February 26, 2010

Mr. Eric Yunker
Superfund Project Manager
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street (SFD-7-3)
San Francisco, California 94105

Re: RAC II Contract No. EP-S9-08-03/Task Order No. 0012
Remedial Design Technical Memorandum for Field Sampling Results
Addendum No. 4 Well Installations, Aquifer Pumping Test, and Groundwater Sampling Results April/May 2009

Dear Mr. Yunker:

Innovative Technical Solutions, Inc., (ITSI) has prepared this fourth addendum to the July 2006 Remedial Design Technical Memorandum for Field Sampling Results (RDTM) to document the results of monitor well installation, extraction well installation and aquifer pumping test, and the site-wide groundwater sampling event conducted at the Cooper Drum Company Superfund Site (Site) in South Gate, Los Angeles County, California.

The monitor well and extraction well installations implemented the recommendations from Addendum No. 3, Monitor Well Installation and Groundwater Sampling Results February/March 2008. Well installation, sampling, and testing were performed by ITSI on behalf of the United States Environmental Protection Agency (EPA) in April/May 2009. The main objectives were to (1) delineate the downgradient portion of the Cooper Drum contaminant plume for implementation of a downgradient containment and treatment system (DCT), (2) identify areas of commingling with other plumes to minimize impact from groundwater extraction, and (3) define aquifer characteristics for input to a groundwater model to estimate the extraction system flow rate and zone of capture. The groundwater model also includes a fate-and-transport component to predict plume cleanup time using the DCT and groundwater source area (GSA) extraction systems and using a biobarrier with the DCT.

Other items addressed in this report include results of depth-discrete groundwater sampling in the perched aquifer east of the main source area, the former Hard Wash Area (HWA), and a screening evaluation to assess the potential for indoor vapor intrusion to residential areas in the downgradient portion of the Cooper Drum plume and other adjacent plumes.

The attached technical memorandum includes the following:

- A brief description of the site features, site hydrogeology, and monitor well network
- A summary of previous remedial design (RD) groundwater investigation activities:
  - RDTM, July 2006, Results of the 2003 Cone Penetrometer Test (CPT)/HydroPunch (HP) and Downgradient Well Installation Event

  - RDTM Addendum No. 1, March 2007, Results of the August 2006 Groundwater Sampling Event
  - RDTM Addendum No. 2, June 2007, Results of the February/March 2007 CPT/HP Investigation
  - RDTM Addendum No. 3, September 2008, Monitor Well Installation and Groundwater Sampling Results February/March 2008
- A description of the activities completed during the field events:
  - CPT and depth-discrete groundwater sampling performed in December 2008
  - Monitor well and extraction well installations performed in April/May 2009
  - Pumping test of the new extraction well on May 4 and 5, 2009
  - Groundwater measurement (depth) and sampling at all newly installed and existing wells in May 2009
  - Perched aquifer sampling east of the HWA
- A description of aquifer pumping test results
- Field sampling results and groundwater modeling predictions
- Conclusions regarding the results of the sampling and testing, distribution of downgradient portions of the Cooper Drum plume, and commingling with other plumes in the vicinity
- Recommendations and modifications to the RD

The RD documents for soil (Operable Unit 2 [OU2]) and groundwater (OU1) were completed in September 2007. The RD for OU1 includes Groundwater Source Area (GSA) and DCT systems. The RD for soil includes a dual-phase extraction (DPE) system, which incorporates the shallow perched aquifer, and soil excavation and disposal with institutional controls (Soil E/IC).

EPA issued an administrative order to the responsible parties on February 24, 2009; consequently, the responsibility for implementing the remedial action (RA) is on those companies that contributed to Site contamination. The RA will be conducted in three phases. The phases and the associated work plans are as follows:

- Phase 1 includes construction of the OU2 DPE System (DPE Work Plan) and the OU1 GSA System (GSA Work Plan).
- Phase 2 includes construction of the OU1 DCT System (DCT Work Plan).
- Phase 3 includes implementation of the OU2 Soil Excavation and Disposal and Institutional Controls RA (Soil E/IC Work Plan).

The final DPE and draft GSA work plans were received from the Cooper Drum Cooperating Parties (CDCP) by EPA on November 6, 2009, and September 30, 2009, respectively, as the program is transitioning from a Federal Fund-Lead to a PRP-Lead remediation program.

If you have any questions or comments regarding this report, please call me at (916) 853-1839 extension 108.

Sincerely,
Innovative Technical Solutions, Inc.

Don Gruber
Project Manager

DG:rrd

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COOPER DRUM COMPANY SUPERFUND SITE
REMEDIAL DESIGN
TECHNICAL MEMORANDUM
for
FIELD SAMPLING RESULTS
Addendum No. 4
Well Installations, Pumping Test, and Groundwater Sampling Results
April/May 2009

Prepared for:

Contract No. EP-S9-08-03 / Task Order No. 0012
U.S. Environmental Protection Agency
Region IX
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1.0 INTRODUCTION AND BACKGROUND

This addendum to the July 2006 Remedial Design Technical Memorandum for Field Sampling Results (RDTM) documents the results of monitor well installation, extraction well installation and aquifer pumping test, and the site-wide groundwater sampling event conducted at the Cooper Drum Company Superfund Site (Site) in South Gate, Los Angeles County, California.

The monitor well and extraction well installations described in this addendum implemented the recommendations from Addendum No. 3, Monitor Well Installation and Groundwater Sampling Results February/March 2008 (URS Group, Inc., [URS], 2008a). Well installation, sampling, and pumping test were performed by Innovative Technology Solutions, Inc., (ITSI) on behalf of the United States Environmental Protection Agency (EPA) in April/May 2009. The main objectives were to (1) delineate the downgradient portion of the Cooper Drum contaminant plume for implementation of a downgradient containment and treatment system (DCT), (2) identify areas of commingling with other plumes to minimize impact from groundwater extraction, and (3) define aquifer characteristics for input to a groundwater model to estimate the extraction system flow rate and zone of capture. The groundwater model also includes a fate-and-transport component to predict plume cleanup time using the DCT and groundwater source area (GSA) extraction systems and using a biobarrier with the DCT.

Other items addressed in this report include results of depth-discrete groundwater sampling in the perched aquifer east of the main source area, the former Hard Wash Area (HWA), and a screening evaluation of indoor vapor intrusion due to high contaminant concentrations found in adjacent plumes beneath residential areas in the downgradient Cooper Drum plume.

Lastly, the addendum includes the conclusions based on the field sampling results and recommendations for modifications to the remedial design (RD) including the following:

- Elimination of the biobarrier as a component in groundwater (Operable Unit 1[OU1]) DCT system,
- Expansion of the dual-phase extraction system (DPE) in soil (Operable Unit 2 [OU2]) for the perched aquifer east of the HWA,
- Proposed monitor well installations for the OU1 remedial action (RA), and
- Field sampling to further evaluate the potential for vapor intrusion.

1.1 Site Description

The 3.8-acre facility is bordered by industrial properties on the north and east, mixed commercial/ residential properties on the west, and a former elementary school (Tweedy Elementary School) on the south (Figure 1).

Drum reconditioning activities at the Site began in the1940s. The Cooper Drum Company purchased the property in 1972 and operated the facility until 1992. Drum reconditioning activities occurred in the former HWA and the Drum Processing Area (DPA) (Figure 2). In 1992 Cooper Drum Company sold the drum reconditioning operations to Waymire Drum Company. Waymire continued to operate the facility until 1996 when operations were sold to Consolidated Drum Company. In October 2003, drum reconditioning activities were terminated when Consolidated Drum Company removed all drum recycling equipment and associated containment piping and tanks to off-site facilities. A pallet company currently

occupies the majority of the Site. A trucking and towing company operates the remainder of the Site in the area of the former HWA.

Table 1 lists the 12 site contaminants of concern (COCs), which include trichloroethene (TCE); cis-1,2-dichloroethene (DCE); and 1,4-dioxane.

As shown on Figure 2, the groundwater flow direction in the area of the Cooper Drum plume is to the south. Contaminants in groundwater have migrated from the HWA at least 1,000 feet to the south.

Others sites previously investigated for groundwater contamination in the vicinity of the Site are shown on Figure 3 and include the Jervis Webb site, former Dial Corporation sites at 9300 and 9400 Rayo Avenue (the present location of ELG Metals, Inc.), and the Seam Master Industries site. Investigations to track the migration of these plumes have been performed by EPA as part of the Superfund site assessment and field activities to delineate the Cooper Drum plume.

Figure 3 also shows the location of a property owned by the Los Angeles Unified School District (LAUSD). This location is of interest because monitor wells installed on the LAUSD property show evidence of groundwater contamination (see Addendum No.3, Attachment 8), downgradient of the Cooper Drum plume, and likely emanating from the Seam Master site (and/or the vicinity) and a new source area (on Duncan Avenue) identified during the current investigation.

1.2 Site Hydrogeology

The main hydrogeologic features identified beneath the Site include the Bellflower Aquiclude, the perched aquifer, and the Gaspur and Exposition Aquifers (Department of Water Resources, 1961). These latter units constitute a shallow aquifer and a deeper aquifer, respectively.

- The Bellflower Aquiclude extends from surface to a depth of approximately 55 to 60 feet below ground surface (bgs) and consists of sandy silts, clayey silts, and lesser amounts of silty clay. (Note the Site is generally flat in elevation so bgs is appropriate instead of elevations for aquifer and well descriptions.)
- The perched aquifer is present within the Bellflower Aquiclude. Water levels are generally found in a laterally continuous 5-foot-thick silty/sandy unit at approximately 35 to 40 feet bgs, which is underlain by finer materials of the Bellflower Aquiclude. This portion of the Bellflower Aquiclude is also referred to in this report as the Lower Bellflower Aquiclude.
- The shallow aquifer is represented by the Gaspur Aquifer which underlies the Bellflower Aquiclude and extends to a depth of approximately 110 to 120 feet bgs. The Gaspur Aquifer consists of sandy units varying from very fine to medium and coarse and to a lesser extent finer units comprising silty sand and sandy silt. Near the HWA, the sandy unit of the Gaspur Aquifer generally begins to increase in thickness at the eastern Site boundary along Rayo Avenue and further south and southeast. At the locations of MW-15 (CPT-19) and MW-41 to MW-43 (CPT-8), the Gaspur Aquifer appears to be one continuous sandy unit from approximately 55 to 110 feet bgs. This feature continues south to Duncan Avenue and incorporates some silty sand, sandy silt units at various depths. Water level in the Gaspur Aquifer is generally at a depth that corresponds to the Lower Bellflower Aquiclude, suggesting the Gaspur Aquifer is a semi-confined aquifer.
- The deeper aquifer is represented by the Exposition Aquifer, which underlies the Gaspur Aquifer and begins at a depth of approximately 110 to 120 feet bgs.

The hydrogeologic units are presented on geologic cross-section A-A′ on Figure 5. Figure 4 illustrates the location of the cross-section and the monitor well and cone penetrometer test (CPT)/HydroPunch (HP) locations. This cross-section is drawn southeast to south across the HWA, across Rayo Avenue, and along the approximate axis of the Cooper Drum plume to McCallum Avenue. The cross-section was generated using the Earth Vision 7 Geological Model, which was previously used to build the groundwater flow model developed for the site (see Appendix F, Groundwater Remedial Design Report OU1, URS, 2007). The geologic model was last updated with the lithologic data from CPT-40 through CPT-45 which were presented in Addendum No. 3 (URS, 2008a). Additional cross-sections are available in Addendum No. 3 for further review of Site geologic features.

As noted above, the Gaspur Aquifer increases in thickness (and depth) south to southeast of the Site. The following features, shown on cross-section A-A′, that demonstrate increasing thickness and depth in the Gaspur Aquifer include the following:

- The presence of a 4-foot-thick silty clay, clayey silt unit at the location of MW-2 (located on Site in the center of the HWA) from approximately 80 to 84 feet bgs (or 20 to 24 feet mean sea level [msl]). This unit is shown to be laterally discontinuous over a distance of approximately 100 feet.
- Further south at the Site boundary, at the locations of MW-20B and MW-33B, a similar silty clay, clayey silt unit is present beneath the total depth of the wells beginning at a depth of approximately 93 feet bgs. This unit is also approximately 4 feet thick and laterally discontinuous.
- Continuing south along the cross-section to the location of MW-15, MW-15B, MW-16, the coarser material of the Gaspur Aquifer increases with depth. The presence of clayey silt/silty clay material is found deeper, at the top of the Exposition Aquifer.
- Clayey silt/silty clay units that may inhibit vertical migration within the Gaspur Aquifer are generally not found south of MW-15/15B location.

In general, the Site lithology shown on cross-section A-A′, in conjunction with the horizontal and vertical flow patterns discussed below, provides a mechanism for groundwater contaminants of concern (COCs) in the HWA to migrate downward into the lower Gaspur Aquifer in the vicinity of MW-15B and continue to the south. CPT logs that show the increased thickness of the Gaspur Aquifer in this area are included as Attachment 1. (An example of the increased thickness is shown in Attachment 1 at CPT-23, CPT-19, and CPT-30, which traverse west to east across Rayo Avenue in the area of MW-15B.)

Horizontal and Vertical Flow Patterns

As previously mentioned, the horizontal flow direction in the Gaspur Aquifer is southerly. A slight downward vertical gradient is present within the Gaspur Aquifer and a more significant vertical gradient is evident between the Gaspur and the Exposition Aquifers. The vertical gradient is observed in well pairs (i.e., one well casing and screen installed in a single borehole at the same location at different depths) and multiple-completion/nested wells (i.e., multiple well casings and screens installed in the same borehole at different depths) completed in the Gaspur Aquifer. Differences in water elevations between the shallowest and deepest wells in these well pairs range from 0.01 to 0.74 foot. For well pairs completed in the Gaspur and upper Exposition Aquifers, the differences in water elevation range from approximately 3 to 5 feet. The larger vertical gradient implies the presence of an aquitard or fine-grained material (observed as a silty clay, clayey silt material) which would reduce the vertical migration of the COCs from the Gaspur Aquifer into the Exposition Aquifer.

Aquifer pumping tests have been performed in the upgradient plume area at two extraction wells (EW-1 and EW-2) (URS, 2002) in the HWA and on the eastern Site boundary. Eight-hour constant discharge pumping tests were performed at both of these wells at a flow rate of approximately 30 gallons per minute (gpm). Both wells are screened in the shallow and intermediate depths of the Gaspur Aquifer. Pumping test results indicate that higher flow rates can be sustained from these wells. Short-term (four to five hours) pumping tests were performed on two soil vapor extraction (SVE) wells screened in the perched aquifer (SVE-1 and SVE-2). During both tests, the wells were pumped dry at a flow rate of 1 gpm, indicating sustainable flow rates are less than 1 gpm in the perched aquifer.

1.3 Monitor Well Network

Table 2 presents specifications for all wells installed at the Site. The well locations are shown on Figure 4. The well depths as they relate to the aquifers beneath the Site are discussed below.

Exposition Aquifer

A total of five wells have been screened in the deeper Exposition Aquifer. The two monitoring wells nearest the Site (MW-16 and MW-18) are screened in the top portion of the Exposition Aquifer and are screened from 118 to 128 feet bgs. Farther south of the Site, along Southern Avenue, two wells (MW-26 and MW-32) are screened in the top of the Exposition Aquifer at a depth interval of 122 to 132 feet bgs. The fifth well (MW-55), installed during the herein described 2009 activities, is located on McCallum Avenue, at a depth interval of 128 to 138 feet bgs. These wells are used to monitor vertical migration of COCs from the Gaspur Aquifer into the Exposition Aquifer. Analytical results of samples collected at these five wells have been either non-detected or below action levels for COCs.

Gaspur Aquifer

A total of 52 wells have been installed in the Gaspur Aquifer. Most of the wells in the immediate vicinity of the Site have been installed within the depth interval of 55 to 90 feet bgs. Some of the older wells installed within the Site boundaries (MW-1 through MW-5) and on the ELG Metals, Inc., site (MW-8, MW-10, MW-12, and MW-14) have longer screens shallower than 55 feet bgs The MW-5 screen interval (30 to 75 feet bgs) extends across the perched aquifer and the shallow portion of the Gaspur Aquifer. Two well pairs on the eastern property boundary (MW-20 and 20B, and MW-33A and 33B) monitor the shallow and intermediate depths (up to 90 feet bgs) of the Gaspur Aquifer. Farther off Site and downgradient (in the vicinity of Southern Avenue and McCallum Avenue), where contamination has migrated vertically, monitor well pairs have been installed within the depth interval of approximately 55 to 114 feet bgs. For the purpose of the evaluating contaminant migration, wells screened at the approximate depth intervals of 55 to 70 feet bgs, 70 to 90 feet bgs, and 90 to 114 feet bgs have been designated to be in the shallow, intermediate, and lower Gaspur Aquifer, respectively. Note that the most recent well installation event included construction of four triple-completion wells in the Gaspur Aquifer (MW 42-44, MW 46-48, MW 49-51, and MW-52-54). Prior to this event only well pairs, as previously described, had been constructed.

Perched Aquifer

SVE wells SVE-1 and SVE-2 are installed in the perched aquifer. As previously mentioned, MW-5 (on Site) and MW-12 and MW-14 (located on the ELG Metals, Inc., site) are screened across both the perched aquifer and the shallow Gaspur Aquifer. During installation of MW-5 in 1992 and up to1998, the perched aquifer was not present because water levels measured at MW-5 were similar to those in the surrounding wells screened in the Gaspur Aquifer. The source of water for the perched aquifer is likely localized recharge, possibly from the nearby Los Angeles River.

1.4 Summary of RD Groundwater Investigation Activities

RD investigation activities designed to fill data gaps for the RD were initiated in May 2003. Analytical results from soil sampling, soil gas sampling, CPT/HP sampling, monitor well installation, and monitored natural attenuation (MNA) sampling are presented in the July 2006 RDTM (URS, 2006). Table 1 lists the COCs for the Site. The COCs are generally confined to the shallow or Gaspur Aquifer.

The RD groundwater investigation activities leading up to the most recent well installation event are summarized below. The results and conclusions from those events can be found in the July 2006 RDTM and subsequent addenda. The overall objective of these investigations was to define the downgradient extent of the Cooper Drum plume and areas of commingling in order to design the DCT. These results, as pertinent, along with the most recent groundwater sampling results are provided in later sections of this report.

Each well installation event was preceded by a CPT/HP event. The lithologic and depth-discrete groundwater sampling results from the CPT/HP sampling event were used to locate and design the subsequent monitor well installations. Each CPT/HP boring was advanced to the depth of the Exposition Aquifer, with four to five depth-discrete groundwater samples collected between approximately 60 feet bgs and the total boring depth. The CPT/HP boring and well locations are shown on Figure 4.

2003 CPT/HP and Monitor Well Installation Results

Fourteen CPT/HP borings (CPT-24 through CPT-38) were drilled and sampled in May 2003 to address Site groundwater data gaps. Twelve of these borings were located downgradient (to the south) of the eastern Site property boundary to further define the site lithology and delineate the extent of the Cooper Drum plume. Nine monitor wells were installed in December 2003 in the downgradient portion of the Cooper Drum plume along and south of Southern Avenue. MW-24, MW- 25, MW-27, MW-29, and MW-31 were installed in the intermediate Gaspur Aquifer; MW-28 and MW-30 were installed in the lower Gaspur Aquifer; and MW-26 and MW-30 were installed in the top portion of the Exposition Aquifer in the area of Southern Avenue.

February/March 2007 CPT/HP Investigation

Five CPT/HP borings (CPT-40 through CPT-45) and four HP borings only (HP-8, HP-26, HP-35, and HP-36) were drilled between February 26 and March 1, 2007, to obtain lithologic data and/or depth-discrete groundwater samples to further delineate the groundwater contamination. The HP borings were drilled at locations that had been sampled during prior investigations (i.e., CPT-8, CPT-26, CPT-35, and CPT-36); therefore, these locations were designated with an HP, because lithologic data were available from CPTs in the vicinity of the HP borings.

February/March 2008 Monitor Well Installation and Groundwater Sampling

Twelve monitor wells were installed during this event at seven locations and included four wells in the shallow Gaspur Aquifer (MW-29A, MW-31A, MW-34, and MW-38), two wells in the intermediate Gaspur Aquifer (MW-36 and MW-39), and six wells in the lower Gaspur Aquifer (MW-25B, MW-31B, MW-35, MW-37, MW-40, and MW-41). Note that at three locations existing wells were present; therefore, these locations were designated with a letter (A for shallow and B for lower Gaspur Aquifer).

Results from 2008 monitor well installation samples further characterized the Cooper Drum plume; however, areas of commingling with other plumes were not sufficiently defined to implement the DCT RD. As a result, additional field activities were performed in 2008/2009, as described in the following section.

