URS

September 22, 2008

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

06.a4

Re: RAC IX Contract No. 68-W-98-225
Cooper Drum RD WA No. 247-RDRD-091N
Remedial Design Technical Memorandum for Field Sampling Results
Addendum No. 3 Monitor Well Installation and Groundwater Sampling Results
February/March 2008

Dear Mr. Yunker:

URS Corporation (URS) has prepared this third addendum to the July 2006 Remedial Design Technical Memorandum for Field Sampling Results (RDTM) (URS, 2006) to document the results of monitor well installation and site-wide groundwater sampling event conducted at the Cooper Drum Company Superfund Site (Site) located in South Gate, Los Angeles County, California (Figures 1 and 2). The monitor well installations implemented the recommendations from Addendum No. 2, Cone Penetrometer Test (CPT)/HydroPunch (HP) Sampling Results February/March 2007. The monitor well installation was performed by URS on behalf of the United States Environmental Protection Agency (EPA) in February/March 2008, to provide additional groundwater data for delineation of the downgradient portion of the Cooper Drum plume prior to implementation of the selected remedy in the Record of Decision (ROD). The remedial design documents for the groundwater were completed in September 2007 (URS, 2007) and included a downgradient and source area component for the contaminant plume. The site contaminants of concern (COCs) are presented in Table 1. It was anticipated the new well installation event would provide data to complete the remedial design (RD) for the downgradient component of the contaminant plume. However, the new groundwater data in this addendum indicate the Cooper Drum groundwater plume has migrated since completion of the RD and has commingled further with adjacent contaminated plumes; therefore, it will be necessary to install new monitor wells and conduct additional sampling. As such, this addendum includes recommendations for investigation activities, field tests, and groundwater modeling to support any needed revisions of the RD for the downgradient component.

The following pages present a background, including:

- A brief site description, summary of the site hydrogeology, and the monitor well network;
- A summary of all the previous RD groundwater investigation activities which include:
  - RDTM, July 2006, Results of the 2003 CPT/HP and downgradient well installation event presented in the RDTM,

URS Corporation
Crown Corporate Center
2870 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833
Tel: 916.679.2000
Fax: 916.679.2900

- RDTM Addendum No. 1, March 2007, Results of the August 2006 Groundwater Monitoring Sampling Results,
- RDTM Addendum No.2, June 2007, Results of the February/March 2007 CPT/HP investigation;

- A description of the February/March 2008 well installation and site-wide groundwater sampling activities and presentation of the results;
- Conclusions regarding the distribution of downgradient portions of the Cooper Drum Plume and commingling with other plumes in the vicinity; and
- Recommendations for monitor well installations and other activities as they relate to the RD.

BACKGROUND

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 the former elementary school (Tweedy Elementary School) on the south. Drum reconditioning activities began in the1940s. By 1992, the former hard-wash area (HWA) , located on the eastside of the property, was closed and replaced with a new HWA in the Drum Processing Area (DPA), which also provided hard piping and secondary containment. Drum reconditioning activities were terminated in October 2003, when Consolidated Drum Company removed all drum-recycling equipment and associated containment piping and tanks to off-site facilities. Following the removal of drum processing operations, there were four new tenants at the Site, including a pallet company, a trucking and towing company, and two automotive repair/salvage companies. As of June 2006, the automotive repair/salvage companies moved operations off site and the pallet company expanded their operations to the vacant property.

As shown on Figure 2, the groundwater flow direction in the Cooper Drum Plume is to the south. Contaminants in the 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. A fourth site owned by the Los Angeles Unified School District (LAUSD) is also shown on Figure 3. This site is of interest because monitor wells located on the LAUSD site show the presence of groundwater contamination, downgradient of the Cooper Drum Plume, and likely emanating from the Seam Master Site (and/or the vicinity). In addition, a change in flow direction (to the southwest versus a more southerly flow direction measured in the Cooper Drum Plume) has been observed from these wells.

The groundwater investigations performed by the responsible parties and/or the lead agency (Department of Toxic Substances Control [DTSC]) for the Jervis Webb site and the Seam Master Site have been limited to their respective site property boundaries. Other investigation activities performed to track the

migration of these plumes have been performed by the EPA as part of the Superfund Site Assessment and field activities to delineate the Cooper Drum plume.

Site Hydrogeology

The main hydrogeologic features found beneath the Site include the perched aquifer, the Bellflower Aquiclude and the Gaspur and Exposition Aquifers (Department of Water Resources [DWR], 1961). These units constitute a shallow aquifer and deeper aquifer, respectively. The shallow aquifer comprises the saturated portion of the Bellflower Aquiclude, which incorporates the perched aquifer, and the Gaspur Aquifer. The Bellflower Aquiclude extends to a depth of approximately 60 feet below ground surface (bgs), where it is underlain by the Gaspur Aquifer, which extends to a depth of approximately 110 to 120 feet bgs. The Gaspur Aquifer is largely comprises sandy units varying from very fine to medium and coarse and to a lesser extent finer units comprising silty sand and sandy silt. (Note the site is generally flat in elevation so bgs is appropriate instead of elevations for aquifer and well descriptions.) The perched aquifer is generally found in the 5-foot sandy unit (approximately 35 to 40 feet bgs), which is underlain by material comprising sandy silts, clayey silts and lesser amounts of silty clay to approximately 40 to 60 feet bgs. The deeper aquifer is represented by the Exposition Aquifer, which underlies the Gaspur Aquifer. The hydrogeologic units are presented on a generalized geologic cross-section depicted on Figure 4. This cross-section is drawn northwest to southeast across the HWA, across Rayo Avenue, through the ELG Metals site, and onto the northeast corner of the Seam Master Industries site. Additional geologic cross-sections, incorporating analytical data as well as lithologic data are presented (later in this report) to evaluate the downgradient extent of the Cooper Drum plume and commingling with other plumes east of the Site.

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., wells installed at the same location at different depths) completed in the Gaspur Aquifer, which show a difference in waters elevations in a range from 0.3 to 0.6 foot. For well pairs completed in the Gaspur and upper Exposition Aquifers, the difference 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) that has reduced the vertical migration of the COCs from the Gaspur Aquifer into the Exposition Aquifer.

Groundwater pumping tests have been performed at two extraction wells (EW-1 and EW-2) located in the HWA and on the eastern property boundary. Eight-hour constant discharge 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 indicated that higher flow rates could be sustained from these wells. Short-term (four to five hours) pumping tests were performed on the two wells (soil vapor extraction [SVE]-1 and SVE-2) completed in the perched aquifer. 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.

Monitor Well Network

Table 2 presents specifications for all wells installed at the site. The well locations are presented on Figure 11, which also includes location of geologic cross-sections presented later in this addendum. A summary of the well depths as they relate to the aquifers beneath the site is as follows:

- Exposition Aquifer. A total of fours wells have been installed in the deeper Exposition Aquifer. The two monitoring wells (MW-16 and MW-18) nearest the site are completed 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 additional wells are completed in the top of the Exposition Aquifer, at a depth interval of 122 to 132 feet bgs. These wells have been used to monitor vertical migration of COCs from the Gaspur Aquifer into the Exposition Aquifer. COCs results from these four wells have been either non-detected or below action levels.
- Gaspur Aquifer. A total of 36 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 feet bgs, to 90 feet bgs. Some of the older wells installed within the Site boundaries (MW-1 through MW-5) and on the ELG Metal site (MW-8, MW-10, MW-12 and MW-14) have longer screens extending much 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. There are two wells pairs on the eastern property boundary (MW-20 and 20B, and MW-33A and 33B) that monitor the shallow and intermediate depths of the Gaspur Aquifer. Further 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 purpose of the evaluating contaminant migration, wells completed in the 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.
- Perched Aquifer. Two wells, SVE-1 and SVE-2, have been installed in the perched aquifer. As previously mentioned, MW-5 (and MW-14 located on the ELG Metals site) is screened across both the perched aquifer and the shallow Gaspur Aquifer. During installing of MW-5 in 1992 and up to1998, the perched aquifer was not present because water levels in MW-5 were similar to those in the surrounding wells completed in the Gaspur Aquifer.

Summary of RD Groundwater Investigation Activities

RD investigation activities performed to fill data gaps prior to completing the RD were initiated in May 2003. Analytical results, which included soil sampling, soil gas sampling, CPT/HP sampling, monitor well installation and monitored natural attenuation (MNA) sampling, were presented the July 2006 RDTM. There are 12 site COCs (see Table 1), including trichloroethene (TCE); cis-1,2-dichloroethene (DCE); and 1,4-dioxane. The COCs are generally confined to the shallow or Gaspur Aquifer.

