

**OPERATION PROGRESS REPORT
FOR SVE PILOT TEST AT IR10-1, BUILDING 123
HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA**

**Contract No. N62474-98-D-2076
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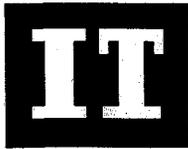
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Acronyms and Abbreviations

cfm	cubic feet per minute
IT	IT Corporation
lb/hr	pound(s) per hour
PID	photoionization detector
ppmv	parts per million by volume
SVE	soil vapor extraction
VM	vapor monitoring
VOC	volatile organic compound

1.0 Introduction

This field activity report has been prepared to provide progress information to the Department of the Navy, Southwestern Division, concerning the soil vapor extraction (SVE) treatability testing being conducted at Site IR10-1 in Building 123 within the Hunters Point Naval Shipyard, San Francisco, California. The treatability pilot testing is currently being performed by IT Corporation (IT) under the Environmental Remedial Action Contract N62474-98-D-2076, Contract Task Order Number 0033.

This report covers activities conducted in March and April 2001. A summary of the field activities is described in Section 2.0. Test data collected were summarized and reduced, with results presented in Section 3.0. Subsequent activities to be covered in the next reporting period are highlighted in Section 4.0. System performance plots are included in Appendix A.

2.0 Activities Completed During Reporting Period

Activities completed in the months of March and April are associated with the rebound testing of the SVE pilot-scale system. Rebound monitoring began on March 5 after the system was shut down for one week beginning February 26. Upon system restart, two rounds of monitoring were performed. Thereafter, system monitoring was conducted as frequently as once a week, except during a couple of additional shutdown events. The first shutdown event occurred between March 15 and 22 for the installation of a groundwater monitoring well, IR10MW59A, within the SVE treatability study area. The second shutdown occurred from April 10 through 16 for the installation of a secondary sound enclosure around the blower unit. System influent and effluent sampling were performed biweekly beginning on the first day of system restart.

The system had been running 24 hours per day until March 23, when operating hours were limited to between 8:00 A.M. and 5:30 P.M. as part of the interim noise abatement measures undertaken at the site. On April 17, with the secondary sound enclosure installation completed, the SVE system returned to a 24-hour continuous run. System performance observations made during the rebound test are highlighted in Section 3.0.

3.0 Data and Results Presentation

This section briefly discusses the performance of the SVE pilot test system based on results observed in the following four areas during the rebound testing:

1. Radius of zone influence
2. Extraction flow rate and mass removal
3. Carbon treatment
4. Well performance

3.1 Radius of Influence

Based on the field data collected after system restart, the radius of influence remained within the range of 20 to 40 feet, with an average of 30 feet. The momentary shutdown period and subsequent system "ON/OFF" operating modes did not appear to have an adverse effect on the radius of vacuum zone influence.

3.2 System Extraction Flow Rate and Volatile Organic Compound Mass Removal

The average extraction airflow drawn from the subsurface continued to maintain around 450 cubic feet per minute (cfm). The system influent vapor concentration showed some degree of rebound as measured by the photoionization detector (PID) on the first day of system restart. Figure 1 in Appendix A shows the rebound at the 1,700th hour after system restart. Rebound of the volatile organic compound (VOC) concentration measured at the system inlet was further confirmed with the laboratory analytical data. The data showed that the influent vapor concentration was greater than 50 percent of its previous value prior to shutdown.

Trichloroethene remained as the predominant VOC detected in the influent soil vapor stream.

Removal of VOC mass from the subsurface was apparently maintained at a constant rate after system restart, from 0.01 to 0.011 pound per hour by mid-April. Figure 2 (Appendix A) shows a plot of the VOC (based primarily on trichloroethene) mass removal rate over time. Figure 3 (Appendix A) presents the cumulative VOC mass removal versus hours of operation. As shown in Figure 3, the cumulative VOC mass removal from the subsurface reached approximately 51 pounds.

3.3 Vapor-Phase Carbon Treatment

Based on PID measurements as well as analytical results of the influent and effluent vapor samples collected from the vapor-phase carbon treatment units, the vapor treatment efficiencies

remained near 100 percent (see Figure 4 in Appendix A). The performance of the carbon treatment units did not appear to have been compromised with the relatively long shutdown and intermittent operations of the SVE system. Judging from both field instrument measurements and laboratory analytical results, no carbon breakthrough occurred during this reporting period.

