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DEPARTMENT OF THE NAVY

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

5090
Ser N45/0413
January 22, 2018

CERTIFIED NO: 7015 0640 0002 4677 9244

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

Dear Mr. Takaba:

**SUBJECT: RED HILL TANK COMPLEX
SOIL VAPOR SAMPLING RESULTS FOR DECEMBER 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 DECEMBER 19, 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 24,653 ppbv, 13,310 ppbv, and 14,453ppbv, 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 410 ppbv.

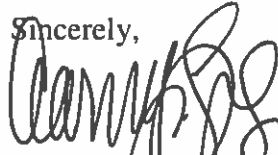
All other VOC concentrations measured in December were about 25 to 1,085 times below the action levels, with no consistent trends observed. NAVSUP FLC Pearl Harbor Causative Research Report is submitted as Enclosure 2. Possible reasons for the results are speculative and may include, but not be limited 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 January 2018, 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 December 2017 (18 pages)
2. NAVSUP FLC Pearl Harbor Causative Research Report IRT Red Hill Soil Vapor Monitoring Report for December 2017

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

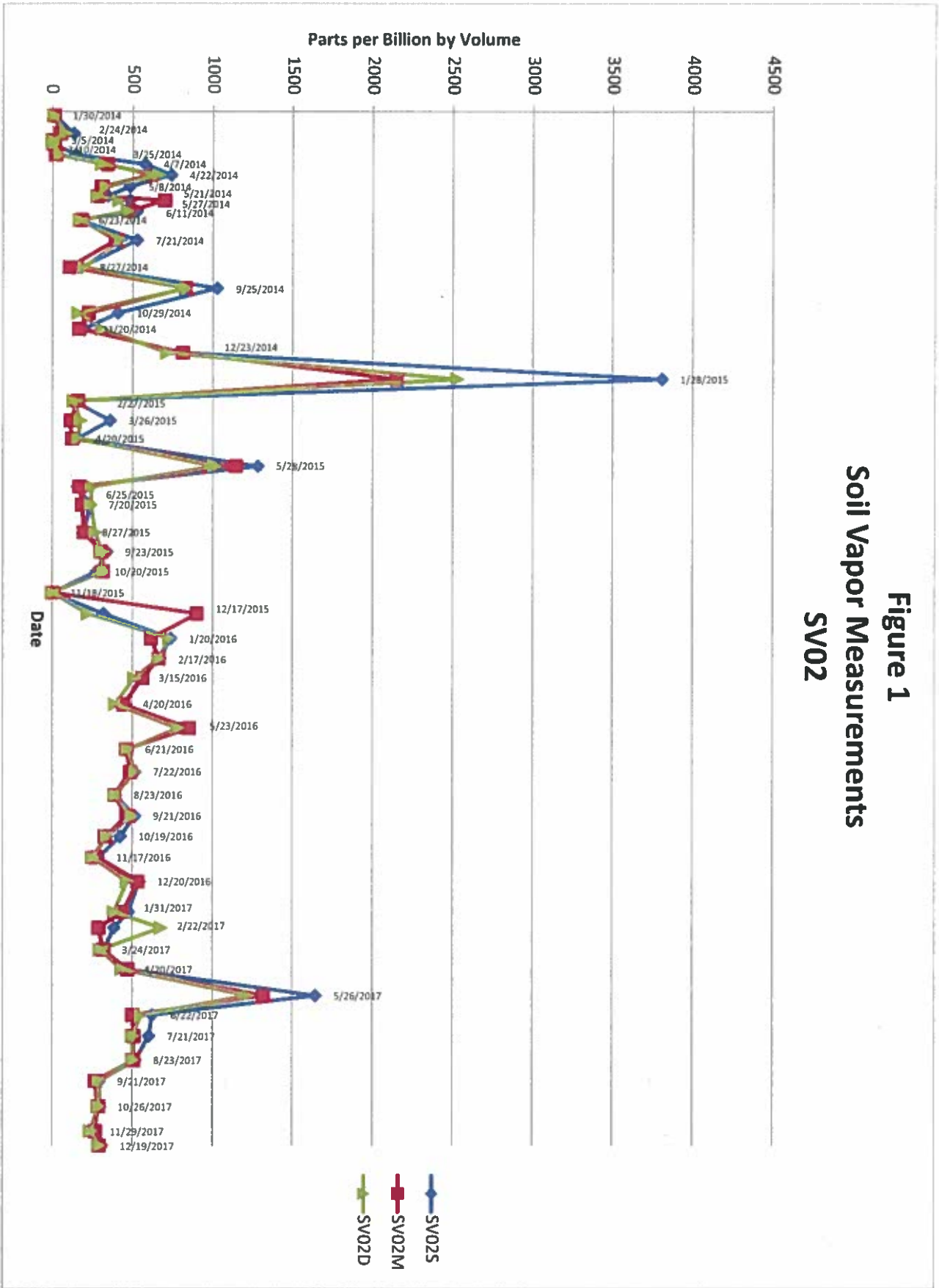
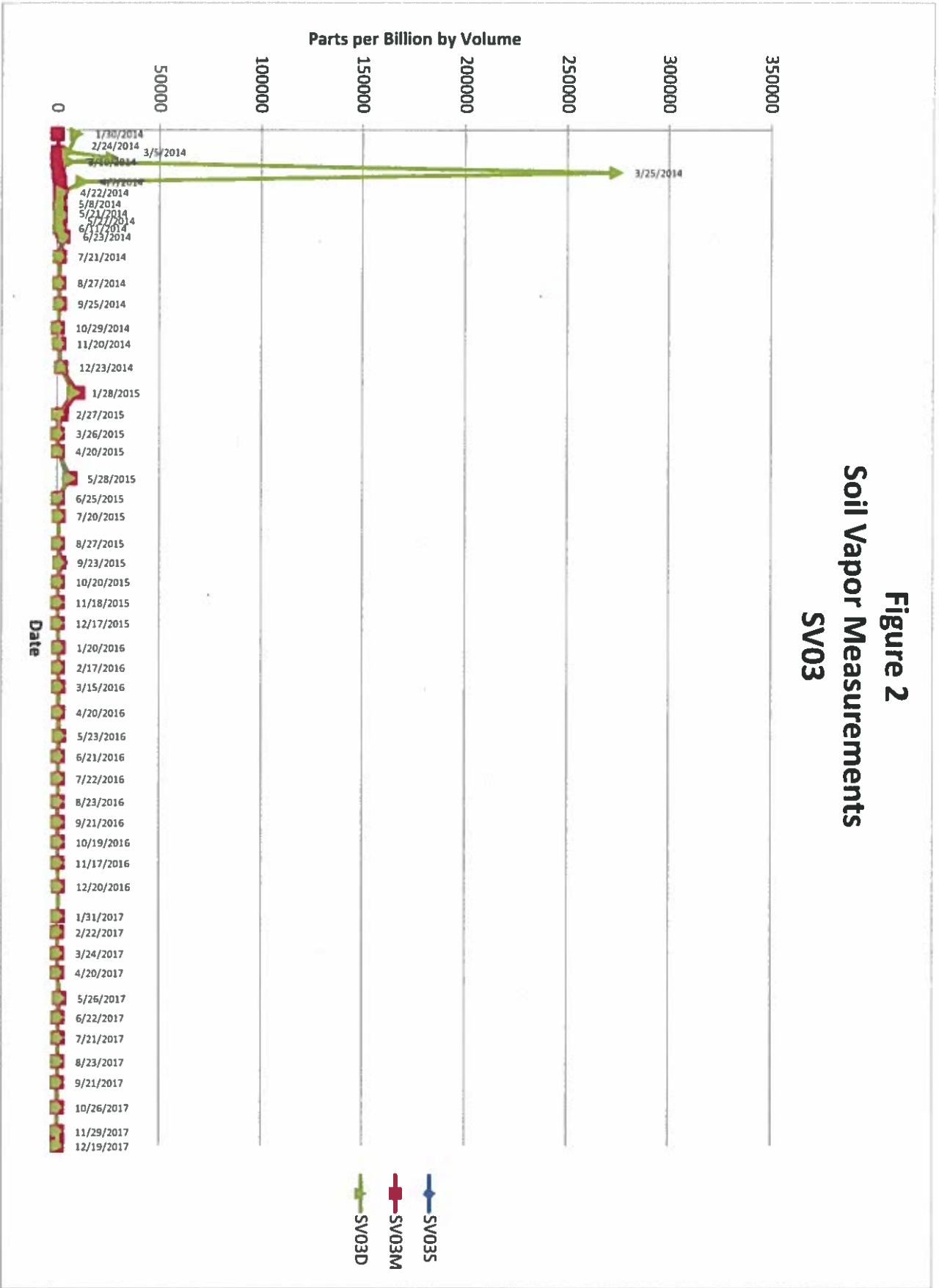


