



DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION HAWAII
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JBPHH, HAWAII 96860-5101

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Ser N45/0582
August 28, 2017

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Mr. Richard Takaba
Hawaii State Department of Health
Environmental Management Division
Solid and Hazardous Waste Branch
Underground Storage Tank Section
919 Ala Moana Blvd, Room 212
Honolulu, HI 96814

Dear Mr. Takaba:

SUBJECT: RED HILL TANK COMPLEX
SOIL VAPOR SAMPLING RESULTS FOR JULY 2017
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 21, 2017.

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.

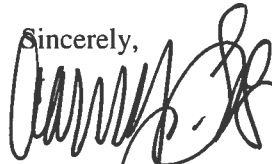
At Tank 5, the concentrations of VOCs detected in the front, middle, and outer edge soil vapor monitoring probes were 50,333 ppbv, 6,207 ppbv, and 15,490 ppbv, respectively. Tank 5 was emptied in January 2014 and has not contained fuel since that time. VOC concentrations in all down-gradient soil vapor monitors were below 750 ppbv.

All other VOC concentrations measured in July were about 25 to 1,000 times below the action levels, with no consistent trends observed. As a measure of precaution, NAVSUP FLC Pearl Harbor conducts causative research for all tanks which exhibit increasing slope trends of soil vapor concentrations over the last four sampling events. The causative research report for the July 2017 sampling event is submitted as Enclosure 2. Possible reasons for the increasing trends are speculative and may include, but are not limited to, ongoing projects in the tunnel, groundwater level fluctuations, rainfall, biodegradation of residual fuel from past leaks trapped in the vadose zone, and fuel movement in the tanks and piping.

Soil vapor VOC concentration trends will continue to be monitored. The next soil vapor sampling event is scheduled for August 2017, 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 Mr. Melvin Muraoka at (808) 471-3869.

Sincerely,


A. 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 July 2017 (18 pages)
2. NAVSUP FLC Pearl Harbor Causative Research Report IRT Red Hill Soil Vapor Monitoring Report for July 2017

Copy to: Mr. Bob Pallarino, U.S. EPA Region 9, Underground Storage Tank Program Office
Mr. John Floyd, NAVSUP FLC Pearl Harbor
Mr. Rockne Krill, DLA Energy Pacific