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2.0 2008/2009 REMEDIAL DESIGN FIELD ACTIVITIES

Consistent with the recommendations in Addendum No. 3 (URS, 2008a), a CPT/HP depth-discrete sample event took place in December 2008 to guide the installation of proposed monitor and extraction wells. Wells were installed in April/May 2009. A 24-hour aquifer pumping test was performed at the new extraction well during the week of May 4, 2009. A groundwater sampling event including all new and existing monitor wells was completed from May 12 to 19, 2009. Depth-discrete sampling from the perched aquifer in the vicinity of MW-12 was completed in April 2009. Indoor vapor intrusion screening and well MW-12 decommissioning activities are also described. The field activities are described in this section; monitor well sampling and aquifer pumping test results are discussed in Section 3.0.

2.1 2008 CPT/HP Depth-Discrete Groundwater Sampling

Four CPT/HydroPunch borings (CPT-46 through CPT-49) and two HP borings only (HP-8A and HP-17) were drilled between December 15 and 18, 2008, to obtain lithologic data and/or depth-discrete groundwater samples to further delineate the groundwater contamination. These data serve as the basis for design and installation of the additional groundwater monitor wells at the site and also to update older depth-discrete groundwater sampling locations. Total boring depths ranged from 123 to 135 feet bgs, with five depth-discrete groundwater samples collected between approximately 65 and 132 feet bgs from each boring. All locations included a groundwater sample for the top of the Exposition Aquifer.

The 2008 CPT and HP boring locations are highlighted on Figure 4. Rationale for the boring locations are as follows:

- Borings CPT-46 through CPT-48 were sampled to evaluate the downgradient and western extent of the Cooper Drum plume.
- Borings HP-8A and HP-17 were sampled to evaluate contaminant concentration trends from the Jervis Webb site and Seam Master plume, especially for the lower portion of the Gaspur Aquifer.
- CPT-49 was sampled to evaluate the central to eastern extent of the mid-plume area of the Cooper Drum plume and the lower portion of the Gaspur Aquifer.

The CPT/HP borings were installed and sampled by Gregg In-Situ, Inc., personnel, with assistance from ITSI. All samples were collected using the HydroPunch method as described in Subsection 6.2.1 of the RD Sampling and Analysis Plan (SAP) (URS, 2008b). Groundwater samples were collected and submitted for analysis of volatile organic compounds (VOCs) and 1,4-dioxane. The samples were shipped via Federal Express to A4 Scientific Laboratories, Inc., in The Woodlands, Texas, within 48 hours of collection. All samples were transported in a cooler packed with ice, under chain-of-custody protocol. The CPT boring logs are presented as Attachment 2.

2.2 Monitor Well and Extraction Well Installation and Development

The recommendations presented in Addendum No. 3 include installation of 19 monitor wells and installation and aquifer pumping test of one groundwater extraction well at the downgradient extent of the Cooper Drum plume. The primary objective was to determine the downgradient extent of contamination in the Cooper Drum plume with respect to the areas that commingle with contamination from adjacent plumes (Seam Master to the east and Jervis Webb to the north). The purpose of the extraction well and testing was to estimate aquifer parameters and provide data for the groundwater modeling to evaluate well

flow rates and zone of capture in the downgradient area of the plume to support the RD. Based on results of the 2008 CPT/HP groundwater sampling event, 17 monitor wells and one groundwater water extraction well were installed in the downgradient area of the plume. This included installation of four triple-completion monitor wells and five single-completion monitor wells. The triple-completion wells are:

- Two locations (MW 49-51 and MW 52-54) on Duncan Avenue, one location (MW 46-48) on McCallum Avenue, and one location (MW 42-44) on the west side of the Seam Master site. Each triple-completion well includes three well casings and screens in a single borehole and are generally contiguous with the shallow, intermediate, and lower Gaspur Aquifer.

The five single-completion wells are as follows:

- Two wells (MW-15B and MW-23B) screened in the lower Gaspur Aquifer along Rayo Avenue. MW-15B was completed in the mid-plume area to identify any vertical migration of contamination from the Cooper Drum plume. MW-23B was located upgradient of the Site to identify background conditions in the lower Gaspur Aquifer.
- One well (MW-56) screened in the shallow Gaspur Aquifer on the west end of Duncan Avenue to identify shallow groundwater contamination encountered in CPT-47.
- One well (MW-45) screened in the intermediate Gaspur Aquifer east of Addella Avenue on the alley between Southern and McCallum Avenues. This well was mostly used to increase hydraulic head (water level measurement) resolution for determining groundwater flow directions downgradient of the Seam Master site.
- One well (MW-55) screened in the Exposition Aquifer to monitor the vertical migration of the Cooper Drum plume near the downgradient extent of the plume.

The groundwater extraction well (EW-3) was installed on McCallum Avenue approximately 60 feet east of MW-37. This location is consistent with the RD.

Prior to beginning field activities, EPA notified the community of the intended activities and their purpose. A fact sheet was hand delivered to each residence where field work was to occur. In addition, residents living in the area of the planned 24-hour pumping test on McCallum Avenue were personally notified prior to initiating the test.

The monitor wells and extraction wells were installed and developed by Gregg In-Situ, Inc., personnel under the supervision of ITSI between April 13 and May 1, 2009. The wells were installed using the hollow stem auger drilling method. The well installations and development were consistent with field methods described in Section 6.0 of the Cooper Drum RD SAP (URS, 2008b). Monitor well borings logs, as-builts, and well development logs are included as Attachment 2.

During development of MW 46-48, it was determined that the blank well casing in MW-46 had collapsed at approximately 38 feet bgs. This well was pressure grouted and decommissioned. A replacement well was drilled and constructed on May 1, 2009, as a single-completion monitor well approximately 5 feet west of MW-47 and MW-48.

Following well completion, the northern side of the polyvinyl chloride (PVC) riser casings from which water levels are measured were permanently marked for future reference. The PVC riser elevations, coordinates, and ground surface elevations (for each well and CPT/HP location) were surveyed on May 27 and 28, 2009, by personnel from the Westland Group, Inc., in Rancho Cucamonga, California.

Specifications for the new wells are included in Table 2. A summary of the survey data for the new wells and CPT/HP locations is provided as Attachment 3.

2.3 Aquifer Pumping Test and Groundwater Modeling

A step-rate aquifer pumping test and 24-hour constant rate aquifer pumping test were performed on new extraction well EW-3 by Gregg Drilling, Inc., under the supervision of ITSI personnel. The purpose of the test was to estimate aquifer parameters in the downgradient area of the plume. The pumping test results were used to update the conceptual model and used as input into a numerical groundwater model to develop flow rates and estimate the zone of capture for the DCT system. Groundwater extraction scenarios were modeled with the objective of minimizing additional plume commingling. Fate-and-transport modeling was also performed for the purpose of estimating operation time of the groundwater extraction system. A detailed description of the pumping test and groundwater modeling results is presented as Attachment 4 and discussed in Sections 3.5 and 4.0.

The step-rate pumping test was performed following well development on April 28, 2009. The 24-hour constant-rate pumping test was performed at a rate of approximately 44 gpm beginning on May 5, 2009. EW-3 was sampled during both tests for a full analytical suite (i.e., VOCs, non-VOCs, metals, general chemistry, etc.). The pumping tests were performed in accordance with Section 6.1.7 of the SAP (URS, 2008b).

2.4 Groundwater Sampling

Between May 12 and 19, 2009, all new and existing groundwater monitor wells at the Site were sampled. This comprised a total of 62 wells. Water levels for determining groundwater flow directions were also measured on May 19, 2008.

The sampling protocol employed standard low-flow groundwater sampling techniques with a flow-through cell (URS, 2008b). The monitor wells were sampled by ITSI and URS personnel using 2-inch RediFlo pumps (with disposable discharge tubing) and associated equipment. The sampling pump was set at a depth consistent with previous sampling events. During purging, water quality parameters were monitored and recorded in the field including dissolved oxygen, oxidation-reduction potential, temperature, conductivity, turbidity, pH, and ferrous iron. Groundwater samples were collected and submitted for analysis of VOCs; 1,4-dioxane; and MNA parameters (from all new wells and selected existing wells) including alkalinity, chloride, ethane, ethene, methane, nitrate, sulfate, sulfide, total organic carbon, cations, and metals. In addition, samples from wells SVE-1, SVE-2 and MW-5 were analyzed for petroleum hydrocarbons. Field parameters measured during well purging and sampling, and water levels prior to and during purging were recorded on the field data sheets (provided as Attachment 5). Groundwater samples analyzed for MNA parameters were shipped by Federal Express to the EPA Region 9 Laboratory in Richmond, California, within 24 hours of collection. Samples analyzed for VOCs and 1,4-dioxane were sent by Federal Express to KAP Technologies, Inc., in The Woodlands, Texas. Samples analyzed for metals were sent by Federal Express to A4 Scientific, Inc., in The Woodlands, Texas. All samples were transported in a cooler packed with ice, under chain-of-custody protocol per the SAP (URS, 2008b).

2.5 Perched Aquifer Sampling East of the HWA

Depth-discrete groundwater samples were collected at four borings (SB-42 to SB-45) in response to increasing COC concentrations in well MW-12, located on the ELG Metals, Inc., site. Two groundwater samples were collected from each boring at a depth of approximately 41 and 55 feet bgs using a direct

push drill rig. Perched groundwater was measured in on-Site well SVE-1 at approximately 36 feet bgs. The borings were advanced to 5 feet below the water table, approximately 41 feet bgs. Upon reaching the targeted sampling depth, 1-inch diameter PVC well casing with 5 feet of slotted PVC screen was inserted to the bottom of the drilling rods/boring. The drilling rods were pulled up 3 to 4 feet to expose the well screen. Groundwater samples were collected using a bailer and transferred to the sample containers, then placed in a cooler with ice. Groundwater samples analyzed for VOCs and 1,4-dioxane were sent by Federal Express to Datachem Laboratories Inc., Salt Lake City, Utah. All samples were transported in a cooler packed with ice, under chain-of-custody protocol per the SAP (URS, 2008b). At the completion of the investigation, the boreholes were grouted and the ground surface restored to its prior condition.

Groundwater sampling results, recommendations, and potential impacts to the RD were summarized in a technical memorandum (URS, 2009) which EPA provided to the CDCP and California Department of Toxic Substances Control (DTSC) in September 2009. The technical memorandum and analytical data sheets for sampling are included as Attachment 6.

MW-12 Decommissioning

Due to the potential for MW-12 to act as a conduit for migration of contaminants from the perched aquifer to the Gaspur Aquifer a request for decommissioning MW-12 was requested and granted by ELG Metals Incorporated. MW-12 was decommissioned by pressure grouting on November 4, 2009. Documentation pertaining to this activity including, the request letter to ELG Metals, the Well Permit, the pressure grouting procedure, the drillers daily report and other information is also included in Attachment 6.

2.6 Indoor Vapor Intrusion Screening

The potential for vapor intrusion of VOCs into residential buildings in the downgradient area of the Cooper Drum plume and other adjacent plumes is a concern because elevated concentrations (greater than MCLs) of volatile compounds have been measured in groundwater. The vapor intrusion pathway is a potential route through which people can be exposed to VOCs that have migrated from the subsurface (soil or groundwater) into the indoor air of enclosed spaces. This pathway becomes of concern when VOCs are present in soil gas underlying buildings that are used or occupied by people. VOCs can be present in soil gas either from volatilization out of contaminated groundwater or from releases directly into soil.

Agency guidance for assessment of the vapor intrusion pathway is available from the EPA (2002, 2004) and DTSC (2005). These guidance documents differ in some of the specifics but are generally similar in overall approach:

- Identify if a problem could exist;
- Evaluate the potential magnitude; and
- Develop increasingly site-specific assessments, or
- Develop remedial and/or mitigative strategies.

An initial indoor vapor intrusion screening was performed for the Cooper Drum Site and adjacent plumes using a single line of evidence (the 2009 groundwater data). This evidence can be used to determine areas of concern for potential vapor intrusion; however, EPA guidance requires multiple lines of evidence to evaluate the potential magnitude of the health risk. According to the guidance, groundwater data can be

used to indicate whether a problem might exist and give a preliminary indication of magnitude, but these data are not definitive indicators of soil gas concentrations below a building. Soil gas data are necessary to verify areas of concern because the vapor intrusion pathway is based ultimately on VOCs in soil gas. If the screening results using the soil gas data indicate a potential still exists, then further characterization of the areas of concern should occur.

Areas of concern identified using the Cooper Drum 2009 groundwater data (areas with the highest VOC concentrations in groundwater) include:

- The area containing MW-56 (up to 3,900 µg/L of TCE) and south to the LAUSD site (see Figure 22);
- The area east of the Cooper Drum plume on the eastern side of the Seam Master site and downgradient (slightly southwest) to Duncan Avenue; and
- The HWA on the Cooper Drum site and slightly downgradient in the area of MW-15B.

Note that the LAUSD is taking mitigative measure, such as construction of subsurface vapor barriers, to address potential vapor intrusion issues. Note, also, that the groundwater aquifer begins at approximately 55 feet bgs and there is a potential for a perched groundwater at approximately 35 feet bgs; consequently, there are many feet of vadose zone soil through which VOCs would have to migrate to create a vapor-intrusion concern in near-surface (e.g., sub-slab) soil.

The on-site HWA was evaluated in the human health risk assessment (HHRA) prepared to support the remedial investigation (URS, 2002). The HHRA estimated health risks for potential on- and off-site receptors for three exposure pathways: groundwater, indoor air, and soil. Groundwater is not a pathway of concern because the Gaspur Aquifer is not directly used as a drinking water supply. Vapor intrusion was identified as the exposure pathway in the HWA most likely to pose a potential risk to the occupants of buildings. Exposure to chemicals in indoor air presupposes buildings would be built directly on ground surface at the HWA, not on asphalt or concrete. Currently there are no enclosed buildings located on the HWA. The only enclosed building is on the west side of the Cooper Drum property away from the HWA.

Soil gas data are only available from locations on and in the immediate vicinity of the Cooper Drum property. Areas further off-site and downgradient can only be evaluated indirectly (until soil gas data are collected). Recommendations for collection of field data to further evaluate the vapor intrusion pathway are presented in Section 4.0.

2.7 Investigation-Derived Waste

Investigation-derived waste (IDW) was accumulated and disposed of at the completion of field activities. Handling and disposal of the IDW is summarized below. All IDW documentation, such as permits, manifest, weight certificates, and IDW sampling results, are included as Attachment 7.

During drilling for installation of new wells, all drill cuttings were contained in four 20-yard roll-off bins. Phillips Service Corporation (PSC) sampled the cuttings and profiled them as non-hazardous waste. A total of 62.0 tons was transported by PSC to the TPST Soil Recyclers of California in Adelanto, California.

Approximately 10,000 gallons of water was generated from well development, decontamination of equipment, the step-drawdown pumping test at EW-3, and well purging related to groundwater sampling.

This water was contained in a 21,000-gallon steel tank located on Site in the HWA. Groundwater from the step-drawdown pumping test (approximately 8,000 gallons) was directly discharge to a vacuum truck and transferred by PSC to the 21,000-gallon steel tank. The wastewater was analyzed prior to disposal (on May 4, 2009) to confirm concentrations did not exceed Los Angeles County Sanitation District (LACSD) discharge limits. Test results were below discharge limits, so the water was discharged on May 27, 2009, to the sanitary sewer as a non-hazardous waste by ITSI personnel under an industrial wastewater discharge permit from LACSD. The steel tank was cleaned by PSC personnel on May 28, 2009, and removed from the Site by Baker Tank, Inc., the following week.

Approximately 62,880 gallon of water was generated from the 24-hour pumping test. The discharge from the pumping test was performed under a second industrial wastewater permit from LACSD. EW-3 was sampled during the step-drawdown pumping test on April 28, 2009, and confirmed VOCs and 1,4-dioxane concentrations were less than the LACSD discharge limits. The groundwater from the 24-hour test was piped through a bag filter, then directly discharged to the sanitary sewer at a manhole on McCallum Avenue approximately 20 feet from EW-3. Sampling during the pumping test was conducted by ITSI and LACSD.

3.0 2009 MONITOR WELL SAMPLING RESULTS

This section presents the May 2009 water level measurement and results of groundwater sampling, which includes results from recently installed wells. Results from the aquifer pumping test and groundwater modeling are also summarized.

Tier 3 data validation was performed on 20% of the analytical data presented in this addendum. The four data validation reports prepared for EPA (ICF International, July 2009) were reviewed by the URS project chemist and the data determined to be acceptable for decision-making purposes. The chemist's evaluation is included as Attachment 8. The full data validation reports can be found at the EPA Region 9 Records Center in San Francisco, California.

The RD field activities for delineating the downgradient extent of the Cooper Drum plume and commingling with adjacent plumes has enabled the development of a monitor well network that includes wells screened in the shallow, intermediate, and lower Gaspur Aquifer. As previously mentioned, each zone corresponds to approximate depth intervals of 55 to 70 feet bgs, 70 to 90 feet bgs, and 90 to 114 feet bgs, which span the thickness of the Gaspur Aquifer. As previously discussed, beginning in the eastern portion of the Site and continuing to the south and southeast, there are no fine-grained lithologic units within the Gaspur Aquifer (55 to 114 feet bgs) that are considered to be laterally continuous across the entire investigation area that would inhibit vertical migration of COCs. Conditions upgradient of the Site have not been determined; however, it appears (see CPT-12 and CPT-14) that the sandy units of the Gaspur Aquifer are less abundant compared to those downgradient. Other Site characteristics worth noting when reviewing the data interpretation are as follows:

- On Site, the coarser material (sand) in the Gaspur Aquifer increases in thickness near the Site boundary in the area of MW-20B and MW-33B. Upgradient in the main source area (HWA) at MW-2 there is a localized discontinuous clay unit that may spatially limit vertical migration at a depth of approximately 80 feet bgs. There are no wells on the Cooper Drum property boundary that are completed beneath the clay unit in the depth interval of 90 to110 feet bgs. Although historical depth-discrete sampling from this depth interval on Site in the vicinity of the HWA has generally indicated non detectable levels of COCs, some downgradient locations have shown COCs in this depth interval (see CPT-15, CPT-28, SB-1, SB-2, and CPT-49); therefore, the RD should include performance groundwater monitor wells on Site to confirm conditions in this depth interval.
- Because the Gaspur Aquifer in the area of the Cooper Drum plume is generally one continuous aquifer beginning on the eastern portion of the Site and off Site to the south and southeast, the monitor well depth intervals were developed for the purpose of evaluating vertical migration of site COCs. Therefore, wells MW-20B and MW-33B (which are screened from 80 to 90 feet bgs, thus useful for evaluating on-Site vertical migration) are included on the lower Gaspur Aquifer isopleth and water elevation maps.
- On-Site wells MW-1 through MW-5 generally have longer screen intervals and cross the shallow and intermediate portions of the Gaspur Aquifer. Therefore, for the purpose of the data presentation, all wells in the area of the Site (with the exception of MW-20B and MW-33B) are included on both the shallow and intermediate isopleth maps and water elevations maps.
- Downgradient on Duncan Avenue, MW-53 (90 to 100 feet bgs) and MW-54 (108 to 113 feet bgs) were completed in the depth interval considered to be the lower Gaspur Aquifer.

3.1 Groundwater Flow Patterns

Groundwater elevation contours from the May 19, 2009, sounding event for the shallow, intermediate and lower Gaspur Aquifer are presented on Figures 6, 7, and 8, respectively. A summary of historical groundwater surface elevations is presented in Table 4.

Horizontal Flow Gradients

The contour maps represent horizontal groundwater flow directions in the shallow, intermediate, and lower Gaspur Aquifer. Water levels from the shallow/intermediate depth wells are consistent with past flow patterns measured beneath the Cooper Drum plume. As shown on the figures, the groundwater flow direction beneath Cooper Drum plume is south to slightly southeast (approximately 5 degrees southeast). East and downgradient of the Cooper Drum plume (at the intersection of Southern Avenue and Adella Avenue), the southerly flow direction begins to transition to the southwest (approximately 5 degrees southwest). The southwest flow direction is clearly evident along Adella Avenue at the intersections of McCallum and Duncan Avenues. The southwest flow direction is most obvious in the lower Gaspur Aquifer (see Figure 8). The horizontal gradients ranged from 0.0012 to 0.0016 feet per foot in the shallow, intermediate and lower Gaspur Aquifer.

Vertical Gradients

Vertical gradients within the Gaspur Aquifer and between the Gaspur and Exposition Aquifers are discussed in Section 1.2. As discussed, at the multiple-completion/nested well locations in the Gaspur Aquifer, the water elevations are generally the same or slightly lower with depth. The difference in water elevations at the shallowest and deepest wells at the nested well locations ranged from 0.01 to 0.74 feet during the May 2009 sampling event, indicating a downgradient vertical gradient. At seven of the 11 well locations, water elevations were generally the same among the shallow, intermediate, and lower zones (within 0.1 feet), indicating the Gaspur Aquifer has good hydraulic connectivity throughout the thickness of the aquifer. This is consistent with the Site lithology which does not show any laterally continuous units across the entire area of investigation.