Figure 1
Soil Vapor Measurements
SV02



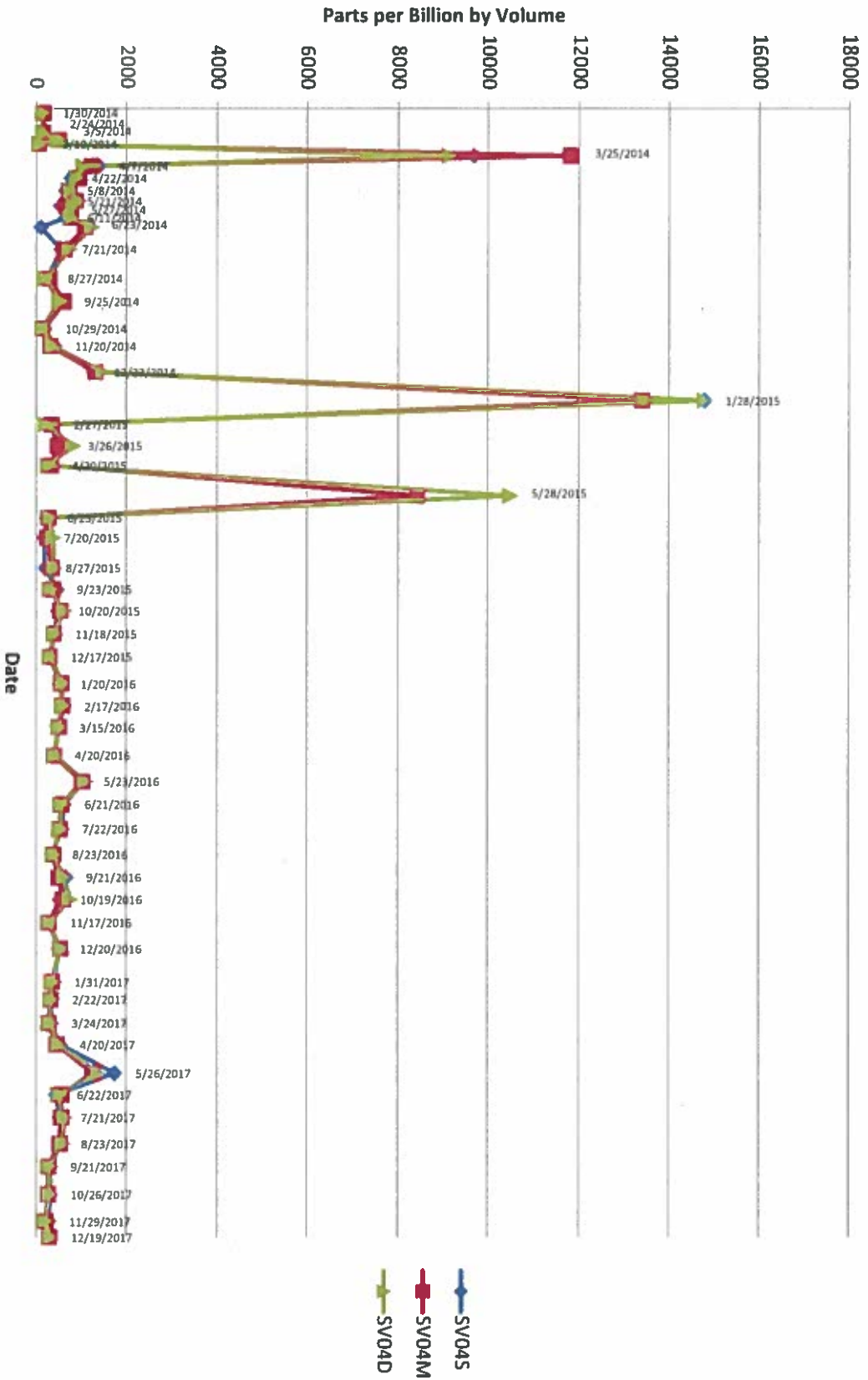


Figure 3
Soil Vapor Measurements
SV04

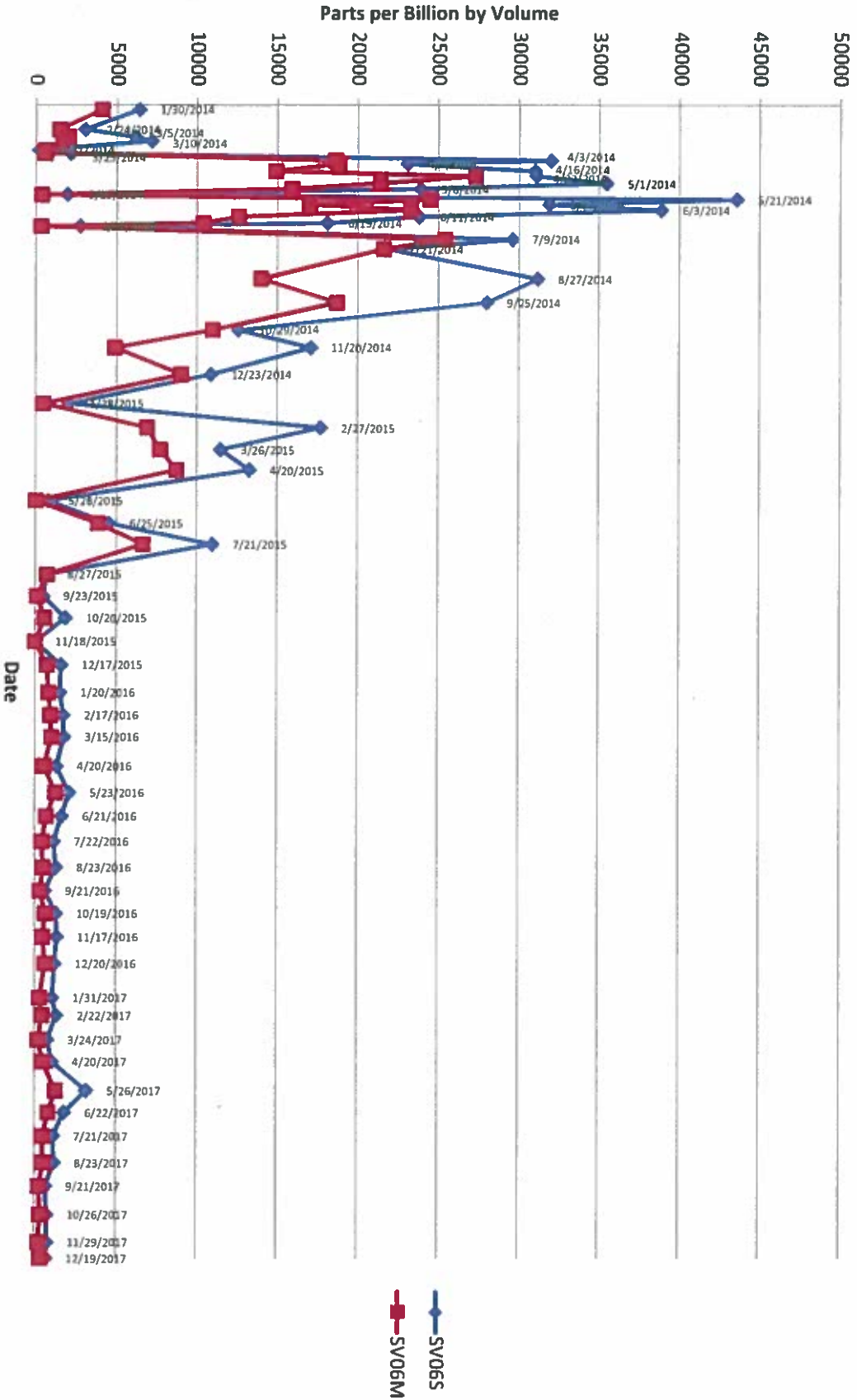
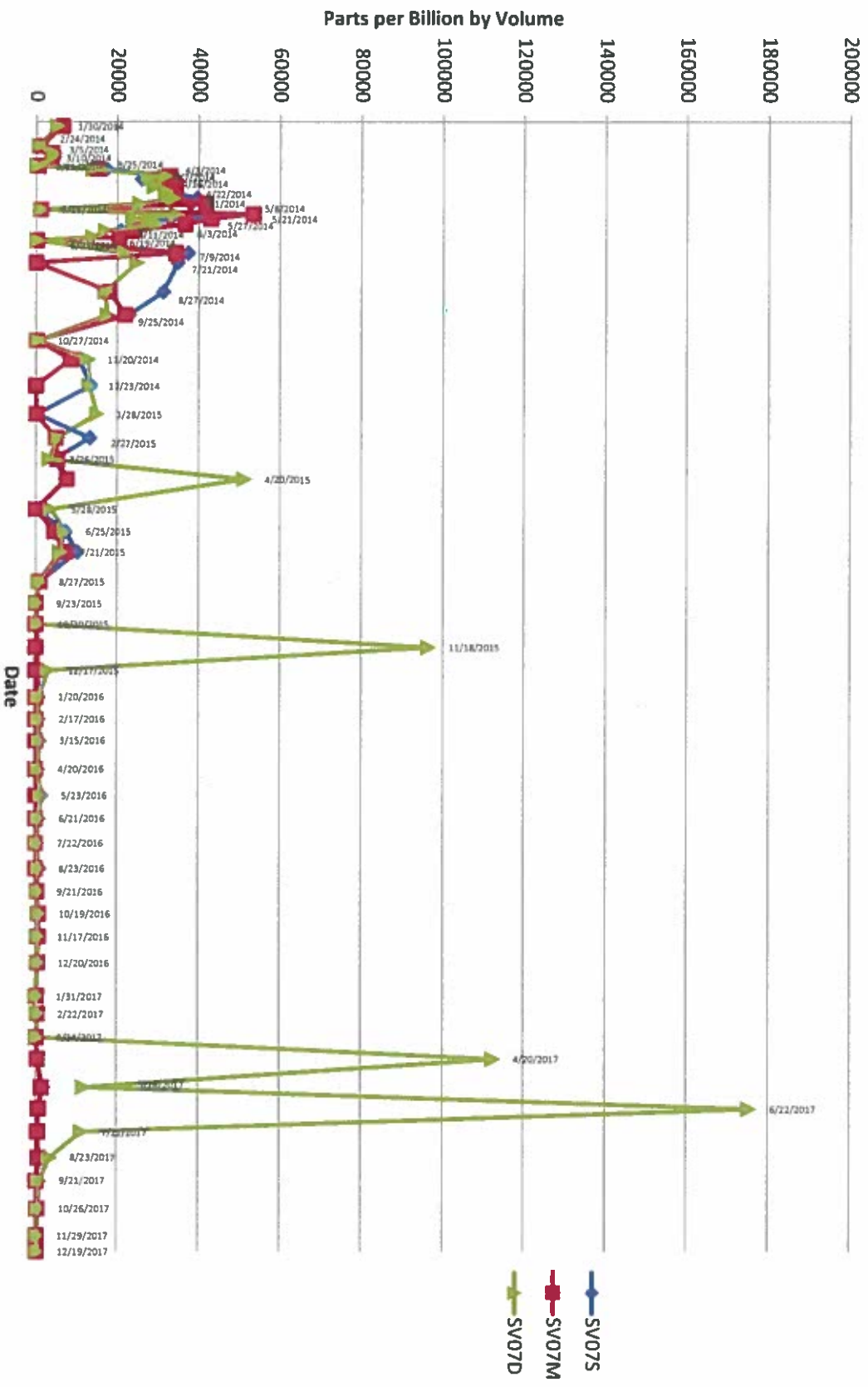