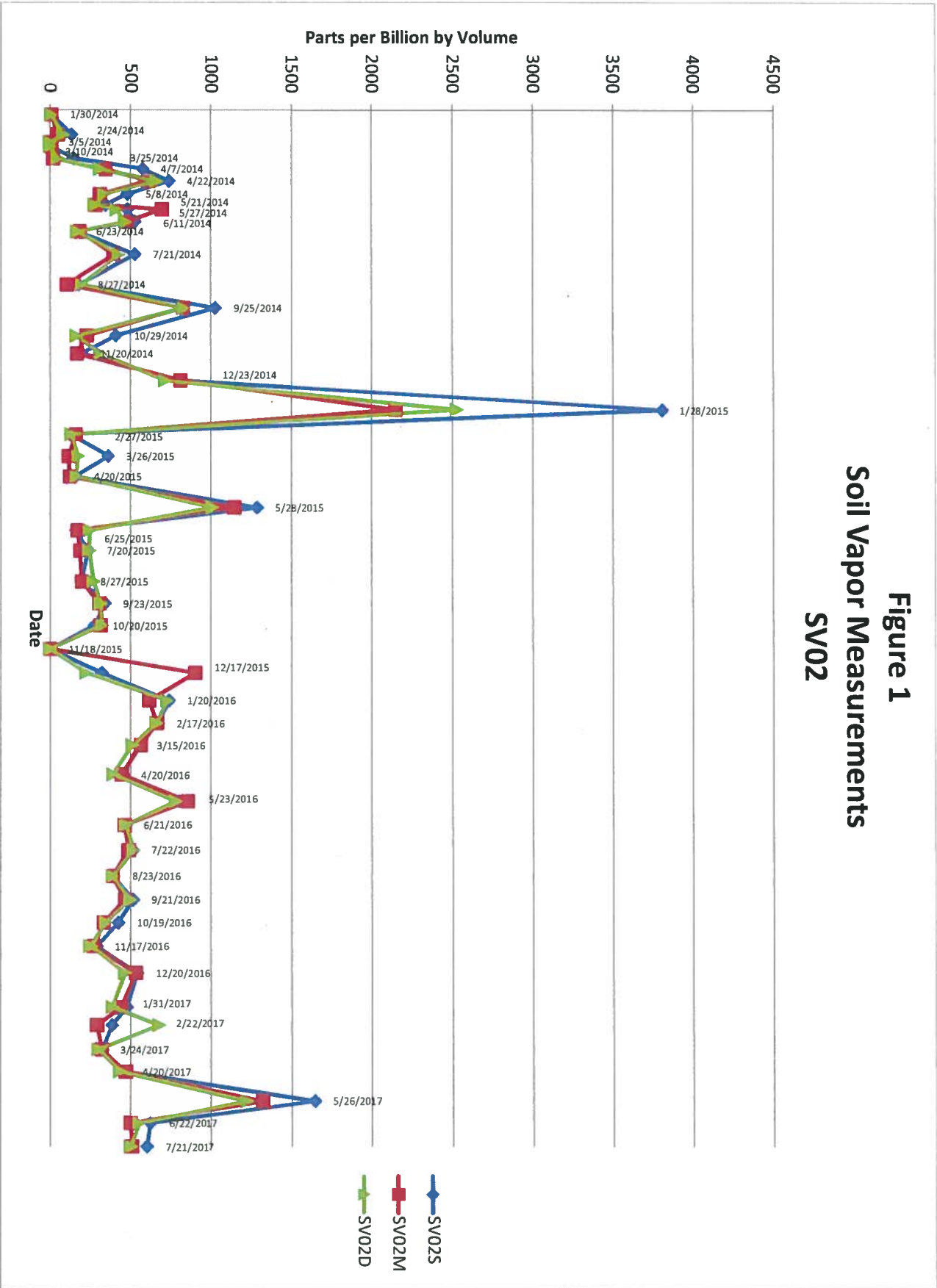


Figure 1
Soil Vapor Measurements
SV02

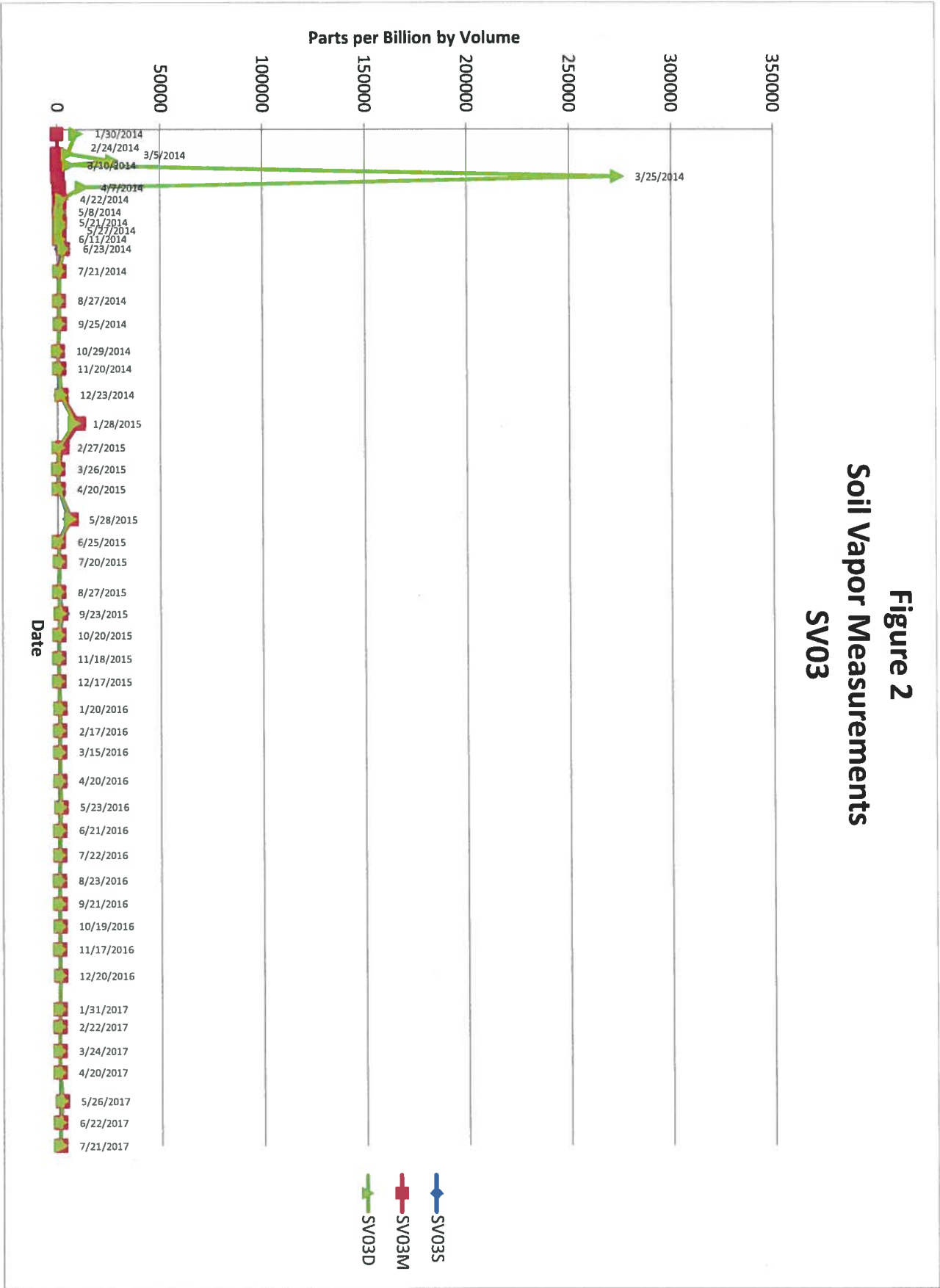


Figure 2
Soil Vapor Measurements
SV03