2003 CPT/HP and Monitor Well Installation Results

A brief review of the results and conclusions from the 2003 CPT/HP and monitor well installation effort is presented below.

Fourteen CPT/HP borings (CPT-24 through CPT 38) were drilled and sampled in May 2003 to address site groundwater data gaps. Figure 5 shows the CPT locations and summarizes the volatile organic compound (VOC) results. (The data on Figure 5 are considered outdated and do not represent current Site conditions for the Cooper Drum plume; however, the information is useful to understand past investigations and locations of other plumes in the area, since in some of these areas, such as east of Rayo Avenue and to the Southeast at the Seam Master site, no further groundwater investigations have been performed.) 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.

Data shown on Figure 5 that are related to other VOC plumes include the following:

- TCE contamination, apparently originating from the Jervis Webb site (Figure 3), is shown in the northeast corner of Figure 5, beginning at CPT-12 and MW-19. Downgradient of these two locations, deeper (approximately 100 feet bgs, designated lower Gaspur Aquifer) TCE contamination is present beneath the ELG Metals site at CPT-17 and CPT-18 and might be related to the Jervis Webb plume. The highest TCE concentrations at these two borings in October 2000 were 390 micrograms per liter (µg/L) and 320 µg/L in the lower Gaspur Aquifer. Note on the generalized geologic cross section (see Figure 4), there are not any wells in the lower Gaspur Aquifer to monitor this contamination.
- Elevated TCE concentrations (up to16,000 µg/L) were detected at the southeast corner of the Seam Master site. The western and southern extent of this contamination is undefined. However, based on the previously discussed southwest flow direction in this area, it is very likely that the high TCE concentrations (up to 240 µg/L at 100 feet bgs) found in CPT-26 are attributed to contamination from the Seam Master site and/or upgradient sources identified at CPT-17 and CPT-18.

Based on the lithologic data and depth-discrete groundwater sampling results, 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 as discussed above, MW-26 and MW-30 were installed in the top portion of the Exposition Aquifer. As previously mentioned, VOCs have been shown to be above maximum contaminant levels (MCLs) in the Gaspur Aquifer but not in the Exposition Aquifer.

Locations of the monitor wells installed in 2003, along with the August 2006 monitor well sampling results (Addendum No. 1) for TCE; cis-1,2-DCE; and 1,4-dioxane, are shown on Figures 6 through 8, respectively. Conclusions and recommended further actions from the RDTM are included below. The

extent of the Cooper Drum plume in the Gaspur Aquifer and the deeper Exposition Aquifers are addressed, as well as the convergence with adjacent plumes from the Jervis Webb site (northeast plume, see Figure 5) and the Seam Master site (southeast plume) in the area of Southern Avenue.

The following conclusions were drawn in the July 2006 RDTM regarding the vertical and lateral extent of the Cooper Drum plume:

- The downgradient (off site along Southern Avenue) vertical extent of groundwater contamination is defined.
- The downgradient lateral extent of groundwater contamination was mostly defined. However, due to the commingling of additional groundwater contamination from an adjacent plume in the Gaspur Aquifer, there was uncertainty regarding plume definition at the southeastern plume boundary. Additional groundwater sampling was considered necessary to address this uncertainty.

It was recommended that CPT/HP borings be completed downgradient of the Cooper Drum Plume along McCallum Avenue (see Figure 9) to provide lithologic and groundwater data for locating monitor wells. It was also recommended that up to three CPT/HP borings be completed on and south of Southern Avenue east of MW-31 to address groundwater contamination migrating from the Seam Master site.

As recommended in the RDTM, the February/March 2007 CPT/HP investigation was performed, and is described below.

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 installed between February 26 to March 1, 2007, to obtain lithologic data and/or depth-discrete groundwater samples to further delineate the groundwater contamination. As described in the introduction, these data serve as the basis for design and installation of the additional groundwater monitor wells at the site. Figure 9 shows the CPT and HP boring locations. The HP borings were installed 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.

Boring location rationales were as follows:

- Borings CPT-40 through CPT-45 were sampled to evaluate the downgradient extent of the Cooper Drum Plume and the Seam Master plume and evaluate areas of commingling. Total boring depths ranged from 121 to 136 feet bgs, with four to five depth-discrete groundwater samples collected between approximately 60 and 130 feet bgs from each boring.
- Borings HP-8, HP-35, and HP-36 were sampled from approximately 90 to 100 feet bgs, with two samples collected in this depth range to evaluate concentrations in the lower Gaspur Aquifer that may be related to the Cooper Drum Plume and also potential migration from the Jervis Webb plume.

- HP-26 was sampled at 58 and 67 feet bgs to evaluate potential source areas in the shallow Gaspur Aquifer in the vicinity of Southern Avenue.

TCE; cis-1,2-DCE; and 1,4-dioxane analytical data for the February/March 2007 sampling event are presented on Figure 10. This figure has an expanded base map to the south and also includes the August 2006 TCE results from monitor wells that were previously shown on Figure 6. TCE concentrations are considered representative of the lateral extent of the Cooper Drum plume. Results from the February/March 2007 CPT/HP investigation indicated the following:

- The leading edge of the Cooper Drum plume (as represented by TCE) appears to be slightly south of McCallum Avenue, as depicted on Figure 10. Estimated boundaries of the Cooper Drum plume and the plume(s) to the east cannot be finalized until the groundwater flow direction and COC concentrations can be ascertained from sampling results from proposed monitor wells to be installed on the Seam Master Site and/or to the south, in the areas of CPT-40 through CPT-45 (see Figure 10). Based on the August 2006 monitor well data, the 2007 CPT/HP data, and the water level data from the Cooper Drum Site, the boundary of the 5 µg/L TCE contour line for the Site plume was estimated for the purpose of developing the conceptual groundwater remedial design (URS, 2007). Note that an estimated area of plume convergence (commingling with off-site plumes) is also depicted on Figure 10 (shown with hatches).
- VOCs concentrations in the downgradient area of the Cooper Drum plume appear to be higher in the lower Gaspur Aquifer. This is evident from the new results from HP-35 and HP-36 and results from well pair MW-29 (TCE 59 µg/L and intermediate depth of Gaspur) and MW-30 (TCE 180 µg/L, and lower Gaspur), located south of Southern Avenue. Previous depth-discrete sampling results (see Figure 5) upgradient of MW-29 and MW-30 have generally shown decreasing concentrations between the intermediate and lower Gaspur Aquifer.
- VOC concentrations (up to 830 µg/L of TCE) south of Southern Avenue are significantly above those observed in the Cooper Drum plume. These elevated VOC concentrations are present within the shallow and intermediate depth of the Gaspur, beginning at CPT-40 and continuing to the south at CPT-41, CPT-42, and CPT-45. The VOCs would appear to be emanating from the area of CPT-10 and CPT-21, located in the eastern portion of the Seam Master site. Results from these two CPTs showed TCE concentrations up to 16,000 µg/L (see Figure 5) from the shallow and intermediate Gaspur Aquifer. Assuming the source of VOCs at CPT-45 is from the Seam Master site, the contaminate migration pattern infers the groundwater flow direction would be southwest.
- The high TCE concentration at the 100-foot bgs depth (lower Gaspur) from CPT-40 (as compared to the shallower results) suggests this contamination may not be associated with the Seam Master site, and could be associated with the Jervis Webb site and/or Cooper Drum plume. Further investigations are required to determine this contamination source.

- 1,4-Dioxane concentrations appear higher in the Cooper Drum plume, as compared to results from the CPTs sampled to the east and downgradient of the plume. Generally, all results from CPT-40 to CPT-42 and CPT 45 were less than 2 µg/L. The only exception would be the 88-foot bgs sample from CPT-40, which showed 12 µg/L.

2008 MONITOR WELL INSTALLATIONS AND GROUNDWATER SAMPLING

As discussed, monitor well installations are necessary to confirm the CPT/HP depth-discrete sampling results, establish groundwater flow patterns, track plume migration, and evaluate performance of the remedial action (RA). Results from the new well installations in the Cooper Drum plume were anticipated to complete the Cooper Drum plume delineation and the RD. Well installations are also necessary within and to the south of the Seam Master Site to further characterize VOC contamination in that area, and to support a reasonable determination of where commingling has occurred.

Regarding characterizing of the Cooper Drum Plume, the following recommendations were made in Addendum No. 2:

- To address the downgradient extent of the Cooper Drum plume, two monitor well pairs were recommended for completion in the intermediate and lower Gaspur Aquifer on McCallum Avenue, in the vicinity of CPT-43 and CPT-44.
- Two monitor wells were recommended for completion in the lower Gaspur Aquifer at MW-25 and MW-31. At these locations, existing wells MW-25 and MW-31 are completed in the intermediate Gaspur Aquifer, and MW-26 and MW-32 are completed in the upper portion of the Exposition Aquifer. Data from the recommended wells would be used to (1) further characterize COC distribution in the Cooper Drum plume and (2) design and evaluate the effectiveness of the bio-barrier anticipated to be installed along Southern Avenue as part of the RA.