Figure 5
Soil Vapor Measurements
SV06

Figure 6
Soil Vapor Measurements
SV07



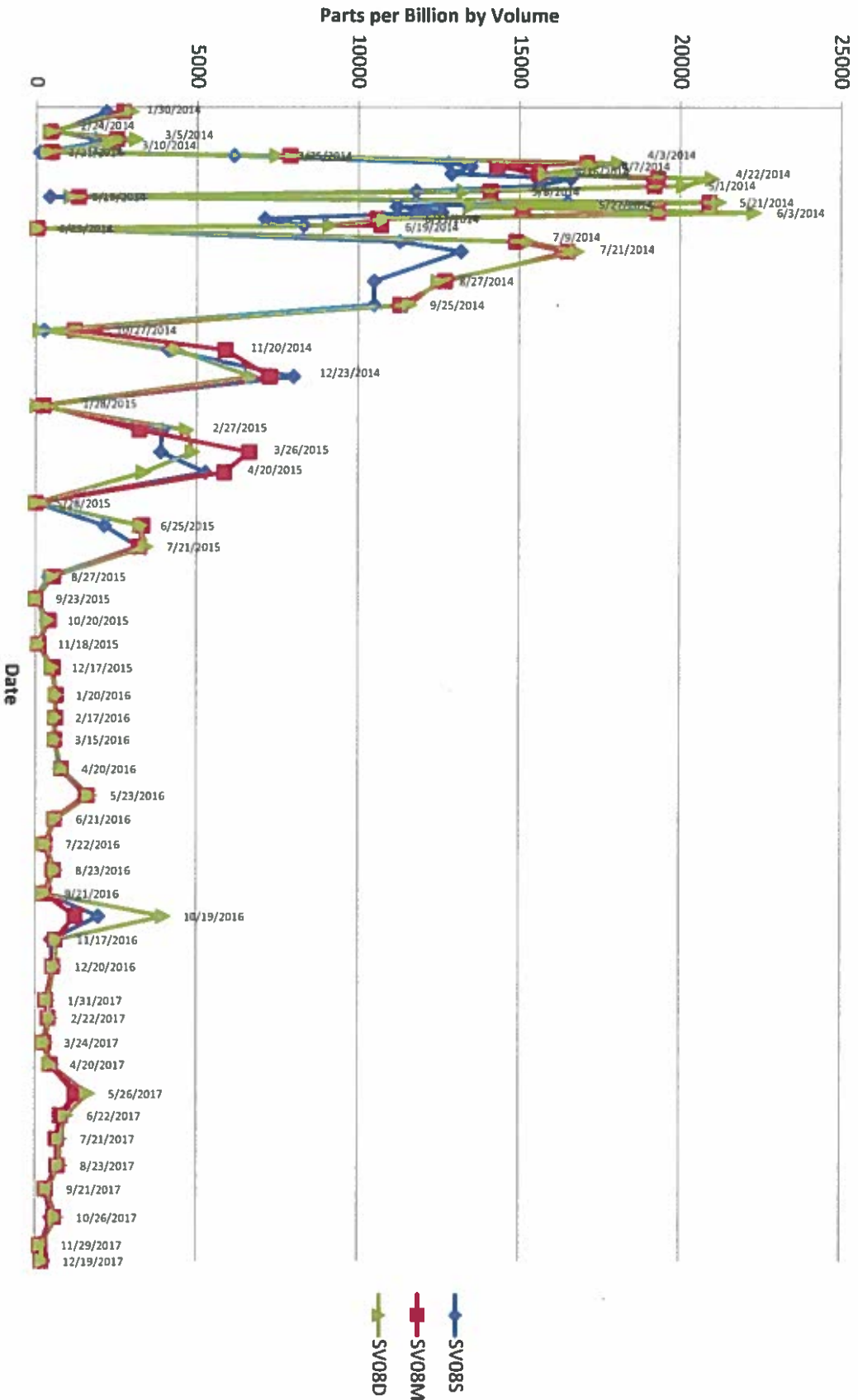