A much greater vertical gradient, as compared to that observed within the Gaspur Aquifer, is present between the Gaspur Aquifer and the Exposition Aquifer. The difference between the well pairs completed in the lower Gaspur and Exposition Aquifers ranged from 3.79 to 5.80 feet.

Note that MW-1 and MW-3 have always shown higher water levels (up to 2 feet higher) than the wells immediately downgradient. The sandy units of the Gaspur Aquifer may not occur in the area of MW-1 and MW-3 until approximately 80 feet bgs (see CPT-14). These wells are screened shallower and may be more representative of water levels in shallower fine-grained (silty) units overlying the sandy units of the shallow/intermediate Gaspur Aquifer.

Water level measurements from MW-23B (lower Gaspur) also showed a downward vertical gradient within the Gaspur Aquifer. The magnitude of the difference in water level change (2.01 feet) was much greater than that observed in other wells completed in the Gaspur Aquifer. This measurement may be anomalous and should be confirmed in the next water level sounding event.

3.2 Contaminant Distributions

VOC and 1,4-dioxane analytical data for the December 2008 CPT/HP field sampling event and the May 2009 monitor well sampling event are presented in Tables 5 and 6, respectively. Figure 9 presents the data for the CPT/HP event which was designed to support the monitor well installation event. Results from the

CPT/HP event are discussed, where pertinent, throughout this section. Table 6 also includes historical data from previous sampling events and the two field pilot studies performed between December 2003 and June 2006.

Non-VOC and metals analytical results and field water quality and MNA parameters measured at the wells (including historical results and pilot studies) are included as Attachment 9. The intent of this addendum is to address the extent of the Cooper Drum plume and identify areas of commingling; the data provided as Attachment 9 is useful for evaluation of non-VOCs which may impact the pump-and-treatment remedy, waste discharge permits for the RD, and evaluation of the MNA parameters, if applicable, at a later time.

The VOC and 1,4-dioxane results are presented on isopleth maps (Figure 10 through 18), a geologic cross-section (Figure 5), pie charts as mole fractions (Figures 19 through 21), and concentration charts (included as Attachment 10).

The isopleth maps (Figures 10 through 18) are used to estimate the lateral distributions of TCE, cis-1,2-DCE, and 1,4-dioxane for the shallow, intermediate, and lower Gaspur Aquifer. These three COCs generally show the highest concentrations compared to the other COCs and are considered to be representative of the Cooper Drum plume. These COCs are also considered representative of the adjacent plumes (from Jervis Webb and the Seam Master sites) with the exception of 1,4-dioxane which is either not detected or found in very low concentration (less than 2.0 μg/L) in the Seam Master plume. Isopleths showing the western and eastern extent of the Seam Master plume are included on Figures 10, 11, 13, and 14 for TCE and cis-1,2-DCE concentrations in the shallow and intermediate Gaspur Aquifer. The purpose of these isopleths are to show the area of commingling from the Seam Master site based on the results of new wells installed on and downgradient of the Seam Master site. The upgradient, downgradient, and eastern extents of contamination from the Seam Master site are as yet not defined. Isopleths for TCE and cis-1,2-DCE for the lower Gaspur Aquifer for contamination from the Seam Master site were not estimated on Figures 12 and 15; however, an approximate area of commingling with the Cooper Drum plume is shown on Figures 12 and 15 (see red hatched area). As shown on the figures, the commingling pattern is similar to the shallow and intermediate Gaspur Aquifer. (Note that at locations/depths where monitor wells have not been installed, results from the most recent CPT/HP sampling events [2007 and 2008] are shown on figures.)

One COC, 1,2-DCA, which has an MCL of 0.5 μg/L, was detected in 41 out of 56 wells screened in the Gaspur Aquifer (see Table 6). This compound was detected in only 1 out of the 5 wells (0.48 μg/L) screened in the Exposition Aquifer. In the downgradient area of the Cooper Drum plume, 1,2-DCA was detected at concentrations greater than the MCL (from 0.5 to 4.9 μg/L) in 17 out of 26 wells in the Gaspur Aquifer. East of the Cooper Drum plume, 1,2-DCA was detected above the MCL (from 0.5 to 11 μg/L) in 9 out of the 11 wells in the Gaspur Aquifer. The highest concentration of 1,2-DCA (30 μg/L) was detected in the HWA in MW-2.

Figure 22 shows the estimated general plume boundaries and areas of commingling for the Cooper Drum plume, Seam Master plume, and Jervis Web plume. This figure was developed for the purpose of discussion and decisions related to the RD for the Cooper Drum plume. This figure is discussed in more detail in Section 3.2.4.

TCE, cis-1,2-DCE, and 1,4-dioxane concentrations are posted on cross-section A-A' (Figure 5). This cross-section traverses the groundwater flow direction from the main source area (HWA) to the south-southeast and slightly past McCallum Avenue.

All VOC COCs detected during the May 2009 sampling event are displayed in pie charts as mole fractions for the shallow, intermediate, and lower Gaspur Aquifer on Figures 19 to 21, respectively. The purpose of these charts is to identify patterns in the VOC plumes in the area of the Cooper Drum plume. Generally the Cooper Drum plume shows a larger number of analytes than the Jervis Webb and Seam Master plumes; however all charts are dominated by TCE and cis-1,2-DCE.

Concentration charts for samples from selected monitor wells are included as Attachment 10. Generally monitoring data sufficient for evaluating trends are available only for wells that are on Site and downgradient of the source area in the vicinity of Southern Avenue. The majority of the wells have been installed in the past two years to define the downgradient extent of contamination, therefore providing an insufficient data set for evaluation of concentration trends.

3.2.1 Lateral Extent of VOCs in the Cooper Drum Plume

Significant features of the of the Cooper Drum plume in the shallow, intermediate, and lower Gaspur Aquifer are discussed below.

Shallow Gaspur Aquifer. As shown on Figures 10 and 13, VOCs are not present in the shallow Gaspur Aquifer in the downgradient portion (south of Southern Avenue) of the Cooper Drum plume except where areas of commingling have been identified. This conclusion is based on the non-detection of VOCs at MW-29A (located along the center of the Cooper Drum Plume), recent CPT sampling on McCallum Avenue, and historical sampling with CPT/HP in the vicinity of Southern Avenue (see Addendum No. 3, Figure 5). The low concentrations detected at shallow wells MW-31A and MW-38 (located on Addella and McCallum Avenues) are considered to be in an area of commingling and related to the Seam Master plume. (The presence of VOCs in the shallow Gaspur Aquifer further downgradient on Duncan Avenue would also point to commingling and/or other sources of contamination not related to the Cooper Drum plume.)

Intermediate and Lower Gaspur Aquifer. The downgradient southerly extent of the Cooper Drum plume in the intermediate and lower Gaspur is estimated to extend south of McCallum Avenue (See Figures 11, 12, 14 and 15). The actual plume boundary above MCLs between McCallum and Duncan Avenues is uncertain. VOCs from the Cooper Drum plume that exceed MCLs in wells/CPTs on McCallum Avenue include TCE; cis-1,2-DCE; vinyl chloride (which is detected only in the lower Gaspur Aquifer at the MCL concentration); and 1,2-DCA.

The uncertainty in the Cooper Drum plume boundary above MCLs is attributed to commingling from the east with the Seam Master and Jervis Webb plumes and the new source of contamination downgradient to the southwest (see MW-56) on Duncan Avenue. The generally low concentration range (4.1 to 19 µg/L) of TCE and cis-1,2-DCE on Duncan Avenue in monitor wells MW-52 to MW-54 and CPT-46 suggest concentrations below MCLs may be present between McCallum and Duncan Avenues. Because actual concentrations attributed to each plume cannot be determined, the plume boundaries above MCLs are estimated.

The western lateral extent of the Cooper Drum plume south of Southern Avenue is defined by results from CPT-46. However, sample results from MW-24, MW-27, and MW-28 for TCE; cis-1,2-DCE; and 1,2-DCA show increasing concentrations above MCLs beginning in March 2008. Results from a new monitor well installed at the location of CPT-46 and ongoing monitoring are needed to confirm these results.

3.2.2 Vertical Extent of VOCs Cooper Drum Plume

Based on results of samples from the five wells completed in the Exposition Aquifer and six CPT/HP locations (December 2008) (see Table 5, Figure 9), the vertical extent of the Cooper Drum plume above MCLs/action levels continues to be confined to the Gaspur Aquifer and has not migrated into the deeper Exposition Aquifer. However, detection of VOCs at concentrations less than MCLs in the new well installed on McCallum Avenue (MW-55) suggests vertical migration may be occurring. These results will need to be confirmed by future sampling events. Migration of COCs into the Exposition Aquifer would significantly impact the cost of the remedial action.

3.2.3 Lateral and Vertical Extent of 1, 4-Dioxane

The downgradient extent of 1,4-dioxane in the Cooper Drum plume above action levels (6.1 µg/L) in the Gaspur Aquifer is in the immediate vicinity of extraction well EW-3 (6.7 µg/L) on McCallum Avenue. Concentrations in monitor wells adjacent to EW-3 on McCallum Avenue ranged from 1.9 to 2.2 µg/L. Concentrations in monitor wells immediately upgradient of EW-3, on the alley between Southern and McCallum Avenues, range from 5.4 to 11 µg/L. Concentrations downgradient of EW-3 on Duncan Avenue ranged from less than 2.0 to 2.6 µg/L. (Note that EW-3 is screened across the shallow, intermediate, and lower Gaspur Aquifer and was sampled approximately 2 hours after startup and near the end of the 24-hour aquifer pumping test. The initial sample results were less than 2.0 µg/L. The second sample result for 1,4-dioxane (6.7 µg/L) was higher as a result of continued pumping and pulling in higher concentrations from the upgradient area, represented by the wells located in the alley.

The vertical extent of 1,4-dioxane is confined to the Gaspur Aquifer. This conclusion is based on the non-detected concentrations from the new well (MW-55) completed in the upper Exposition Aquifer (located 30 feet from EW-3) and the existing four wells screened in the upper Exposition Aquifer.

As shown on Figures 16 through 18 and Table 6, high concentrations (39 to 160 µg/L) of 1,4-dioxane (along with VOCs) are generally only detected in the GSA portion of the Cooper Drum plume. With the exception of results from MW-12, the highest concentration of 1,4-dioxane (18 µg/L) outside the Cooper Drum plume was in a sample collected on the ELG Metals, Inc., site in the lower Gaspur Aquifer (see Figure 18, HP-17). Based on the inferred flow direction, the contamination detected at HP-17 is from the Jervis Webb site.

Note that 1,4-dioxane results from the May 2009 sampling event showed non-detectable levels at seven well locations that had positive detections of 1,4-dioxane the previous sampling event. One of the results is anomalous (i.e., MW-21) because the previous result had a 1,4-dioxane concentration of 330 µg/L. These results need to be confirmed in the next round of groundwater sampling.

3.2.4 Area of Plume Commingling

The area of commingling with the Seam Master and Jervis Webb plumes has been further defined based on the new sampling results. Figure 22 presents the estimated groundwater plume boundaries in the area of the Cooper Drum plume and the area of commingling. As shown on the figure and discussed below, there is also an undefined source of contamination on the west end of Duncan Avenue. (TCE results from two wells located on the LAUSD property are also presented on this figure. These wells are downgradient of the new source of contamination and the Seam Master plume and may be the result of the contamination on Duncan Avenue.) A brief discussion of the Seam Master and Jervis Webb plumes follows.

The estimated western extent of the Seam Master plume in the shallow and intermediate Gaspur Aquifer are also shown by the red contours on Figures 10, 11, 13, and 14. These isopleths are based on the concentrations shown on the isopleth map(s) and the groundwater flow patterns presented on Figures 6 through 8. As shown in the remedial investigation (URS, 2002), the main source area of the Seam Master plume is considered to be on the eastern side of the property in the vicinity of CPT-10 and CPT-21 (see Figure 4). However, the high concentrations (410 µg/L, cis-1,2-DCE) detected at MW-42 indicate the Seam Master plume may extend to the west side of the property. Because the Cooper Drum plume is not detected in the shallow Gaspur Aquifer in the vicinity of Southern Avenue and further south, the isopleths on Figures 10 and 13 are considered representative of the western boundary of the Seam Master plume in the vicinity of Southern and McCallum Avenues. However further downgradient on Duncan Avenue, the plume boundary is uncertain because of the recently identified source of contamination. The western boundary for the Seam Master plume in the intermediate and lower Gaspur Aquifer is also uncertain due to commingling with the Cooper Drum plume at these depths and is generally inferred by the groundwater flow direction. (Note the red isopleth contours are only shown for the shallow and intermediate Gaspur Aquifer because the concentration trend generally supports the isopleth. A concentration trend is not obvious in the lower Gaspur Aquifer; therefore, isopleths are not shown on Figures 12 and 15.

As shown on Figure 22, the Jervis Webb plume appears to commingle with the Seam Master plume and the Cooper Drum plume within the area of Adella and Southern Avenues on the west side of Seam Master property . New sampling results upgradient of the area of commingling from HP-17 (see Figure 9) on the ELG Metals, Inc., site indicate VOCs are still present in all depths of the Gaspur Aquifer. This sampling location tracks contamination that is attributed to the Jervis Webb site. The HP-17 results showed VOC concentrations ranging from 9.8 to 160 µg/L, which are similar to the 2000 sampling results from CPT-17 that ranged from 16 to 390 µg/L. Sampling results to the west, from MW-17 and new CPT-49, indicate the Jervis Webb plume continues to remain east of these well/CPT locations. However, installation of a deeper monitor well at MW-17 and a triple completion monitor well north of the Bimbo Bakery building and adjacent to the Seam Master property is necessary to continue monitoring these conditions.

In general, the southern extent of all four plumes is uncertain. The eastern extents of the Jervis Webb and Seam Master plumes are also undefined. Finally, the recently identified source of contamination (shown as undefined plume on Figure 22) is unknown and the estimated isopleth/plume boundary is drawn on the figures for purpose of presentation and discussion.

3.2.5 Undefined Source of Groundwater Contamination

A previously unidentified source of contamination is present downgradient of the Cooper Drum plume on the western end of Duncan Avenue (see Figure 10 and 22). Very high VOC concentrations (3,900 µg/L of TCE) were detected at MW-56 (shallow Gaspur Aquifer). The contaminant source is unknown. Contamination from this source may have migrated further south and may be the source for contamination detected approximately 700 feet downgradient in well 001-MW12C1 on the LAUSD property.

3.3 Concentration trends in the upgradient Cooper Drum Plume

The two pilot tests performed on Site (HRC pilot test initiated in December 2003 and the in situ chemical oxidation (ISCO) pilot test initiated in July 2005 and continued to June 2006) appear to have initiated a trend of decreasing COC concentrations. The HRC test showed decreasing trends in wells EW-2 and MW-21. MW-2 is 30 feet upgradient of the HRC injection grid and in the center of the main source area

and has historically shown a slight decreasing trend. Concentrations in these three wells can be used to evaluate conditions in the source area. EW-2 is 50 feet downgradient of MW-2 and 5 feet downgradient of the HRC injection grid. Reductive dechlorination conditions resulting from the HRC injection are attributed with significantly reducing VOC concentrations in EW-2. Based on increased concentrations of methane and decreasing concentrations of sulfate (see Attachment 9), it appears the reduction process currently occurring in the area of the HRC grid (and well EW-2) may be sulfate reduction/methanogenesis. Apparently as a result of the extended period of these reducing conditions (approximately 6 ½ years), 1,4-dioxane has also been biodegraded, as reflected by the decreasing concentration trend.

Approximately 150 feet downgradient, the ISCO pilot test also showed significant decreasing trends in VOC and 1,4-dioxane concentrations in EW-1, MW-33A, and MW-20. The deeper wells at these locations (MW-20B and MW-33B) initially showed a concentration decrease and then stabilized. Other wells not associated with the pilot test that have been sampled since at least January 2004 include MW-1 through MW-5, MW-8, MW-10, MW-12, MW-15, MW-19, and MW-22 through MW-31 (see Attachment 10). These wells have shown either increasing or decreasing concentration trends.

COC concentrations in the upgradient source area of the Cooper Drum plume have continued to increase (rebound) and/or stabilize in the monitor wells used for the two field pilot studies, but the concentrations are less than those detected prior to the studies (see Attachment 10). The two deeper on-Site wells (MW-20B and MW-33B) showed a recent spike in 1,4-dioxane and cis-1,2-DCE concentrations, respectively. Installation of a more effective monitor well network and performance of a quarterly monitoring program is necessary to evaluate COC concentration trends. These data are necessary to determine the presence of any residual source area mass, which if present will continue to impact the Gaspur Aquifer.

3.4 TPH Sampling Results

Wells SVE-1, SVE-2, and MW-5 were sampled and analyzed for total petroleum hydrocarbons (TPH) during the most recent sampling event; TPH is not routinely sampled for at the site. Sampling at these wells represents the perched aquifer conditions in the two source areas of the site. These results show concentrations of TPH motor oil up to 18,000 μg/L and TPH diesel up to 24,000 μg/L in the perched aquifer. The analytical data sheets are included in Attachment 9. These sampling results are not expected have any impact on the RD treatment systems.

3.5 Aquifer Pumping Test and Groundwater Modeling Results

Testing included a 6-hour step-rate aquifer pumping test and a 24-hour constant-rate aquifer pumping test on EW-3. The testing was performed on EW-3 to estimate aquifer parameters in the downgradient area of the Cooper Drum plume. The parameters and extraction well location were inputs to the numerical groundwater model to estimate the capture zone and cleanup time. The results are provided in Attachment 4 and summarized below.

The step-rate pumping test results indicate EW-3 should be able to sustain a maximum flow rate of approximately 40 to 45 gallons per minute (gpm). Based on these results, the 24-hour constant-rate pumping test was conducted with EW-3 operating at a flow rate of 44 gpm. The estimated Gaspur Aquifer parameters from the constant-rate pumping test are presented in Table 3. The estimated parameters are consistent with the previous pumping test results from EW-1 and EW-2 in the upgradient area of the Cooper Drum plume. The average transmissivity was 2,022 feet^2/day compared to the previous test results

of 2,008 feet^2/day. Based on the estimated sustainable well yield from the step-rate test which was confirmed by the constant-rate test, the design flow rate for the RD should be a minimum of 40 gpm. As discussed below, this rate should be sufficient for plume capture. This flow rate is also consistent with the Remedial Design Report (RDR), (URS, 2007)

Water level measurements at the monitor wells during the pumping test showed a similar change in all wells completed in the shallow, intermediate, and lower Gaspur Aquifer. These results indicate the presence of limited stratification throughout the Gaspur Aquifer. Additionally, there was generally no change in water levels during the pumping test in well MW-55. This well is approximately 30 feet from EW-3 and is completed in the Exposition Aquifer. This lack of change indicates the present of limited hydraulic connectivity between the Gaspur and Exposition Aquifers. These results are consistent with the limited contaminant migration into the Exposition Aquifer.

The following Gaspur Aquifer parameters are based on these results: an aquifer thickness of 50 feet, Site gradient of 0.0014 feet/day, a porosity of 0.40, an average hydraulic conductivity of 40.4 feet/day, and average groundwater velocity of 0.14 feet/day.

These parameters were used to guide the calibration of the numerical groundwater flow model to estimate a flow rate range that is sufficient to capture the Cooper Drum plume. A minimum flow rate of 15 gpm and maximum of 30 gpm were estimated for plume capture. The model predicted that pumping within this flow rate range would also capture the area of commingling (see Figure 22), which includes a portion of the Seam Master/Jervis Webb plumes. (Note that the single-layer flow model used in the OU1 RDR [URS, 2007] indicated that two extraction wells on McCallum Avenue operating at a flow rate of approximately 20 gpm each [for a total flow rate of 40 gpm] would be necessary for plume capture. This flow model was calibrated at higher hydraulic conductivities, which likely contributed to a higher estimated flow rate.)

Conceptually, to reduce the impact on the Seam Master/Jervis Webb plumes, the groundwater extraction well could be moved closer to the Site (i.e., on Southern Avenue). However, in this scenario, a significant portion of the Cooper Drum plume (between Southern and McCallum Avenues) would not be captured and cleanup goals would not be achieved. Therefore this would not be a practicable alternative. In order to remediate the Cooper Drum plume without drawing in other plumes, separate groundwater extraction and treatment systems would be needed. Separate extraction systems would provide hydraulic separation and control of the groundwater plumes and eliminate commingling.