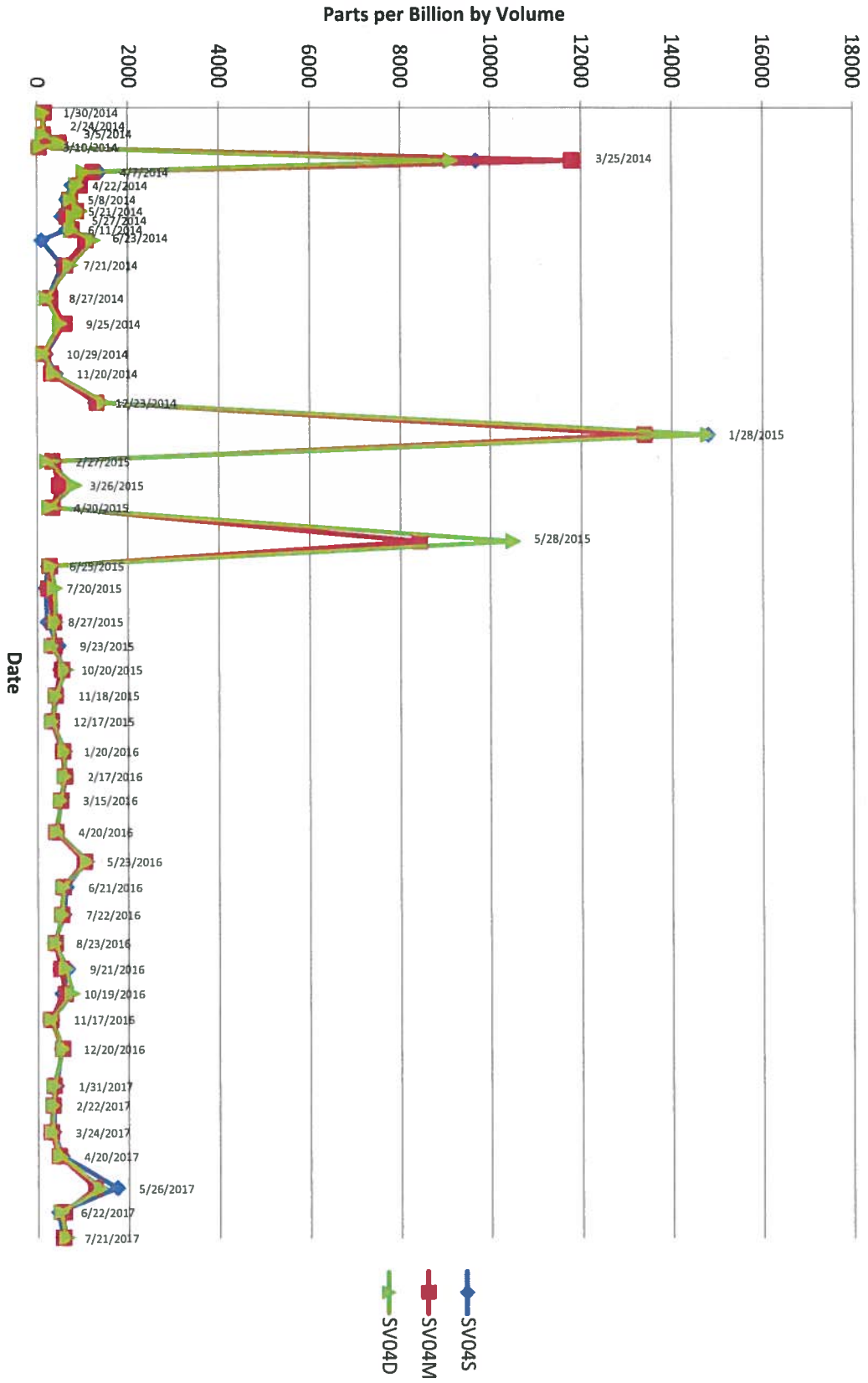


Figure 3
Soil Vapor Measurements
SV04

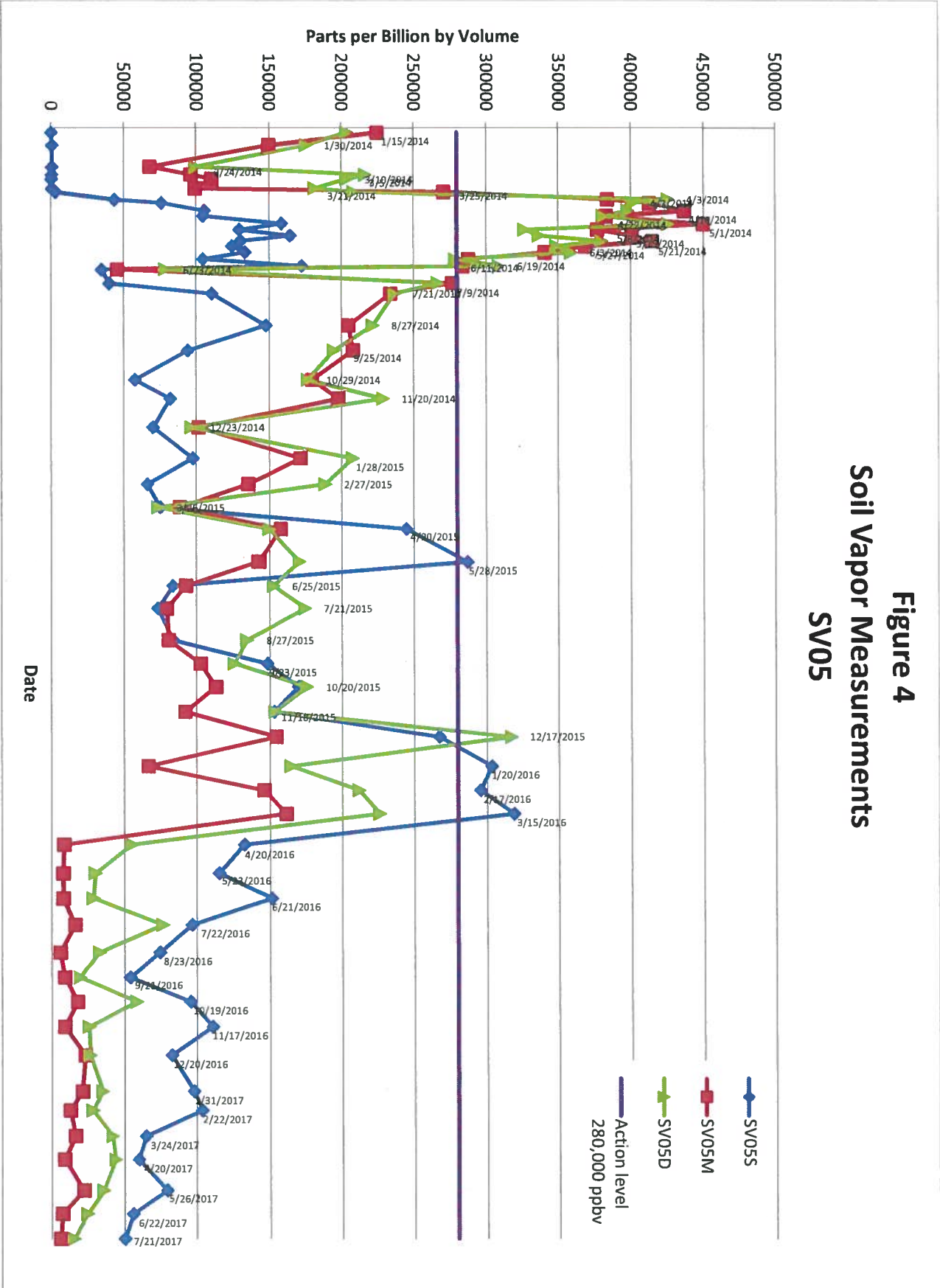


Figure 4
Soil Vapor Measurements
SV05

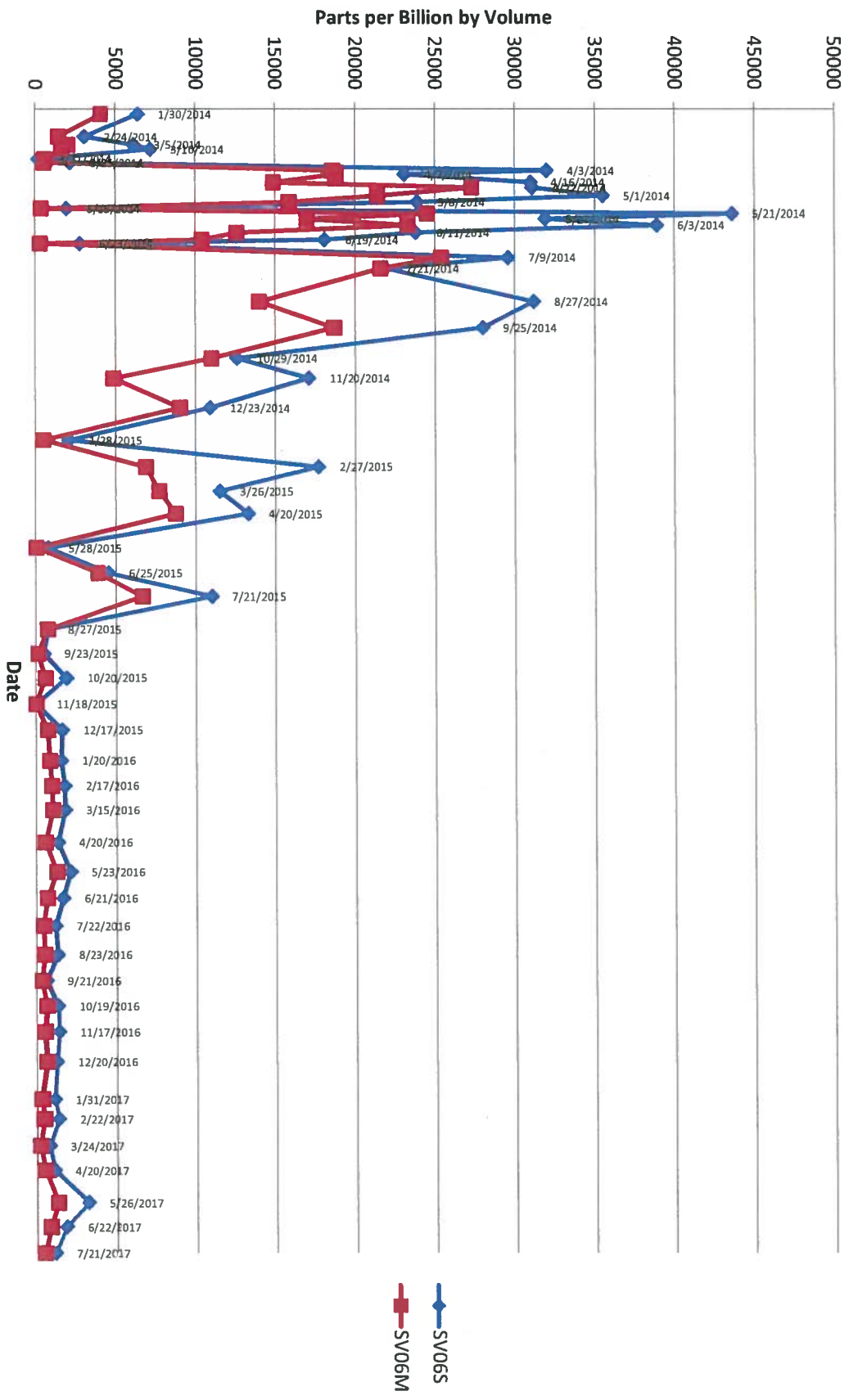