Regarding the Cooper Drum Plume commingling with the adjacent plumes to the east, the following recommendations were made:

- One monitor well pair was recommended for completion in the intermediate and lower Gaspur Aquifer, located on Southern Avenue in the vicinity of CPT-40. The deeper well would be useful to address deep contamination which may be related to upgradient sources. Water levels from these locations should assist in establishing flow directions from the Seam Master site.
- One monitor well pair was recommended for completion in the middle and lower Gaspur Aquifer, and located on Adella Avenue approximately 100 feet south of the intersection of McCallum Avenue. A well completed in the lower Gaspur Aquifer should define the downgradient extent of the Cooper Drum plume, since the VOC concentration above this depth interval (see Figure 10, CPT-42 and CPT-45) appears to be significantly higher and not attributed to the Cooper Drum plume.

Prior to installation of the proposed monitor wells, EPA and two personnel from the DTSC met on site (February 26, 2008) to evaluate the well locations. Based on the meeting, a total of 12 wells were identified to be installed at seven locations. An expanded site plan showing the 12 new well locations is presented on Figure 11. (This figure also includes the locations of geologic cross-sections, which are presented later in this report.) The agreed-upon well locations included the proposed well pair on Southern Avenue at the CPT-40 location (MW-34 and MW-35); the well pairs on McCallum Avenue (MW-36 and MW-37, MW-39 and MW-40); and the two deeper wells (lower Gaspur Aquifer) on Southern Avenue (MW-25B and MW-31B).

In addition, the following four wells were considered necessary.

- Three wells (MW-29A, MW-31A, and MW-37) completed in the shallow Gaspur Aquifer at the location of existing wells MW-29 and MW-30, MW-31, MW-31B, and MW-32; and the new well pair on McCallum Avenue. MW- 29A was considered necessary to examine for the presence of shallow contamination from the Cooper Drum Plume south of the Southern Avenue. The remaining two locations and a fourth well (MW-34) were considering necessary to evaluate possible shallow contamination from source areas along Southern Avenue.
- One deeper well (MW-41), completed in the lower Gaspur aquifer, located north of Southern Avenue on the west boundary of the Seam Master Site at the location of CPT-36 and HP-36. This well was installed to confirm HP results for HP-36 that indicated TCE concentrations up to 600 μg/L.

The installation of the proposed well pair on Adella Avenue south of McCallum Avenue was not considered a priority at this time, since the 2007 CPT/HP results suggest these wells would be within the migration path of contamination emanating for the Seam Master site or an unknown source farther east.

Monitor Well Installation and Development

A total of 12 monitor wells were installed and developed by Gregg In-Situ, Inc. personnel under the supervision of URS between February 25 and March 7, 2008. 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 Sampling and Analysis Plan (SAP) (URS, 2003). All drill cuttings were contained in three 16-yard roll-off bins and disposed of as non-hazardous waste by American Integrated Services, Inc. (AIS). Well development, decontamination generated water and well purge water from groundwater sampling were contained on site in a 6,500-gallon poly tank. The wastewater was also disposed as a non-hazardous waste by AIS. Monitor well borings logs, as-builts, and well development logs are included in Attachment 1.

Following well completion, the northern side of the polyvinyl chloride (PVC) riser casings from which water-level measurements are collected were permanently marked for future reference. The PVC riser elevations, coordinates, and ground surface elevations (for each well and the 2007 CPT locations) were surveyed by the Westland Group, Inc., located 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 all previous sampling locations is provided in Attachment 2.

Groundwater Sampling

Between March 17 and 20, 2008, all new and existing groundwater monitor wells at the site were sampled and water levels were measured. This included a total of 43 monitor wells. Water levels for determining groundwater flow directions were also measured on April 14, 2008.

The monitoring protocol employed standard low-flow groundwater sampling techniques with a flow through cell (as specified in the Cooper Drum RD SAP, URS, 2003).

The monitor wells were sampled by URS personnel with the assistance of a field technician from Blaine Tech Services. During purging water quality parameters including dissolved oxygen, oxidation-reduction potential, temperature, conductivity, turbidity, pH and ferrous iron were monitored and recorded in the field. Groundwater samples were also collected and submitted for analysis of VOCs; 1,4-dioxane; and MNA parameters (from new wells and selected existing wells), including alkalinity, chloride, ethane, ethene, methane, nitrate, sulfate, sulfide, total organic carbon, and cations. Field parameters measured during well purging and sampling, including water levels prior to and during purging, were recorded on the field data sheets (presented in Attachment 2). 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 Mitkem Corporation in Warwick Rhode Island. All samples were transported in a cooler packed with ice, under chain-of-custody protocol per the SAP (URS, 2003).

Underground Storage Tank Sampling

Other sampling activities performed at the site included soil and grab groundwater sampling at the location of an abandoned underground storage tank located on the site. The presence of the tank was brought to EPA's attention by Los Angeles County Underground Storage Tank Unit. The tank had been abandoned in place; however, subsequent closure sampling was not been performed.

The sampling results at the underground storage tank are summarized in a letter report, which is included as Attachment 4. The soil and groundwater sampling included analyses for VOCs and petroleum hydrocarbons. The soil sampling results showed low levels of VOCs below EPA preliminary remediation goals and non detectable levels of petroleum hydrocarbons. The groundwater sampling results showed low-level detections of petroleum hydrocarbons and VOCs slightly above MCLs.

Soil Gas Sampling

During the RD field activities, soil gas sampling was performed on March 4 and 5, 2008 on existing soil vapor extractions wells (SVE-1 and SVE-2) located in the HWA and DPA, respectively. The purpose of

the soil gas sampling was to confirm the high levels of VOCs in these two wells, which have not been sampled since the SVE tests performed on January 3, 2001 (SVE-1) and March 3, 2004 (SVE-2).

The SVE wells were purged with a vacuum pump at a flow rate of approximately 5 liters per minute for 15 and 30 minutes. Soil gas samples were collected at each time interval. The sampling results were consistent with the historic high concentrations of VOCs (up to 100,000's parts per billion per volume) at these two wells. The soil gas analytical data sheets are included as Attachment 5.

Investigation-Derived Waste

Investigation-derived waste (IDW) was accumulated and disposed of at the end of the field activities. Handling and disposal of the IDW is summarized below. All IDW documentation, such as manifest, weight certificates and IDW sampling results, is included in Attachment 6.

During drilling for installing the new wells, all drill cuttings were contained in three 20-yard roll-off bins. The drill cuttings were sampled by American Integrated Services (AIS) and profiled as non hazardous waste. A total of 46.4 tons was transported by AIS on March 5 and 10, 2008 to the TPST Soil Recyclers of California, located in Adelanto, California.

Approximately 3,800 gallons of water was generated from well development and the groundwater sampling event. The water was contained on site in 6,500 gallon poly tank. This water was sampled by URS and profiled as non-hazardous. The sampling results are included in Attachment 6. The water was transported by AIS for disposal on March 28, 2008 to the Crosby and Overton facility in Long Beach, California.

ANALYTICAL DATA VALIDATION

Tier 3 data validation was performed by EPA on 20% of the analytical data presented in this addendum. The data validation reports prepared by EPA were reviewed by the URS project chemist and determined to be acceptable for decision-making purposes. The chemist's evaluation is included in Attachment 7. The full data validation reports can be found at the EPA Region 9 Records Center in San Francisco.

2008 MONITOR WELL SAMPLING RESULTS

This section presents the results of the April 14, 2008 water level measurement and March 2008 groundwater sampling performed at the Site, which includes results from the new well installations. As mentioned above, the site investigation results for delineating the downgradient extent of the Cooper Drum plume has indicated higher COC concentrations are found in the lower Gaspur Aquifer in this area of the plume. This has resulted in the installation of five new wells in the lower Gaspur Aquifer to refine the contaminant distribution for the purpose of completing the downgradient component of the RD. As a result, a network of eight wells has been completed in the lower Gaspur Aquifer in the area of Southern Avenue and to the south; therefore, this presentation includes water level contour maps and contaminant distribution (or isopleth) maps for the both the intermediate Gaspur Aquifer and lower Gaspur Aquifer.

One exception is MW-34, which is completed in the shallow Gaspur Aquifer. This well was used for the evaluation because an intermediate depth well has not been installed at this monitoring location.