Figure 7
Soil Vapor Measurements
SV08

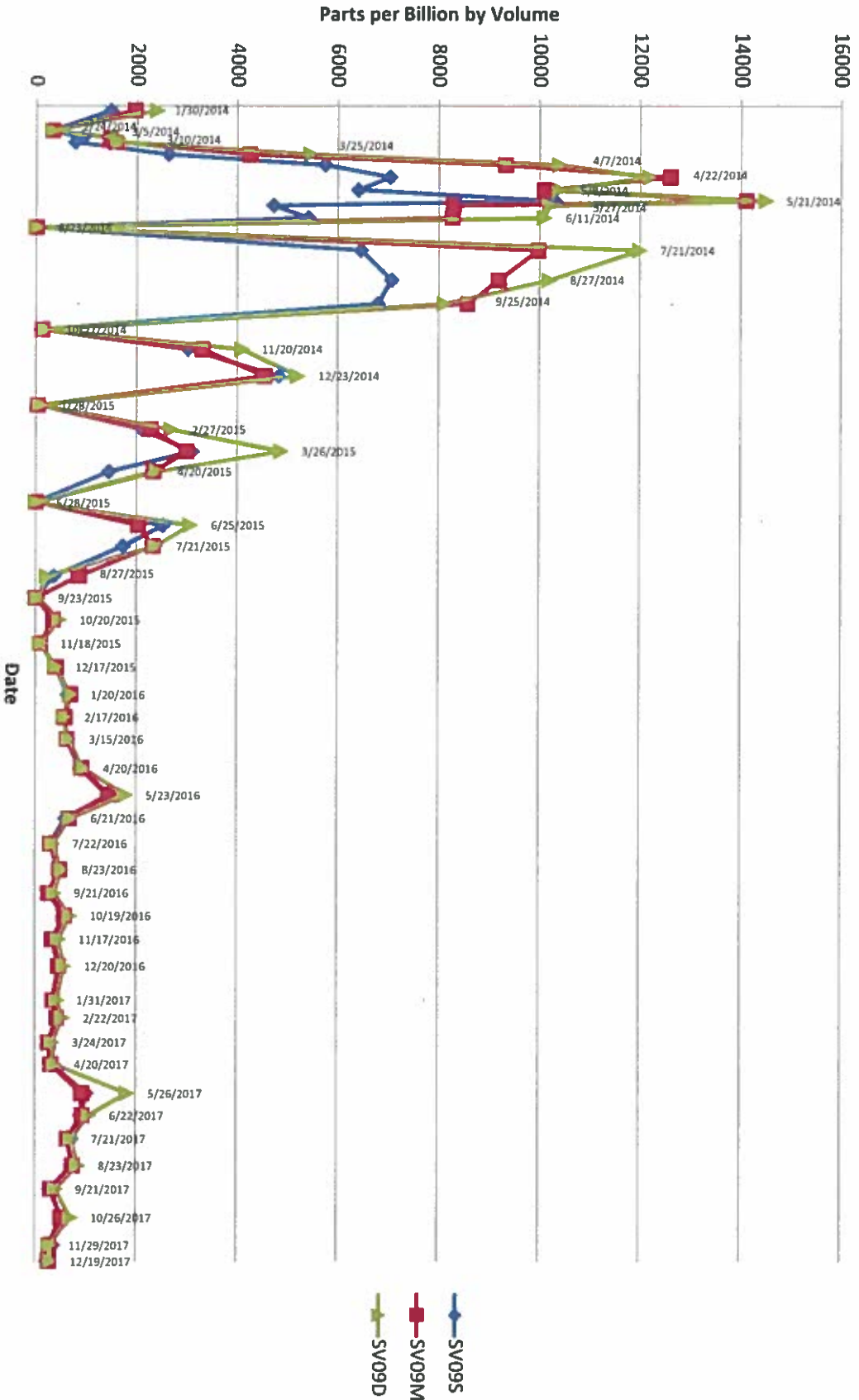
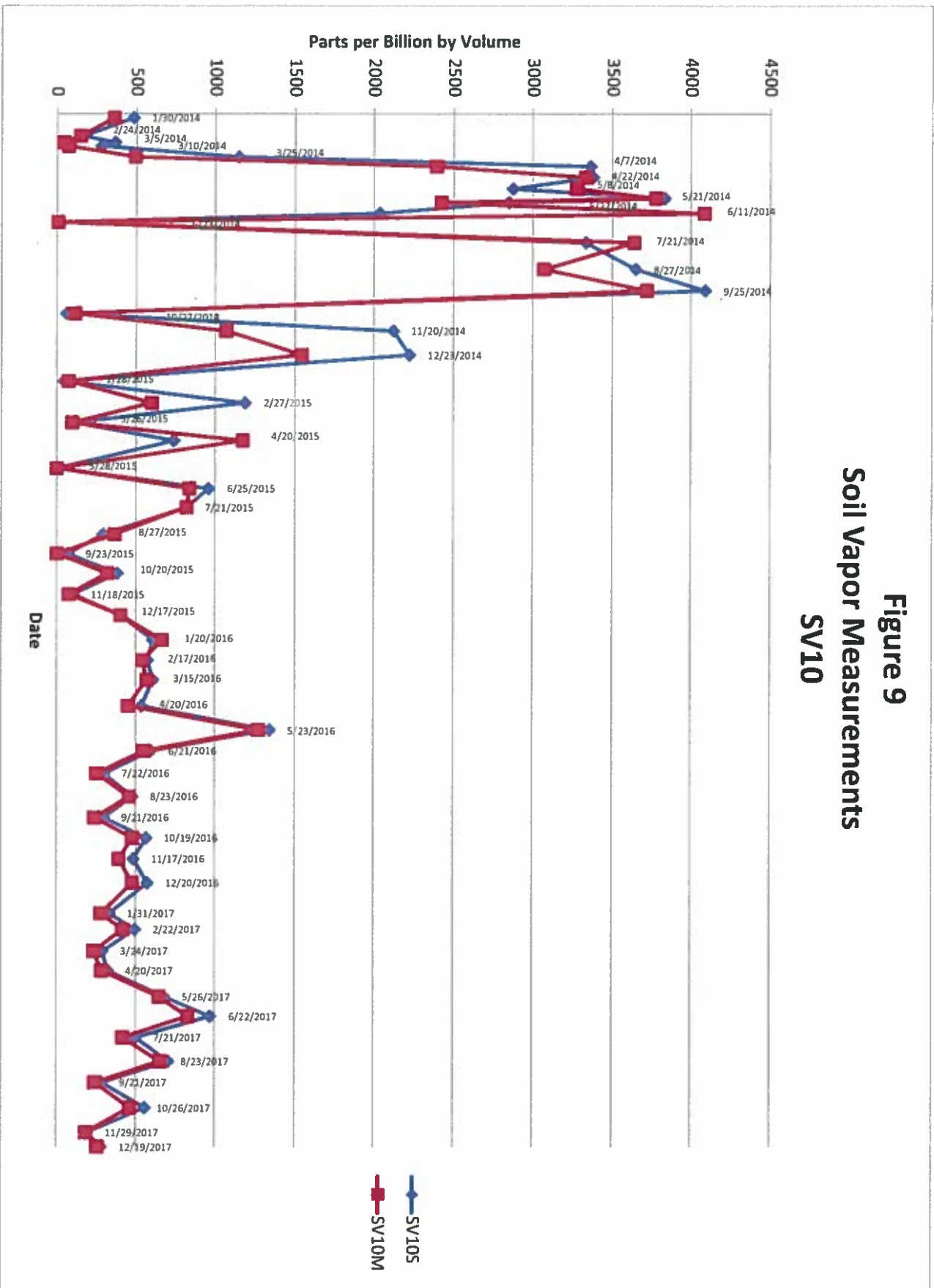