Figure 5
Soil Vapor Measurements
SV06

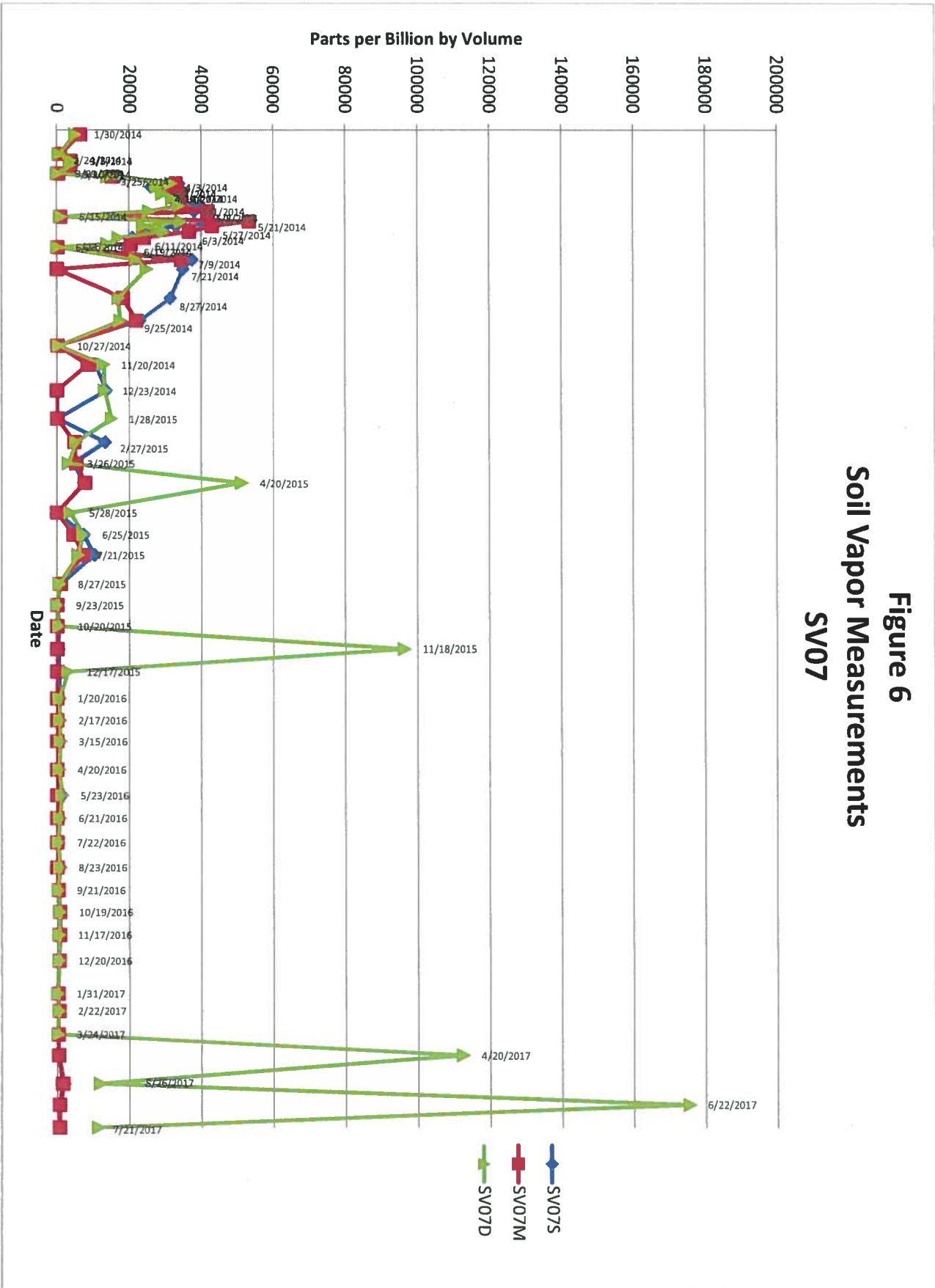


Figure 6
Soil Vapor Measurements
SV07

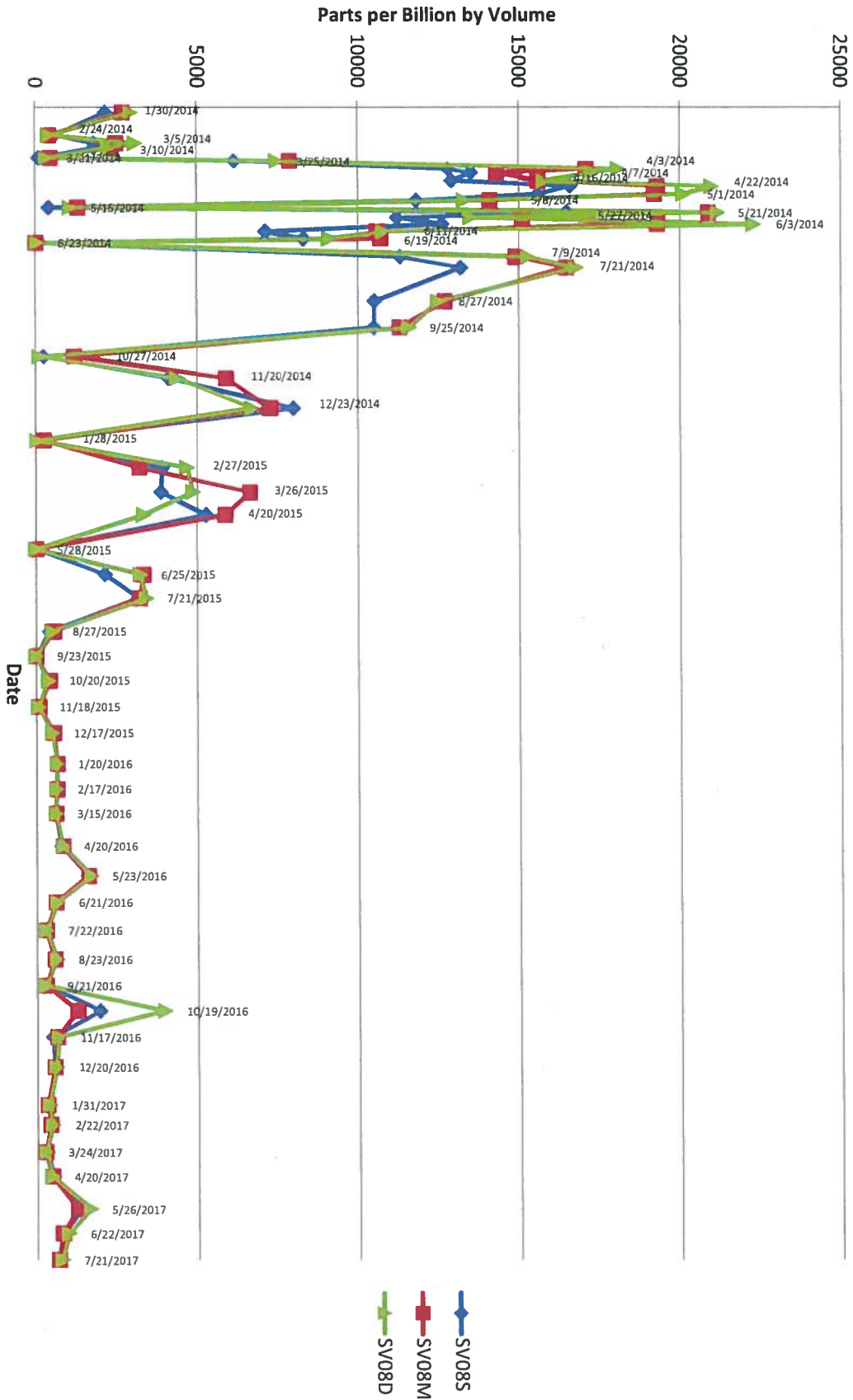


Figure 7