Based on fate and transport groundwater modeling results, the estimated cleanup time with the DCT extraction well EW-3 operating at 30 gpm, a source area extraction well SEW-1 operating at 25 gpm (located next to MW-15B), and the two source area injection wells is approximately 40 years. This is slightly longer than the 36 years estimated in the OU 1 Remedial Design Report (RDR) (URS, 2007) with an extraction well flow rate of 40 gpm (see Attachment 4, Figure 9, Scenario 11). As discussed above, the RDR modeling effort was based on results from a single-layer flow model which were input to a pore flushing analytical model. The current model includes a six-layer numeric flow model that includes a fate-and-transport component.

The OU1 RDR (URS, 2007) included use of a 350-foot-long in situ barrier of injected reductive dechlorination enhancing substrate along Southern Avenue. The original analytical modeling results used in the RDR predicted the biobarrier (on Southern Avenue) would reduce the overall cleanup time from 36 years to possibly 22 years. The current fate and transport modeling using the recent groundwater sampling data (which show lower VOC concentrations) predict use of the biobarrier would only reduce

the cleanup time by approximately 5 years. Therefore, the biobarrier is no longer considered an effective component of the DCT.

An alternative option considered was to realign the biobarrier along Adella Avenue to treat adjacent plumes and minimize commingling. However, because the biobarrier is considered a less effective treatment option (inferred from modeling results for alignment along Southern Avenue), this component is not considered a viable option.

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4.0 CONCLUSIONS AND RECOMMEDATIONS

This section summarizes conclusions and provides recommendations based on the data collected from the December 2008 CPT/HP sampling, the well installations, the May 2009 groundwater sampling event, the aquifer pumping test, and groundwater modeling. The primary objective of the field investigation and testing was to determine the downgradient extent of the Cooper Drum plume, further define the area of commingling with the Seam Master and Jervis Webb plumes, determine aquifer characteristics, and estimate extraction well pumping rates for plume capture. Ultimately the new data will be used to evaluate modifications to the OU1 and OU2 RD.

Cooper Drum Plume

- The groundwater flow direction beneath the Site is south to slightly southeast (approximately 5 degrees southeast). Downgradient and east of the Cooper Drum plume (at the intersection of Southern Avenue and Adella Avenue), the southerly flow direction begins to transition to the southwest (approximately 5 degrees southwest).
- The downgradient extent of the Cooper Drum plume above MCLs is estimated to extend south of McCallum Avenue. COCs above MCLs south of McCallum Avenue include TCE, cis-1,2-DCE, and 1,2 DCA. Concentrations of the other eight COCs are less than MCLs. As a result of the commingling, the downgradient Cooper Drum plume boundaries on the eastern side along Adella Avenue and along the southern side between McCallum and Duncan Avenues are uncertain.
- The vertical extent of Cooper Drum plume is defined and limited to the Gaspur Aquifer. Concentrations above MCLs have not migrated into the deeper Exposition Aquifer. However, monitoring of the Exposition Aquifer needs to continue throughout the RA.
- The highest concentrations of 1,4-dioxane were detected in the GSA portion of the Cooper Drum plume. The downgradient extent of 1,4-dioxane above action levels is in the immediate vicinity of McCallum Avenue.

Commingling Plumes

- The area of commingling with the Seam Master plume and Jervis Webb plume is in the general vicinity of the intersection of Addella and Southern Avenues on the Seam Master property and continues to the south to southwest (see Figure 22). The area of commingling coincides with a general change in flow direction from slightly southeast to slightly southwest.
- Contamination present on Duncan Avenue near the downgradient (south west) extent of the Cooper Drum plume is from an unidentified source. This contamination has likely migrated and may be commingling with the Cooper Drum plume and the other plumes.

Remedial Design

- The aquifer pumping test, sampling results, and groundwater modeling results confirm the location of EW-3 to be a good location for containment and treatment of the Cooper Drum plume. However, modeling predicts that operation of EW-3 in this location will also capture a portion of the Seam Master/Jervis Webb plumes.
- Installation of a separate groundwater extraction and treatment system for the adjacent plumes (Seam Master/Jervis Webb) is necessary to achieve hydraulic control and separation

from the Cooper Drum plume. These extraction and treatment systems should be designed to eliminate commingling.

- The OU1 DCT system should be designed for a minimum of 40 gpm. Groundwater modeling results indicate the DCT may be able to achieve plume capture at a lower flow rate (i.e., 15 to 30 gpm).
- Modeling predicts use of a biobarrier as part of the OU1 DCT system will not significantly reduce overall cleanup time (approximately 5 years). Based on these results the biobarrier could be deleted from the DCT.
- Modeling predicts use of a groundwater source area (GSA) extraction system (to contain the source area contamination) as designed in the OU1 RD along with a downgradient containment/extraction system will significantly reduce cleanup time. The modeling results indicate the GSA extraction system is an essential component of the OU1 RD.

New Monitor Well Installations

In order to further define the Cooper Drum plume, the following additional monitor well installations are recommended at locations where CPT/HP data were used to define the extent of contamination and also in areas that could be impacted by groundwater extraction during the RA.

- A double-completion monitor well is recommended east of the source area (HWA) on Rayo Avenue next to MW-17 (see Figure 4) to monitor the intermediate and lower Gaspur Aquifer. MW-17 defines the eastern extent of the Cooper Drum plume in the shallow Gaspur Aquifer.
- A triple-completion well should be installed in the Gaspur Aquifer on the north side of the Bimbo Bakery building adjacent to the Seam Master site to monitor performance during the OU1 RA.
- Installation of one triple-completion well in the Gaspur Aquifer is recommended on McCallum Avenue at the location of CPT-46 (see Figure 4) to provide a permanent monitoring location for the downgradient OU1 RA.
- Installation of a double-completion monitor well on Duncan Avenue at the location of MW-56 (see Figure 4) is recommended in the intermediate and lower Gaspur Aquifer at the location of the undefined plume. Sampling results would provide downgradient monitoring of the DCT system and also confirm the results from CPT-47 that showed low concentrations of VOCs in the intermediate and lower Gaspur Aquifer.

Vapor Intrusion

Elevated concentrations (greater than MCLs) of volatile compounds measured in groundwater raises a potential concern for vapor intrusion into buildings occupied by people. A site-specific vapor intrusion sampling strategy has been developed, based on the EPA guidance, to further assess the potential health risk. Sampling recommendations are as follows:

- Soil gas data should be collected as part of the OU1 RA to characterize areas of potential concern overlying contaminated groundwater. Soil gas data would reduce uncertainties in the screening evaluation and concurrently increase confidence in the conclusions about the risk to health. These data will better define areas of concern through vertical and spatial profiling of soil gas and HP sampling in the perched aquifer.

- If soil gas data indicate a potential risk to human health, there may be the need to collect samples of indoor air, outdoor air, and at background sources.

The recommended sampling locations are previous CPT locations (because the lithology is defined) in the downgradient area of the Cooper Drum plume and the adjacent plumes (see Figure 4 for CPT sample locations). Soil gas samples should be collected from at least two depths at each location between approximately 10 and 30 feet bgs (pending lithologic conditions). A groundwater sample from the perched aquifer, if present, at approximately 40 feet bgs, should also be collected at each location. The recommended sampling locations in the downgradient area of the Cooper Drum plume include:

- CPT-19 (next to MW-15/15B) on Rayo Avenue;
- CPT-34 and CPT-35 on Southern Avenue;
- CPT-43 and CPT-44 on McCallum Avenue; and
- CPT- 45 and CPT-48 on Duncan Avenue.

Recommended sampling locations in the area of adjacent plumes (Seam Master and Jervis Webb) east of the Cooper Drum plume include:

- CPT-40 on Southern Avenue east of Adella Avenue;
- CPT-41 on the alley between Southern and McCallum Avenues east of the Cooper Drum plume; and
- CPT-42 on McCallum Avenue east of the Cooper Drum plume.

Recommended sampling locations in the area of the undefined plume (MW-56) south of the Cooper Drum plume include:

- CPT-47 on the west end of Duncan Avenue.

Pending results of the recommended sampling and vapor intrusion evaluation (e.g., a health risk is identified), the migration of groundwater contaminants as a result of future groundwater extraction activities during the RA may have to be tracked and evaluated.

The OU1 and OU2 source area RA is planned to be implemented and constructed in 2010. The potential for vapor intrusion should be evaluated for construction of any enclosed structures for the RA.

Perched Aquifer Sampling

- Results of recent (April 2009) sampling indicate contaminated groundwater in the perched aquifer has migrated east of the former HWA (source area). Results of this sampling and related recommendations have been summarized in a technical memorandum (Attachment 6) and submitted to the PRPs for implementation during the Phase 1 OU2 RA. The final RD for this area will be determined based on the results of the sampling performed by the CDCP and addressed in the Phase 1 OU2 Remedial Action Work Plan.

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5.0 REFERENCES

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TABLES

TABLE 1

Groundwater Contaminants of Concern and Cleanup Levels
Cooper Drum Company Superfund Site, South Gate, CA

Medium	Contaminant of Concern	Cleanup Level (μg/L)	Basis for Cleanup Level
Groundwater (VOCs)	1,1-Dichloroethane (1,1-DCA)	5	MCL[a]
	1,1-Dichloroethene (1,1-DCE)	6	MCL
	1,2-Dichloroethane (1,2-DCA)	0.5	MCL
	1,2-Dichloropropane (1,2-DCP)	5	MCL
	1,2,3-Trichloropropane (1,2,3-TCP)	1	PQL[b]
	Benzene	1.0	MCL
	cis-1,2-Dichloroethene (cis-1,2-DCE)	6	MCL
	trans-1,2-Dichloroethene (trans-1,2-DCE)	10	MCL
	Tetrachloroethene (PCE)	5	MCL
	Trichloroethene (TCE)	5	MCL
	Vinyl chloride	0.5	MCL
Groundwater (SVOC)	1,4-Dioxane	6.1	PRG[c,d]

[a] MCLs from Title 22 California Code of Regulation Section 64431 and 64444, unless otherwise specified.
[b] No MCL established for 1,2,3-trichloropropane. The PQL was identified as a remedial goal.
[c] No MCL established for 1,4-dioxane. The concentration is for the ingestion of drinking water only and does not account for potential dermal and inhalation exposure. EPA has established a screening criterion for PRGs.
[d] Cleanup action level will be reassessed and any revisions will be incorporated into the remedial action.

EPA = United States Environmental Protection Agency
MCL = California primary maximum contaminant level
PQL = practical quantification limit
PRG = EPA preliminary remediation goal for drinking water
SVOC = semivolatile organic compound
VOC = volatile organic compound
μg/L = micrograms per liter

TABLE 2
Well Specifications
Cooper Drum Company Site, South Gate, California

Well Number	Date Installed	Total Depth [1]	Screen Interval [1]	TOC Elevation [2]	Ground Surface Elevation [2]	Diameter	Type [3]	Aquifer Zone
On-Site Wells								
MW-1	8/9/1990	84	52–84	102.83	103.72	4-inch	M	Gaspur
MW-2	8/8/1990	82	50–82	104.59	104.7	4-inch	M	Gaspur
MW-3	8/10/1990	73.5	52–73.5	103.98	104.2	4-inch	M	Gaspur
MW-4	9/9/1991	82	50–82	102.91	103.3	4-inch	M	Gaspur
MW-5	5/28/1992	75	30–75	103.42	104.17	4-inch	M	Perched/Gaspur
MW-21	10/22/2003	75	55–75	103.63	104.06	4-inch	M	Gaspur
EW-1	3/29/1999	90.5	48.5–88.5	103.24	103.65	6-inch	E	Gaspur
EW-2	12/6/2000	87	38.5–78.5	103.65	104.08	6-inch	E	Gaspur
SVE-1	12/4/2000	44	8–43	104.5	104.96	4-inch	E	Perched
SVE-2	2/27/2004	52	8–48	NA	NA	4-inch	E	Perched
Off-Site Wells								
MW-8	4/15/1993	75	41–74.5	103.21	103.6	4-inch	M	Gaspur
MW-10	4/15/1993	75	45–74.5	103.83	104	4-inch	M	Gaspur
MW-12	6/27/1996	62	42–62	104.25	104.6	4-inch	M	Gaspur
MW-14	6/28/1996	60	30–60	102.22	102.5	4-inch	M	Perched/Gaspur
MW-15	11/30/2000	87	70–85	102.77	102.98	4-inch	M	Gaspur
MW-15B	4/13/2009	105	93-103	102.57	103.03	2-inch	M	Gaspur
MW-16	11/28/2000	135	118–128	102.75	102.96	2-inch	M	Exposition
MW-17	11/30/2000	80	69–79	103.36	103.65	4-inch	M	Gaspur
MW-18	11/29/2000	135	118–128	103.42	103.64	2-inch	M	Exposition
MW-19	12/5/2000	80	67–77	104.05	104.35	4-inch	M	Gaspur
MW-20	2/28/2003	75	55–70	102.84	103.29	4-inch	M	Gaspur
MW-20B	7/5/2008	90	80-90	102.41	103.21	2-inch	M	Gaspur
MW-22	12/4/2003	75	63–73	103.39	103.74	4-inch	M	Gaspur
MW-23	12/5/2003	81	69–79	104.15	104.38	4-inch	M	Gaspur
MW-23B	4/14/2009	108	95-105	104.03	104.35	2-inch	M	Gaspur
MW-24	12/1/2003	87	70–85	101.99	102.34	4-inch	M	Gaspur
MW-25	12/3/2003	92	75–90	101.79	102.12	4-inch	M	Gaspur
MW-25B	2/28/2008	109	95–105	101.53	102.01	4-inch	M	Gaspur
MW-26	12/10/2003	134	122–132	101.94	102.2	2-inch	M	Exposition
MW-27	12/3/2003	92	75–90	101.62	102.02	4-inch	M	Gaspur
MW-28	12/11/2003	115	104–114	101.53	101.86	2-inch	M	Gaspur
MW-29A	2/26/2008	67	56–66	100.87	101.42	4-inch	M	Gaspur
MW-29	12/2/2003	92	75–90	101.13	101.43	4-inch	M	Gaspur

TABLE 2
Well Specifications
Cooper Drum Company Site, South Gate, California

Well Number	Date Installed	Total Depth [1]	Screen Interval [1]	TOC Elevation [2]	Ground Surface Elevation [2]	Diameter	Type [3]	Aquifer Zone
Off-Site Wells								
MW-30	12/9/2003	115	104–114	101.08	101.39	2-inch	M	Gaspur
MW-31A	2/26/2008	65.5	54.5–64.5	101.03	101.45	4-inch	M	Gaspur
MW-31	12/2/2003	92	75–90	101.31	101.57	4-inch	M	Gaspur
MW-31B	2/25/2008	109	97–107	101.12	101.47	4-inch	M	Gaspur
MW-32	12/8/2003	134	122–132	101.28	101.62	2-inch	M	Exposition
MW-33A	7/6/2005	65	55–65	102.91	103.31	2-inch	M	Gaspur
MW-33B	7/6/2005	90	80–90	102.68	103.36	2-inch	M	Gaspur
MW-34	2/28/2008	69	58–68	101.19	101.72	4-inch	M	Gaspur
MW-35	2/27/2008	106	95–105	101.22	101.71	4-inch	M	Gaspur
MW-36	3/4/2008	89	77–87	100.72	101.1	4-inch	M	Gaspur
MW-37	3/5/2008	111	99.5–109.5	100.49	101.07	4-inch	M	Gaspur
MW-38	3/3/2008	68	56.5–66.5	100.25	100.7	4-inch	M	Gaspur
MW-39	2/29/2008	89	78–88	100.32	100.67	4-inch	M	Gaspur
MW-40	3/3/2008	111	100–110	100.05	100.65	4-inch	M	Gaspur
MW-41	3/6/2008	100	89–99	102.32	102.82	4-inch	M	Gaspur
MW-42	4/15/2009	67	56-66	102.35	102.75	2-inch	M	Gaspur
MW-43	4/15/2009	88	77-87	102.22	102.75	2-inch	M	Gaspur
MW-44	4/15/2009	108	96-106	102.17	102.75	2-inch	M	Gaspur
MW-45	4/14/2009	90	79-89	100.44	100.9	2-inch	M	Gaspur
MW-46	4/20/2009	68	57-67	99.83	100.08	2-inch	M	Gaspur
MW-47	4/20/2009	88	77-87	99.73	100.08	2-inch	M	Gaspur
MW-48	4/20/2009	110	98-108	99.67	100.08	2-inch	M	Gaspur
MW-49	4/23/2009	71	60-70	98.63	98.98	2-inch	M	Gaspur
MW-50	4/23/2009	89	78-88	98.63	98.98	2-inch	M	Gaspur
MW-51	4/23/2009	110	98-108	98.61	98.98	2-inch	M	Gaspur
MW-52	4/22/2009	77	66-76	98.75	99.36	2-inch	M	Gaspur
MW-53	4/22/2009	101	90-100	98.7	99.36	2-inch	M	Gaspur
MW-54	4/22/2009	115	108-113	98.86	99.36	2-inch	M	Gaspur
MW-55	4/16/2009	140	128-138	100.57	100.98	2-inch	M	Exposition
MW-56	4/17/2009	74	62-72	99.71	100	2-inch	M	Gaspur
EW-3	4/21/2009	115	59-109	100.52	101.01	6-inch	E	Gaspur

[1] feet below ground surface
[2] feet above mean sea level
[3] M-monitor; E-extraction

NA = not available
TOC = top of casing

Table 3

Summary of Transmissivity, Storativity and Hydraulic Conductivity Values
For Well EW-3 Aquifer Test
Cooper Drum Site

Well Number	Screened Interval (ft BGS)	Gasper (Intermediate/Lower)	Distance From Pumping Well (ft)	Maximum Drawdown (ft)	Drawdown						Recovery	
					Hantush's Method (1960)			Distance Drawdown			Hantush Method (Recovery)	
					Transmissivity (ft^2/day)	Storage Coefficient	Hydraulic Conductivity (ft/day)	Transmissivity (ft^2/day)	Storage Coefficient	Hydraulic Conductivity (ft/day)	Transmissivity (ft^2/day)	Hydraulic Conductivity (ft/day)
EW-3	59-109	Intermediate/Lower	0	20.44	--	--	--	1592	6.85×10^{-6}	31.8	--	--
MW-37	99.5-109.5	Lower	63	1.45	2849	8.64×10^{-6}	57.0	--	--	--	3089	61.8
MW-36	77-87	Intermediate	74	1.06	1718	4.02×10^{-6}	34.4	--	--	--	1824	36.5
MW-38	56.5-66.5	Shallow	180	0.50	2330	8.64×10^{-6}	46.6	--	--	--	1851	37.0
MW-29	75-90	Intermediate	195	0.61	1846	8.64×10^{-6}	36.9	--	--	--	2124	42.5
MW-29A	56-66	Shallow	195	0.57	2060	7.88×10^{-6}	41.2	--	--	--	1421	28.4
MW-30	104-114	Lower	195	0.28	--	--	--	--	--	--	--	--
MW-39	78-88	Intermediate	195	0.58	1846	7.88×10^{-6}	36.9	--	--	--	2462	49.2
MW-40	100-110	Lower	210	0.38	--	--	--	--	--	--	--	--

