

C-400 Building Soil Gas Activity Summary

June 6, 2018

1986 Soil Gas Survey

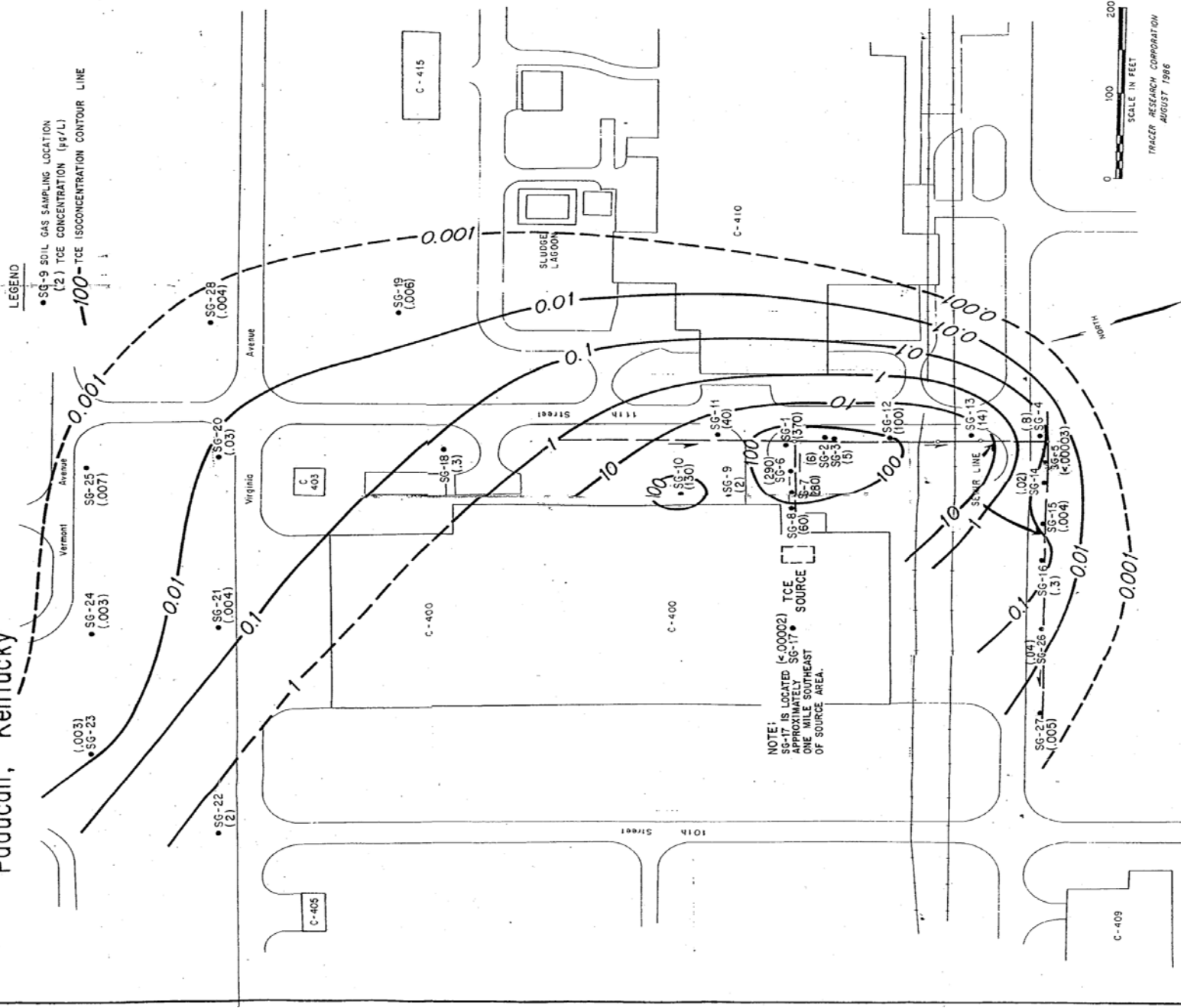
- Soil gas survey of the C-400 Building area in August
- Survey initiated as a result of identifying TCE in soil excavation on the southeast corner of C-400 during construction
- Sampling focused on storm sewer lines on the east, southeast and south sides of C-400 Building
- TCE still being utilized at PGDP

1986 Soil Gas Survey (cont.)

- Sample collection depth from 2' to 7'
- 28 soil gas samples collected
- Analyzed for TCE, PCE, and TCA
- Detections Range, $\mu\text{g/l}$:
 - TCE: <0.00002 to 370
 - TCA: <0.00001 to 30
 - TCA: 0.0006 to 0.6
- High concentration area identified as southeast of C-400 near SWMU 11 (See Slide 4)

MARTIN - MARIETTA
Paducah, Kentucky

Figure 2. TRICHLOROETHENE (TCE)