Figure 8
Soil Vapor Measurements
SV09



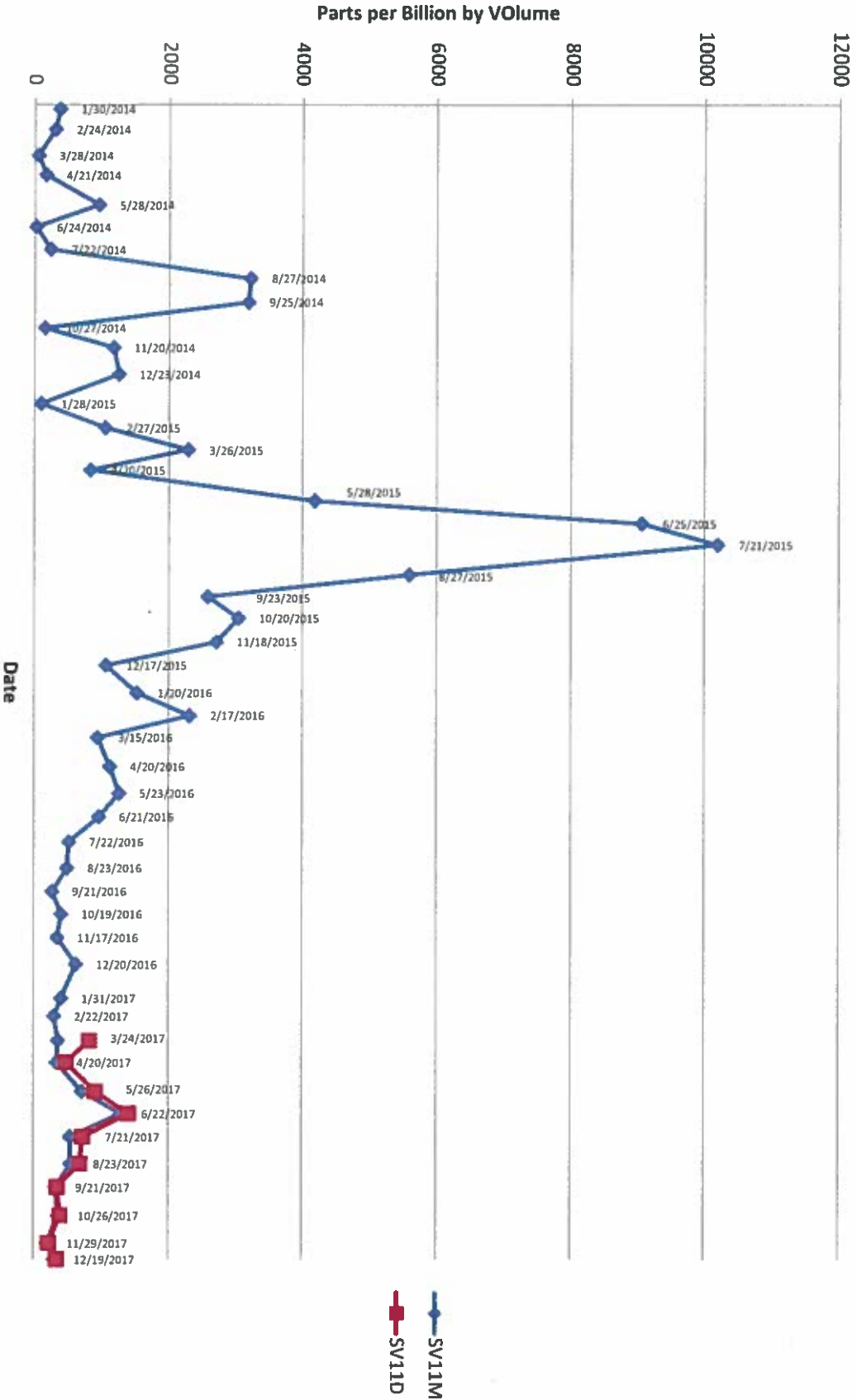


Figure 10
Soil Vapor Measurements
SV11

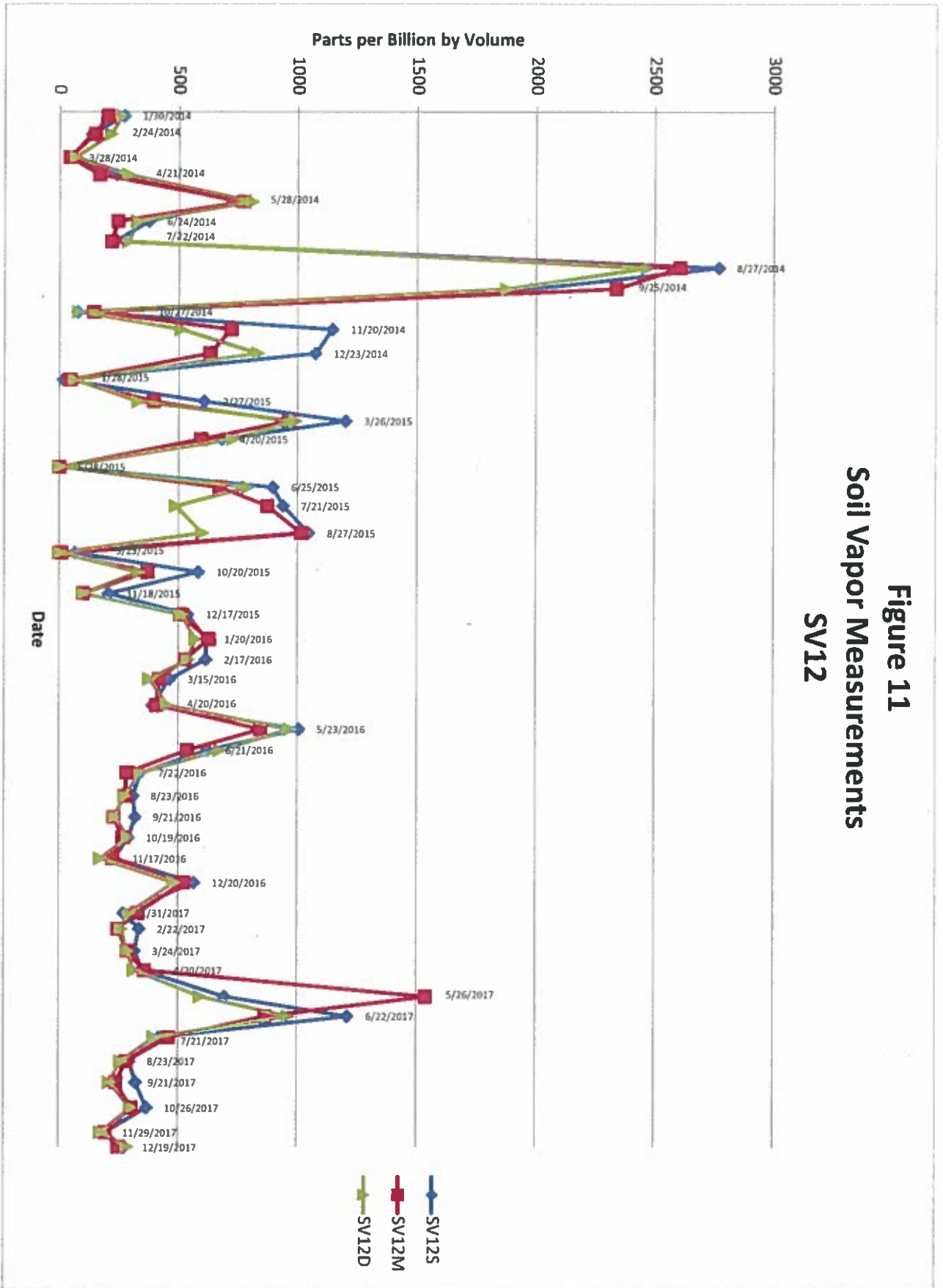
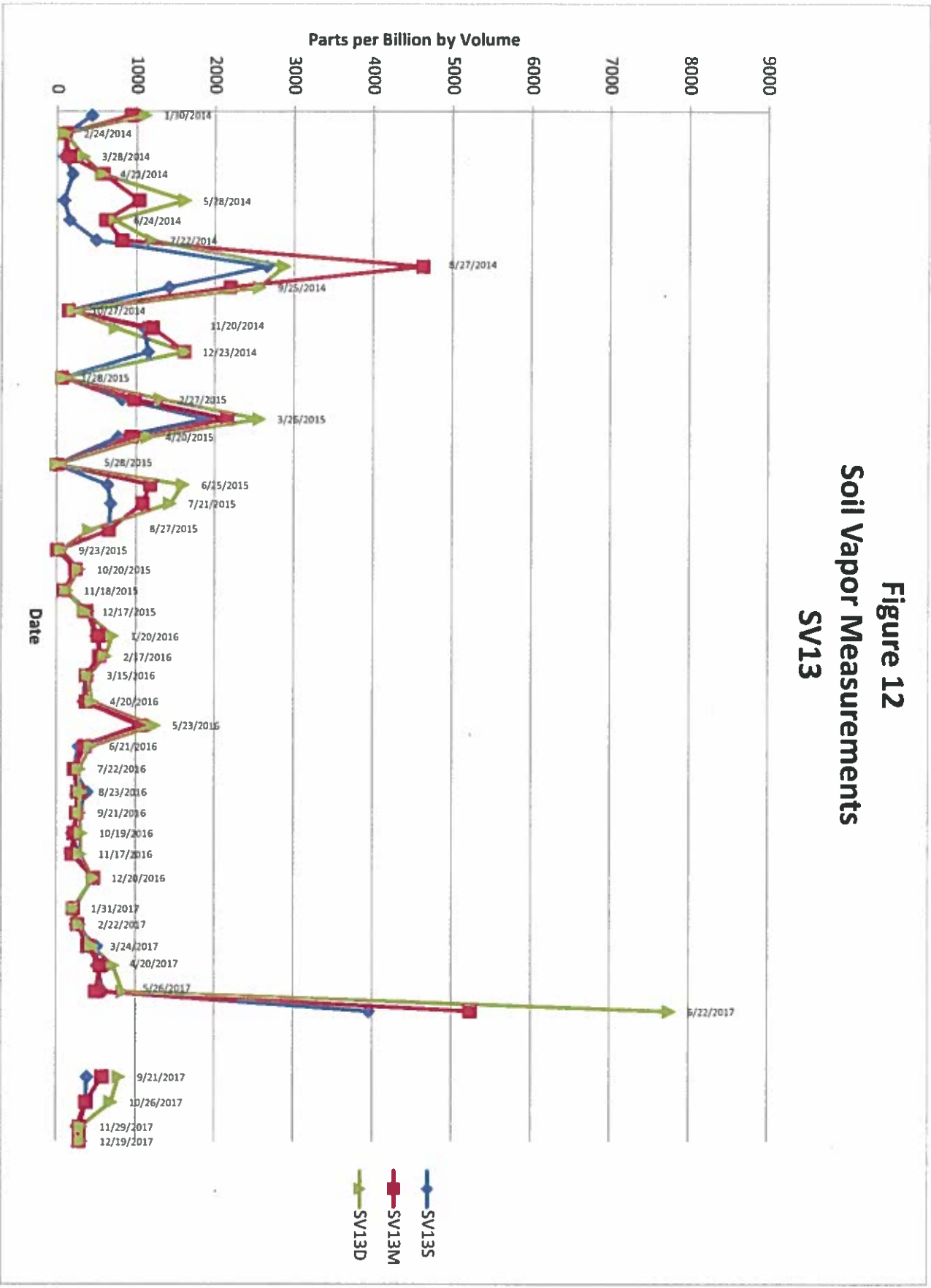