As discussed below, the data presentation includes six geologic cross-sections. The cross-sections have incorporated analytical data adjacent to each well and provide a visual presentation of the depth of the monitor well screens installed within the Gaspur Aquifer and the upper Exposition Aquifer.

Groundwater Flow Patterns

Groundwater elevation contours from the April 14, 2008, sounding event for the intermediate Gaspur and lower Gaspur Aquifer are presented on Figures 12 and 13, respectively. A summary of historical groundwater surface elevations is presented in Table 3. Figure 13 is based mostly on the new well locations along Southern Avenue and to the south with wells completed in the lower Gaspur Aquifer. As mentioned above, there are two wells (MW-20B and MW-33B) adjacent the site boundary completed in the intermediate depth and are paired with a shallower well. These two wells were also used in contouring the flow patterns for the lower Gaspur Aquifer. The contour maps represent horizontal groundwater flow directions in the intermediate and lower Gaspur Aquifer. Water levels from the shallow/intermediate depth wells are consistent with past flow patterns measured beneath the site, indicating a southerly flow direction. As shown on Figure 13, a southerly groundwater flow direction is also observed in the lower Gaspur Aquifer.

Farther downgradient, beginning at McCallum Avenue, groundwater flow direction transitions to the southwest. This is evidenced by the three wells completed by LAUSD (approximately 1,000 feet south of McCallum Avenue) in the intermediate Gaspur Aquifer, also known as the C Zone in their report (see Attachment 8). As discussed below, this would be consistent with the trend of contaminant migration patterns observed downgradient of Southern Avenue and east of the Cooper Drum Plume.

Contaminant Distributions

VOC and 1,4-dioxane analytical data for the March 2008 sampling event are presented in Table 4. This table also includes historical data from previous sampling events and the two field pilot studies performed between December 2003 and June 2006. Results of the field water quality parameters and MNA parameters collected from the wells (including historical results) are included in Attachment 9. The intent of this addendum is to address the extent of the Cooper Drum plume; therefore, evaluation of the MNA parameters will be performed and documented in a future document.

Figure 14 presents results of select VOCs and 1,4-dioxane for the four shallow wells installed in the downgradient area of the plume. Estimated lateral VOC distributions, including TCE; cis-1,2-DCE; vinyl chloride (VC); 1,1-dichloroethane (DCA); 1,2-dichloroethane (DCA); and 1,4-dioxane are presented on Figures 15 through 26. These figures include site-wide VOC distribution for the intermediate Gaspur aquifer and also for the lower Gaspur Aquifer in the area of Southern Avenue and to the south. This presentation is focused on the defining the downgradient extent of COCs and delineation of areas that are commingled with adjacent plumes. To aid in evaluation of the contaminant distribution, six geologic

cross-sections have also been prepared that include results for TCE and cis-1,2-DCE. These two VOCs generally have the highest concentrations and are considered representative of VOC distribution beneath the site. Note that Figures 15 and 17 include data from two wells on the LAUSD site. This data are at the very bottom of the figures and can also be found in Attachment 8.

TCE and cis-1,2-DCE compounds have also been posted on the cross-sections adjacent to the well screen intervals and/or at CPT/HP depth-discrete sampling locations where wells have not been installed. The cross-sections were 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 updated with the new lithologic data from CPT-40 through CPT-45. The locations of the cross-sections are shown on Figure 11. Cross-sections A-A′ (Figure 27), B-B′ (Figure 28), and F-F′ (Figure 32) trend from north to south. Cross-section A-A′ follows the approximate centerline of the Cooper Drum Plume. Cross-section B-B′ begins downgradient of the site along the eastern area of the Cooper Drum Plume, where commingling appears to be occurring. Cross-section F-F′ begins on the eastern portion of Seam Master site, where high levels of VOCs were detected in 1999 and 2000 at the CPT-10 and CPT-21 locations. This cross-section shows only analytical results from depth-discrete HP sampling because there are no monitor wells at the locations of CPT-10 and CPT-21 or downgradient. The other three cross-sections (C-C′, D-D′, and E-E′ [Figures 29 through 31, respectively]) trend in an east to west direction along Southern Avenue, McCallum Avenue, and the alley between these two streets.

Prior to presenting conclusions on the site-wide groundwater sampling results, a brief discussion follows regarding depth-discrete sample results at the downgradient location of MW-41.

Depth-discrete sampling from HP-36 prior to installation of MW-41 showed 610 μg/L of TCE at the depth of 93 feet bgs. Based on these results, MW-41 was installed at this location with the screen interval constructed from 89 to 99 feet bgs to confirm the TCE results. However, the subsequent sampling results showed only 34 μg/L. The lower concentration in MW-41 was somewhat unexpected, considering the higher concentrations of TCE found HP-36 and also in downgradient well MW-31B (250 μg/L), which is southeast of HP-36. Due to the lower levels of TCE in MW-41 and the higher concentrations in MW-31B, it can be concluded that the vicinity of MW-31B defines an area of commingling with the southeastern portion of the Cooper Drum Plume.

Based on groundwater monitoring results sampling from MW-12 (which is located east of the HWA on the ELG Metals Site) have shown an increase of TCE 80 (μg/L); cis-1,2-DCE (140 μg/L); and 1,4-dioxane (97 μg/L) concentrations. MW-12 is screened from 42 to 62 feet bgs, which correlates to the bottom of the perched zone and the lower portion of the Bellflower Aquiclude. MW-17, which is 60 feet southwest of MW-12, is completed in the shallow/intermediate Gaspur aquifer (screen interval 69 to 79 feet bgs), has always shown non-detectable levels of COCs and served to define the eastern boundary of the Cooper Drum plume at this location. Both wells have similar water levels, indicating these wells are hydraulically connected to the upper Gaspur Aquifer. Based on southerly groundwater flow direction in the Gaspur Aquifer, the analytical results from MW-17 are consistent.

The perched-aquifer (approximately 35 to 45 feet bgs) on the Cooper Drum site has shown high COC concentrations and is being addressed by dual-phase extraction, which is the selected soil remedy. Considering that similar lithologic conditions are observed in the source area (HWA) and MW-17 and that contamination from perched aquifer has migrated vertically to the Gaspur Aquifer in source area (HWA) on the Cooper Drum site boundary, it is reasonable to expect similar contaminant migration conditions in the area of MW-17. Therefore, in the event that lateral migration of COCs in the perched aquifer has occurred off-site to the east, in the vicinity of MW-17 it would be expected to find contamination in this well. Another scenario could be that the contamination in the perched aquifer has migrated east toward MW-12, remained in the finer material (sandy silt and silty clay) separating the perched and the Gaspur Aquifer. Otherwise the source of contamination in MW-12 is likely within the ELG Metals site. Historical (1998) CPT results (CPT-1 and CPT-3, see Figure 5) also showed contamination at the 60- to 65-foot depth in this area. Therefore, further investigation of the eastern migration of contamination in the perched aquifer from the HWA should be performed.

CONCLUSIONS

Based on the data collected from the new well installations and the March 2008 groundwater sampling event, the following conclusions are made.

Conclusions regarding flow patterns are as follows:

- The groundwater flow direction of the Cooper Drum Plume in the Gaspur Aquifer is generally toward the south. Regarding the downgradient flow direction, there are limited water level data in the southeast portion of the Cooper Drum Plume, where contaminant levels indicate commingling.
- A southwest groundwater flow direction in the Gaspur Aquifer appears to be present east and downgradient of the Cooper Drum Plume. This is based on the following water level and VOC data.
  - Water level data from wells installed downgradient of the Cooper Drum Plume on the LAUSD site (see Attachment 8) indicate a southwest flow direction.
  - East of wells MW-34 and MW-35, high concentrations of TCE and cis-1,2-DCE (see cross-section F-F' [Figure 32])indicate that contaminant migration in the <u>shallow and intermediate depths</u> of the Gaspur Aquifer is southwest from the eastern portion of Seam Masters Site.
  - This conclusion is further supported by additional VOC data from the LAUSD wells which show elevated levels of VOCs (up to 1,500 µg/L) on and west of Adella Avenue (see Attachment 8 and bottom of Figures 15 and 17).

General conclusions relating to the Cooper Drum Plume are as follows:

- VOCs are not present in the shallow Gaspur Aquifer in the downgradient portion of the Cooper Drum plume. The shallow contamination has migrated deeper into the intermediate and lower Gaspur Aquifer in the area of Southern Avenue and farther south. This is based on the non-detection

of VOCs at MW-29A, which is located along the center of the Cooper Drum Plume and historic sampling of CPT/HP in this area (see Figure 5).