Soil Vapor Measurements
SV08

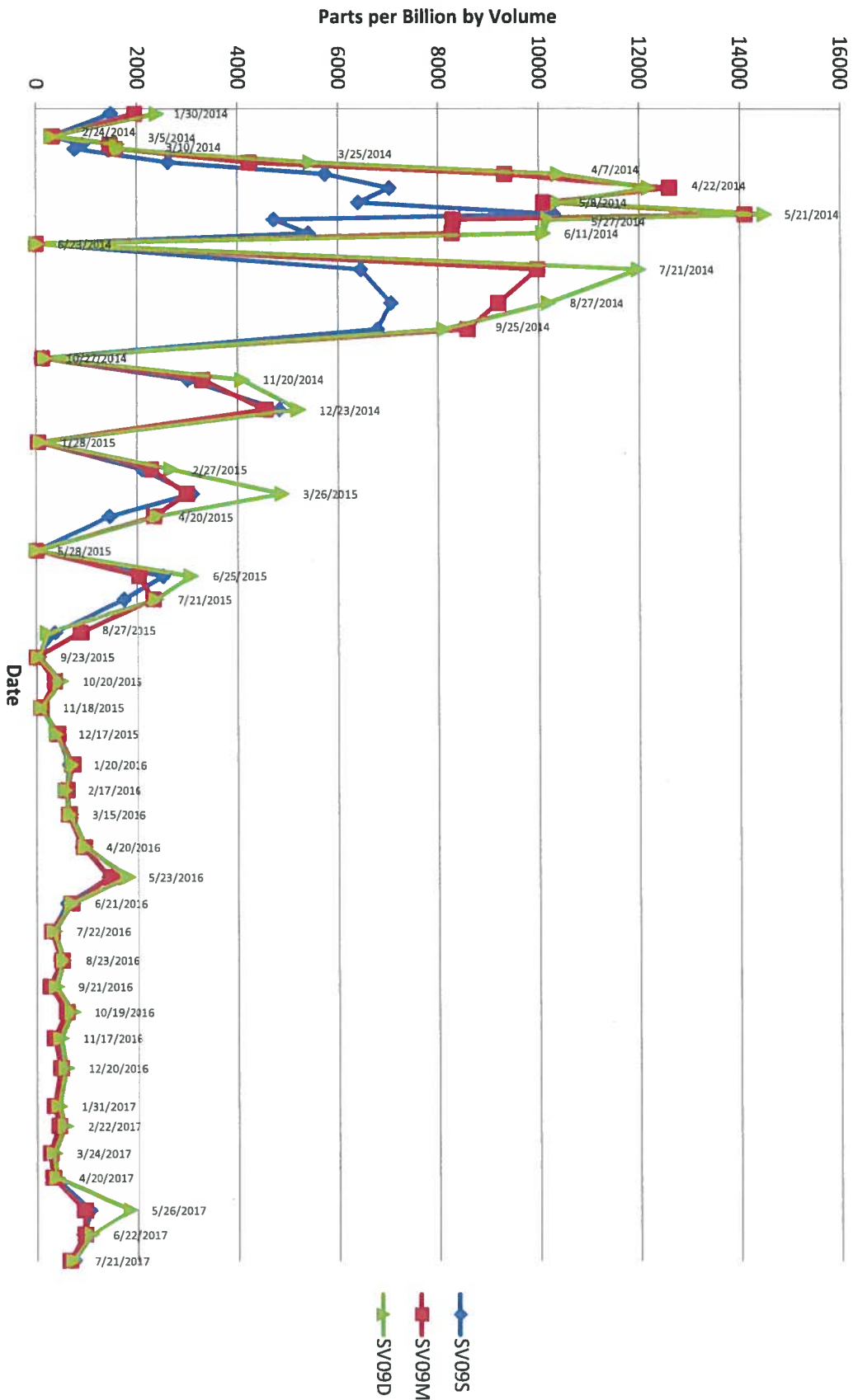


Figure 8
Soil Vapor Measurements
SV09

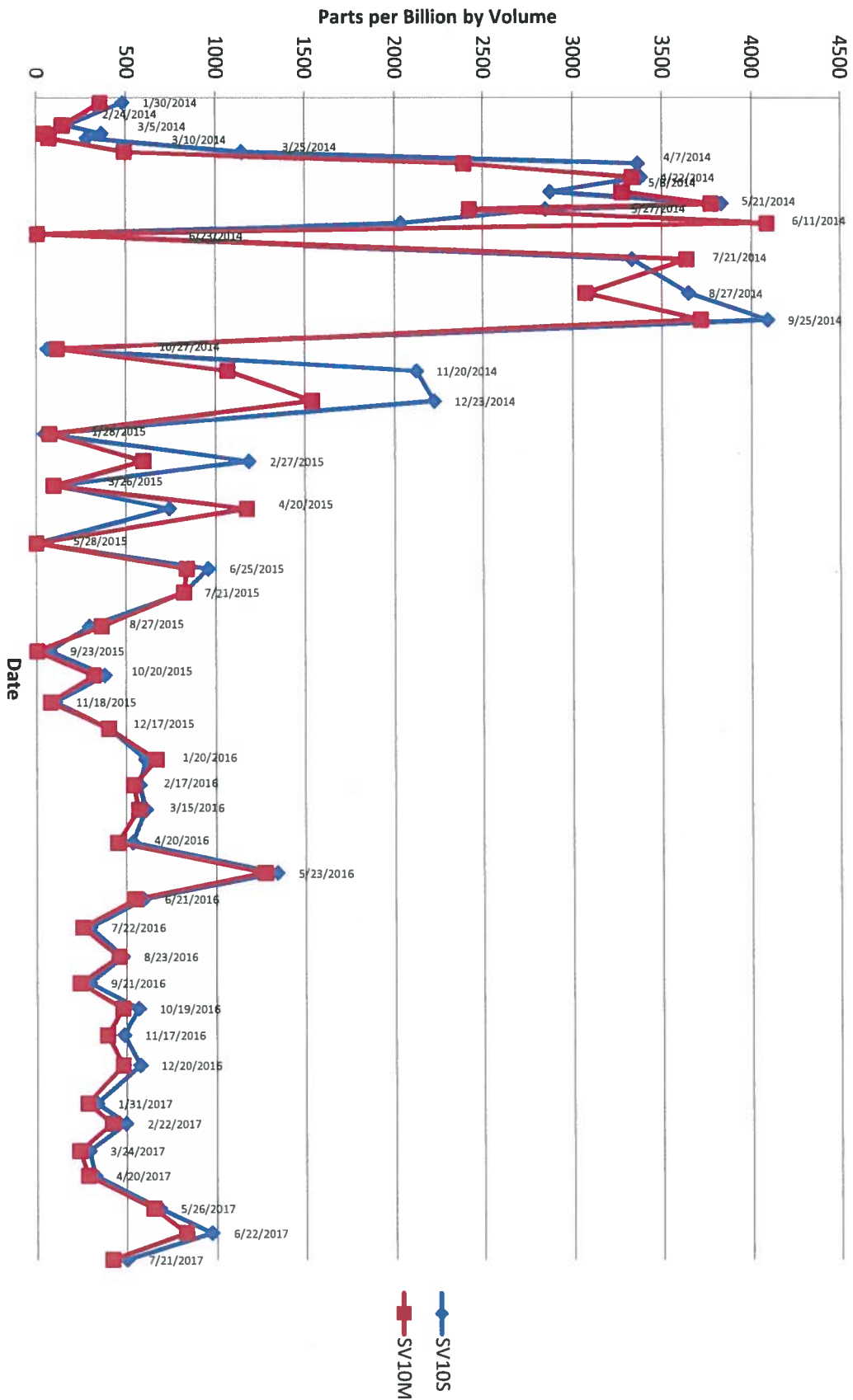


Figure 9
Soil Vapor Measurements