Figure 11
Soil Vapor Measurements
SV12

Figure 12
Soil Vapor Measurements
SV13



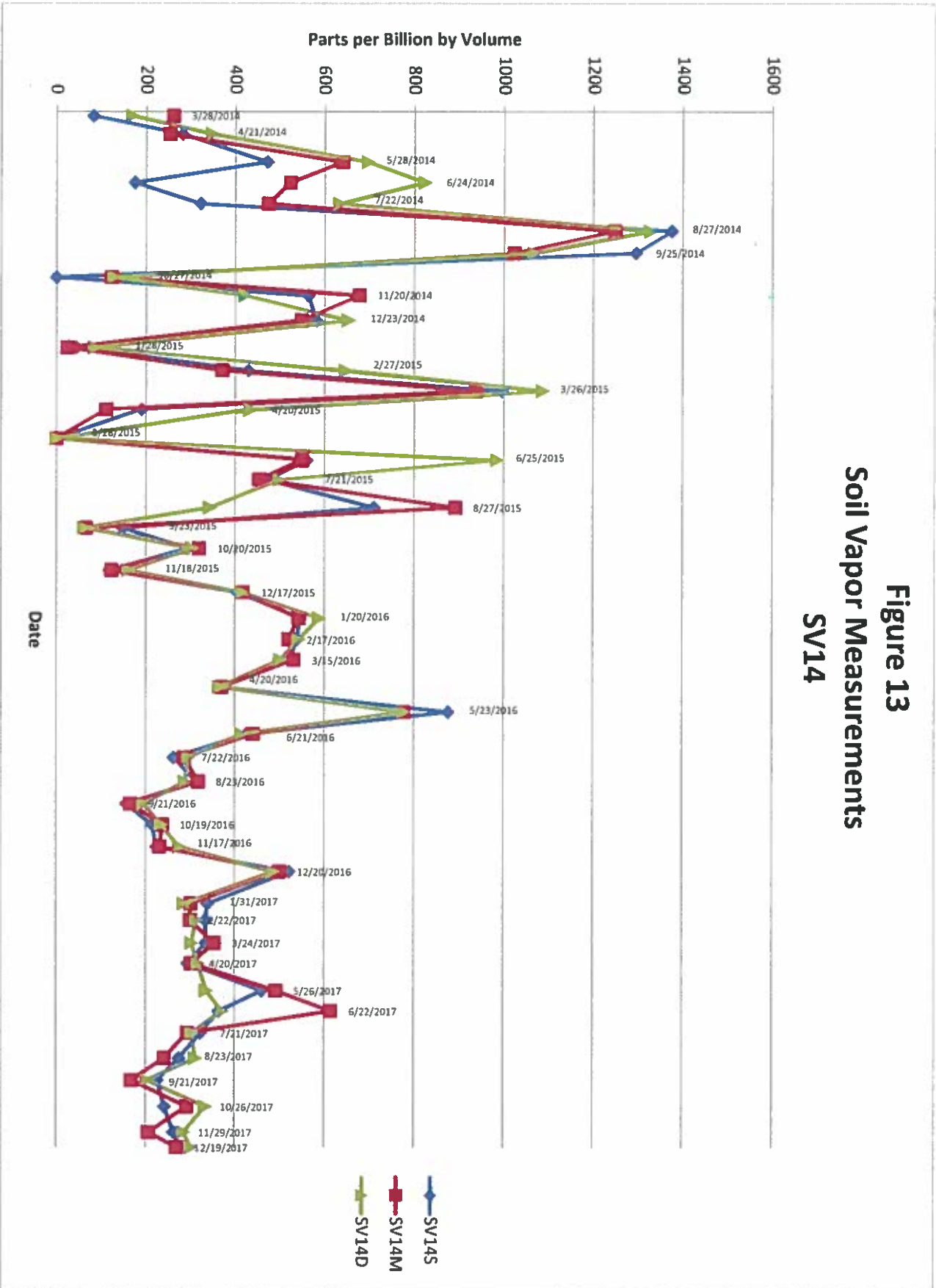
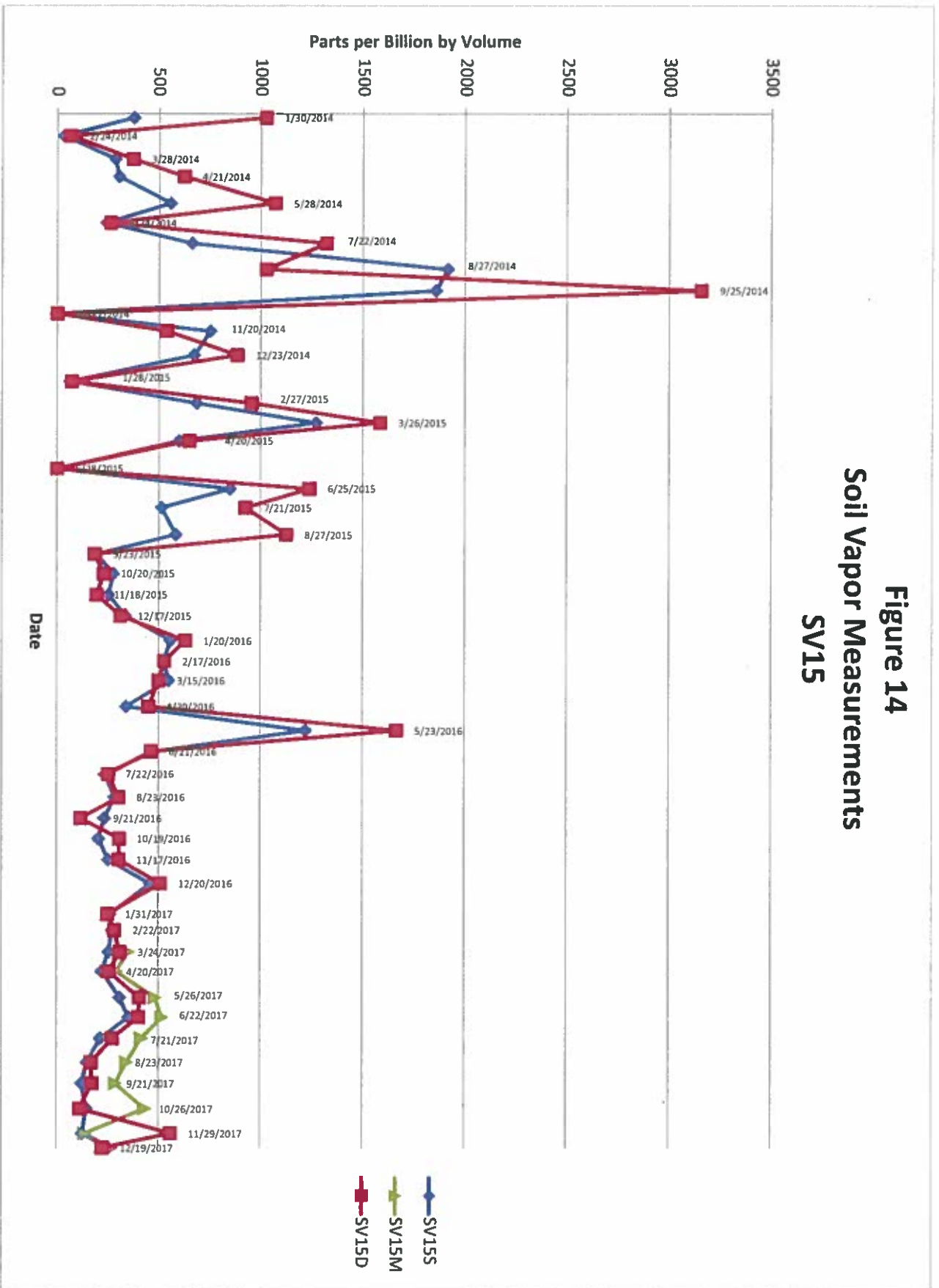