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
On-Site Wells					
MW-1	11/4/1998	40.2	102.83	62.63	Gaspur
	4/7/1999	40.52		62.31	
	8/5/1999	40.64		62.19	
	10/10/2000	42.81		60.02	
	12/14/2000	42.97		59.86	
	2/8/2001	42.47		60.36	
	5/1/2003	44.74		58.09	
	12/18/2003	45.58		57.25	
	4/16/2004	NM			
	8/27/2004	NM			
	12/22/2004	46.65		56.18	
	4/20/2005	46.04		56.79	
	6/6/2006	44.12		58.71	
	8/28/2006	44.23		58.6	
	3/19/2008	45.12		57.71	
	4/14/2008	45.1		57.73	
	5/19/2009	46.82		56.01	
MW-2	11/4/1998	43.82	104.59	60.77	Gaspur
	4/7/1999	44.35		60.24	
	8/5/1999	44.52		60.07	
	10/10/2000	46.95		57.64	
	12/14/2000	46.95		57.64	
	2/8/2001	46.43		58.16	
	5/1/2003	49.05		55.54	
	12/18/2003	49.6		54.99	
	4/16/2004	50.02		54.57	
	8/27/2004	50.64		53.95	
	12/22/2004	51.14		53.45	
	4/20/2005	50.54		54.05	
	6/6/2006	48.79		55.8	
	8/28/2006	48.78		55.81	
	2/28/2007	48.52		56.07	
	3/19/2008	49.76		54.83	
	4/14/2008	49.4		55.19	
	5/19/2009	51.25		53.34	
MW-3	11/4/1998	41.3	103.98	62.68	Gaspur
	4/7/1999	41.58		62.4	
	8/5/1999	NM		NM	
	10/10/2000	43.82		60.16	
	12/14/2000	44		59.98	
	2/8/2001	43.45		60.53	
	5/1/2003	45.97		55.11	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
On-Site Wells (cont'd)					
MW-3 (cont'd)	12/18/2003	46.66		57.32	
	4/16/2004	46.91		57.07	
	8/27/2004	47.41		56.57	
	12/22/2004	48.36		55.62	
	4/20/2005	47.39		56.59	
	6/6/2006	45.93		58.05	
	8/28/2006	45.91		58.07	
	2/28/2007	45.6		58.38	
	3/19/2008	46.86		57.12	
	4/14/2008	46.52		57.46	
	5/19/2009	48.19		55.79	
MW-4	11/4/1998	42.06	102.91	60.85	Gaspur
	4/7/1999	42.6		60.31	
	8/5/1999	42.88		60.03	
	10/10/2000	45.4		57.51	
	12/14/2000	45.32		57.59	
	2/8/2001	44.7		58.21	
	5/1/2003	47.38		55.53	
	12/18/2003	48.17		54.74	
	4/16/2004	48.45		54.46	
	8/27/2004	48.97		53.94	
	12/22/2004	49.44		53.47	
	4/20/2005	48.88		54.03	
	6/6/2006	NM			
	8/28/2006	47.08		55.83	
	3/19/2008	47.62		55.29	
	4/14/2008	47.72		55.19	
	5/19/2009	49.56		53.35	
MW-5	11/4/1998	36.88	103.42	66.54	Perched/Gaspur
	4/6/1999	35.52		67.9	
	8/5/1999	34.41		69.01	
	10/10/2000	34.55		68.87	
	12/14/2000	34.75		68.67	
	2/8/2001	34.63		68.79	
	5/1/2003	35.67		67.75	
	12/18/2003	36.01		67.41	
	4/16/2004	36.31		67.11	
	8/27/2004	36.52		66.9	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
On-Site Wells (cont'd)					
MW-5 (cont'd)	12/22/2004	36.8		66.62	
	4/20/2005	36.7		66.72	
	6/6/2006	35.44		67.98	
	8/28/2006	35.54		67.88	
	2/28/2007	35.37		68.05	
	3/19/2008	36.13		67.29	
	4/14/2008	36.1		67.32	
	5/19/2009	36.89		66.53	
MW-21	12/18/2003	48.85	103.63	54.78	Gaspur
	4/16/2004	49.19		54.44	
	8/27/2004	49.75		53.88	
	12/22/2004	50.32		53.31	
	4/20/2005	49.67		53.96	
	6/6/2006	47.64		55.99	
	8/28/2006	47.8		55.83	
	2/28/2007	47.54		56.09	
	3/19/2008	48.75		54.88	
	4/14/2008	48.61		55.02	
	5/19/2009	50.46		53.17	
EW-1	4/7/1999	42.84	103.24	60.4	Gaspur
	8/5/1999	43.15		60.09	
	10/10/2000	45.6		57.64	
	12/14/2000	45.65		57.59	
	2/8/2001	45.09		58.15	
	5/1/2003	47.76		55.48	
	12/18/2003	48.45		54.79	
	4/16/2004	48.78		54.46	
	8/27/2004	49.36		53.88	
	12/22/2004	49.91		53.33	
	4/20/2005	49.32		53.92	
	6/6/2006	47.42		55.82	
	8/28/2006	47.4		55.84	
	2/28/2007	47.28		55.96	
	3/19/2008	48.37		54.87	
	4/14/2008	48.29		54.95	
	5/4/2009	48.63		54.61	
	5/19/2009	50.2		53.04	
EW-2	12/14/2000	45.88	103.65	57.77	Gaspur
	2/8/2001	45.45		58.2	
	5/1/2003	47.98		55.67	
	12/18/2003	48.71		54.94	
	4/16/2004	49.08		54.57	
	8/27/2004	49.65		54	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
On-Site Wells (cont'd)					
EW-2 (cont'd)	12/22/2004	50.2		53.45	
	4/20/2005	49.57		54.08	
	6/6/2006	47.54		56.11	
	8/28/2006	47.56		56.09	
	2/28/2007	47.18		56.47	
	3/19/2008	48.33		55.32	
	4/14/2008	48.18		55.47	
	5/19/2009	50.24		53.41	
SVE-1	12/14/2000	35.27	104.5	69.23	Perched
	2/8/2001	35.17		69.33	
	5/1/2003	NM			
	12/18/2003	36.48		68.02	
	12/22/2004	37.1		67.4	
	4/20/2005	36.87		67.63	
	6/6/2006	36.01		68.49	
	8/28/2006	35.92		68.58	
	5/19/2009	37.2		67.3	
Off-Site Wells					
EW-3	5/9/2009	48.63	100.52	51.89	1" sounding port
	5/19/2009	48.63		51.89	
EW-3	5/19/2009	48.57	100.45	51.88	6" well
MW-8	11/15/1998	42.02	103.21	61.19	Gaspur
	10/10/2000	45.23		57.98	
	12/14/2000	45.3		57.91	
	2/8/2001	44.67		58.54	
	5/1/2003	47.52		55.69	
	12/18/2003	48.25		54.96	
	4/16/2004	48.62		54.59	
	8/27/2004	45.59		57.62	
	12/22/2004	49.8		53.41	
	4/20/2005	49.18		54.03	
	6/6/2006	47.15		56.06	
	8/28/2006	45.4		57.81	
	2/28/2007	46.96		56.25	
	3/19/2008	47.91		55.3	
	4/14/2008	48.65		54.56	
	5/19/2009	50.16		53.05	
MW-10	11/5/1998	42.98	103.83	60.85	Gaspur
	4/7/1999	43.6		60.23	
	10/10/2000	46.32		57.51	
	12/14/2000	46.37		57.46	
	2/8/2001	45.8		58.03	
	5/1/2003	48.43		55.4	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-10 (cont'd)	12/18/2003	49.23		54.6	
	4/16/2004	49.51		54.32	
	8/27/2004	50.11		53.72	
	12/22/2004	50.66		53.17	
	4/20/2005	50.08		53.75	
	6/6/2006	48.19		55.64	
	8/28/2006	48.26		55.57	
	2/28/2007	47.95		55.88	
	3/19/2008	49.04		54.79	
	4/14/2008	48.96		54.87	
	5/19/2009	50.83		53	
MW-12	11/5/1998	43.1	104.25	61.15	Gaspur
	10/10/2000	46.3		57.95	
	12/14/2000	NM			
	2/8/2001	NM			
	5/1/2003	48.58		55.67	
	12/18/2003	NM			
	4/16/2004	49.67		54.58	
	8/27/2004	50.25		54	
	12/22/2004	50.81		53.44	
	4/20/2005	50.22		54.03	
	6/6/2006	48.35		55.9	
	8/28/2006	48.39		55.86	
	3/19/2008	49.11		55.14	
	4/14/2008	49.13		55.12	
	5/19/2009	51.05		53.2	
MW-14	11/5/1998	33.9	102.22	68.32	Perched/Gaspur
	10/11/2000	34.7		67.52	
	12/14/2000	NM			
	2/8/2001	NM			
	5/1/2003	NM			
	4/16/2004	40.78		61.44	
	8/27/2004	43.17		59.05	
	12/18/2003	42.17		60.05	
	12/22/2004	43.49		58.73	
	4/20/2005	34.74		67.48	
	6/6/2006	34.48		67.74	
	8/28/2006	34.89		67.33	
	5/19/2009	43.98		58.24	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-15	12/14/2000	45.6	102.77	57.17	Gaspur
	2/8/2001	45.03		57.74	
	5/1/2003	47.66		55.11	
	12/18/2003	48.41		54.36	
	4/16/2004	48.69		54.08	
	8/27/2004	49.24		53.53	
	12/22/2004	49.79		52.98	
	4/20/2005	49.11		53.66	
	6/6/2006	47.34		55.43	
	8/28/2006	47.3		55.47	
	2/28/2007	47.06		55.71	
	3/19/2008	48.08		54.69	
	4/14/2008	48.03		54.74	
	5/4/2009	49.9		52.87	
	5/19/2009	49.92		52.85	
MW-15B	5/4/2009	49.81	102.57	52.76	Gaspur
	5/19/2009	49.83		52.74	
MW-16	12/14/2000	48.49	102.75	54.26	Exposition
	2/8/2001	47.9		54.85	
	5/1/2003	50.95		51.8	
	12/18/2003	51.76		50.99	
	4/16/2004	52.13		50.62	
	8/27/2004	52.8		49.95	
	12/22/2004	53.33		49.42	
	4/20/2005	52.84		49.91	
	6/6/2006	50.81		51.94	
	8/28/2006	50.82		51.93	
	2/28/2007	50.33		52.42	
	3/19/2008	51.49		51.26	
	4/14/2008	51.52		51.23	
	5/19/2009	53.8		48.95	
MW-17	12/14/2000	45.74	103.36	57.62	Gaspur
	2/8/2001	45.19		58.17	
	5/1/2003	47.89		55.47	
	12/18/2003	48.61		54.75	
	4/16/2004	48.85		54.51	
	8/27/2004	49.46		53.9	
	12/22/2004	50.02		53.34	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-17 (cont'd)	4/20/2005	49.4		53.96	
	6/6/2006	47.61		55.75	
	8/28/2006	47.6		55.76	
	2/28/2007	47.26		56.1	
	3/19/2008	48.31		55.05	
	4/14/2008	48.26		55.1	
	5/19/2009	50.15		53.21	
MW-18	12/14/2000	50.36	103.42	53.06	Exposition
	2/8/2001	49.79		53.63	
	5/1/2003	52.97		50.45	
	12/18/2003	53.83		49.59	
	4/16/2004	54.24		49.18	
	8/27/2004	55		48.42	
	12/22/2004	55.56		47.86	
	4/20/2005	55.23		48.19	
	6/6/2006	NM			
	8/28/2006	52.86		50.56	
	2/28/2007	52.28		51.14	
	3/19/2008	53.53		49.89	
	4/14/2008	53.63		49.79	
	5/19/2009	56.01		47.41	
MW-19	12/14/2000	45.91	104.05	58.14	Gaspur
	2/8/2001	45.39		58.66	
	5/1/2003	48.1		55.95	
	12/18/2003	48.86		55.19	
	4/16/2004	49.1		54.95	
	8/27/2004	49.7		54.35	
	12/22/2004	50.25		53.8	
	4/20/2005	49.73		54.32	
	6/6/2006	48.03		56.02	
	8/28/2006	47.94		56.11	
	2/28/2007	47.66		56.39	
	3/19/2008	48.69		55.36	
	4/14/2008	48.64		55.41	
	5/19/2009	50.49		53.56	
MW-20	5/1/2003	47.47	102.84	55.37	Gaspur
	12/18/2003	48.2		54.64	
	4/16/2004	48.51		54.33	
	8/27/2004	49.09		53.75	
	12/22/2004	49.64		53.2	
	4/20/2005	48.96		53.88	
	6/6/2006	46.95		55.89	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-20 (cont'd)	8/28/2006	47.2		55.64	
	2/28/2007	46.92		55.92	
	3/19/2008	48.03		54.81	
	4/14/2008	47.89		54.95	
	5/19/2009	49.8		53.04	
MW-20B	6/6/2006	46.82	102.41	55.59	Gaspur
	8/28/2006	46.8		55.61	
	3/19/2008	48.13		54.28	
	4/14/2008	47.51		54.9	
	5/19/2009	49.41		53.0	
MW-22	12/18/2003	48.85	103.39	54.54	Gaspur
	4/16/2004	49.17		54.22	
	8/27/2004	49.73		53.66	
	12/22/2004	50.2		53.19	
	4/20/2005	49.63		53.76	
	6/6/2006	47.85		55.54	
	8/28/2006	47.84		55.55	
	2/28/2007	47.58		55.81	
	3/19/2008	48.57		54.82	
	4/14/2008	48.57		54.82	
	5/19/2009	50.41		52.98	
MW-23	12/18/2003	49.04	104.15	55.11	Gaspur
	4/16/2004	49.34		54.81	
	8/27/2004	49.89		54.26	
	12/22/2004	50.41		53.74	
	4/20/2005	49.88		54.27	
	6/6/2006	48.17		55.98	
	8/28/2006	48.12		56.03	
	2/28/2007	47.82		56.33	
	3/19/2008	48.83		55.32	
	4/14/2008	48.81		55.34	
	5/19/2009	50.55		53.6	
MW-23B	5/19/2009	52.44	104.03	51.59	Gaspur

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-24	12/18/2003	47.88	101.99	54.11	Gaspur
	4/16/2004	48.21		53.78	
	8/27/2004	48.76		53.23	
	12/22/2004	49.23		52.76	
	4/20/2005	48.6		53.39	
	6/6/2006	46.82		55.17	
	8/28/2006	46.8		55.19	
	2/28/2007	46.58		55.41	
	3/19/2008	47.67		54.32	
	4/14/2008	47.61		54.38	
	5/4/2009	49.41		52.58	
	5/19/2009	49.44		52.55	
MW-25	12/18/2003	47.8	101.79	53.99	Gaspur
	4/16/2004	48.12		53.67	
	8/27/2004	48.67		53.12	
	12/22/2004	49.24		52.55	
	4/20/2005	48.5		53.29	
	6/6/2006	46.74		55.05	
	8/28/2006	46.68		55.11	
	2/28/2007	46.45		55.34	
	3/19/2008	47.57		54.22	
	4/14/2008	47.5		54.29	
	5/4/2009	49.21		52.58	
	5/19/2009	49.35		52.44	
MW-25B	3/19/2008	47.42	101.53	54.11	Gaspur
	4/14/2008	47.43		54.1	
	5/4/2009	49.31		52.22	
	5/19/2009	49.27		52.26	
MW-26	12/18/2003	52.24	101.94	49.7	Exposition
	4/16/2004	52.76		49.18	
	8/27/2004	53.47		48.47	
	12/22/2004	54		47.94	
	4/20/2005	53.54		48.4	
	6/6/2006	51.35		50.59	
	8/28/2006	51.35		50.59	
	2/28/2007	50.88		51.06	
	3/19/2008	52.11		49.83	
	4/14/2008	52.18		49.76	
	5/19/2009	54.53		47.41	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-27	12/18/2003	47.86	101.62	53.76	Gaspur
	4/16/2004	48.16		53.46	
	8/27/2004	48.66		52.96	
	12/22/2004	49.16		52.46	
	4/20/2005	48.57		53.05	
	6/6/2006	46.77		54.85	
	8/28/2006	46.74		54.88	
	2/28/2007	46.52		55.1	
	3/19/2008	47.51		54.11	
	4/14/2008	47.53		54.09	
	5/4/2009	49.39		52.23	
	5/19/2009	49.44		52.18	
MW-28	12/18/2003	48.25	101.53	53.28	Gaspur
	4/16/2004	48.59		52.94	
	8/27/2004	49.09		52.44	
	12/22/2004	49.57		51.96	
	4/20/2005	48.94		52.59	
	6/6/2006	46.9		54.63	
	8/28/2006	46.91		54.62	
	2/28/2007	46.73		54.8	
	3/19/2008	47.79		53.74	
	4/14/2008	47.78		53.75	
	5/4/2009	49.65		51.88	
	5/19/2009	49.71		51.82	
MW-29A	3/19/2008	46.84	100.87	54.03	Gaspur
	4/14/2008	46.8		54.07	
	5/4/2009	48.69		52.18	
	5/19/2009	48.68		52.19	
MW-29	12/18/2003	47.42	101.13	53.71	Gaspur
	4/16/2004	47.71		53.42	
	8/27/2004	48.22		52.91	
	12/22/2004	48.74		52.39	
	4/20/2005	48.12		53.01	
	6/6/2006	46.33		54.8	
	8/28/2006	46.3		54.83	
	2/28/2007	46.01		55.12	
	3/19/2008	47.23		53.9	
	4/14/2008	47.08		54.05	
	5/4/2009	48.95		52.18	
	5/19/2009	48.95		52.18	

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Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-30	12/18/2003	47.94	101.08	53.14	Gaspur
	4/16/2004	47.33		53.75	
	8/27/2004	48.84		52.24	
	12/22/2004	49.35		51.73	
	4/20/2005	48.7		52.38	
	6/6/2006	46.9		54.18	
	8/28/2006	46.88		54.2	
	2/28/2007	46.6		54.48	
	3/19/2008	47.71		53.37	
	4/14/2008	47.7		53.38	
	5/4/2009	49.62		51.46	
	5/19/2009	49.63		51.45	
MW-31A	3/19/2008	46.78	101.03	54.25	Gaspur
	4/14/2008	46.7		54.33	
	5/4/2009	48.55		52.48	
	5/19/2009	48.56		52.47	
MW-31	12/18/2003	47.43	101.31	53.88	Gaspur
	4/16/2004	47.73		53.58	
	8/27/2004	48.27		53.04	
	12/22/2004	48.66		52.65	
	4/20/2005	48.2		53.11	
	6/6/2006	46.48		54.83	
	8/28/2006	46.28		55.03	
	2/28/2007	46.09		55.22	
	3/19/2008	47.26		54.05	
	4/14/2008	47.14		54.17	
	5/4/2009	48.99		52.32	
	5/19/2009	49		52.31	
MW-31B	3/19/2008	47.34	101.12	53.78	Gaspur
	4/14/2008	47.4		53.72	
	5/4/2009	49.25		51.87	
	5/19/2009	49.27		51.85	
MW-32	12/18/2003	51.74	101.28	49.54	Exposition
	4/16/2004	52.26		49.02	
	8/27/2004	52.97		48.31	
	12/22/2004	53.5		47.78	
	4/20/2005	53.07		48.21	
	6/6/2006	50.87		50.41	
	8/28/2006	50.9		50.38	
	2/28/2007	50.37		50.91	
	3/19/2008	51.54		49.74	
	4/14/2008	51.71		49.57	
	5/19/2009	54.07		47.21	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-33A	6/6/2006	46.73	102.91	56.18	Gaspur
	8/28/2006	47.2		55.71	
	3/19/2008	47.82		55.09	
	4/14/2008	47.92		54.99	
	5/19/2009	49.84		53.07	
MW-33B	6/6/2006	47.02	102.68	55.66	Gaspur
	8/28/2006	47.03		55.65	
	3/19/2008	47.53		55.15	
	4/14/2008	47.78		54.9	
	5/19/2009	49.67		53.01	
MW-34	3/19/2008	46.95	101.19	54.24	Gaspur
	4/14/2008	46.97		54.22	
	5/4/2009	48.86		52.33	
	5/19/2009	48.9		52.29	
MW-35	3/19/2008	47.11	101.22	54.11	Gaspur
	4/14/2008	47.53		53.69	
	5/4/2009	49.02		52.2	
	5/19/2009	49.08		52.14	
MW-36	3/19/2008	46.76	100.72	53.96	Gaspur
	4/14/2008	46.86		53.86	
	5/4/2009	48.73		51.99	
	5/19/2009	48.72		52	
MW-37	3/19/2008	46.88	100.49	53.61	Gaspur
	4/14/2008	47		53.49	
	5/4/2009	48.83		51.66	
	5/19/2009	48.84		51.65	
MW-38	3/19/2008	46.34	100.25	53.91	Gaspur
	4/14/2008	46.37		53.88	
	5/4/2009	48.2		52.05	
	5/19/2009	48.27		51.98	
MW-39	3/19/2008	46.56	100.32	53.76	Gaspur
	4/14/2008	49.47		50.85	
	5/4/2009	48.39		51.93	
	5/19/2009	48.4		51.92	
MW-40	3/19/2008	46.26	100.05	53.79	Gaspur
	4/14/2008	46.42		53.63	
	5/4/2009	48.26		51.79	
	5/19/2009	48.28		51.77	
MW-41	3/19/2008	48.01	102.32	54.31	Gaspur
	4/14/2008	48.08		54.24	
	5/4/2009	49.92		52.4	
	5/19/2009	49.97		52.35	

TABLE 4
Groundwater Surface Elevation 1998–2008
Cooper Drum Company Site, South Gate, California