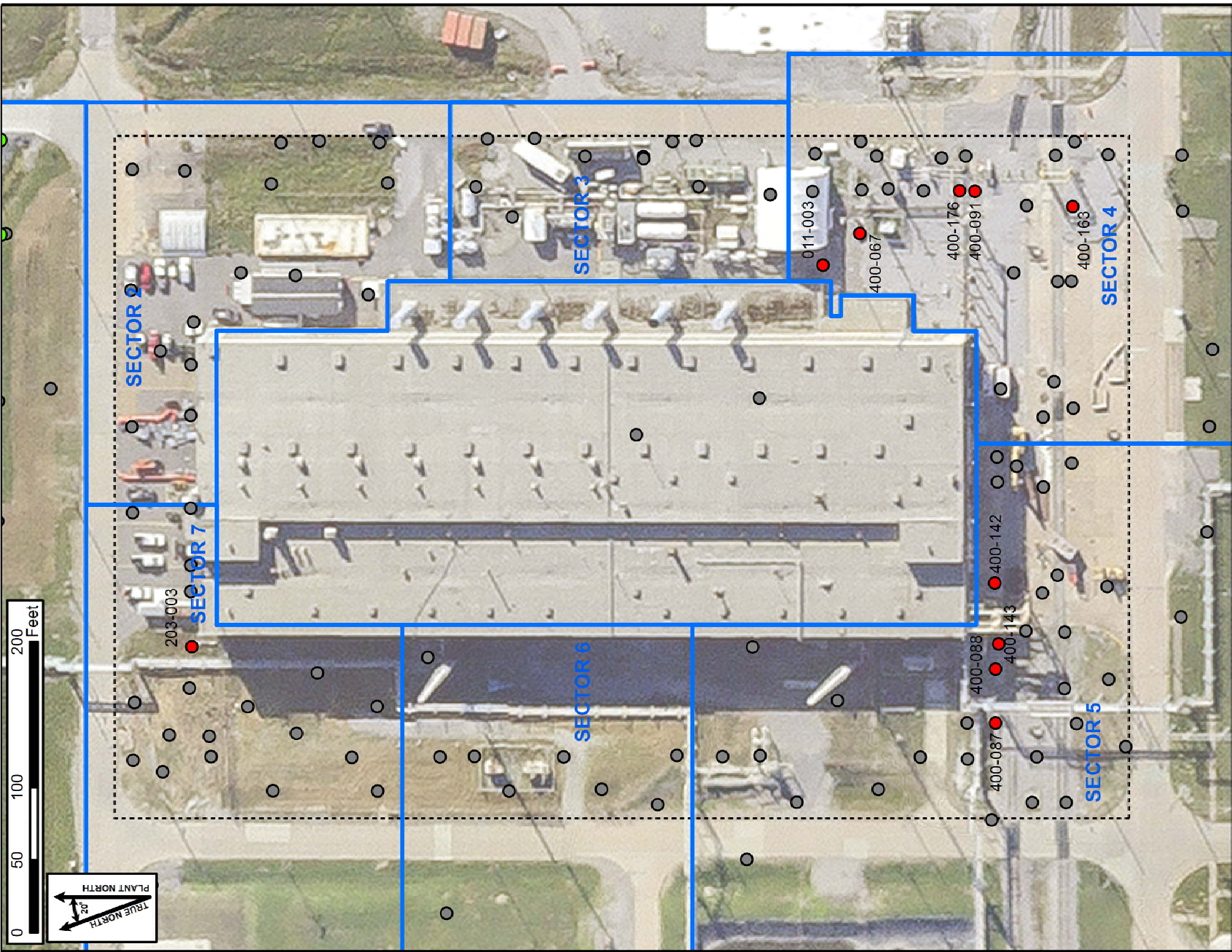


1990 Soil Gas Survey

- Soil gas survey performed across PGDP between June 26 and July 2.
- 50 locations tested around PGDP with 10 locations adjacent to C-400 resulted 41 samples for analysis
- Only 2 samples reported detections of TCE and 9 detections of TCA
- C-400 TCE spill is difficult to assess given the soil conditions and spacing between locations

1997 Soil Gas Survey (WAG 6)

- Soil gas survey was unsuccessfully attempted around the C-400 Building as a component of the WAG 6 Remedial Investigation in 1997.
- Sampling system integrity while extracting soil gas resulted in questionable data.
- Associated soil sample analytical data for a large percentage of the soil gas screening data resulted in no significant impact to project goals
- See Slide 7 & 8 for map and table of data.



● WAG 6 Soil Gas Sample Location (TCE = nondetect)
● WAG 6 Soil Gas Sample Location (TCE = detect)

--- C-400 Complex Boundary
▭ Sector Boundary

1997 Soil Gas Survey Data (WAG 6)

STA_NAME	SMP_STRT_LEVEL	SMP_END_LEVEL	RESULTS	UNITS	CHEMICAL_NAME
400-067	6	8	49.5 ug/L		trans-1,2-Dichloroethene
400-176	6	8	1.8 ug/L		cis-1,2-Dichloroethene
400-176	6	8	1.4 ug/L		trans-1,2-Dichloroethene
400-091	6	8	7.9 ug/L		trans-1,2-Dichloroethene
400-091	6	8	2.3 ug/L		cis-1,2-Dichloroethene
400-088	4	6	9.9 ug/L		trans-1,2-Dichloroethene
203-003	9	11	10.5 ug/L		1,1-Dichloroethene
400-143	5	7	4.9 ug/L		trans-1,2-Dichloroethene
400-142	5	7	439.1 ug/L		trans-1,2-Dichloroethene
011-003	11	13.5	4.8 ug/L		cis-1,2-Dichloroethene

2005 EPA Soil Gas Survey

- EPA, Region 4 performed limited soil gas investigation in 2005
- Three sites were selected by the project team for sampling along with two ambient locations
- High soil density prevented gas collection at two of three locations
- Third location sample was impacted by an existing subsurface soil cavity

2005 EPA Soil Gas Survey (Cont.)

- None of the 11 targeted VOCs were contained in any of the samples including QA samples
- Chloroform (non-target VOC) was detected in the third location at an estimated value of 0.5 $\mu\text{g}/\text{m}^3$

Summary

- Active soil gas collection is hampered by dense soil at the PGDP
- Successfully identified TCE in only the highest concentration areas (SE Corner C-400)
- Longer-term passive soil gas collection may support focusing soil sample collection in biased sampling approach.