- The downgradient southerly extent of the Cooper Drum Plume appears to be in the vicinity of the new wells installed on McCallum Ave. COCs from the Cooper Drum Plume that exceed MCLs in the these wells include TCE; cis-1,2-DCE; VC (present in only lower Gaspur Aquifer); and 1,2-DCA. The other seven COCs are either non-detect or below MCLs/action levels. However, additional monitor well installations will be necessary to confirm the downgradient extent of the Cooper Drum Plume.
- The vertical extent of the Cooper Drum plume above MCLs/action levels is generally confined to the Gaspur Aquifer and has not migrated into the deeper Exposition Aquifer. Two exceptions to this conclusion are the recent detection of 1,2-DCA (0.79 μg/L) in MW-16 and VC (0.7 μg/L) in MW-32 slightly above the 0.5 μg/L MCL for these two contaminants. Both of these wells are completed in the Exposition Aquifer. These results will need to be confirmed by future sampling events. Migration of COCs into the Exposition Aquifer would have a big impact on the cost of the remedial action.
- There is an indication of contaminant migration in the western extent of Cooper Drum Plume south of Southern Avenue. Test results from MW-24, MW-27 and MW-28 for TCE; cis-1,2-DCE; 1,2-DCA; and 1,4-dioxane showed concentrations above MCLs for the first time in the March 2008 sampling event. This will need to be confirmed by future sampling events.
- The downgradient lateral extent (southeastern portion) of the Cooper Drum Plume has commingled with another source of contamination (Seam Master Site) in the general vicinity of Adella Avenue between Southern and McCallum Avenues. Higher concentrations (as compared to upgradient concentrations) of TCE and cis-1,2-DCE are found in monitor wells located south of Southern Avenue (see Figures 15 through 17). Additional monitor wells are necessary to further define the area of commingling.
- In the downgradient area of the Cooper Drum Plume higher concentrations of TCE are present in the lower Gaspur Aquifer as compared to the concentrations in the intermediate Gaspur Aquifer. As noted in the first bullet item, this is an indication of vertical migration of contaminants in this area. However, the increase in concentrations with depth may not be part of the Cooper Drum Plume, but may be the result of commingling with VOCs from the adjacent Seam Master site and/or another upgradient source, such as the Jervis Webb site. The area of uncertainty includes the locations of MW-41, MW-31B, and MW-30. (As previously discussed, depth-discrete groundwater samples within the Cooper Drum Plume have always shown decreasing concentrations with depth between the intermediate and lower Gaspur Aquifer.)
- COC concentrations in the upgradient source area of the Cooper Drum Plume have continued to increase (rebound) in the monitor wells used for the two field pilot studies, but have remained below concentration that were present prior to the studies. Concentrations in EW-2, which was monitored for the HRC pilot study, have continued to decrease, indicating an approximately 80% reduction in contaminant mass at this location in the former HWA.

RECOMMENDATIONS

The following recommendations are based upon the findings in this report. The primary issue is to determine the downgradient extent of contamination in the Cooper Drum Plume with respect to the areas that commingle (see Figure 10) with contamination from other adjacent plumes (Seam Master to the east and possibly Jervis Webb to the north). As indicated in the conclusions above, the downgradient extent of the Cooper Drum Plume in the intermediate Gaspur Aquifer is in the vicinity of McCallum Avenue (see Figure 15). However, the higher concentrations in the lower Gaspur Aquifer, which extend farther south to Duncan Avenue (see Figure 16) are likely the result of commingling with an adjacent plume(s). Due to this uncertainty, further investigation is necessary to define the plume boundaries.

Regarding the delineation of the Cooper Drum Plume and areas of commingling, the following field investigation is recommended, including the installation of 19 new monitor wells and sampling of all wells.

- Installation of four triple-completion monitor wells downgradient of the Cooper Drum plume to determine the lateral and vertical extent of contamination from the Cooper Drum Plume and further identify areas of commingling with adjacent plume(s). Each proposed location would include three wells completed in the shallow, intermediate and lower Gaspur Aquifer. The well design should allow for three well casings and screens installed in a single borehole. The proposed well locations are shown on Figure 33 and include three wells on Duncan Ave and one well west of the Cooper Drum Plume on McCallum Ave. The most western locations on McCallum and Duncan Avenues should be determined with two CPT's and depth-discrete groundwater sampling.
- Installation of a triple-completion monitor well on McCallum Avenue east of Adella Avenue in the vicinity of CPT-42 (see Figure 33). This location would be used with the above recommended triple-completion monitor wells to define groundwater flow direction and confirm concentrations of the contamination migrating from the Seam Master site. Although a southwest flow direction has been inferred from contaminant migration pattern south of the Seam Master site (see Figure 32) and observed on LAUSD site (see Attachment 8), well installations are still necessary.
- Installation of a single-completion monitor well in the Exposition Aquifer to evaluate vertical contaminant migration south of Southern Avenue. The proposed well should be completed in the upper Exposition Aquifer at the location of CPT-44 (current location of MW-36 and MW-37).
- Installation of a single completion monitor well in the lower Gaspur Aquifer to evaluate commingling in the area of Southern Avenue and Adella Avenue. This well should be located on Southern Avenue between MW-25B and MW-31B. As previously discussed, high concentrations of TCE (610 μg/L) were present in a depth-discrete samples at the location of MW-41. Subsequent results from MW-41 were much lower (34 μg/L) indicating the high concentrations of TCE (250 μg/L) in downgradient well MW-31B are not be attributed to the Cooper Drum Plume.
- Installation of two wells upgradient of Southern Avenue and along Rayo Avenue to assess conditions in the lower Gaspur Aquifer (approximately 95 to 110 feet bgs). One well would be at the

location of MW-15 and MW-16. The second well should be at the location MW-17 and MW-18. Both of these locations presently have existing monitor wells completed in the intermediate Gaspur Aquifer and the deeper Exposition Aquifer.

- Completion of two rounds of groundwater monitoring from the new wells and existing wells to confirm plume delineation (i.e., downgradient extent and migration into the deeper Exposition Aquifer) and areas of commingling.

Regarding further field activities for evaluation of the downgradient extraction well flow rates and zone of capture to support any needed revisions to the RD the following recommendations are made:

- A groundwater extraction well should be installed and tested at the downgradient extent of the Cooper Drum Plume. The recommended screen interval based on CPT-43 and CPT-44 results would be from approximately 70 to 110 feet bgs. Existing data show this location should be on McCallum Avenue. The final location should ideally be confirmed from the sampling results of the proposed monitor wells and existing wells. However, it would be more practical to install the extraction well during installation of the proposed monitor wells and incorporate the extraction well location into the remedial design. A minimum 48-hour pumping test should be performed on the extraction well to determine aquifer parameters in the downgradient portion of the Cooper Drum Plume.
- The pump test results and extent of contamination should be used to update the conceptual model and used as input into a groundwater model to develop the zone of capture for the final downgradient groundwater extraction system. Various groundwater extraction scenarios should be developed and model prediction conducted with the objective of minimizing additional plume commingling. Fate-and-transport modeling should also be performed for the purpose of estimating operation time of the groundwater extraction system.
- Results of the groundwater modeling and the impact of the commingling should be used to update the remedial design with respect to the downgradient extraction remedy and the need and/or reconfiguration of the permeable bioremediation barrier.

Regarding the contamination in the upgradient groundwater flow area in MW-12, the following recommendations are made:

- For the purpose of defining potential off-site eastern migration of contaminants in the perched aquifer, a total of eight depth-discrete groundwater samples should be collected from the perched aquifer along Rayo Avenue using a Power Probe or equivalent direct-push drill rig. Two locations on the west side of the avenue due east of the HWA and two locations on the east side of Rayo Avenue, adjacent to MW-17 and immediately west of MW-12. Samples should be collected from two depths (approximately 40 and 60 feet bgs) at each location.

If you have any questions or comments regarding this report, please call me at (916) 679-2049.

