapor monitoring results at the Red Hill Fuel Storage Facility:

- Strong increase trends at tanks 5 and 6
- Slight increase trends at tanks 7 and 20

2. FLCPH causative research and findings:

- a. Reviewed all AFHE Unscheduled Fuel Movement (UFM) Alarm Summaries and UFM Reports. The following UFM's were recorded between sampling events 134 and 135 during the period of 24 May 2019 – 18 June 2019:

06 June: RH 02: A high-level warning and critical UFM occurred after completion of an evolution. Inspected tank galleries, valves, and piping and there was no evidence of a leak or spill. Tank was manually top-gauged, and the level was in tolerance and not overfilling. Trouble ticket initiated and closed. Problem diagnosed as UFM set points not updating prior to completion of evolution. Confirmed no release of fuel from the tank occurred.

11 June: RH 15: A low-level warning and critical UFM occurred while tank was idle. Inspected tank galleries, valves, and piping and there was no evidence of a leak or spill. Tank was manually top-gauged, and the level was in tolerance. Confirmed no release of fuel from the tank occurred.

15 June: RH 12: A high-level critical and warning UFM and bad process variable data alarm occurred while tank was idle. Inspected tank galleries, valves, and piping and there was no evidence of a leak or spill. Tank was manually top-gauged, and the level was in tolerance and not overfilling. Trouble ticket initiated but condition has not reoccurred. Confirmed no release of fuel from the tank occurred.

18 June: RH 15: A high-level warning UFM occurred after completion of an evolution. Inspected tank galleries, valves, and piping and there was no evidence of a leak or spill. Tank was manually top-gauged, and the level was in tolerance and not overfilling. Trouble ticket initiated. Problem diagnosed as UFM set points not updating prior to completion of evolution. Confirmed no release of fuel from the tank occurred.

ENCLOSURE(2)

**Subj: NAVSUP FLC PEARL HARBOR CAUSATIVE RESEARCH REPORT IRT RED HILL
SOIL VAPOR MONITORING REPORT FOR JUNE 2019**

- b. Reviewed Red Hill Inventory Trend Analysis Reports for June 2019; reports did not reveal evidence of a loss of fuel in any Red Hill tank.
 - c. Red Hill maintenance and repair contractors did not report any factors that could have influenced increase in trends.
 - d. Inspection of the area surrounding all Red Hill tanks did not show evidence of a fuel leak or evidence that fuel was spilled in the area.
 - e. All active tanks have passed tank tightness testing within the required periodicity.
4. There is no evidence of a leaking tank in the Red Hill Complex or evidence of a spill that may have contributed to elevated soil vapor VOC levels in the area of elevated VOC concentrations.

FLOYD.JOHN.LEWIS
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ou=USM, c=FLOYD.JOHN.LEWIS.1064149357
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JOHN FLOYD