3.4 Well Performance

All 14 SVE wells were operating during the operational period of the system. PID readings taken at the wellheads showed similar rebound of wellhead vapor concentrations after one week of system shutdown. Approximately half of the SVE and several vapor monitoring (VM) wells had more than a 50 percent increase in the wellhead vapor concentrations based on PID measurements. Most of the wells are located within the current IR 10-1 boundary. The wellhead vapor concentrations measured at the majority of those wells displayed gradual decreases after a few days of continuous operation.

Since system adjustment at the beginning of the constant-rate test, liquid entrainment into the SVE wells has been greatly reduced. The 1-week shutdown did not result in an increase in liquid entrainment to the system. Those wells (such as IR10VW03A) that had yielded substantial amounts of liquid with higher vacuum exerted at the wellheads continued to operate at lower vacuum levels. As such, airflow yield from those wells continued to be limited. The average airflow per well was computed to be approximately 32 cfm.

4.0 Activities Anticipated for Next Reporting Period

The next reporting period will begin at the end of April. It is anticipated that further rebound testing for VOC in the subsurface within the treatability study area will continue. The SVE system will be allowed to run until another asymptote is reached. Rebound monitoring will then begin with another extended shutdown of the system and will follow general procedures described in the *Phase II Soil Vapor Extraction Treatability Study Work Plan* prepared by Tetra Tech EM, Inc., dated July 2000. Wellhead monitoring will be performed biweekly, with one round of sampling for laboratory analysis at the end of the rebound monitoring period. If VOC rebound continues to occur, an alternate operational mode, such as pulse operation, for the SVE system may be proposed.

APPENDIX A
SOIL VAPOR EXTRACTION SYSTEM PERFORMANCE PLOTS

Figure 1 -- Plot of Influent Soil Vapor Concentration Over Hours of System Operation at IR10-1, Building 123, HPS, SF, CA