Sincerely,

URS Corporation

Don Gruber
Task Manager

DG:js

Attachments:

Table 1	COCs and Cleanup Levels
Table 2	Well Specifications
Table 3	Groundwater Surface Elevations
Table 4	VOC and 1,4-Dioxane Analytical Data
Figure 1	Site Location Map
Figure 2	Site Layout and Source Areas
Figure 3	Other Groundwater Sites
Figure 4	Generalized Geologic Cross-Section
Figure 5	Depth-discrete Groundwater Sampling VOC Results, 1998-2003
Figure 6	Trichloroethene Isopleth Map, August 2006
Figure 7	cis-1,2-Dichloroethene Isopleth Map, August 2006
Figure 8	1,4-Dioxane Isopleth Map, August 2006
Figure 9	February/March 2007 CPT/HydroPunch Boring Locations
Figure 10	CPT/HydroPunch Results, February/March 2007
Figure 11	New Well Locations, Geologic Cross-section Locations
Figure 12	Groundwater Elevation Contours, April 2008
Figure 13	Groundwater Elevation Contours, Lower Gaspur, April 2008
Figure 14	VOC results, Shallow Gaspur Aquifer, March 2008
Figure 15	Trichloroethene Isopleth Map, March 2008
Figure 16	Trichloroethene Isopleth Map, Lower Gaspur, March 2008
Figure 17	cis-1,2-Dichloroethene Isopleth Map, March 2008
Figure 18	cis-1,2-Dichloroethene Isopleth Map, Lower Gaspur, March 2008
Figure 19	Vinyl Chloride Isopleth Map, March 2008
Figure 20	Vinyl Chloride Results, Lower Gaspur, March 2008
Figure 21	1,1-Dichloroethane Isopleth Map, March 2008
Figure 22	1,1-Dichloroethane Results, Lower Gaspur, March 2008

Figure 23	1,2-Dichloroethane Isopleth Map, March 2008
Figure 24	1,2-Dichloroethane Results, Lower Gaspur March 2008
Figure 25	1,4-Dioxane Isopleth Map, March 2008
Figure 26	1,4-Dioxane Results, Lower Gaspur, March 2008
Figure 27	Geologic Cross-Section A-A'
Figure 28	Geologic Cross-Section B-B'
Figure 29	Geologic Cross-Section C-C'
Figure 30	Geologic Cross-Section D-D'
Figure 31	Geologic Cross-Section E-E'
Figure 32	Geologic Cross-Section F-F'
Figure 33	Proposed Well Locations

Attachment 1	Monitor Well Boring Logs, Monitor Well Construction Logs, Monitor Well Development Sheets
Attachment 2	Summary of Survey Data for Sampling Locations
Attachment 3	Monitor Well Sampling Sheets
Attachment 4	Underground Storage Tank Report
Attachment 5	Soil Gas Sampling Analytical Data Sheets
Attachment 6	Investigation-Derived Waste Documentation
Attachment 7	Data Quality Assessment Summary
Attachment 8	LAUSD Proposed Southeast Learning Center Site Data
Attachment 9	Non VOC Analytical Groundwater Data

cc: Ms. Lori Parnass, DTSC
Site Repository, South Gate, CA
Chron File
Project File

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	8/9/90	84	52–84	102.83	103.72	4-inch	M	Gaspur
MW-2	8/8/90	82	50–82	104.59	104.7	4-inch	M	Gaspur
MW-3	8/10/90	73.5	52–73.5	103.98	104.2	4-inch	M	Gaspur
MW-4	9/9/91	82	50–82	102.91	103.3	4-inch	M	Gaspur
MW-5	5/28/92	75	30–75	103.42	104.17	4-inch	M	Perched/Gaspur
MW-21	10/22/03	75	55–75	103.63	104.06	4-inch	M	Gaspur
EW-1	3/29/99	90.5	48.5–88.5	103.24	103.65	6-inch	E	Gaspur
EW-2	12/6/00	87	38.5–78.5	103.65	104.08	6-inch	E	Gaspur
SVE-1	12/4/00	44	8–43	104.5	104.96	4-inch	E	Perched
SVE-2	2/27/04	52	8–48	NA	NA	4-inch	E	Perched
Off-Site Wells								
MW-8	4/15/93	75	41–74.5	103.21	103.6	4-inch	M	Gaspur
MW-10	4/15/93	75	45–74.5	103.83	104	4-inch	M	Gaspur
MW-12	6/27/96	62	42–62	104.25	104.6	4-inch	M	Gaspur
MW-14	6/28/96	60	30–60	102.22	102.5	4-inch	M	Perched/Gaspur
M W-15	11/30/00	87	70–85	102.77	102.98	4-inch	M	Gaspur
MW-16	11/28/00	135	118–128	102.75	102.96	2-inch	M	Exposition
MW-17	11/30/00	80	69–79	103.36	103.65	4-inch	M	Gaspur
MW-18	11/29/00	135	118–128	103.42	103.64	2-inch	M	Exposition
MW-19	12/5/00	80	67–77	104.05	104.35	4-inch	M	Gaspur
MW-20	2/28/03	75	55–70	102.84	103.29	4-inch	M	Gaspur
MW-20B	7/5/08	90	80-90	102.41	103.21	2-inch	M	Gaspur
MW-22	12/4/03	75	63–73	103.39	103.74	4-inch	M	Gaspur
MW-23	12/5/03	81	69–79	104.15	104.38	4-inch	M	Gaspur

TABLE 2

(Continued)

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 (Cont'd)								
MW-24	12/1/03	87	70–85	101.99	102.34	4-inch	M	Gaspur
MW-25	12/3/03	92	75–90	101.79	102.12	4-inch	M	Gaspur
MW-25B	2/28/08	109	95–105	101.53	102.01	4-inch	M	Gaspur
MW-26	12/10/03	134	122–132	101.94	102.20	2-inch	M	Exposition
MW-27	12/3/03	92	75–90	101.62	102.02	4-inch	M	Gaspur
MW-28	12/11/03	115	104–114	101.53	101.86	2-inch	M	Gaspur
MW-29A	2/26/08	67	56–66	100.87	101.42	4-inch	M	Gaspur
MW-29	12/2/03	92	75–90	101.13	101.43	4-inch	M	Gaspur
MW-30	12/9/03	115	104–114	101.08	101.39	2-inch	M	Gaspur
MW-31A	2/26/08	65.5	54.5–64.5	101.03	101.45	4-inch	M	Gaspur
MW-31	12/2/03	92	75–90	101.31	101.57	4-inch	M	Gaspur
MW-31B	2/25/08	109	97–107	101.12	101.47	4-inch	M	Gaspur
MW-32	12/8/03	134	122–132	101.28	101.62	2-inch	M	Exposition
MW-33A	7/6/05	65	55–65	102.91	103.31	2-inch	M	Gaspur
MW-33B	7/6/05	90	80–90	102.68	103.36	2-inch	M	Gaspur
MW-34	2/28/08	69	58–68	101.19	101.72	4-inch	M	Gaspur
MW-35	2/27/08	106	95–105	101.22	101.71	4-inch	M	Gaspur
MW-36	3/4/08	89	77–87	100.72	101.10	4-inch	M	Gaspur
MW-37	3/5/08	111	99.5–109.5	100.49	101.07	4-inch	M	Gaspur
MW-38	3/3/08	68	56.5–66.5	100.25	100.70	4-inch	M	Gaspur
MW-39	2/29/08	89	78–88	100.32	100.67	4-inch	M	Gaspur
MW-40	3/3/08	111	100–110	100.05	100.65	4-inch	M	Gaspur
MW-41	3.6.08	100	89–99	102.32	102.82	4-inch	M	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

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	11/4/98	40.20	102.83	62.63	Gaspur
	4/7/99	40.52		62.31	
	8/5/99	40.64		62.19	
	10/10/00	42.81		60.02	
	12/14/00	42.97		59.86	
	2/8/01	42.47		60.36	
	5/1/03	44.74		58.09	
	12/18/03	45.58		57.25	
	4/16/04	NM			
	8/27/04	NM			
	12/22/04	46.65		56.18	
	4/20/05	46.04		56.79	
	6/6/06	44.12		58.71	
	8/28/06	44.23		58.60	
	3/19/08	45.12		57.71	
	4/14/08	45.10		57.73	
MW-2	11/4/98	43.82	104.59	60.77	Gaspur
	4/7/99	44.35		60.24	
	8/5/99	44.52		60.07	
	10/10/00	46.95		57.64	
	12/14/00	46.95		57.64	
	2/8/01	46.43		58.16	
	5/1/03	49.05		55.54	
	12/18/03	49.60		54.99	
	4/16/04	50.02		54.57	
	8/27/04	50.64		53.95	
	12/22/04	51.14		53.45	
	4/20/05	50.54		54.05	
	6/6/06	48.79		55.80	
	8/28/06	48.78		55.81	
	2/28/07	48.52		56.07	
	3/19/08	49.76		54.83	
	4/14/08	49.40		55.19	
MW-3	11/4/98	41.30	103.98	62.68	Gaspur
	4/7/99	41.58		62.40	
	8/5/99	NM		NM	
	10/10/00	43.82		60.16	
	12/14/00	44.00		59.98	
	2/8/01	43.45		60.53	
	5/1/03	45.97		55.11	

TABLE 3

(Continued)