Figure 13
Soil Vapor Measurements
SV14

Figure 14
Soil Vapor Measurements
SV15



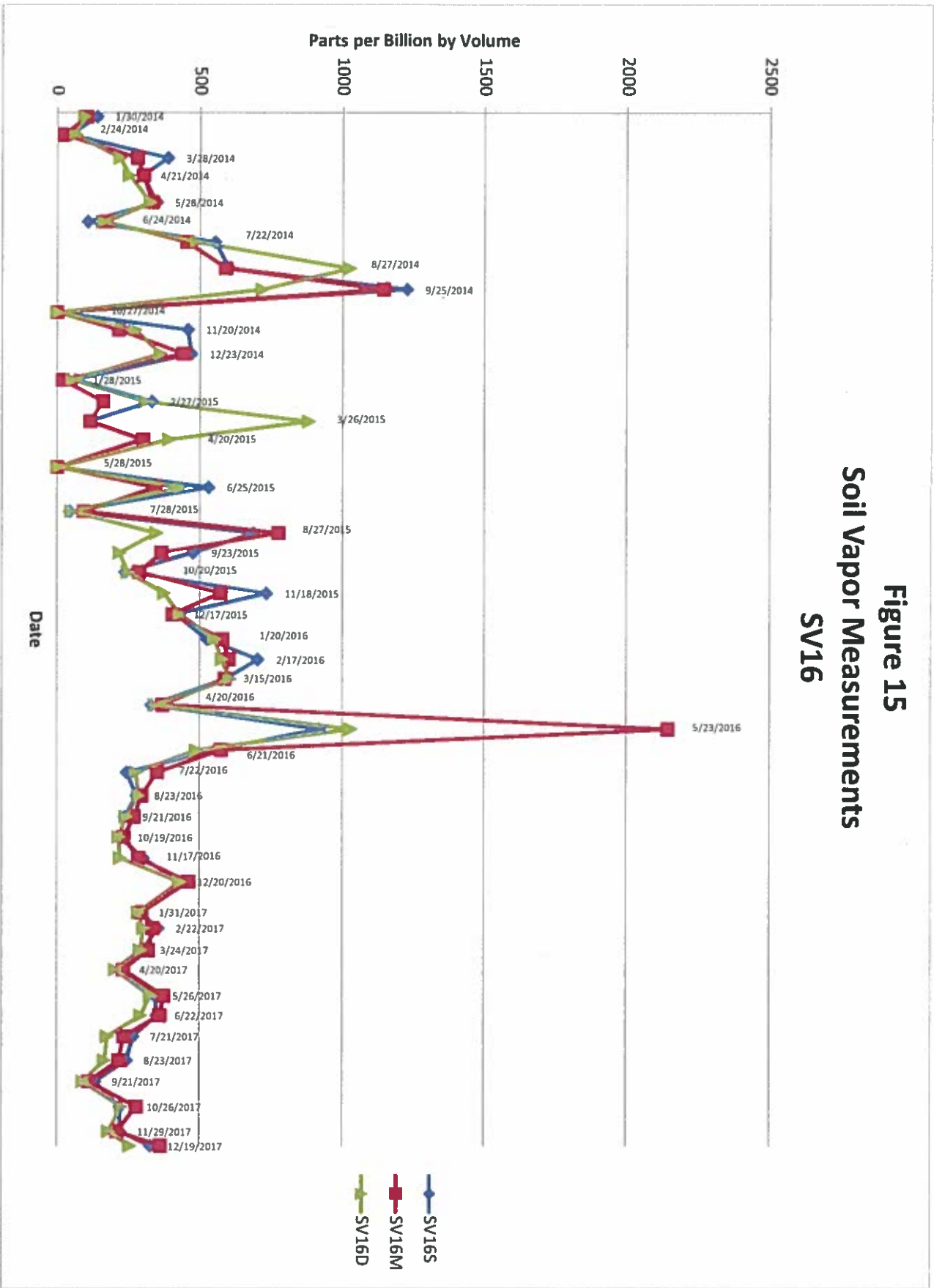
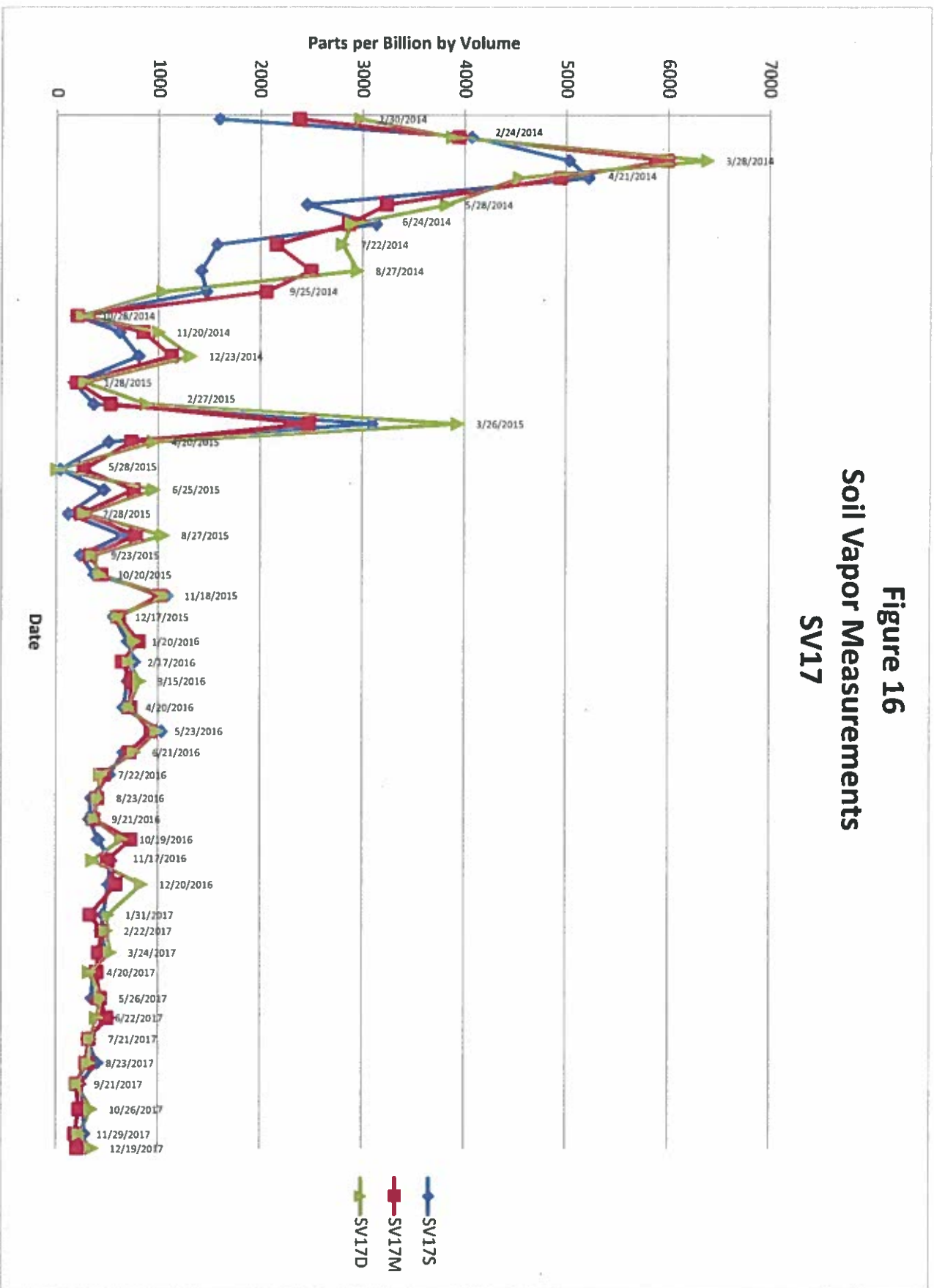