SV10

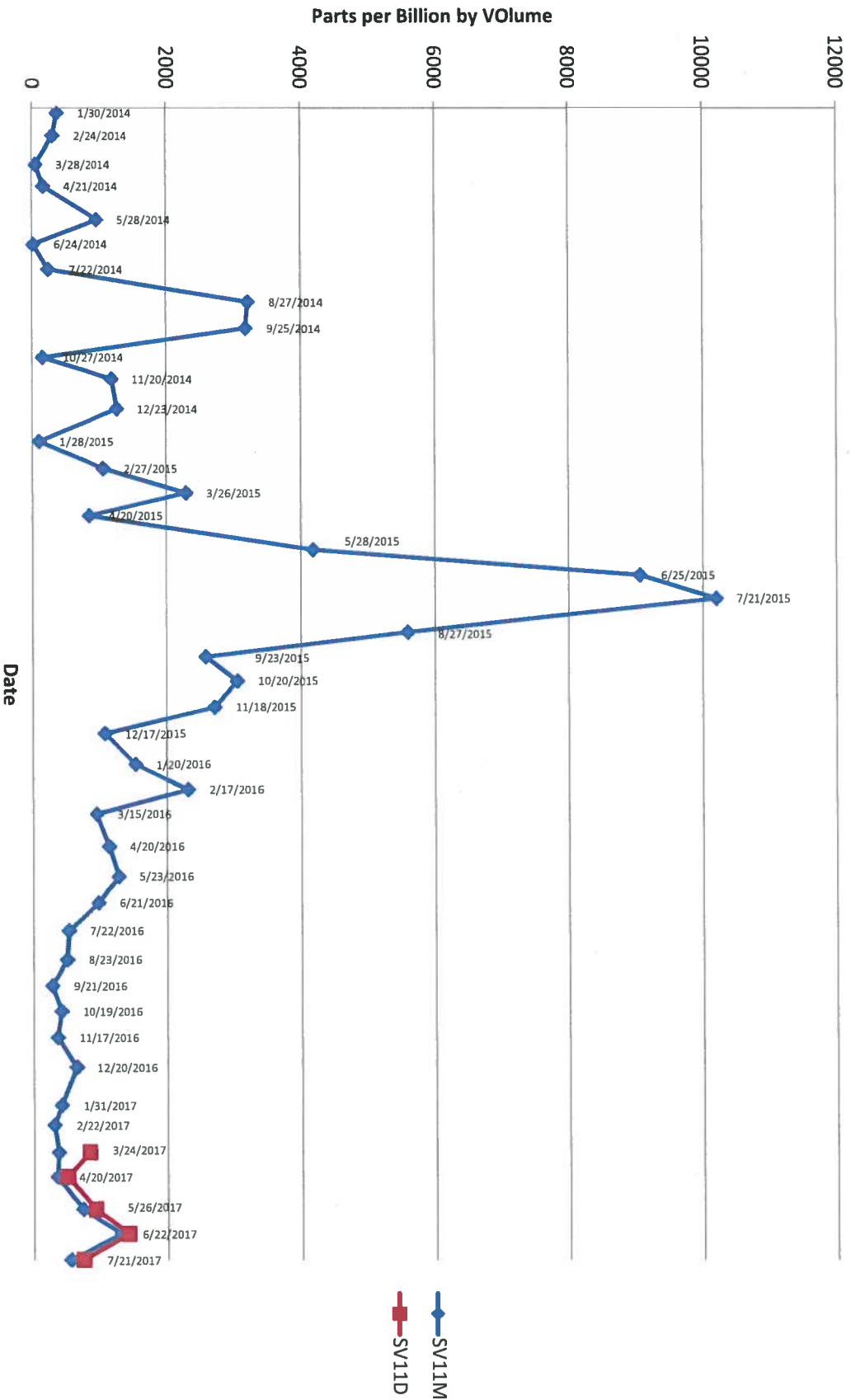


Figure 10
Soil Vapor Measurements
SV11

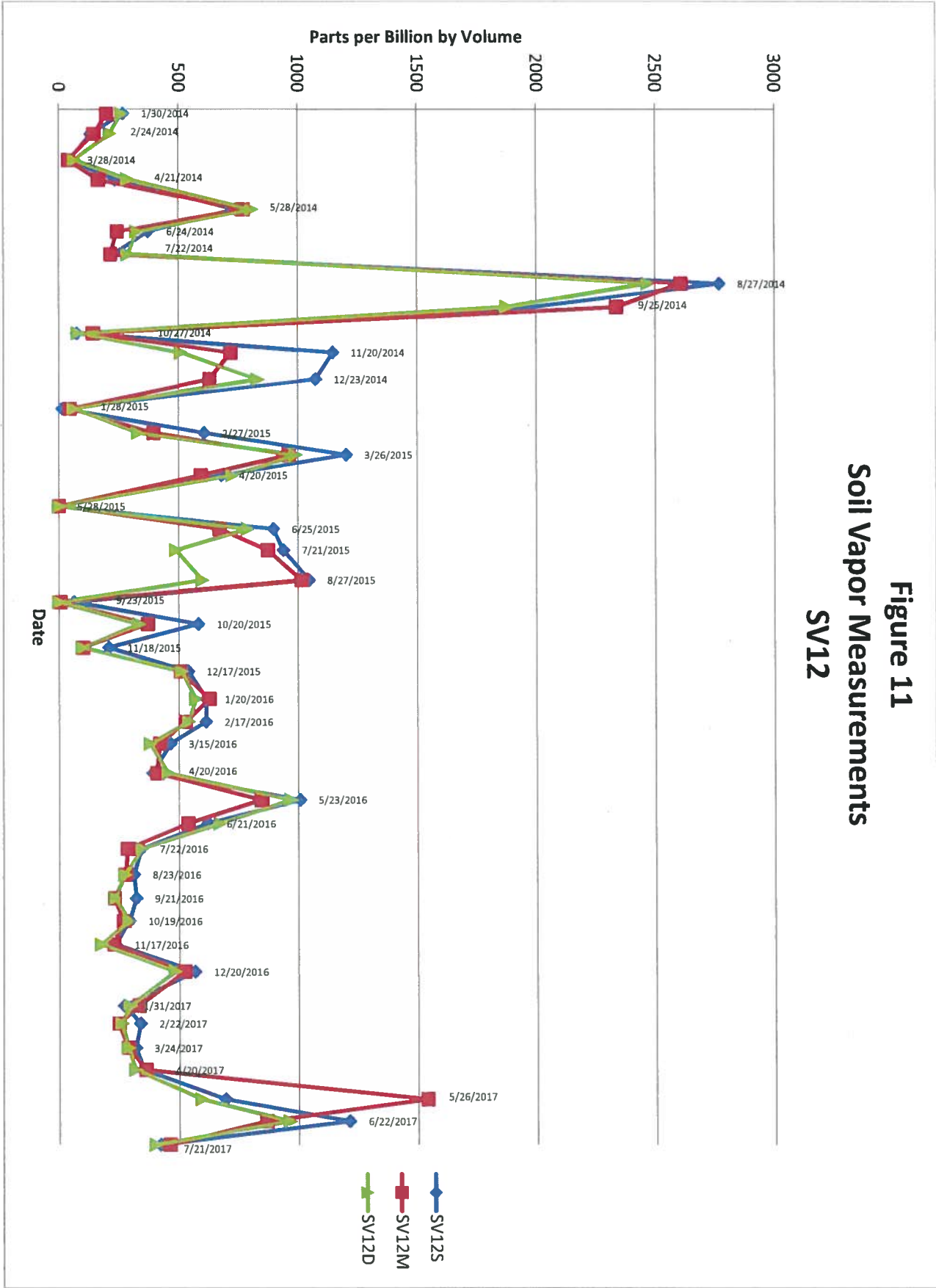
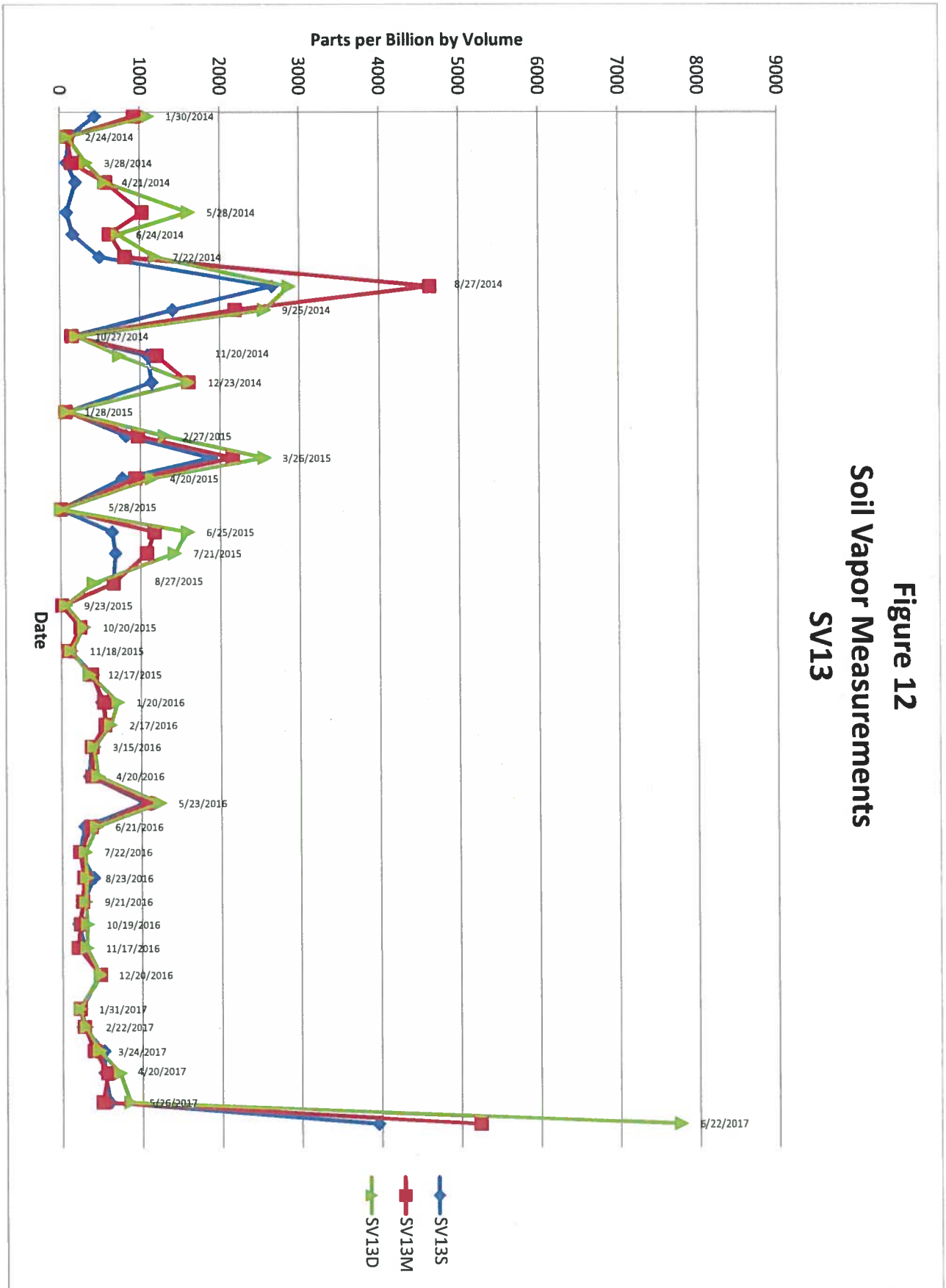