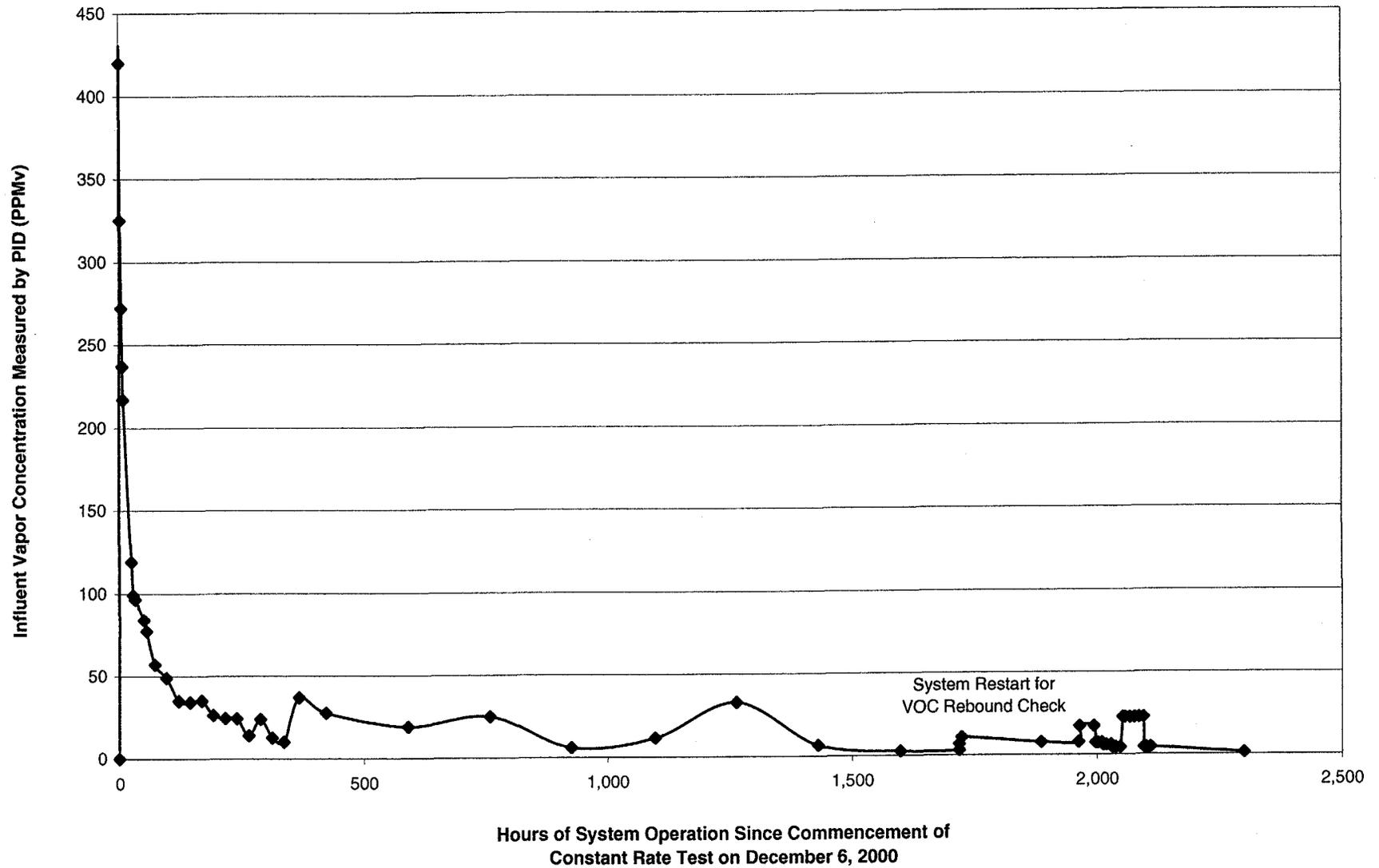


Figure 2 -- Plot of VOC Mass Extraction Rate Over Hours of System Operation at IR10-1, Building 123, HPS, SF, CA

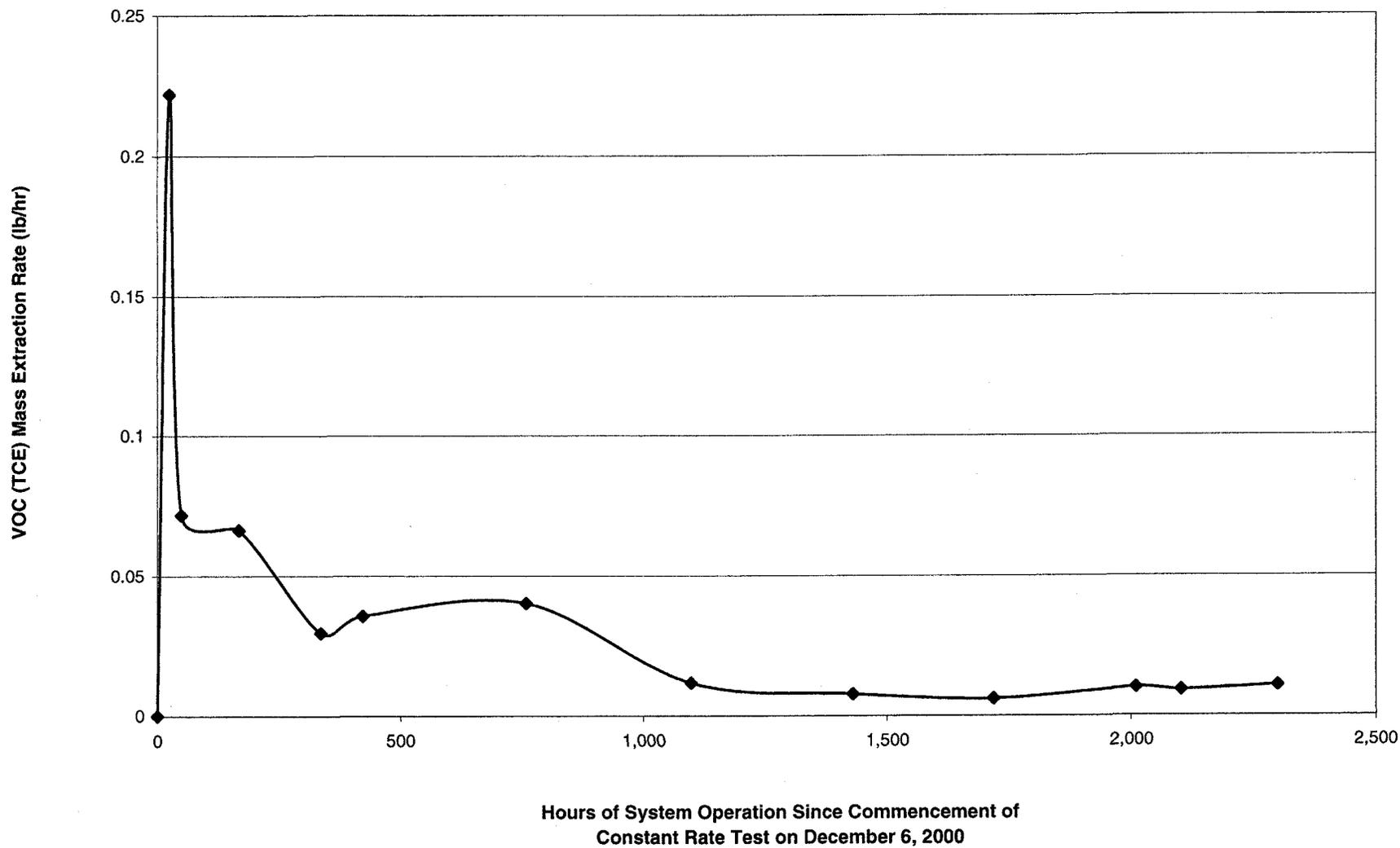


Figure 3 -- Plot of Cumulative VOC Mass Extraction Versus Hours of System Operation at IR10-1, Building 123, HPS, SF, CA