Well Number	Date Measured	Depth to Groundwater [1]	TOC Elevation [2]	Groundwater Surface Elevation [2]	Aquifer Zone
Off-Site Wells (cont'd)					
MW-42	5/4/2009	49.78	102.35	52.57	Gaspur
	5/19/2009	49.97		52.38	
MW-43	5/4/2009	49.73	102.22	52.49	Gaspur
	5/19/2009	49.72		52.5	
MW-44	5/4/2009	49.74	102.17	52.43	Gaspur
	5/19/2009	49.75		52.42	
MW-45	5/4/2009	48.33	100.44	52.11	Gaspur
	5/19/2009	48.32		52.12	
MW-46	5/4/2009	47.9	99.83	51.93	Gaspur
	5/19/2009	47.9		51.93	
MW-47	5/4/2009	47.8	99.73	51.93	Gaspur
	5/19/2009	47.8		51.93	
MW-48	5/4/2009	47.75	99.67	51.92	Gaspur
	5/19/2009	47.75		51.92	
MW-49	5/4/2009	47.06	98.63	51.57	Gaspur
	5/19/2009	47.09		51.54	
MW-50	5/4/2009	47.2	98.63	51.43	Gaspur
	5/19/2009	47.22		51.41	
MW-51	5/4/2009	47.2	98.61	51.41	Gaspur
	5/19/2009	47.21		51.4	
MW-52	5/4/2009	47.18	98.75	51.57	Gaspur
	5/19/2009	47.24		51.51	
MW-53	5/4/2009	47.37	98.7	51.33	Gaspur
	5/19/2009	47.46		51.24	
MW-54	5/4/2009	47.8	98.86	51.06	Gaspur
	5/19/2009	47.92		50.94	
MW-55	5/19/2009	53.15	100.57	47.42	Exposition
MW-56	5/4/2009	48	99.71	51.71	Gaspur
	5/19/2009	48.02		51.69	

TABLE 5

CPT/HydroPunch VOC and 1,4_Dioxane Results
Dec-08
Cooper Drum Company Site, South Gate, California

Location	Depth (bgs)	Sample No.	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,4-Dioxane	Other VOCs Detected
CPT-46	72	Y4HJ1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
	88	Y4HJ2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	Acetone(1.3J)
	104	Y4HJ3	<0.5	**2.7**	**3.5**	<0.5	<0.5	<0.5	<0.5	**3.6**	<0.5	<2.0	None
	114	Y4HJ4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
	132	Y4HJ5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
CPT-47	70	Y4HJ6	<0.5	**690D**	**130D**	**2.1**	**11**	**0.93**	<0.5	<0.5	**0.34J**	<2.0	Acetone (3.8J), Toluene(0.2J)
	90	Y4HJ8	<0.5	**6.5**	**4.6**	<0.5	**0.29J**	<0.5	<0.5	**2.6**	<0.5	<2.0	Acetone (1.7J)
	103	Y4HJ9	<0.5	**4.1**	**6.7**	<0.5	<0.5	<0.5	**0.39J**	<0.5	<0.5	<2.0	Acetone (1.3J)
	114	Y4HK0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
	125	Y4HK1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
CPT-48	70	Y4HK2	<0.5	**1.6**	**1.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	Acetone (3.2J), 2-Butanone (0.4J)
	89	Y4HK3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
	100	Y4HK4	<0.5	**7.2**	**15**	<0.5	**6.1**	<0.5	<0.5	**1.3**	<0.5	<2.0	Carbon Disulfide (0.26J), Cyclohexane (0.3J)
	112	Y4HK5	<0.5	**34D**	**11**	<0.5	**3.8**	<0.5	<0.5	**3.5**	<0.5	<2.0	Cyclohexane (0.74), 1,2-DCP(0.036J)
	125	Y4HK6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None
CPT-49	70	Y4HK8	<0.5	**100D**	**51D**	**3.9**	**3.2**	<0.5	<0.5	**0.69**	<0.5	**48**	Acetone (1.6J),2-Butanone (0.95J), Naphthalene (0.47J)
	90	Y4HK9	<0.5	**0.9**	**2.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	Acetone (3.8J), 2-Butanone(1.3J)
	100	Y4HL0	<0.5	**11**	**52D**	**2.2**	**3.2**	<0.5	**2.5**	<0.5	<0.5	<2.0	None
	108	Y4HL1	<0.5	**8**	**12**	<0.5	**1.1**	<0.5	**0.62**	<0.5	<0.5	<2.0	Acetone (2.1J)
	126	Y4HL3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None

TABLE 5

CPT/HydroPunch VOC and 1,4_Dioxane Results
Dec-08
Cooper Drum Company Site, South Gate, California

Location	Depth (bgs)	Sample No.	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,4-Dioxane	Other VOCs Detected
HP-17	65	Y4HL4	<0.5	92D(58)	52D(27)	<0.5	3.2	<0.5	<0.5(<0.5)	19(<0.5)	<0.5	<2.0	Acetone (2.4J), Cyclohexane (4.8), Methylcyclohexane (1.7)
	82	Y4HL5	<0.5	55D(120)	9.8(10)	<0.5	1.5	<0.5	<0.5(<0.5)	13<0.5)	<0.5	<2.0	Acetone (4.3J), 2Butanone (2.1J), Cyclohexane(2.1)
	97	Y4HL6	<0.5	160D(390)	60D(16)	<0.5	5.4	<0.5	<0.5(0.4)	<0.5(2)	<0.5	1.8J	None
	106	Y4HL7	<0.5	160D	20D	<0.5	3.6	<0.5	2.5	<0.5	1.8	18	None
	123	Y4HL8	<0.5	<0.5(12)	<0.5(2)	<0.5	<0.5	<0.5	<0.5(<0.5)	2.0(0.4)	<0.5	<2.0	None
HP-8A	65	Y4HL9	<0.5	35D(21)	180D(240)	<0.5	14	<0.5	<0.5(<1)	<0.5(NA)	<0.5	<2.0	Cyclohexane (1.1)
	90	Y4HM0	<0.5	63D	11	<0.5	1.7	<0.5	<0.5	6.5	<0.5	<2.0	Acetone (4.5J), Cyclohexane (1.3)
	97	Y4HM1	<0.5	64D(90)	64D(8)	<0.5	4.9	<0.5	0.45J(<1)	<0.5(NA)	<0.5	3.1	Acetone (1.3J), Cyclohexane (0.44J)
	108	Y4HM2	<0.5	6.0(2)	3.9(2)	<0.5	<0.5	<0.5	<0.5(<1)	<0.5(NA)	<0.5	2.4	None
	126	Y4HM3	<0.5	1.7	6.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	None

Index: Analytical results in micrograms per liter (ug/L) or parts per billion (ppb).
Diluted sample concentrations used in table.
Results in parenthesis from previous CPT/Hydropunch sampling event in 1999 or 2000

bgs = feet below ground surface
J = estimated value
B = analyte found in associated method blank as well as in sample
D = detection associated with sample dilution
CPT = cone penetrometer testing
HP = hydropunch sampling only, no CPT at this location
DCA = dichloroethane
DCE = dichloroethene
DCPA = dichloropropane
NA = not analyzed
PCE = tetrachloroethene
TCE = trichloroethene
VC = vinyl chloride
VOC = volatile organic

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-1	Nov-98	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	0.4J	<1.0	<1.0	-	
	Oct-00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	-	2-hexanone (1J), methylene chloride (0.3J)
	Apr-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	<0.5	-	Chloroform (0.8)
	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.3	<0.5	<0.5	-	Toluene (0.25J), xylenes (0.18J)
	Nov-04	<0.5	0.27J	<0.5	<0.5	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	1.7	
	Aug-06	<0.5	0.39J	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5	1.7	
	Mar-08	<0.5	0.55	0.28J	<0.5	<0.5	<0.5	0.22J	2.4	<0.5	<0.5	1.8J	chloromethane (0.38J)
	May-09	<0.5	0.92	0.5 J	<0.5	<0.5	<0.5	0.33 J	3.9 J	<0.5	<0.5	<2.0	Methylene Chloride (1.1 J), Toluene (0.29 J), Isopropylbenzene (0.82)
MW-2	Sep-91	-	207	ND	ND	-	-	-	-	-	-	-	
	Jun-92	-	510	346	7	-	-	-	-	-	-	-	
	Oct-96	<1.0	480	660	19	23	8	100	45	-	-	-	
	Oct-98	<10	640	1100	46	46	14	220	97	27	44	-	1,2,3-trichloropropane (45), chlorobenzene (5.5)
	Nov-98	<1.0	780	1200	32	34	12	190	82	27	42	-	1,2,3-trichloropropane (31), chlorobenzene (6), toluene (2)
	Mar-99	<1.0	800	800	10	19	5	52	20	7	12	-	1,2,3-trichloropropane (13), chlorobenzene (2)
	Oct-00	0.5	290	730	15	47	9	72	30	7	14	-	acetone (9), chlorobenzene (6), ethylbenzene (6), toluene (2)
	May-03	<25*	230	790	29	46	<25*	65	<25*	<25*	<25*	-	bromoform (56)
	Dec-03	<1.0	240	810	13	52	17	75	14	5.1	5.6	-	toluene (1.6), chlorobenzene (5.6)
	Feb-04	<0.5	220	770	12	48	15	73	19	5.8	6.3	-	methylcyclohexane (0.63), toluene (1.6), chlorobenzene (6.2)
	Apr-04	<0.5	290	990	10	50	10	86	19	6	6.6	69	toluene (0.9), chlorobenzene (4.0)
	Jul-04	<2.5	220D	730D	15	46	11	64	<2.5	6.1	5.8	NA	toluene (1.8J), chlorobenzene (5.4)
	Nov-04	<0.5	270D	790D	19	46JD	23	75D	23	8.2	7.7J	NA	toluene (0.93), chlorobenzene (4.1), methylcyclohexane (0.66J)
	Apr-05	<0.5	140D(220E)	640D(840E)	11	33JD(38E)	5.8J	61D(61E)	16J	6.2J	5.0J	67	toluene (0.83J), chlorobenzene (2.6J), methylene chloride (2.6J)
	Nov-05	<0.5	370	900	23	46	21	130	32	16	12	100	toluene (1.9), chlorobenzene (3.7J)
	Mar-06	<0.5	250D	640D	14	31	15	85	20	10	<5.0	75	
	Aug-06	<0.5	69D	510D	7.9	26	30	64D	22	6.1	5	79	Toluene (0.83) Chlorobenzene (2.5)
	Mar-08	<0.5	60D	460D	5.3	29D	70D	65D	17	5.8	5.3	55	chlorobenzene (1.4)
	May-09	<0.5	90 D	660 D	5.8 J	34 D	<25	120 D	30 D	10	11	65	Methylene Chloride (1.1), Toluene (2.1), Chlorobenzene (2.3)
MW-3	Nov-98	<1.0	9	2	<1.0	<1.0	<0.5	<1.0	<0.5	<1.0	<1.0	-	Toluene (0.5J)
	Oct-00	<0.5	5	2	<0.5	0.3J	<0.5	<0.5	<0.5	<0.5	<0.5	-	Toluene (0.4)
	Mar-03	<0.5	4	2	<0.5	0.3J	<0.5	<0.5	<0.5	<0.5	<0.5	-	
	Jan-04	<0.5	4.2	2.8	<0.5	0.29J	<0.5	<0.5	<0.5	<0.5	<0.5	-	Toluene (0.24J), xylenes (0.27J)
	Jul-04	<0.5	3.3	2.3	<0.5	0.27J	<0.5	<0.5	<0.5	<0.5	<0.5	0.8J	
	Mar-06	<0.5	3	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5J	
	Aug-06	<0.5	2.8	3.2	<0.5	0.35J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	
	Mar-08	<0.5	1.8	2.5	<0.5	0.25J	<0.5	<0.5	<0.5	<0.5	<0.5	1.1J	
	May-09	<0.5	1.2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	
MW-4	Nov-98	<1.0	8	14	2	0.9J	0.9	1	0.5	<1.0	<1.0	-	
	Oct-00	<0.5	6	15	2	1	1	4	1	<0.5	0.3J	-	2,Butanone(1), 2 Hexanone (3J). Toluene (0.5J)
	Mar-03	<1.0	12	38	7	2	2	8	3	<1.0	<1.0	-	
	Jan-04	<0.5	6.8	23	2.6	0.93	0.86	3.7	1.3	0.23J	<0.5	-	Toluene (0.19J)
	Nov-04	<0.5	15	30D	6.8	3	5	8.4	<0.5	0.42J	<0.5	12	
	Aug-06	<0.5	11	24D	3.7	2	1.3	8.8	2.8	<0.5	0.67	15	
	Mar-08	<0.5	8.4	19D	2.8	1.8	1.5	8.5	3.6	0.33J	<0.5	15	
	May-09	<0.5	9.5	20	2.6	1.4	<0.5	9.4	4.5	0.31 J	0.41 J	13	Methylene Chloride (1.2), Toluene (0.25 J), Isopropylbenzene (0.72)

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-5	Jun-92	-	684	90	11	-	-	-	-	-	-	-	
	Oct-96	23	570	440	43	10	7	280	29	-	-	-	
	Oct-98	57	590	580	54	16	14	340	38	13	14	-	1,1,2-trichlorethane (3.1), 1,2,3-trichloropropane (18), chlorobenzene (37), ethylbenzene (1.3), total xylenes (7.1)
	Nov-98	44	570	670	45	14	11	330	39	13	17	-	1,1,2-trichloroethane (3), 1,2,3-trichloropropane (20), chlorobenzene (34), ethylbenzene (1), toluene (2), total xylenes (6)
	Mar-99	42	300	300	20	10	9	200	28	11	18	-	1,1,2-trichloroethane (2), 1,2,3-trichloropropane (20), acetone (5), chlorobenzene (51), ethylbenzene (1), toluene (0.8), total xylenes (3)
	Oct-00	21	60	100	9	3	3	47	12	3	9	-	1,1,2-trichloroethane (1), 2-hexanone (59), 4-methyl-2-pentanone (1), chlorobenzene (17), toluene (0.5)
	May-03	10	88	200J	6J	3J	3J	78	9J	<10*	<10*	-	methylene chloride (4), chlorobenzene (9), bromoform (20)
	Dec-03	13	110	270	7	4.4	3.5	110	8.1	1.5	8.3	-	acetone (2.2), 1,1,2-trichloroethane (0.7), chlorobenzene (7.2), 1,2,3-trichloropropane (8)
	Feb-04	13	91	210	5.9	4.1	1.9	90	8.2	1.3	7.6	-	1,1,2-trichloroethane (0.93), chlorobenzene (4.6)
	Apr-04	9.8	88	220	<0.5J	3.3	<0.5	86	7.1	<0.5	7	230	1,1,2-trichloroethane (0.87), chlorobenzene (4.3)
	Jul-04	12	83D	170D	6	4.1	1.6	86	5.8	1.2	6.7	NA	1,1,2-trichloroethane (0.72), chlorobenzene (3.6)
	Nov-04	16	100D	220D	8	6	4.1	92D	8.2	1.8	9.3J	NA	1,1,2-trichloroethane (0.77), chlorobenzene (5.2)
	Apr-05	18	170D(170E)	(360E)	7.6	5	2	170D(130E)	7.1	<0.5	10	170	toluene (0.31J), chlorobenzene (4.6), 1,1,2-trichloroethane (0.81)methylene chloride (0.90J)
	Nov-05	23	160	270	11	6.1	8.6	150	6.7	2.9	10	190	chloroethene (0.2J), toluene (0.5J), 1,1,2-trichloroethane (0.7), 1,3-dichloropropane (0.2), chlorobenzene (6.3), 1,2,3 trichloropropane (11.0), MTBE (1.0)
	Aug-06	7.7	84D	110D	7.8	3.5	1.5	73D	3.5	0.87	4.8	260	1,1,2-trichloroethane (0.75), chlorobenzene (1.8)
	Mar-08	9.6	47D	68D	2.6	1.3	1.7	60D	<0.5	0.95	2.6	140D	1,1,2-trichloroethane (0.39J), chlorobenzene (1.3)
	May-09	9.5	39 D	100 D	2.6	2.4	2.7	70 D	1.5	1.1	4.8	68	Methylene Chloride (1.2), 1,1,2-trichloroethane (0.56), Chlorobenzene (2.3), Isopropylbenzene (1.0)
MW-8	Nov-98	<10	150	140	<10	5J	<10	<10	<10	<10		-	Methylene Chloride (15J)
	Oct-00	<0.5	58	81	0.5J	4	<0.5	<0.5	<0.5	<0.5	<0.5	-	Methylene Chloride (0.4J)
	Jan-04	<0.5	33D	86D	0.51	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	NA	Toluene (0.17J)
	Aug-06	<0.5	7	61D	0.71	2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	
	Mar-08	<0.5	3.2	58D	0.54	2.5	0.23J	0.21J	<0.5	<0.5	<0.5	<2.0	
	May-09	<0.5	1.9	60 D	0.60 J	1.8 J	<0.5	0.31 J	<0.5	<0.5	<0.5	<2.0	Bromomethane (0.26 J), methylene Chloride (1.5)
MW-10	Nov-98	<1	1	4	<1	<1	<1	<1	<1	<1	<1	-	
	Oct-00	<0.5	1	4	0.4J	<0.5	<0.5	<0.5	<0.5	<0.5		-	
	May-03	<0.5	26D	9	0.8	0.4J	0.2J	0.4J	0.2J	<0.5	<0.5	-	
		(<0.5)	25	8	(0.9J)	(0.3J)	(<0.5)	(0.4J)	(<0.5)	(<0.5)	(<0.5)		
	Jan-04	<0.5	20D	12	0.98	0.6	<0.5	0.55	<0.5	<0.5	<0.5	-	Toluene (0.17J, 0.17J)
		(<0.5)	(20D)	14	1.1	0.63	(<0.5)	0.57	(<0.5)	(<0.5)	(<0.5)		
	Nov-04	<0.5	23D	20	1.3	1	0.79	0.58	<0.5	<0.5	<0.5	4.7 (2.8)	
		(<0.5)	(25D)	19	1.2	0.96	0.81	0.61	(<0.5)	(<0.5)	(<0.5)		
	Aug-06	<0.5	54D	60D	2.8	2.9	<0.5	3.8	<0.5	<0.5	<0.5	23	
	Mar-08	<0.5	5.8	14	0.81	0.76	0.76	1.3	<0.5	<0.5	<0.5	5.2	
	May-09	<0.5	15	32 D	2	1.3	<0.5	1.7	0.29 J	<0.5	<0.5	<2.0	methylene chloride (1.3)

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-12	Nov-98	<2	**38**	**22**	2	1J	<2	<2	<2	<2	<2	-	Methylene chloride (4J)
	Oct-00	<3	**31**	**21**	<3	<3	<3	<3	<3	<3	<3	-	
	May-03	0.34J	**25D**	**30D**	3.6	1.4	<0.5	**5.2**	<0.5	<0.5	<0.5	-	
	Jan-04	<0.5	**37D**	**43D**	**8.8**	2.7	**0.75**	**11**	<0.5	0.29J	<0.5	-	Toluene (0.34J), xylenes (0.45J)
	Aug-06	<0.5	**64D**	**96D**	**11**	3.1	<0.5	**17**	**1**	<0.5	<0.5	**95**	
	Mar-08	<0.5	**80D**	**140D**	**16**	5.5	**1.2**	**45D**	**1.3**	<0.5	<0.5	**97D**	
	May-09	<0.5	**120E**	**63 D**	**18 J**	2.9 J	<0.5	<10	**1.6**	<0.5	0.65	**50**	Methylene Chloride (1.0)
MW-14	Nov-98	<1	2	0.6J	<1	<1	<1	<1	<1	<1	<1	-	
	Oct-00	<0.5	**6**	**51**	<0.5	1	<0.5	2	<0.5	<0.5	<0.5	-	Mehtylene Chloride (0.4J), Toluene (0.7)
	Aug-06	<0.5	0.37J	0.36J	0.23J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	May-09	<0.5	0.63	3.2	<0.5	0.32 J	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	Methylene Chloride (1.1), acetone (3.1 J)
MW-15	Dec-00	1	**590**	**150**	**10**	7	**2.2**	**22**	**4.1**	**1**	2	-	1,2,3 Trichloroprane (24), Chlorbenzene (1), Toluene (0.8)
	Feb-01	2	**700**	**170**	**10**	6	**2**	**20**	**3.7**	1	2	-	1,2,3 Trichloroprane (18), Chlorbenzene (2)
	May-03	<10*	**250**	**98**	**9J**	3J	<10*	**10J**	**11**	<10*	<10*	-	Methylene chloride (19J), bromoform (29J)
	Jan-04	0.30J	**360D**	**160D**	**6.7**	6.5	**1.2**	**14**	**14**	0.85	4.1	-	4-methyl-2-pentanone (0.27J), chlorobenzene (0.56), xylenes (0.24J)
	Jul-04	<0.5	**87D**	**70D**	3.9	3.5	**1.1**	**7.3**	**3.9**	0.43J	1.3	**54**	
	Aug-06	<0.5	**17**	**82D**	1.1	2.3	<0.5	1.6	**2.5**	0.36J	<0.5	**12**	Methylcyclohexane (0.71)
	Mar-08	<0.5	**37D**	**57D**	1.6	2.6	**1.3**	3.6	**3.6**	0.31J	<0.5	**7.5**	
	May-09	<0.5	**27 D**	**55 D**	1.8	2	**1.7 J**	3.9	**3.6**	0.40 J	<0.5	6	
MW-15B	May-09	<0.5	**32 D**	**120 D**	1.7	4.1	**8.2**	**13**	**4.5**	0.64	<0.5	**17**	
MW-16	Dec-00	<1	<1	<1	<1	<1	<0.5	<1	<0.5	<1	<1	-	
	Feb-01	<1	<1	<1	<1	<1	<0.5	<1	<0.5	<1	<1	-	
	Mar-03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	
	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	
	Nov-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	Aug-06	<0.5	<0.5	0.25J	<0.5	<0.5	<0.5	<0.5	**0.58**	<0.5	<0.5	<1.0	
	Mar-08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.79**	<0.5	<0.5	<2.0	
	May-09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-17	Dec-00	<1	3	0.5J	<1	<1	<0.5	0.3J	<1	<1	<1	-	Toluene (0.7)
	Feb-01	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	-	
	Mar-03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	
	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	Toluene (0.53), xylenes (0.53)
	Nov-04	<0.5	0.58	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	
	Aug-06	<0.5	1.7	2.1	0.34J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7J	
	Mar-08	<0.5	<0.5	0.79	<0.5	<0.5	<0.5	0.41J	0.39J	<0.5	<0.5	<1.0	chloromethane (0.65)
	May-09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.2 J**	<0.5	<0.5	1.5 J	Toluene (0.27 J)
MW-18	Dec-00	<1	<1	0.6J	<1	<1	<0.5	<1	0.4J	<1	<1	-	
	Feb-01	<1	<1	0.5J	<1	<1	<0.5	<1	0.3J	<1	<1	-	
	Mar-03	<0.5	0.2J	0.8J	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	
	Jan-04	<0.5	0.24J	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	
	Aug-06	<0.5	0.57	0.96	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	cis-1,3-Dichloropropene (0.24J)
	Mar-08	<0.5	0.33J	0.67	<0.5	<0.5	<0.5	<0.5	0.33J	<0.5	<0.5	<2.0	
	May-09	<0.5	1.1	1.6	0.39 J	<0.5	<0.5	0.6	0.48 J	<0.5	<0.5	<2.0	Toluene (0.93)