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)	12/18/03	46.66		57.32	
	4/16/04	46.91		57.07	
	8/27/04	47.41		56.57	
	12/22/04	48.36		55.62	
	4/20/05	47.39		56.59	
	6/6/06	45.93		58.05	
	8/28/06	45.91		58.07	
	2/28/07	45.60		58.38	
	3/19/08	46.86		57.12	
	4/14/08	46.52		57.46	
MW-4	11/4/98	42.06	102.91	60.85	Gaspur
	4/7/99	42.60		60.31	
	8/5/99	42.88		60.03	
	10/10/00	45.40		57.51	
	12/14/00	45.32		57.59	
	2/8/01	44.70		58.21	
	5/1/03	47.38		55.53	
	12/18/03	48.17		54.74	
	4/16/04	48.45		54.46	
	8/27/04	48.97		53.94	
	12/22/04	49.44		53.47	
	4/20/05	48.88		54.03	
	6/6/06	NM			
	8/28/06	47.08		55.83	
	3/19/08	47.62		55.29	
	4/14/08	47.72		55.19	
MW-5	11/4/98	36.88	103.42	66.54	Perched/Gaspur
	4/6/99	35.52		67.90	
	8/5/99	34.41		69.01	
	10/10/00	34.55		68.87	
	12/14/00	34.75		68.67	
	2/8/01	34.63		68.79	
	5/1/03	35.67		67.75	
	12/18/03	36.01		67.41	
	4/16/04	36.31		67.11	
	8/27/04	36.52		66.90	

TABLE 3

(Continued)

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)	12/22/04	36.80		66.62	
	4/20/05	36.70		66.72	
	6/6/06	35.44		67.98	
	8/28/06	35.54		67.88	
	2/28/07	35.37		68.05	
	3/19/08	36.13		67.29	
	4/14/08	36.10		67.32	
MW-21	12/18/03	48.85	103.63	54.78	Gaspur
	4/16/04	49.19		54.44	
	8/27/04	49.75		53.88	
	12/22/04	50.32		53.31	
	4/20/05	49.67		53.96	
	6/6/06	47.64		55.99	
	8/28/06	47.80		55.83	
	2/28/07	47.54		56.09	
	3/19/08	48.75		54.88	
	4/14/08	48.61		55.02	
EW-1	4/7/99	42.84	103.24	60.40	Gaspur
	8/5/99	43.15		60.09	
	10/10/00	45.60		57.64	
	12/14/00	45.65		57.59	
	2/8/01	45.09		58.15	
	5/1/03	47.76		55.48	
	12/18/03	48.45		54.79	
	4/16/04	48.78		54.46	
	8/27/04	49.36		53.88	
	12/22/04	49.91		53.33	
	4/20/05	49.32		53.92	
	6/6/06	47.42		55.82	
	8/28/06	47.40		55.84	
	2/28/07	47.28		55.96	
	3/19/08	48.37		54.87	
	4/14/08	48.29		54.95	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
EW-2	12/14/00	45.88	103.65	57.77	Gaspur
	2/8/01	45.45		58.20	
	5/1/03	47.98		55.67	
	12/18/03	48.71		54.94	
	4/16/04	49.08		54.57	
	8/27/04	49.65		54.00	
	12/22/04	50.20		53.45	
	4/20/05	49.57		54.08	
	6/6/06	47.54		56.11	
	8/28/06	47.56		56.09	
	2/28/07	47.18		56.47	
	3/19/08	48.33		55.32	
	4/14/08	48.18		55.47	
SVE-1	12/14/00	35.27	104.50	69.23	Perched
	2/8/01	35.17		69.33	
	5/1/03	NM			
	12/18/03	36.48		68.02	
	12/22/04	37.10		67.40	
	4/20/05	36.87		67.63	
	6/6/06	36.01		68.49	
	8/28/06	35.92		68.58	
Off-Site Wells					
MW-8	11/15/98	42.02	103.21	61.19	Gaspur
	10/10/00	45.23		57.98	
	12/14/00	45.30		57.91	
	2/8/01	44.67		58.54	
	5/1/03	47.52		55.69	
	12/18/03	48.25		54.96	
	4/16/04	48.62		54.59	
	8/27/04	45.59		57.62	
	12/22/04	49.80		53.41	
	4/20/05	49.18		54.03	
	6/6/06	47.15		56.06	
	8/28/06	45.40		57.81	
	2/28/07	46.96		56.25	
	3/19/08	47.91		55.30	
	4/14/08	48.65		54.56	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-10	11/5/98	42.98	103.83	60.85	Gaspur
	4/7/99	43.60		60.23	
	10/10/00	46.32		57.51	
	12/14/00	46.37		57.46	
	2/8/01	45.80		58.03	
	5/1/03	48.43		55.40	
	12/18/03	49.23		54.60	
	4/16/04	49.51		54.32	
	8/27/04	50.11		53.72	
	12/22/04	50.66		53.17	
	4/20/05	50.08		53.75	
	6/6/06	48.19		55.64	
	8/28/06	48.26		55.57	
	2/28/07	47.95		55.88	
	3/19/08	49.04		54.79	
	4/14/08	48.96		54.87	
MW-12	11/5/98	43.10	104.25	61.15	Gaspur
	10/10/00	46.30		57.95	
	12/14/00	NM			
	2/8/01	NM			
	5/1/03	48.58		55.67	
	12/18/03	NM			
	4/16/04	49.67		54.58	
	8/27/04	50.25		54.00	
	12/22/04	50.81		53.44	
	4/20/05	50.22		54.03	
	6/6/06	48.35		55.90	
	8/28/06	48.39		55.86	
	3/19/08	49.11		55.14	
	4/14/08	49.13		55.12	
MW-14	11/5/98	33.90	102.22	68.32	Perched/Gaspur
	10/11/00	34.70		67.52	
	12/14/00	NM			
	2/8/01	NM			
	5/1/03	NM			
	4/16/04	40.78		61.44	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-14 (cont'd)	8/27/04	43.17		59.05	
	12/18/03	42.17		60.05	
	12/22/04	43.49		58.73	
	4/20/05	34.74		67.48	
	6/6/06	34.48		67.74	
	8/28/06	34.89		67.33	
MW-15	12/14/00	45.60	102.77	57.17	Gaspur
	2/8/01	45.03		57.74	
	5/1/03	47.66		55.11	
	12/18/03	48.41		54.36	
	4/16/04	48.69		54.08	
	8/27/04	49.24		53.53	
	12/22/04	49.79		52.98	
	4/20/05	49.11		53.66	
	6/6/06	47.34		55.43	
	8/28/06	47.30		55.47	
	2/28/07	47.06		55.71	
	3/19/08	48.08		54.69	
	4/14/08	48.03		54.74	
MW-16	12/14/00	48.49	102.75	54.26	Exposition
	2/8/01	47.90		54.85	
	5/1/03	50.95		51.80	
	12/18/03	51.76		50.99	
	4/16/04	52.13		50.62	
	8/27/04	52.80		49.95	
	12/22/04	53.33		49.42	
	4/20/05	52.84		49.91	
	6/6/06	50.81		51.94	
	8/28/06	50.82		51.93	
	2/28/07	50.33		52.42	
	3/19/08	51.49		51.26	
	4/14/08	51.52		51.23	
MW-17	12/14/00	45.74	103.36	57.62	Gaspur
	2/8/01	45.19		58.17	
	5/1/03	47.89		55.47	
	12/18/03	48.61		54.75	
	4/16/04	48.85		54.51	

TABLE 3

(Continued)