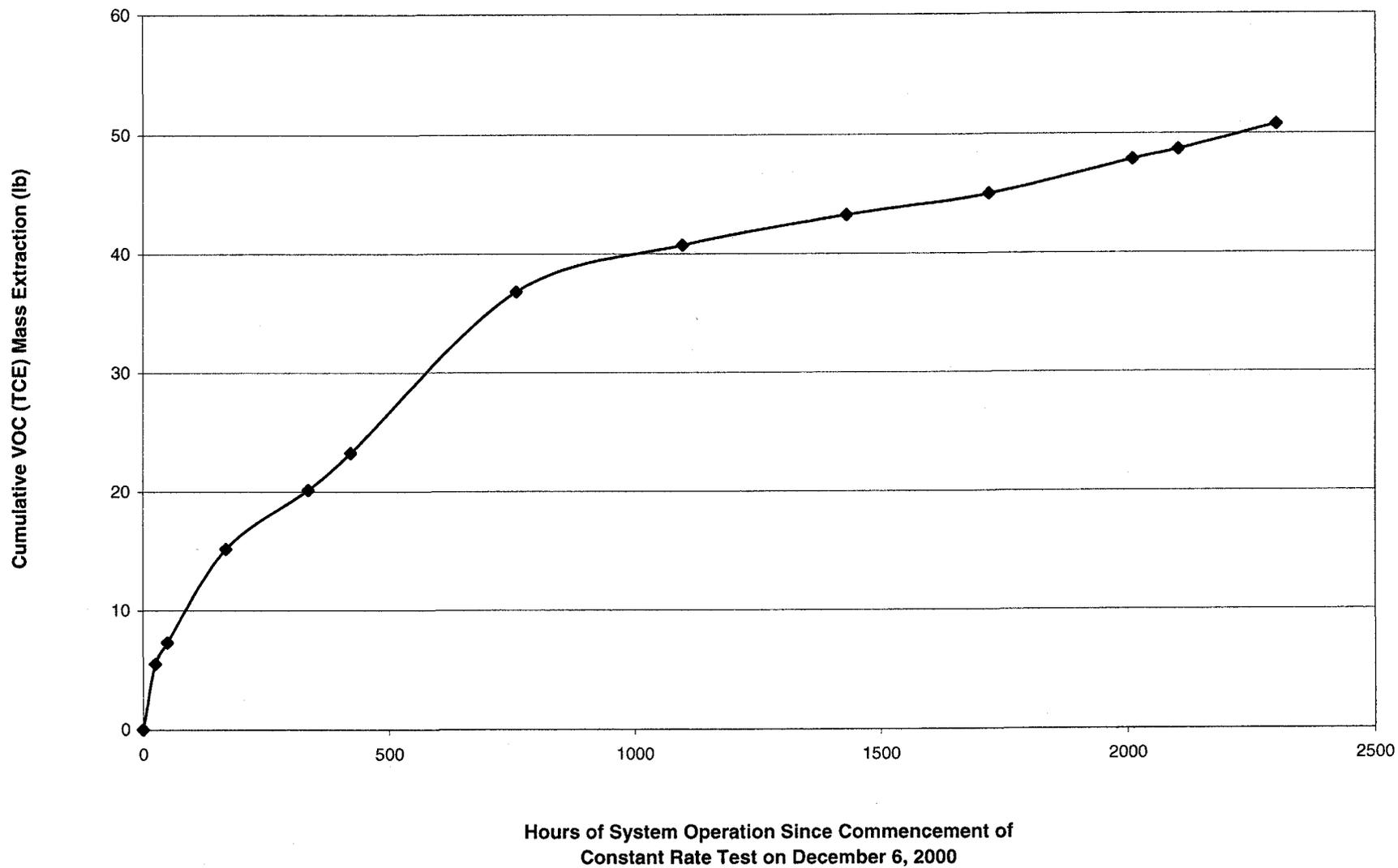


Figure 4 -- Plot of Carbon Treatment Unit Influent and Effluent Concentrations Versus Hours of System Operation at IR10-1, Building 123, HPS, SF, CA