Figure 11
Soil Vapor Measurements
SV12

Figure 12
Soil Vapor Measurements
SV13



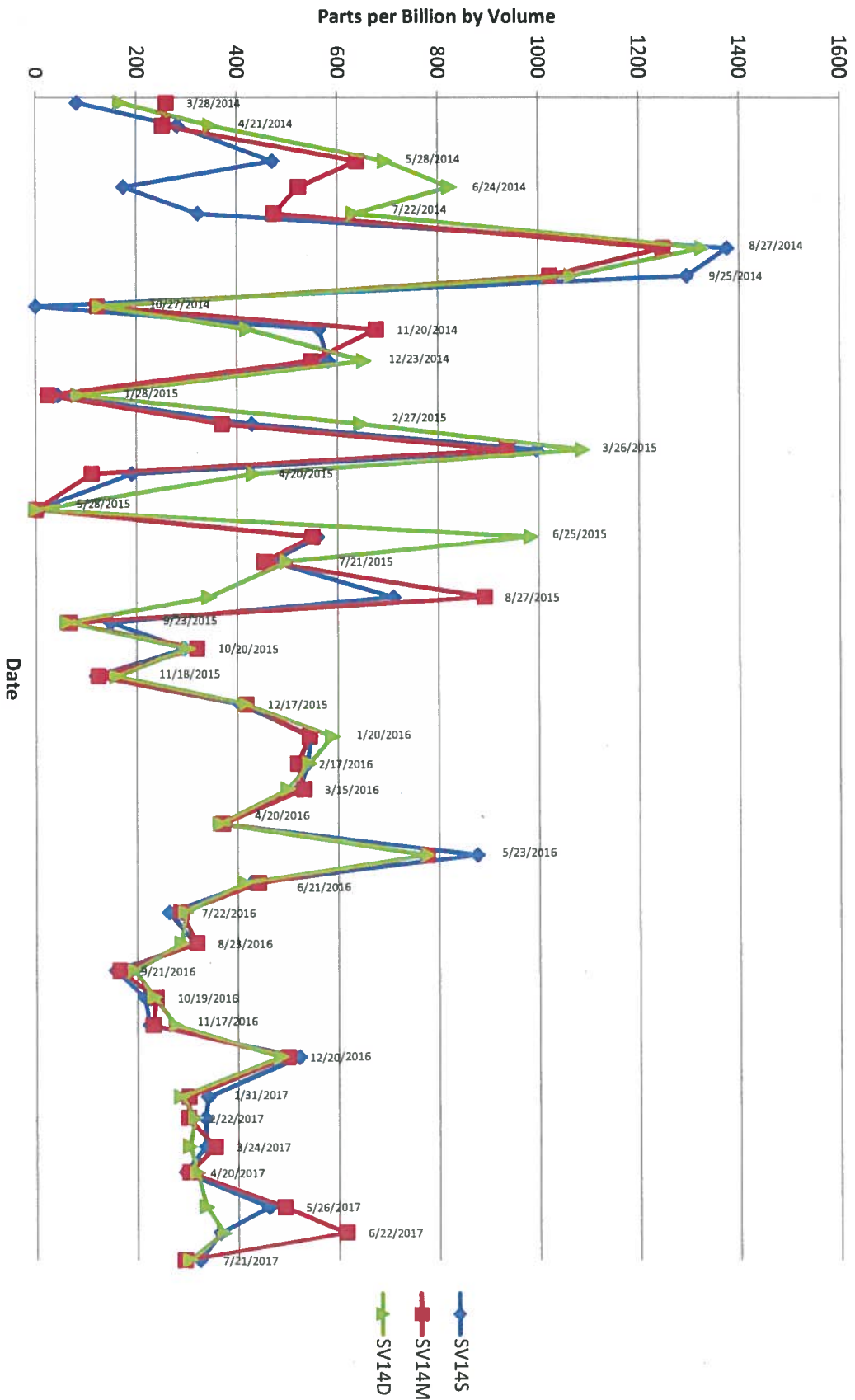


Figure 13
Soil Vapor Measurements
SV14

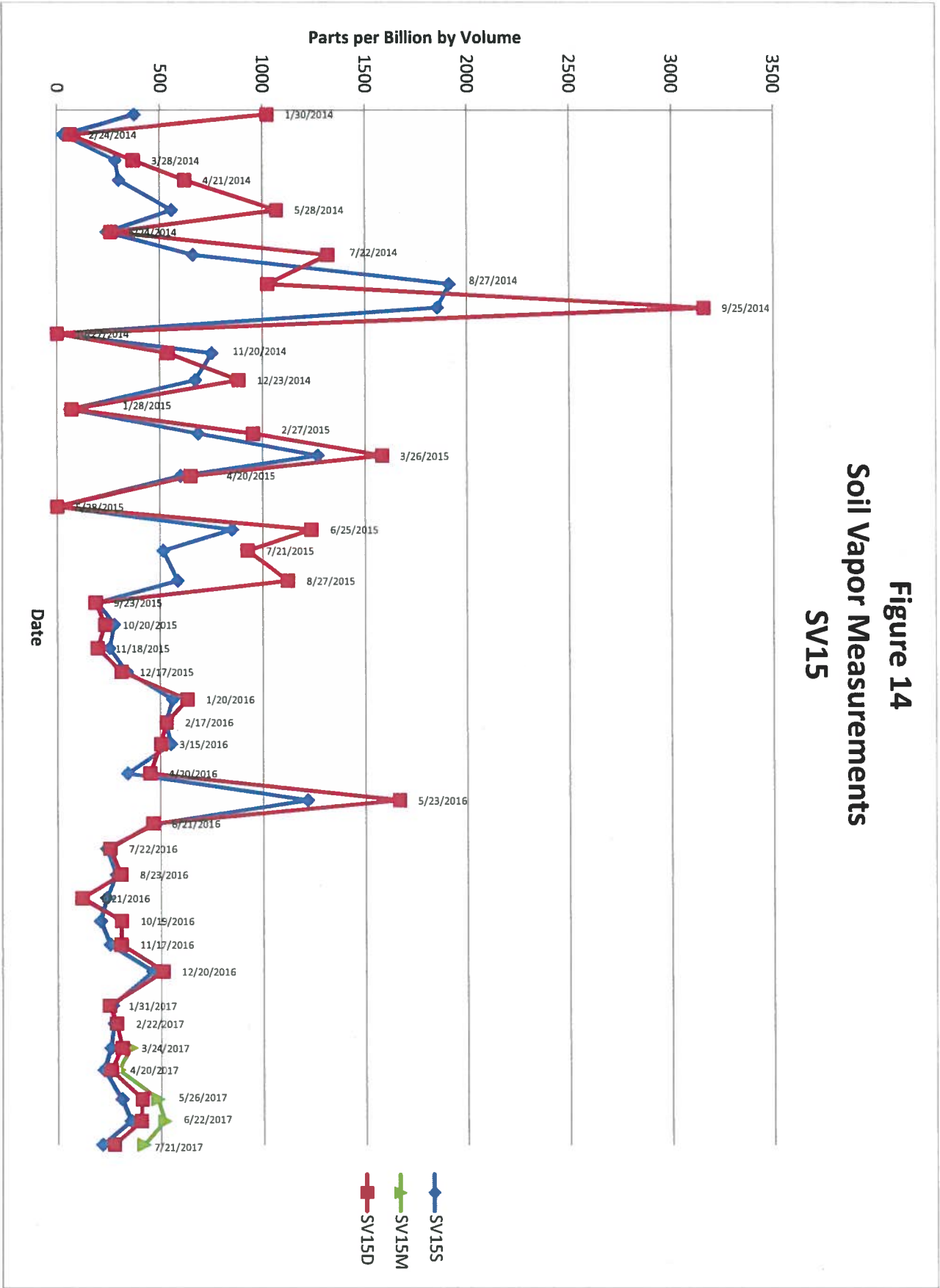


Figure 14
Soil Vapor Measurements
SV15

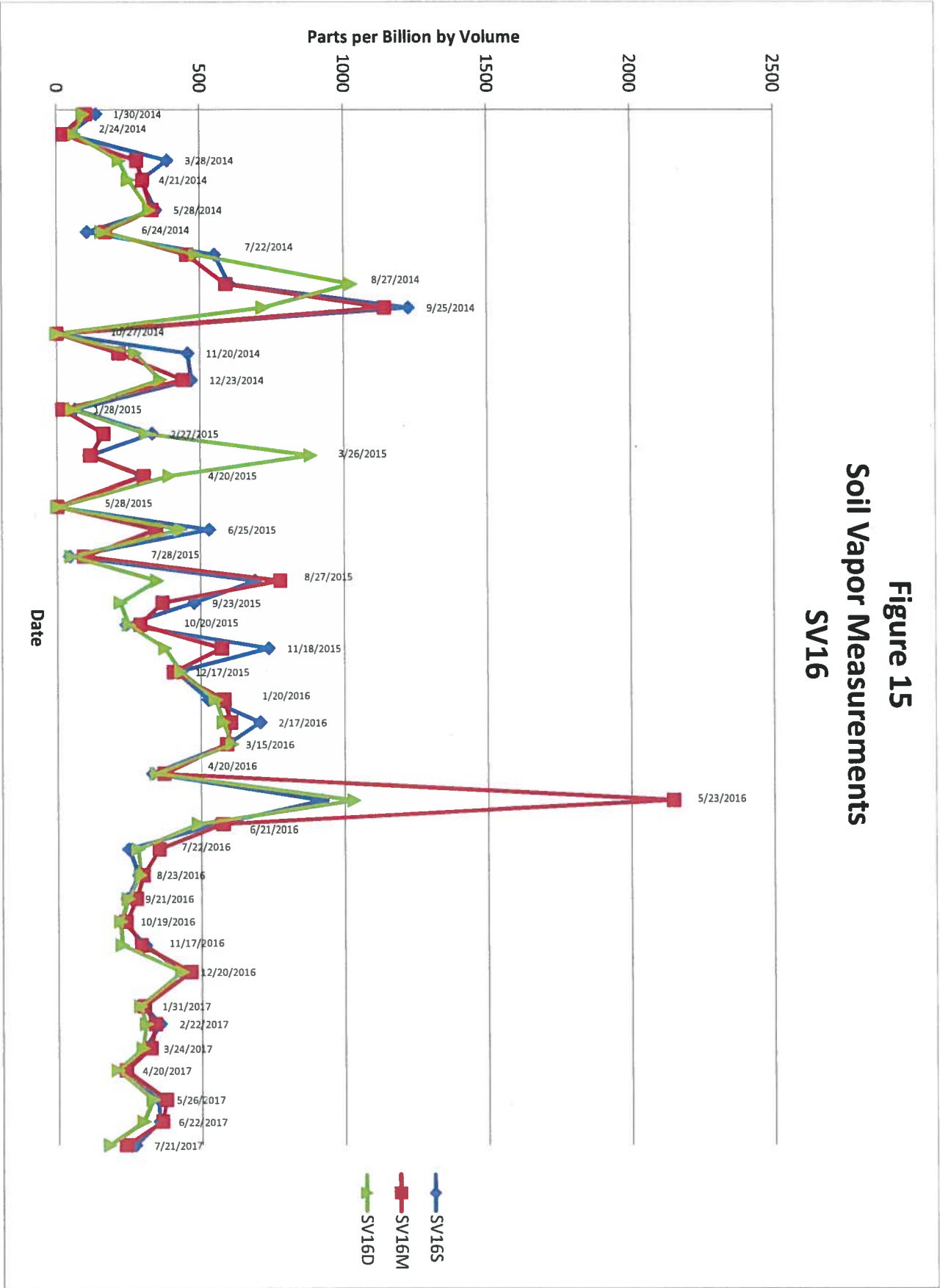


Figure 15
Soil Vapor Measurements
SV16

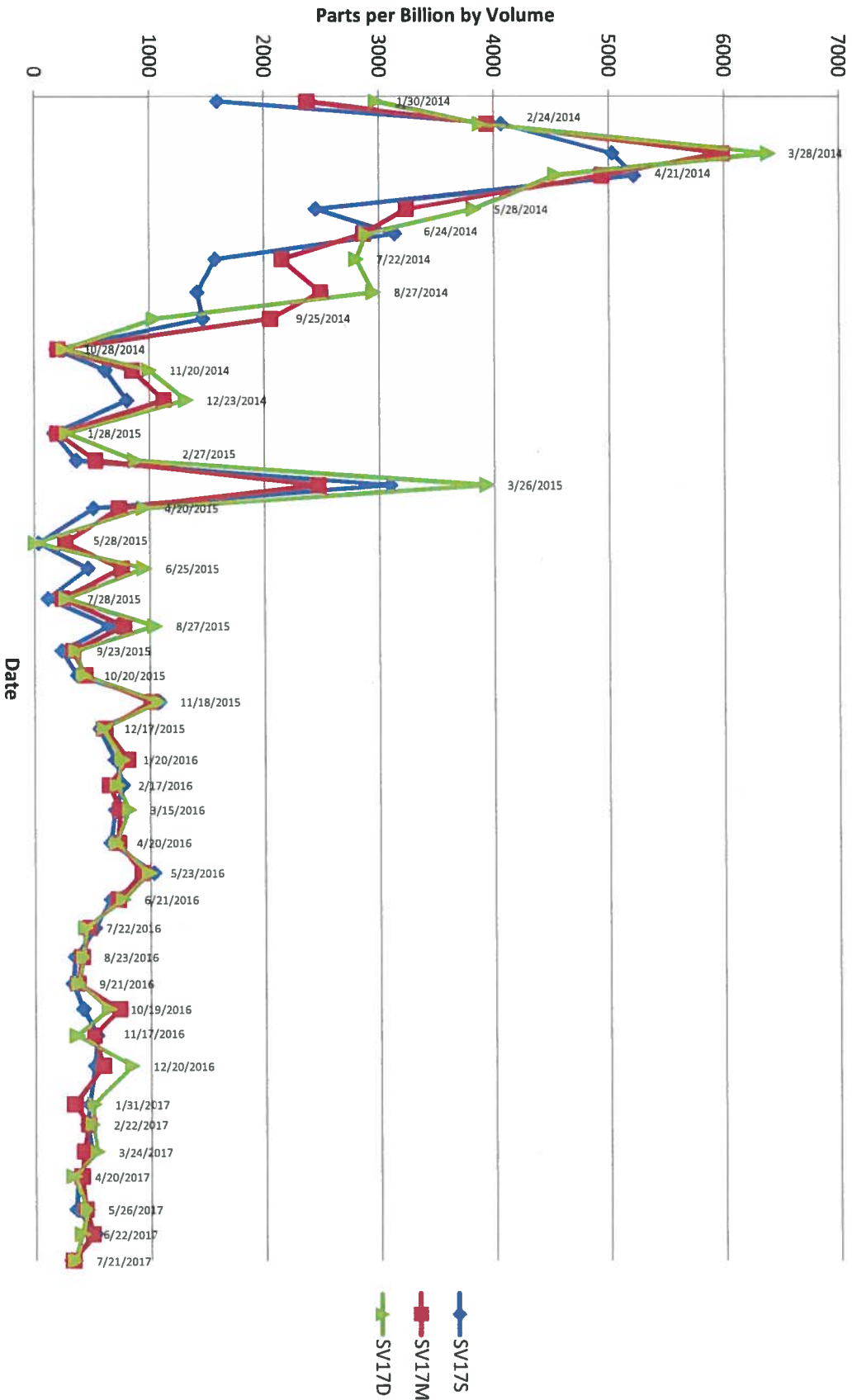


Figure 16
Soil Vapor Measurements
SV17

Figure 17
Soil Vapor Measurements
SV18

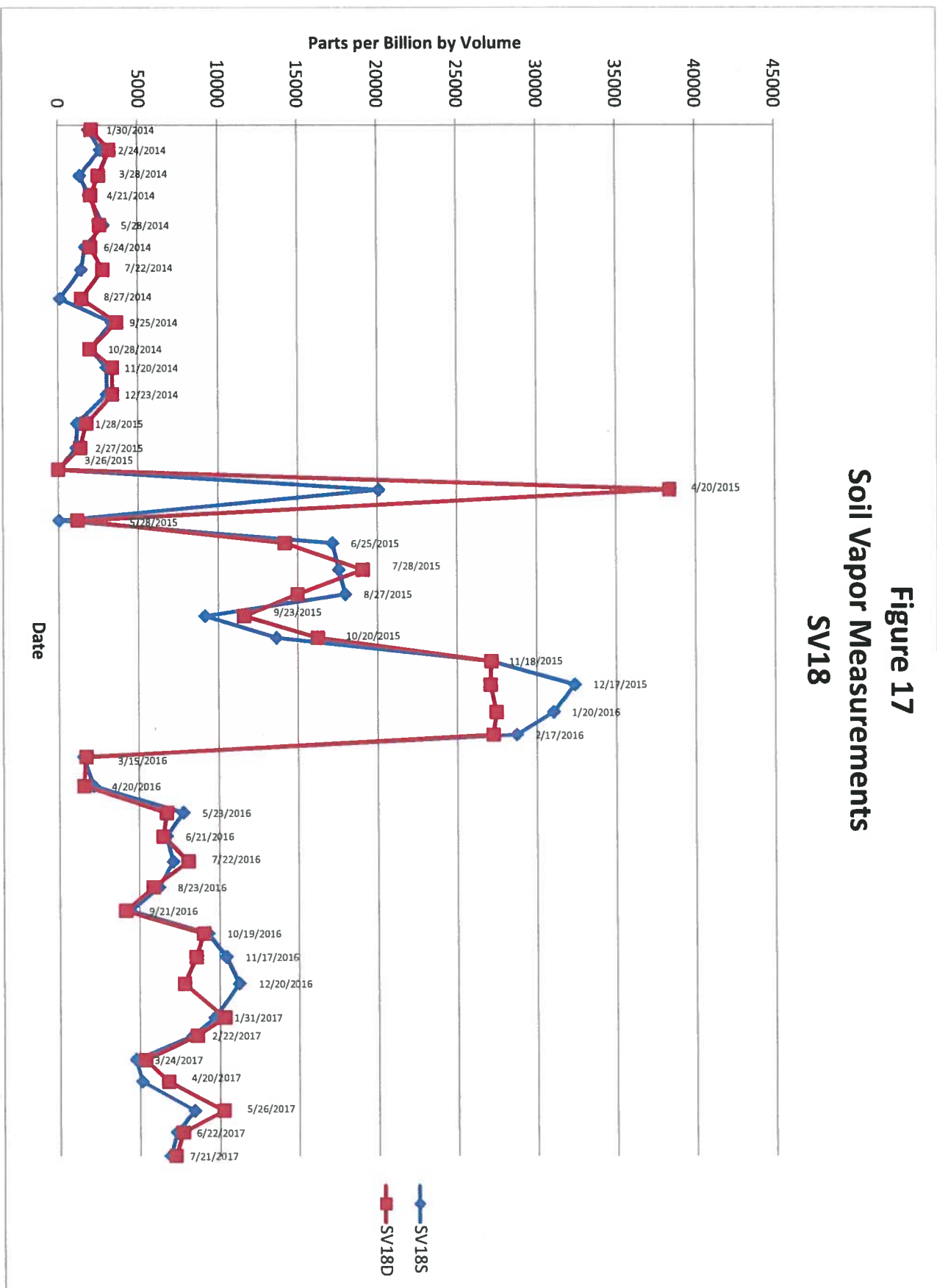
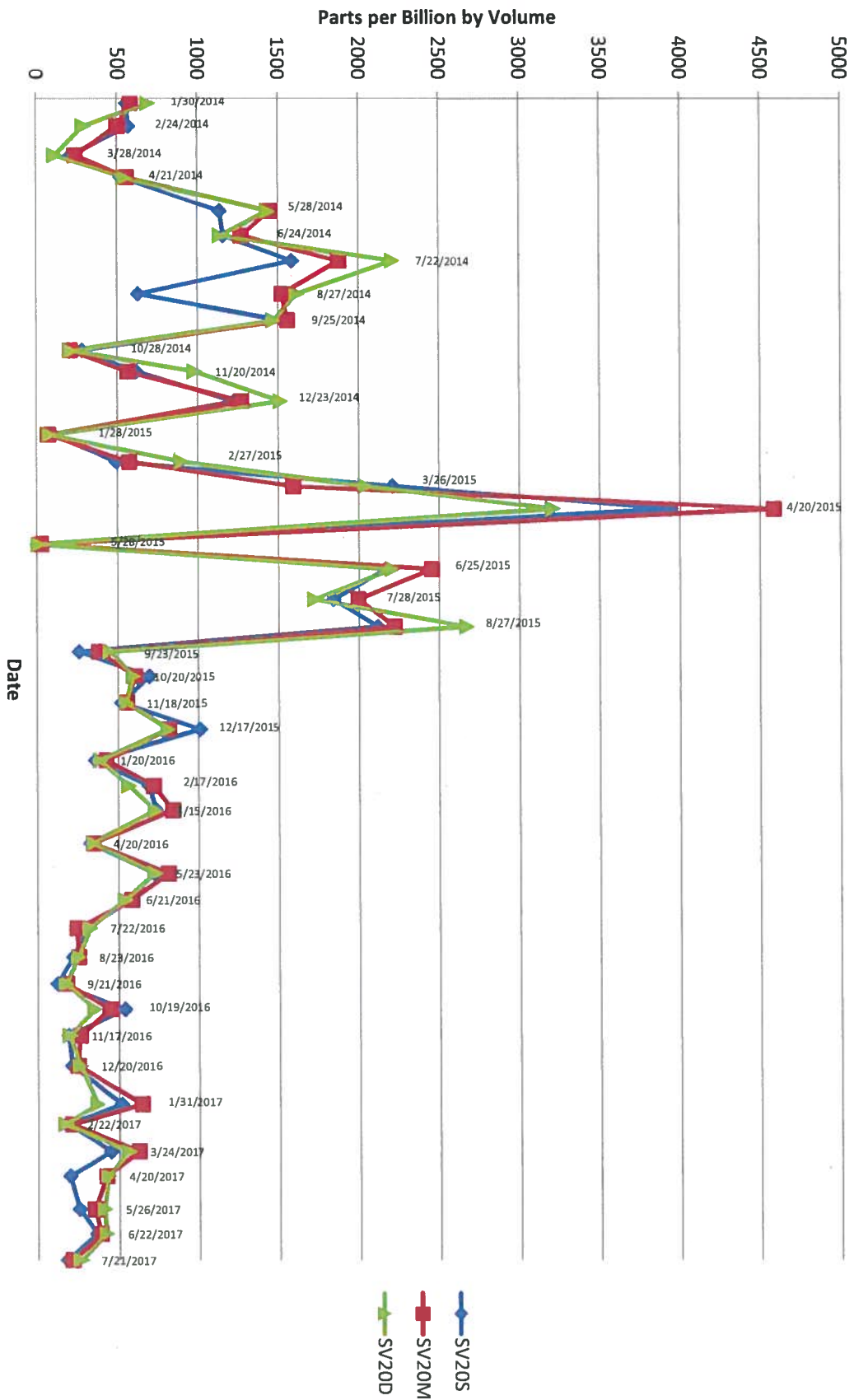


Figure 18
Soil Vapor Measurements
SV20



22 Aug 2017

From: 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 JUL 2017

Ref: (a) Red Hill Bulk Fuel Storage Facility Groundwater Protection Plan
(b) Red Hill Soil Vapor Monitoring Report for Round 111, dtd 28 Jul 2017

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:

- a. Moderate increase in slope trends at tank 18.
- b. A slight increase in slope trends at tanks 3, 8, 9, 10, 11, 12, 14, 15, 16, 17, and 20.

2. FLCPH causative research and findings:

- a. Reviewed all AFHE Unscheduled Fuel Movement (UFM) Alarm Summaries and UFM Reports. Seven (7) UFM's were recorded for the month of July 2017; however all of the UFM's were related to systems malfunctions and determined to not be a result of an unscheduled movement of fuel.
 - Six (6) UFM's that occurred on tanks 2, 3, 6, 7, 10, and 16 were caused by a issue with the UPS system which caused a computer outage.
 - One (1) UFM for tank 8 was caused by a probe error between the tank and computer.
- b. Reviewed Red Hill Inventory Trend Analysis Reports for July 2017; reports did not reveal evidence of a loss of fuel in any Red Hill tank.
- c. 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.
- d. Contractors performing work in Red Hill did not perform any work that could have caused or contributed to higher VOC concentrations at or near the affected Red Hill tanks.
- e. All active tanks have passed tank tightness testing within the required periodicity.

4. There's 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.

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