Figure 15
Soil Vapor Measurements
SV16

Figure 16
Soil Vapor Measurements
SV17



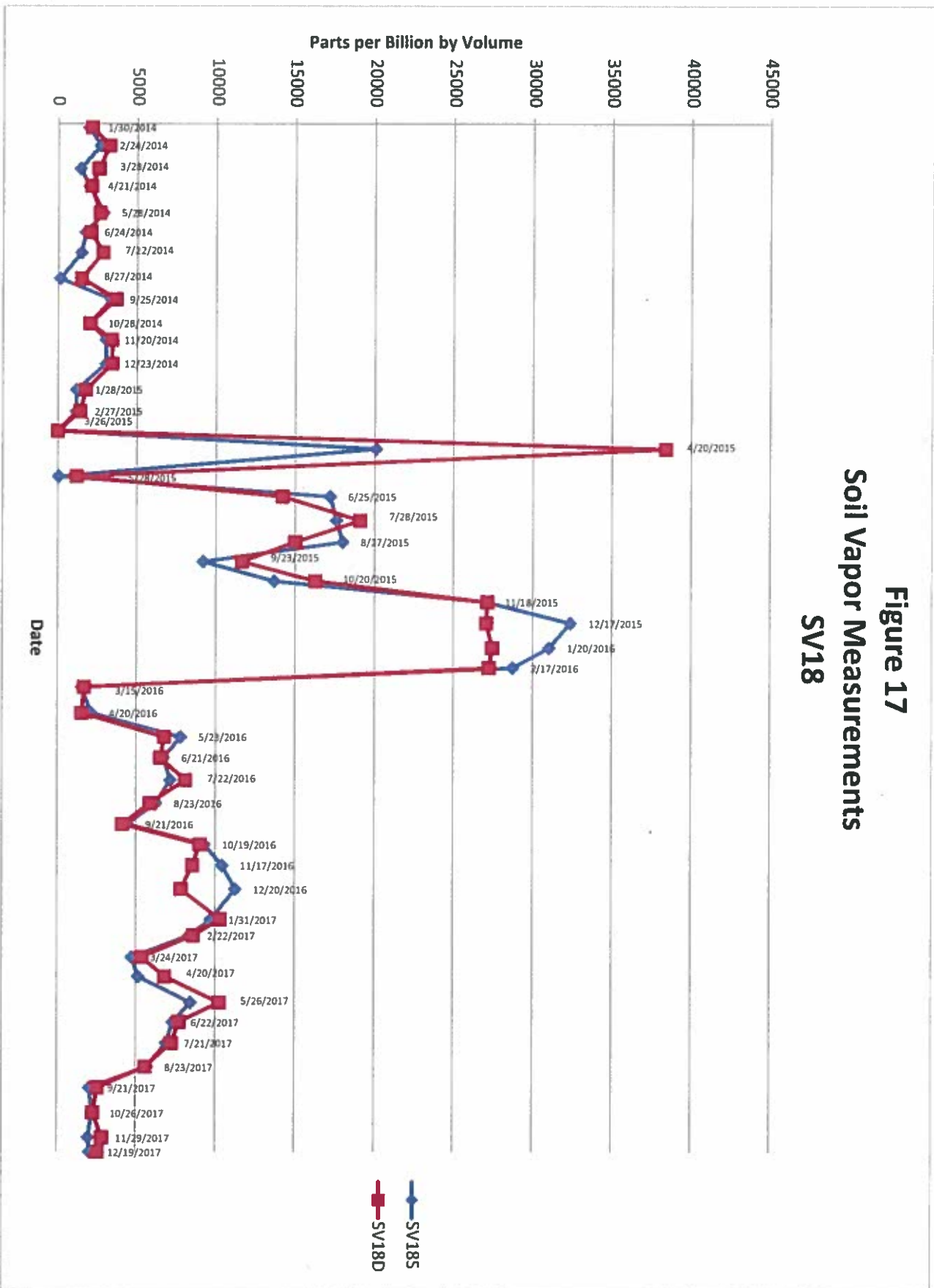
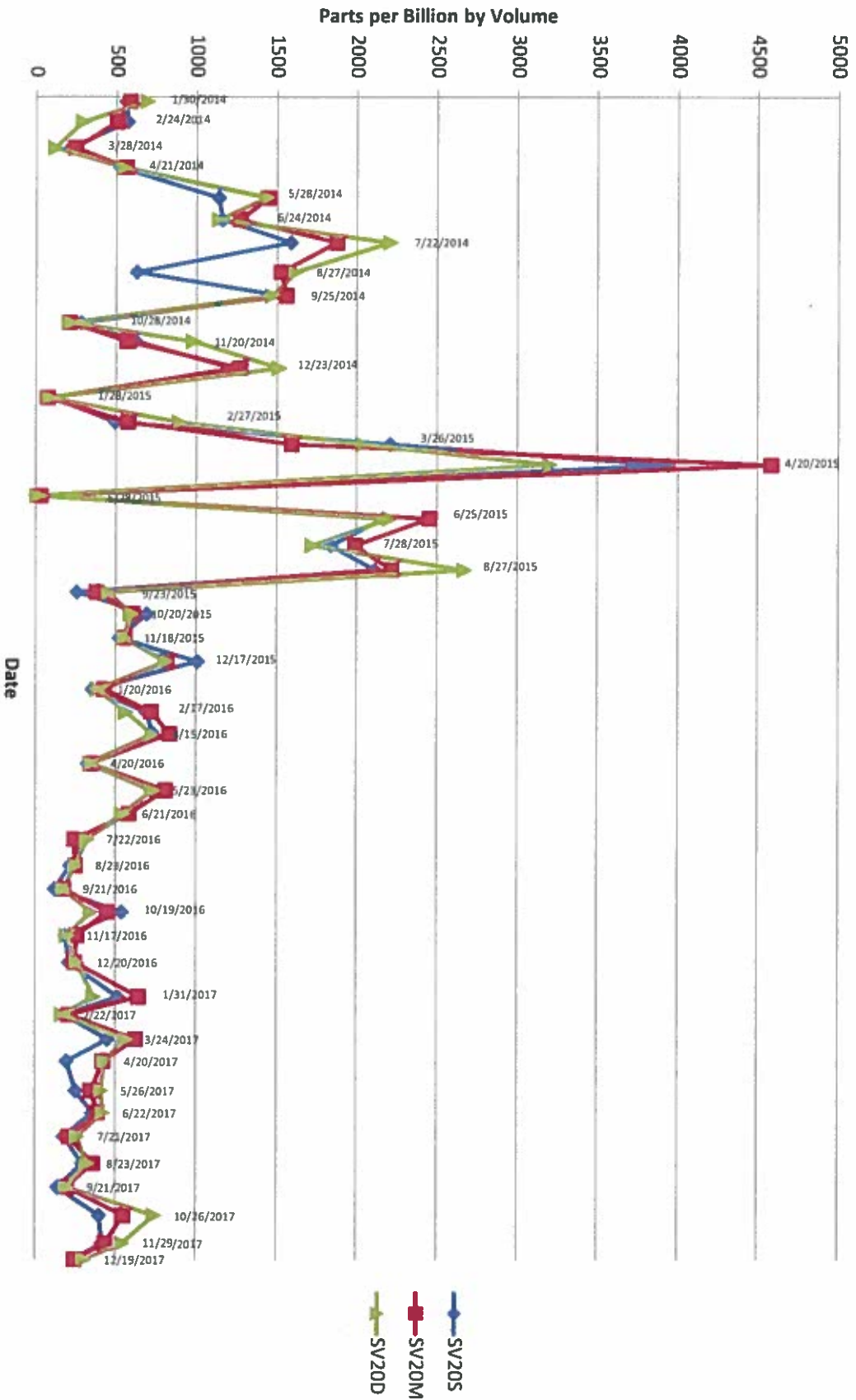


Figure 17
Soil Vapor Measurements
SV18

Figure 18
Soil Vapor Measurements
SV20



19 Jan 2018

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 DEC 2017

Ref: (a) Red Hill Bulk Fuel Storage Facility Groundwater Protection Plan
(b) Red Hill Soil Vapor Monitoring Report for Round 116, dtd 24 Dec 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. A strong increase in trends at tank 5.
- b. A slight increase in slope trends at tanks 2, 5, 1, 14-18 and 20.

2. FLCPH causative research and findings:

- a. Reviewed all AFHE Unscheduled Fuel Movement (UFM) Alarm Summaries and UFM Reports. There were no UFM alarms recorded for the month of December 2017.
- b. Reviewed Red Hill Inventory Trend Analysis Reports for December 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. Tank 5 has been empty since Jan 2014.
- f. 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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ou=USN, cn=FLOYD.JOHN.LEWIS.1064149357
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JOHN FLOYD

ENCLOSURE(2)