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-19	Dec-00	<1	6700	45	18	9	1.2	31	12	1	<1	-	1,1,2-Trichlorethane (0.7J), acetone (5J)
	Feb-01	<1	5700	33	16	8	1	29	9.7	1	<1	-	1,1,2-Trichlorethane (0.6J)
	May-03	<50*	1,000	<50*	<50*	<50*	<50*	<50*	39J	<50*	<50*	-	Bromoform (93J)
	Jan-04	<0.5	450D	11	2.8J	1.5	0.19J	3	34D	<0.5	<0.5	-	Chloromethane (0.59BJ), cyclohexane (1.8)
	Jul-04	<0.5	99D	4.5	1.6J	0.65	0.25J	0.77	33D	<0.5	<0.5	17	Cyclohexane (2.7) carbon disulfide (0.19J)
	Aug-06	<0.5	94D	13	1.1	1.6	<0.5	0.96	23	<0.5	<0.5	3.7	Cyclohexane (3.0)
	Mar-08	<0.5	42D	15	0.73	1.6	0.31J	0.56	14	<0.5	<0.5	3.3	Cyclohexane (1.4)
	May-09	<0.5	36 D	21 D	0.5 UJ	1.3 J	<0.5	0.38 J	8.2	<0.5	<0.5	2.8	
MW-20	Feb-03	5.6	300	110	7.6	5.4	<5.0	32	6.4	-	-	-	
	May-03	<13	520	140	<13	<13	<13	41	<13	<13*	<13*	-	bromoform (20)
	Dec-03	5.2	570	150	16	7.8	3.6	44	7.6	1.1	4.2	-	chlorobenzene (5.4), 1,2,3-trichloropropane (3.8)
	Feb-04	4.1	490	140	14	7.3	2.8	39	7.8	0.97	4.1	-	1,1,2-trichloroethane (0.94), chlorobenzene (4.5)
	Apr-04	5.1	670	180	15	8.9	<0.5	48	8	<0.5	4.9	120	1,1,2-trichloroethane (0.67), chlorobenzene (5.5)
	Jul-04	4	470D	140D	16	7.6	3	45	7.3	1.1	4.3	NA	chlorobenzene (3.7)
	Nov-04	5.1	770D	200E	24	11	8.3	58D	12	1.2	5.9J	NA	chlorobenzene (4.8), methylcyclohexane (0.46J)
	Apr-05	2.4	120D(570E)	45D(150E)	7.2	4.6	1.9	13D(34E)	7.9	0.68	3.7	180	toluene (0.20J), chlorobenzene (2.8), acetone (2.2J), methylene chloride (1.70B)
	Jul-05	3.2	520D	200D	18	8.2	4.7	54D	10	0.85	4.4	140	
	Jul-05	1.2	210D	98D	3.8	3.5	0.69	22	8.4	0.45J	3	150	
	Aug-05	2.7	230	81	11	5.5	2.3	30	11	0.5	4.3	160	1,1,2-trichloroethane (0.40), chlorobenzene (2.3),1,2,3-trichloropropane (4.4)
	Sep-05	2	160	60	6.3	2.6	1.1	24	6.8	0.3	2.6	140	Dibromomethane (1.7), 1,1,2-trichloroethane (0.3), chlorobenzene (1.4),1,2,3-trichloropropane (3.5), bromoform (19)
	Sep-05	1.7	150	50	5.5	2.7	0.8	21	6.3	0.3	2.6	120	Dibromomethane (2.4), 1,1,2-trichloroethane (0.2J), chlorobenzene (1.5),1,2,3-trichloropropane (3.4), bromoform (20)
	Oct-05	2.4	220	71	6.5	3	1	34	6.5	0.4	3.6	120	Dibromomethane (2.9), 1,1,2-trichloroethane (0.4J), chlorobenzene (1.8),1,2,3-trichloropropane (3.9), bromoform (18J), isobutane (1.8)
	Nov-05	1.1	130	39	5.4	1.8	0.7	22	3.7	0.3	1.8	98	Dibromomethane (2.0), chlorobenzene (0.9),1,2,3-trichloropropane (1.8), bromoform (23)
	Jan-06	2.8	240	64	10	4.2	1	34	6.7	0.5	3.5	110	Dibromomethane (2.8), chlorobenzene (1.7),1,2,3-trichloropropane (1.1), bromoform (27), chlorodibromomethane (0.3)
	Mar-06	0.75	110D	31D	2	1	0.62	16	2.7	<0.5	<0.5	79	chlorobenzene (0.59), bromoform (46D)
	Jun-06	1.8	340	77	15	6	3.1	34	6.3	0.6	3.6	160	1,1,2-trichloroetane (0.3J), chlorobenzene (1.7), bromoform (0.9), 1,2,3-trichloropropane (2.8)
	Aug-06	0.99	140D	26	5	2	<0.5	14	3.9	0.40J	2	71	Chlorobenzene (1.0) Bromoform (5.7)
	Mar-08	2.4	200D	120D	9.1	4.6	2.7	42D	5.8	0.57	2.8	66	Chlorobenzene (2.0)
	May-09	1.3 J	100 D	130 D	9.2	4.6	<2.5	32	5.3	<2.5	<2.5	39	Chlorobenzene (1.9 J)
MW20B	Jul-05	<0.5	0.3J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	
	Jul-05	<0.5	16	13	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	
	Aug-05	<0.5	19	17	0.2J	1.4	<0.5	0.3J	<0.5	<0.5	<0.5	0.6	1,2,4-trichlorobenzene (0.2J), naphalene(0.5J),1,2,3-trichlorobenzene (0.5J)
	Sep-05	<0.5	18	13	0.2J	1	<0.5	0.4J	<0.5	<0.5	<0.5	0.5	
	Sep-05	<0.5	6.2	8.4	<0.5	0.6	<0.5	0.2J	<0.5	<0.5	<0.5	<1.0	
	Oct-05	<0.5	6	6.9	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	Nov-05	<0.5	6.1	14	0.2J	1	0.2J	0.4J	<0.5	<0.5	<0.5	0.8J	
	Jan-06	<0.5	10	17	0.4	1.2	0.3	0.7	0.2	<0.5	<0.5	1.8	dibromomethane (0.2)
	Mar-06	<0.5	6.3	16	<0.5	0.87	<0.5	0.8	<0.5	<0.5	<0.5	2.2	chloromethane (0.73)
	May-06		11	19	0.4J	1.4	0.4J	0.6				1.9	carbon disulfide (0.3J)
	Aug-06	<0.5	17	27D	0.68	2	<0.5	1.7	<0.5	<0.5	<0.5	3.7	None
	Mar-08	<0.5	19	27D	0.62	2.2	0.71	1.9	<0.5	<0.5	<0.5	3	
	May-09	<0.5	7.7	17 D	0.84	1.6	<0.5	2.2	<0.5	<0.5	<0.5	80 D	

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-21	Dec-03	2.3	**870**	**370**	**25**	**14**	**5.2**	**61**	**17**	**2.7**	**9.7**	-	chlorobenzene (3.8), 1,2,3-trichloropropane (7.9)
	Feb-04	2.2	**680**	**330**	**27**	**16J**	**4.9**	**51**	**17**	**2.6**	**9.3**	-	acetone (12), methyl acetate (4.7), toluene (0.32), chlorobenzene (3.8)
	Apr-04	3	**980**	**490**	50J	**20**	**5**	**80**	**20**	<0.5	**11**	**280**	chlorobenzene (4.9)
	Jul-04	2.8	**640D**	**340D**	**29**	**15**	**5.8**	**69**	**17**	**2.6**	**8.3**	NA	chlorobenzene (4.2)
	Nov-04	2.1	**720D**	**430D**	**24**	**11**	**64D**	**59D**	**21**	**3**	**8.2J**	NA	toluene (0.25J), chlorobenzene (3.9), carbon disulfide (1.1), cyclohexane (0.21J), methylcyclohexane (0.52)
	Mar-05	0.43J	**180D(450E)**	**120D(300E)**	**13J**	**11**	**20**	**18D(32E)**	**5.8D(10)**	**1.5**	3.3	**170**	toluene (0.17J), chlorobenzene (1.6), carbon disulfide (0.29J), methylene chloride (0.94B)
	Nov-05	<0.5	**220**	**120**	**28**	**12**	**18**	**35**	**6**	**1.6**	2.6	**240**	chlorobenzene (1.0)
	Mar-06	<0.5	**390D**	**280D**	**19**	**17**	**23**	**50**	**12**	**2.7**	<0.5	**360**	
	Aug-06	<0.5	**260D**	**260D**	**20**	**19**	**30D**	**55D**	**16**	**3.5**	**5.5**	**280**	Chlorobenzene (2.9)
	Mar-08	<0.5	**320D**	**340D**	**19**	**23D**	**41D**	**66D**	**16**	**3.4**	**6.4**	**330D**	Chlorobenzene (2.2)
	May-09	<5.0	**340 D**	**500 D**	**15**	**16**	**14**	**53**	**14**	**3.2 J**	**6.3**	<2.0	
MW-22	Jan-04	<0.5	**7.2**	2.9	<0.5	0.21J	<0.5	<0.5	<0.5	**1.8**	<0.5		
	Nov-04	<0.5	**9.6**	**9.7**	<0.5	0.53	**0.56**	0.38J	<0.5	**3.7**	<0.5	1.1	
	Aug-06	<0.5	3.2	**6.3**	<0.5	<0.24J	<0.5	1.2	<0.5	**4.1**	<0.5	0.9	
	Mar-08	<0.5	3.6	4.9	<0.5	0.28L	0.28J	0.91	<0.5	<0.5	<0.5	0.73J	
	May-09	<0.5	2.8	**6.3 J**	0.5 UJ	0.28 J	<0.5	1.7	<0.5	**3.8**	<0.5	2.1	Toluene (0.26 J)
MW-23	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
	Nov-04	<0.5	<0.5	0.69	<0.5	<0.5	<0.5	0.21J	<0.5	<0.5	<0.5	2.7	
	Aug-06	<0.5	<0.5	0.95	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.9	Methyl tert-butyl ether (1.1)
	Mar-08	<0.5	<0.5	0.76	<0.5	<0.5	<0.5	0.54	0.43J	<0.5J	<0.5	0.64J	Methyl tert-butyl ether (0.45J)
	May-09	<0.5	<0.5	1	<0.5	<0.5	<0.5	0.93 J	**0.60 J**	<0.5	<0.5	<2.0	
MW-23B	May-09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.39 J	<0.5	<0.5	<2.0	
MW-24	Jan-04	<0.5	3.1	1.6	<0.5	<0.5	<0.5	<0.5	**1.6**	<0.5	<0.5		Chloromethane (0.28J)
	Nov-04	<0.5	3.1	2.3	<0.5	<0.5	<0.5	<0.5	**2.3**	<0.5	<0.5	<1.0	
	Aug-06	<0.5	2.1	1.3	<0.5	<0.5	<0.5	<0.5	**2.8**	<0.5	<0.5	<1.0	
	Mar-08	<0.5	**11**	**6.5**	0.21J	1.6	0.26J	<0.5	**2.7**	<0.5	<0.5	<2.0	Cyclohexane (0.35J)
	May-09	<0.5	**19**	**12**	<0.5	3.3	<0.5	0.5 UJ	**2.8 J**	**1.2**	<0.5	<2.0	Cyclohexane (1.2)
MW-25	Jan-04	0.33J (0.37J)	**50D(50D)**	**40D (37D)**	1.7 (2.3J)	2.9 (3.9)	**0.75 (0.98)**	4.7J (6.2)	**3.3 (5.5J)**	0.35J (0.47J)	<0.5 (1.1)		Chlorobenzene (0.48J, 0.55)
	Jul-04	<0.5	**62D**	**64D**	1.2	3.3	**0.7**	2.2	**3**	0.36J	0.83	**9.6**	Chlorobenzene (0.22J)
	Aug-06	<0.5	**20**	**44D**	0.79	2.3	<0.5	1.1	**2.5**	0.32J	<0.5	**4.3**	
	Mar-08	<0.5	**12**	**22D**	0.27J	1.7	0.32J	0.40J	**1.7**	0.47J	<0.5	1.7J	
	May-09	<0.5	**9.2**	**22 D**	<0.5	2	<0.5	0.37 J	<0.5	0.83	<0.5	<2.0	
MW-25B	Mar-08	<0.5	**36D**	**72D**	1.3	4.5	**0.91**	2.7	**3.1**	0.31J	<0.5	**11**	carbon disulfide (0.24J)
	May-09	<0.5	**22 D**	**51 D**	0.59	2.5	<0.5	1.1 J	**2.1 J**	0.66	0.33 J	<2.0	
MW-26	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
	Nov-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	Aug-06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	
	Mar-08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
	May-09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-27	Jan-04	<0.5	4.9	2.4	<0.5	0.17J	<0.5	<0.5	**1.8**	<0.5	<0.5		
	Jul-04	<0.5	3.4	2.3	<0.5	0.20J	<0.5	<0.5	**1.7**	<0.5	<0.5	0.5J	
	Aug-06	<0.5	1.4	0.87	<0.5	<0.5	<0.5	<0.5	**0.72**	<0.5	<0.5	<1.0	
	Mar-08	<0.5	1.6	1.1	<0.5	<0.5	<0.5	<0.5	**1.2**	<0.5	<0.5	<2.0	
	May-09	<0.5	**12**	**8.6**	<0.5	1.9	<0.5	<0.5	**3**	<0.5	<0.5	<2.0	

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-28	Jan-04	<0.5	**11**	**10**	<0.5	0.48J	<0.5	<0.5	**1.8J**	<0.5	<0.5		
	Nov-04	<0.5	**18**	**21**	<0.5	1.1	**0.73**	<0.5	**2.4**	<0.5	<0.5	<1.0	
	Aug-06	<0.5	**13**	**15**	0.44J	0.77	<0.5	0.74	**1.4**	<0.5	<0.5	5	
	Mar-08	<0.5	**20**	**29D**	0.73	1.7	**0.63**	0.73	**1.8**	<0.5	<0.5	**15**	
	May-09	<0.5	**15 D**	**26 D**	0.73 J	1.3 J	0.41 J	2.3 J	**1.6 J**	<0.5	<0.5	**7.6**	
MW-29A	Mar-08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.28J	
	May-09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-29	Jan-04	<0.5	**16**	4.7	<0.5	0.63	<0.5	<0.5	**1.5**	<0.5	<0.5		
	Nov-04	<0.5	**21**	5.7	0.38J	0.96	0.38J	<0.5	<0.5	<0.5	<0.5	2.2	
	Aug-06	0.21J	**59D**	**45D**	2.3	2.4	**0.84**	**7.9**	**3.9**	0.33J	<0.5	NA	Chlorobenzene (0.27J)
	Mar-08	0.25J	**74D**	**61D**	2.1	4.2	**1**	**5**	**2.8**	0.34J	<0.5	**14**	Chlorobenzene (0.62)
	May-09	<0.5	**40 D**	**82 D**	2.1	3.3	**0.72**	**5.9 J**	**3.1 J**	0.42 J	0.8	**11**	
MW-30	Jan-04	<0.5	**110D**	5.1	0.43J	0.84	<0.5	<0.5	**2.7**	<0.5	<0.5		
	Jul-04	<0.5	**110D**	6.1	0.77	1.4	0.20J	0.42J	**3.7**	<0.5	<0.5	**8.5**	Cyclohexane (0.69)
	Aug-06	<0.5	**180D**	9.4	1.1	1.5	<0.5	1.5	**5.3**	<0.5	<0.5	**8.1**	Cyclohexane (0.87)
	Mar-08	<0.5	**180D**	**16**	1.1	2.5	0.44J	1.7	**5.4**	0.26J	<0.5	**8.1**	Cyclohexane (0.46J)
	May-09	<0.5	**100 D**	**37 D**	1.4	2.6	<0.5	2.0 J	**4.9 J**	0.33 J	<0.5	5.4	
MW-31A	Mar-08	<0.5	0.44J	**12**	<0.5	0.4J	0.38J	<0.5	<0.5	<0.5	<0.5	1.4J	
	May-09	<0.5	0.34 J	**14**	<0.5	0.43 J	0.36 J	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-31	Jan-04	<0.5	**79D**	**22D**	1.4	2	<0.5	<0.5	**8**	0.42J	<0.5		Cyclohexane (2.9), methylcyclohexane (1.8)
	Jul-04	<0.5	**63D**	**17**	1.3	1.6	0.26J	0.36J	**5.5**	0.31J	<0.5	**17**	Cyclohexane (2.0), methylcyclohexane (0.65)
	Aug-06	<0.5	**11**	4.4	0.49J	<0.5	<0.5	0.49J	<0.5	<0.5	<0.5	2.6	Cyclohexane (0.85), methylcyclohexane (0.86)
	Mar-08	<0.5	**5.6**	3.5	0.32J	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	1.7J	Cyclohexane (0.49J)
	May-09	<0.5	**10**	5.4	0.40 J	0.73	<0.5	<0.5	0.29 J	<0.5	<0.5	<2.0	
MW-31B	Mar-08	<0.5	**250D**	**13**	1.7	4	0.34J	2	**4.9**	0.20J	<0.5	**9.7**	
	May-09	0.5 UJ	**180 DJ**	**13 J**	0.90 J	3.2 J	**0.5 UJ**	1.1 J	**2.5 J**	0.5 UJ	0.5 UJ	<2.0	
MW-32	Jan-04	<0.5	1.3	0.17J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		2-butanone (0.47J), toluene (0.21J)
		(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)	(<0.5)		
	Nov-04	<0.5	0.46J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	
	Aug-06	<0.5	0.24J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	
	Mar-08	<0.5	0.47J	<0.5	<0.5	<0.5	0.73	<0.5	0.32J	<0.5	<0.5	<2.0	
	May-09	<0.5	0.33 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-33A	Jul-05	<0.5	2.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**540**	chloromethane (1.1)
	Jul-05	**5.6**	**940D**	**190D**	**29E**	**12**	4.6	**50D**	**8.1**	**2.5**	4.9	**630**	
	Aug-05	4.6	**1200**	**190**	**27**	**15**	**7.2**	**49**	**7.3**	**2.2**	3.9	**470**	chlorobenzene (5.1), 1,2,3-trichloropropane (2.4)
	Sep-05	4.9	**1200**	**210**	**33**	**11**	**5.5**	**52**	**6.1**	**2**	3.3	**500**	Toluene (0.2), 1,1,2-trichloroethane (0.30), chlorobenzene (5.0),1,2,3-trichloropropane (2.1)
	Sep-05	1.6	**990**	**100**	**9.9**	4.3	**1.6**	**19**	**4.2**	0.9	1.9	**350**	Bromoform (0.30J), chlorobenzene (2.3),1,2,3-trichloropropane (1.4)
	Oct-05	2.9	**450**	**100**	**16**	6	**2.4**	**26**	**4.4**	**1.2**	2.7	**440**	Bromoform (5.4J), chlorobenzene (3.5),1,2,3-trichloropropane (1.9), dibromomethane (0.6), 1,1,2-trichloroethane (0.2), 3 TICs
	Nov-05	4.4	**680**	**140**	**20**	7.8	**3.2**	**42**	**5**	**1**	3.4	**300**	Bromoform (9.8), chlorobenzene (3.3),1,2,3-trichloropropane (2.5), dibromomethane (1.7), 1,1,2-trichloroethane (0.3)
	Jan-06	1.6	**670**	**74**	**10**	3.7	**0.9**	**18**	**3.2**	0.7	1.4	**270**	Bromoform (27), chlorobenzene (1.7),1,2,3-trichloropropane (1.1), dibromomethane (2.8)
	Mar-06	<2.5	**280D**	**33**	4.2	<2.5	<2.5	**10**	<2.5	<2.5	<2.5	**170**	Bromoform (19)
	Apr-06	0.6	**160**	**25**	2.3	1.1	0.3	**9.4**	**1.7**	0.3	0.9	**140**	Bromoform (26), chlorobenzene (0.9),1,2,3-trichloropropane (0.8), dibromomethane (2.3)
	Apr-06	1.1	**260**	**29**	5	1.9	**0.7**	**12**	**1.9**	0.3	1	**120**	Bromoform (29), chlorobenzene (1.3),1,2,3-trichloropropane (0.8), dibromomethane (2.6)

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-33A (cont.)	May-06	0.4	**120**	**14**	1.7	0.7	0.2	**5.3**	**0.8**	<0.5	0.4	**220**	Bromoform (24), chlorobenzene (0.5),1,2,3-trichloropropane (0.4), dibromomethane (1.6)
	Jun-06	1.6	**180**	**62**	3.5	2.1	**0.6**	**22**	**2.3**	0.3	2.4	**99**	Bromoform (3.3), chlorobenzene (1.2),1,2,3-trichloropropane (2.1), dibromomethane (0.7)
	Aug-06	<0.5	**130D**	**41D**	2.9	1.6	<0.5	**21**	<0.5	0.33J	1.5	**74**	Chlorobenzene (1.1), Bromoform (2.1)
	Mar-08	2.2	**490D**	**140D**	17	6.3	**2.4**	**28D**	**3.5**	1	2.4	**450D**	Chlorobenze (3.7)
	May-09	1.8 J	**480 D**	**81 D**	12 J	4.0 J	**1.6 J**	**26 J**	<2.5	<2.5	<2.5	**110 D**	
MW-33B	Jul-05	<0.5	**39D**	**41D**	1.1	0.5JB	**1.9B**	1.3	<0.5	<0.5	<0.5	1.4	
	Jul-05	<0.5	**26D**	**30D**	<0.5	2.5	<0.5	1.9	<0.5	0.15J	<0.5	2.1	
	Aug-05	<0.5	**30**	**36**	2.3	3.8	**0.6**	2.9	0.5	<0.5	<0.5	2.5	
	Sep-05	<0.5	**38**	**42**	2.4	3.3	**0.6**	2.4	<0.5	<0.5	<0.5	2	
	Sep-05	<0.5	**34**	**32**	1.5	2.7	<0.5	1.7	<0.5	<0.5	<0.5	<1.0	Pentene (1.1J)
	Oct-05	<0.5	**35**	**28**	1	2.1	0.2J	1.2	0.3	<0.5	<0.5	0.6	1,2,3 trichloropropane (0.2J), 2 TICs
	Nov-05	<0.5	**34**	**28**	1.3	2.9	0.3	1.3	0.3	<0.5	<0.5	0.6J	
	Jan-06	<0.5	**41**	**28**	1.5	3.1	0.3	1.4	0.4	<0.5	<0.5	0.7	
	Mar-06	<0.5	**26D**	**25D**	0.97	1.9	<0.5	1.2	<0.5	<0.5	<0.5	0.8	
	Apr-06	<0.5	**30**	**26**	0.9	1.9	0.3	1.2	<0.5	0.3J	<0.5	0.8	
	May-06	<0.5	**24**	**24**	1	1.9	0.2J	1.1	<0.5	<0.5	<0.5	0.8	
	Jun-06	<0.5	**25**	**28**	0.9	2.1	0.2	1	0.2J	<0.5	<0.5	1	
	Aug-06	<0.5	**21**	**27D**	0.95	1.7	<0.5	1.4	<0.5	<0.5	<0.5	0.7 J	
	Mar-08	<0.5	**31D**	**140D**	4.9	6.5	**1.3**	**8.4**	**0.68**	0.25J	0.77	**16**	
	May-09	<2.5	**28**	**160 D**	7	5.4	**1.8 J**	**12**	<2.5	<2.5	<2.5	<2.0	
MW-34	Mar-08	<0.5	**6.1**	**180D**	1.4	8.1	**1.1**	<0.5	<0.5	<0.5	<0.5	<2.0	Cyclohexane (0.53), methylcyclohexane(1.1)
	May-09	<0.5	**46 E**	**420 E**	1.8	**24 E**	**0.71**	0.5	<0.5	<0.5	<0.5	<2.0	
MW-35	Mar-08	<0.5	**120D**	**78D**	2	**12**	0.43J	0.92	**10**	0.41J	<0.5	**7.8**	Chloroform (0.35J), Cyclohexane (1.2), methylcyclohexane(0.25J)
	May-09	<0.5	**120 D**	**19 D**	1.1	8.1	<0.5	0.44 J	**9.2 J**	0.31 J	<0.5	<2.0	Methylene Chloride (0.5 JB), cyclohexane (1.9)
MW-36	Mar-08	<0.5	**7.6**	4.9	<0.5	0.61	<0.5	0.24J	**1.6**	<0.5	<0.5	0.82J	
	May-09	<0.5	7	**6.7**	<0.5	1.4	<0.5	0.5 UJ	**2.4**	<0.5	<0.5	2.2	
MW-37	Mar-08	<0.5	**66D**	**32D**	1.1	2.8	**0.98**	3	**2.9**	0.30J	<0.5	5.8	Chloromethane (0.98), Chloroform (0.43J)
	May-09	0.5 UJ	**92 DJ**	**39 DJ**	0.75 J	2.5 J	**0.5 UJ**	1.3 J	**2.0 J**	0.5 UJ	0.5 UJ	<2.0	
MW-38	Mar-08	<0.5	1.1	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	carbon disulfide (0.45J)
	May-09	<0.5	0.94	**1.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-39	Mar-08	<0.5	**16**	**6.6**	0.23J	1.1	<0.5	<0.5	**1.3**	<0.5	<0.5	2.6	cyclohexane (0.54), methylcyclohexane (0.23J)
	May-09	<0.5	**17**	**7.2**	0.44 J	0.99	<0.5	<0.5	**1.1**	<0.5	<0.5	1.9 J	
MW-40	Mar-08	<0.5	**44D**	**9.8**	0.89	3.5	0.27J	0.56	**3.6**	<0.5	<0.5	5.1	carbon disulfide (0.40J), chloroform (0.89), cyclohexane (0.62)
	May-09	<0.5	**54 DJ**	**9.9**	0.76	2.6	<0.5	0.56 J	**2.8 J**	<0.5	<0.5	2.1	Cyclohexane (0.61)
MW-41	Mar-08	<0.5	**34D**	2.4	0.22J	0.47J	<0.5	<0.5	**0.55**	<0.5	<0.5	<2.0	chloroform (0.52J), ethylbenzene (0.23J), xylenes (1.11)
	May-09	<2.0	**310 DJ**	5.5	<2.0	1.3 J	<2.0	1.1 J	<2.0	<2.0	<2.0	<2.0	
MW-42	May-09	0.5 UJ	**30 EJ**	**410 EJ**	1.5 J	**14 J**	**0.96 J**	3.4 J	**0.5 UJ**	0.5 UJ	0.5 UJ	1.9 J	
MW-43	May-09	0.5 UJ	**38 DJ**	**11 DJ**	0.89 J	1.2 J	**0.5 UJ**	0.5 UJ	**11 J**	0.5 UJ	0.5 UJ	<2.0	
MW-44	May-09	0.5 UJ	**31 DJ**	**38 DJ**	0.61 J	3.8 J	**0.5 UJ**	0.32 J	**3.0 J**	0.5 UJ	0.5 UJ	<2.0	
MW-45	May-09	<0.5	2.1	**19**	<0.5	1.3	<0.5	<0.5	**1**	<0.5	<0.5	<2.0	
MW-46	May-09	0.5 UJ	**56 DJ**	**95 DJ**	0.38 J	5.4 J	**0.5 UJ**	0.5 UJ	**0.5 UJ**	0.5 UJ	0.5 UJ	<2.0	
MW-47	May-09	2.5 UJ	**99 J**	**470 DJ**	2.5 UJ	**14 J**	**2.5 UJ**	2.5 UJ	**2.5 UJ**	**2.5 UJ**	2.5 UJ	<2.0	
MW-48	May-09	0.5 UJ	**25 DJ**	**52 DJ**	0.30 J	3.8 J	**0.5 UJ**	0.5 UJ	**1.2 J**	0.5 UJ	0.5 UJ	<2.0	
MW-49	May-09	<0.5	**29 D**	**99 D**	<0.5	4.2	<0.5	0.5 UJ	**0.5 UJ**	<0.5	<0.5	<2.0	

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
MW-50	May-09	<5.0	480 D	970 D	<5.0	20	<5.0	<5.0	<5.0	<5.0	<5.0	2.1	
MW-51	May-09	<0.5	5.7	27 D	<0.5	1.8	<0.5	<0.5	1.3	<0.5	<0.5	<2.0	
MW-52	May-09	<0.5	8.2	6.5	<0.5	0.78	<0.5	<0.5	2.2	<0.5	<0.5	<2.0	
MW-53	May-09	<0.5	19 J	19	0.48 J	1.2	<0.5	1.2	1.8	<0.5	<0.5	2.6	
MW-54	May-09	<0.5	15 D	10	0.57	3.5	<0.5	0.45 J	4	<0.5	<0.5	<2.0	
MW-55	May-09	<0.5	2.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
MW-56	May-09	<2.5	3900 D	290 D	2.2 J	11	<2.5	<2.5	<2.5	<2.5	<2.5	<2.0	
EW-1	Mar-99	<1.0	190	14	1	0.8J	<0.5	1	0.5	<1.0	<1.0	-	1,2,3-trichloropropane (4), toluene (0.6), total xylenes (1.1)
	Aug-99	8	310	100	21	4	2.7	50	6.3	2	4	-	1,2,3-trichloropropane (5), acetone (8), chlorobenzene (5)
	Oct-00	5	310	100	20	5	3	45	5	1	3	-	2-hexanone (12), chlorobenzene (7), toluene (0.5)
	May-03	<13	380	170J	19	7J	3J	46	3J	<13*	<13*	-	bromoform (24)
	Dec-03	1	480	230	41	9.8	4.1	70	3.7	1.1	1.9	-	chlorobenzene (2.6), 1,2,3-trichloropropane (0.8)
	Feb-04	1	450	210	39	9J	3.4	65	5.2	1.3	2.5	-	chlorobenzene (2.5)
	Apr-04	1.7	790	290	<40UJ	10	<0.5R	83	5.5	1.9	<0.5	550	chlorobenzene (4.1)
	Jul-04	1.9J	600d	230D	39	9.3	3.7	68	5.8	1.7J	3.2	NA	chlorobenzene (3.7)
	Nov-04	2.9	830D	250E	53E	13	9.7	75E	7.8	2.1	4.2J	NA	chlorobenzene (5.9)
	Apr-05	1.4	760D(750E)	240D(230E)	34E	7.8	2.5	60D(43E)	4.3	1.2	2.4	410	toluene (0.19J), chlorobenzene (3.9), methylene chloride (0.94B)
	Jul-05	0.62	660D	310D	40D	13JD	4.3J	74D	5.6	1.5	2.8	750	
	Jul-05	0.82	530D	190D	43E	11	3.8	35D	4.4	1.3	2.6	860	
	Aug-05	2.3	560	150	27	11	5.1	38	5	1.2	2.9	590	chlorobenzene (4.4), 1,2,3-trichloropropane (1.2)
	Sep-05	3	470	140	30	8.6	4	53	4.9	1.1	3	530	chlorobenzene (3.9), 1,2,3-trichloropropane (1.4)
	Sep-05	1.1	200	55	8.2	3	1.1	22	3.1	0.5	1.8	340	chlorobenzene (1.9), 1,2,3-trichloropropane (1.0)
	Oct-05	0.6	190	45	6.1	2	0.6	25	2.5	0.3	1.6	450	chlorobenzene (1.1), 1,2,3-trichloropropane (1.1)
	Nov-05	0.5	140	38	5.7	3.2	0.7	21	1.6	0.2	1.1	250	chlorobenzene (0.6), 1,2,3-trichloropropane (0.4J)
	Jan-06	1.9	250	59	12	4.1	1.1	30	3.9	0.7	2.5	420	chlorobenzene (2.5), 1,2,3-trichloropropane (1.2)
	Mar-06	1.3	210D	53D	6.6	2.6	0.72	27D	3.1	0.52	1.9	420	chlorobenzene (2.1)
	Apr-06	1.3 (1.3)	210 (220)	40 (41)	5.8 (5.8)	2.1 (2.0)	0.8 (0.7)	23 (23)	3.1 (3.0)	0.4 (0.4)	1.9 (1.9)	420 (370)	chlorobenzene (1.8, [1.8]), 1,2,3-trichloropropane (1.4, [1.4]) bromoform (0.2J, [0.2J])
	Apr-06	1.2	170	41	5.9	2.2	0.7	25	2.7	0.4	1.8	390	chlorobenzene (1.6), 1,2,3-trichloropropane (1.4) bromoform (0.2J)
	May-06	1.3	200	48	7.6	2.5	1	23	3	0.5	1.9	410	chlorobenzene (1.8), 1,2,3-trichloropropane (1.5) bromoform (0.7)
	Jun-06	<0.5	65	44	3.7	5.5	0.5	6.2	0.6	0.2	0.5	47	1,2,3-trichloropropane (0.6)
	Aug-06	<0.5	120D	61D	6.8	2.3	0.31J	38D	3.4	0.46J	2.2	250	Chlorobenzene (0.53)
	Mar-08	<0.5	220D	210D	28D	9.6	4.9	72D	3.9	1	2.6	120D	chlorobenze (0.57)
	May-09	<2.5	97 D	260 D	28	10	4.2	77	3.9	1.3 J	<2.5	74	

TABLE 6
VOCs and 1,4-Dioxane

Location	Date	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	VC	1,1-DCA	1,2-DCA	Benzene	1,2-DCP	1,4-Dioxane	Other VOCs detected
EW-2	Dec-00	<1.0	**150**	**170**	**9**	**10**	**1.7**	**20**	**5.4**	**2**	3	-	1,2,3-trichloropropane (6), chlorobenzene (2)
	Mar-01	0.6J	**130**	**110**	**10J**	**12**	**2.4**	**20**	<0.5	**2**	4	-	1,2,3-trichloropropane (8), chlorobenzene (1)
	May-03	<50	**86**	**1300J**	**46J**	**39J**	**12J**	**260**	**46J**	**20**	<50*	-	bromoform (87)
	Dec-03	<1.0	**16**	**1200**	**72**	**55**	**13**	**320**	**36**	**15**	**11**	-	toluene (2.4), chlorobenzene (9), 1,2,3-trichloropropane (5.4)
	Feb-04	<5.0	**140**	**1000**	**56**	**44**	**12**	**230**	**39**	**14**	**13**	-	acetone (11), methyl acetate (4.4), cyclohexane (0.56), 4-methyl-2-pentanone (3.2), toluene (2.7), chlorobenzene (10)
	Apr-04	<0.5	**270**	**1200**	**54E**	**63J**	**84J**	**280**	**48E**	**20**	**15**	**710 (700)**	cyclohexane (0.67), toluene (3.6), chlorobenzene (10), xylenes (0.62)
	Jul-04	<2.0	**130D**	**390D**	**27**	**51**	**460D**	**250D**	**39**	**14**	**11**	NA	toluene (2.8), chlorobenzene (6.5), xylenes (1.0J)
	Nov-04	<0.5	**130D**	**210D**	**34E**	**72JD**	**1100D**	**240D**	**41E**	**20**	**15J**	**700 (610)**	toluene (3.5, 3.6), chlorobenzene (7.5, 7.3), xylenes (1.2, 1.2), ethyl benzene (<0.5, 0.26J), methylene chloride (0.90J, 0.88B)
	Apr-05	<0.5	**59D(81E)**	**94D(140E)**	**12**	**48D(66E)**	**310D(360E)**	**220D(260E)**	**24**	**20**	**12**	**530 (560)**	toluene (3.3, 3.1), chlorobenzene (9.3, 7.3), xylenes (0.85, 0.72), ethyl benzene (0.26J, 0.20J), methylene chloride (0.90J, 0.88B)
	Nov-05	<0.5	**190**	**120**	**25**	**59**	**430**	**250**	**22**	**16**	**11**	**510**	toluene (2.0), chlorobenzene (4.5), xylenes (0.2), 1,2,3-trichloropropane (0.3)
	Mar-06	<0.5	**42D**	**20**	4.1	**42D**	**190D**	**200D**	**16**	**12**	**11**	**550**	toluene (1.6), chlorobenzene (3.7)
	Aug-06	<0.5	**30D**	**46D**	5.4	**40D**	**110D**	**200D**	**21**	**13**	**9.1**	**430**	Methyl tert-butly ether (1.1), Toluene (2.4), Chlorobenzene (6.8)
	Mar-08	<0.5	**11**	**10**	0.69	**32D**	**29D**	**130D**	**13**	**10**	**6**	**290D**	Methyl tert-butly ether (0.95), Chlorobenzene (5.6)
	May-09	<0.5	**29 D**	**94 D**	2.4 J	**23 D**	**58 D**	**120 D**	**16**	**10**	**8.1**	**160 D**	Methylene Chloride (1.1), chlorobenzene (2.3)
EW-3	May-09	<0.5	**43D**	**26D**	0.79	<0.5	<0.5	2.2	<0.5	<0.5	<0.5	<2.0	none
	May-09	<0.5	**35D**	**23D**	0.8	1.7	<0.5	2.3	<0.5	<0.5	<0.5	**6.7**	none
SVE-1	Dec-00	**10**	**230**	**490**	**9**	**16**	**15**	**110**	**21**	**12**	**29**		1,2,3-trichloropropane (6),Chlorobenzene (87), ethylbenzene (32) xylenes (99), toluene (70), see Lab sheet for additional VOCs
	Dec-03	2.5	**70**	**1,100**	**69**	**18**	**140**	**230**	**8.2**	**16**	**15**		Chlorobenzene (32), ethylbenzene (76) xylenes (162), toluene (310), see Lab sheet for additional VOCs
	Jul-04	1.7J	**47**	**370D**	**7**	**26**	**33**	**81**	**5.4**	**6.8**	**8.5**	**120**	Chlorobenzene (29), ethylbenzene (12) xylenes (33), toluene (51), see Lab sheet for additional VOCs
	Aug-06	**5.4**	**44E**	**780D**	5.8	**51D**	**67D**	**200D**	**28**	**16**	**20**	**320**	See Lab sheet for additional VOCs
	May-09	<2.5	**6**	**200D**	<2.5	63	**82**	**360D**	**19**	**26**	**18**	**490D**	See Lab sheet for additional VOCs
SVE-2	Apr-04	**50D**	**29D**	5.9	<0.5	0.55	**1.1**	**76D**	<0.5	0.93	<0.5	NA	Acetone (51), 1,1,1-TCA (0.76), See Lab sheet for additional VOCs
	Aug-06	**48D**	**69D**	**21**	1.7	0.86	**0.85**	**59D**	<0.5	0.81	<0.5	**35**	See Lab sheet for additional VOCs
	May-09	**18**	**140D**	**100D**	1.9	1	<0.5	**61D**	<0.5	0.45J	<0.5	<2.0	See Lab sheet for additional VOCs

D = Detection associated with sample dilution
E = Concentration exceeds upper level of instrument calibration range
J = Estimated value; value below detection limit
B = Analyte found in associated method blank as well as in sample
NA = Compound not analyzed
Bold indicates value is above the MCL. MCL's are listed in Table 1.
Duplicate value for 1,4-dioxane from EW-2 shown in parenthesis
Estimated and dilution values shown for April 2005 sampling round.

PCE = Tetrachloroethene
TCE = Trichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
1,1-DCE = 1,1-Dichloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene
VC = Vinyl Chlroide
1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,2-DCP = 1,2-Dichloropropane