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)	8/27/04	49.46		53.90	
	12/22/04	50.02		53.34	
	4/20/05	49.40		53.96	
	6/6/06	47.61		55.75	
	8/28/06	47.60		55.76	
	2/28/07	47.26		56.10	
	3/19/08	48.31		55.05	
	4/14/08	48.26		55.10	
MW-18	12/14/00	50.36	103.42	53.06	Exposition
	2/8/01	49.79		53.63	
	5/1/03	52.97		50.45	
	12/18/03	53.83		49.59	
	4/16/04	54.24		49.18	
	8/27/04	55.00		48.42	
	12/22/04	55.56		47.86	
	4/20/05	55.23		48.19	
	6/6/06	NM			
	8/28/06	52.86		50.56	
	2/28/07	52.28		51.14	
	3/19/08	53.53		49.89	
	4/14/08	53.63		49.79	
MW-19	12/14/00	45.91	104.05	58.14	Gaspur
	2/8/01	45.39		58.66	
	5/1/03	48.10		55.95	
	12/18/03	48.86		55.19	
	4/16/04	49.10		54.95	
	8/27/04	49.70		54.35	
	12/22/04	50.25		53.80	
	4/20/05	49.73		54.32	
	6/6/06	48.03		56.02	
	8/28/06	47.94		56.11	
	2/28/07	47.66		56.39	
	3/19/08	48.69		55.36	
	4/14/08	48.64		55.41	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-20	5/1/03	47.47	102.84	55.37	Gaspur
	12/18/03	48.20		54.64	
	4/16/04	48.51		54.33	
	8/27/04	49.09		53.75	
	12/22/04	49.64		53.20	
	4/20/05	48.96		53.88	
	6/6/06	46.95		55.89	
	8/28/06	47.20		55.64	
	2/28/07	46.92		55.92	
	3/19/08	48.03		54.81	
	4/14/08	47.89		54.95	
MW-20B	3/19/08	48.13	102.41	54.28	Gaspur
	4/14/08	47.51		54.90	
MW-22	12/18/03	48.85	103.39	54.54	Gaspur
	4/16/04	49.17		54.22	
	8/27/04	49.73		53.66	
	12/22/04	50.20		53.19	
	4/20/05	49.63		53.76	
	6/6/06	47.85		55.54	
	8/28/06	47.84		55.55	
	2/28/07	47.58		55.81	
	3/19/08	48.57		54.72	
	4/14/08	48.57		54.72	
MW-23	12/18/03	49.04	104.15	55.11	Gaspur
	4/16/04	49.34		54.81	
	8/27/04	49.89		54.26	
	12/22/04	50.41		53.74	
	4/20/05	49.88		54.27	
	6/6/06	48.17		55.98	
	8/28/06	48.12		56.11	
	2/28/07	47.82		56.33	
	3/19/08	48.83		55.32	
	4/14/08	48.81		55.34	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-24	12/18/03	47.88	101.99	54.11	Gaspur
	4/16/04	48.21		53.78	
	8/27/04	48.76		53.23	
	12/22/04	49.23		52.76	
	4/20/05	48.60		53.39	
	6/6/06	46.82		55.17	
	8/28/06	46.80		55.19	
	2/28/07	46.58		55.41	
	3/19/08	47.67		54.32	
	4/14/08	47.61		54.38	
MW-25	12/18/03	47.80	101.79	53.99	Gaspur
	4/16/04	48.12		53.67	
	8/27/04	48.67		53.12	
	12/22/04	49.24		52.55	
	4/20/05	48.50		53.29	
	6/6/06	46.74		55.05	
	8/28/06	46.68		55.11	
	2/28/07	46.45		55.34	
	3/19/08	47.57		54.22	
	4/14/08	47.50		54.29	
MW-25B	3/19/08	47.42	101.53	54.11	Gaspur
	4/14/08	47.43		54.10	
MW-26	12/18/03	52.24	101.94	49.70	Exposition
	4/16/04	52.76		49.18	
	8/27/04	53.47		48.47	
	12/22/04	54.00		47.94	
	4/20/05	53.54		48.40	
	6/6/06	51.35		50.59	
	8/28/06	51.35		50.59	
	2/28/07	50.88		51.06	
	3/19/08	52.11		49.83	
	4/14/08	52.18		49.76	
MW-27	12/18/03	47.86	101.62	53.76	Gaspur
	4/16/04	48.16		53.46	
	8/27/04	48.66		52.96	
	12/22/04	49.16		52.46	
	4/20/05	48.57		53.05	
	6/6/06	46.77		54.85	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-27 (cont'd)	8/28/06	46.74		54.88	
	2/28/07	46.52		55.10	
	3/19/08	47.51		54.11	
	4/14/08	47.53		54.09	
MW-28	12/18/03	48.25	101.53	53.28	Gaspur
	4/16/04	48.59		52.94	
	8/27/04	49.09		52.44	
	12/22/04	49.57		51.96	
	4/20/05	48.94		52.59	
	6/6/06	46.90		54.63	
	8/28/06	46.91		54.62	
	2/28/07	46.73		54.80	
	3/19/08	47.79		53.74	
	4/14/08	47.78		53.75	
MW-29A	3/19/08	46.84	100.87	54.03	Gaspur
	4/14/08	46.80		54.07	
MW-29	12/18/03	47.42	101.13	53.71	Gaspur
	4/16/04	47.71		53.42	
	8/27/04	48.22		52.91	
	12/22/04	48.74		52.39	
	4/20/05	48.12		53.01	
	6/6/06	46.33		54.80	
	8/28/06	46.30		54.83	
	2/28/07	46.01		55.12	
	3/19/08	47.23		53.90	
	4/14/08	47.08		54.05	
MW-30	12/18/03	47.94	101.08	53.14	Gaspur
	4/16/04	47.33		53.75	
	8/27/04	48.84		52.24	
	12/22/04	49.35		51.73	
	4/20/05	48.70		52.38	
	6/6/06	46.90		54.18	
	8/28/06	46.88		54.20	
	2/28/07	46.60		54.48	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-30 (cont'd)	3/19/08	47.71		53.37	
	4/14/08	47.70		53.38	
MW-31A	3/19/08	46.78	101.03	54.25	Gaspur
	4/14/08	46.70		54.33	
MW-31	12/18/03	47.43	101.31	53.88	Gaspur
	4/16/04	47.73		53.58	
	8/27/04	48.27		53.04	
	12/22/04	48.66		52.65	
	4/20/05	48.20		53.11	
	6/6/06	46.48		54.83	
	8/28/06	46.28		55.03	
	2/28/07	46.09		55.22	
	3/19/08	47.26		54.05	
	4/14/08	47.14		54.17	
MW-31B	3/19/08	47.34	101.12	53.78	Gaspur
	4/14/08	47.40		53.72	
MW-32	12/18/03	51.74	101.28	49.54	Exposition
	4/16/04	52.26		49.02	
	8/27/04	52.97		48.31	
	12/22/04	53.50		47.78	
	4/20/05	53.07		48.21	
	6/6/06	50.87		50.41	
	8/28/06	50.90		50.38	
	2/28/07	50.37		50.91	
	3/19/08	51.54		49.74	
	4/14/08	51.71		49.57	
MW-33A	3/19/08	47.82	102.91	55.09	Gaspur
	4/14/08	47.92		54.99	
MW-33B	3/19/08	47.53	102.68	55.15	Gaspur
	4/14/08	47.78		54.90	
MW-34	3/19/08	46.95	101.19	54.24	Gaspur
	4/14/08	46.97		54.22	
MW-35	3/19/08	47.11	101.22	54.11	Gaspur
	4/14/08	47.53		53.69	
MW-36	3/19/08	46.76	100.72	53.96	Gaspur
	4/14/08	46.86		53.86	
MW-37	3/19/08	46.88	100.49	53.61	Gaspur
	4/14/08	47.00		53.49	

TABLE 3

(Continued)

Well Number	Date Measured	Depth to Groundwater (1)	TOC Elevation (2)	Groundwater Surface Elevation (2)	Aquifer Zone
Off-Site Wells (cont'd)					
MW-38	3/19/08	46.34	100.25	53.91	Gaspur
	4/14/08	46.37		53.88	
MW-39	3/19/08	46.56	100.32	53.76	Gaspur
	4/14/08	49.47		53.85	
MW-40	3/19/08	46.26	100.05	53.79	Gaspur
	4/14/08	46.42		53.63	
MW-41	3/19/08	48.01	102.32	54.31	Gaspur
	4/14/08	48.08		54.24	

(1) feet below top of well casing (TOC)
(2) feet above mean sea level (msl)

NM = not measured

TABLE 4

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-DCPA	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-03	<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	None
	Aug-06	<0.5	0.39J	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5	1.7	None
	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)
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)
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)
	Apr-03	<0.5	4	2	<0.5	0.3J	<0.5	<0.5	<0.5	<0.5	<0.5	-	None
	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	None
	Mar-06	<0.5	3	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5J	None
	Aug-06	<0.5	2.8	3.2	<0.5	0.35J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	None
	Mar-08	<0.5	1.8	2.5	<0.5	0.25J	<0.5	<0.5	<0.5	<0.5	<0.5	1.1J	
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)
	Apr-03	<1.0	12	38	7	2	2	8	3	<1.0	<1.0	-	None
	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	None
	Aug-06	<0.5	11	24D	3.7	2	1.3	8.8	2.8	<0.5	0.67	15	None
	Mar-08	<0.5	8.4	19D	2.8	1.8	1.5	8.5	3.6	0.33J	<0.5	15	

TABLE 4

(Continued)

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-DCPA	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)
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	None
	Mar-08	<0.5	3.2	58D	0.54	2.5	0.23J	0.21J	<0.5	<0.5	<0.5	<2.0	
MW-10	Nov-98	<1	1	4	<1	<1	<1	<1	<1	<1	<1	-	None
	Oct-00	<0.5	1	4	0.4J	<0.5	<0.5	<0.5	<0.5	<0.5		-	None
	May-03	<0.5	26D	9	0.8	0.4J	0.2J	0.4J	0.2J	<0.5	<0.5	-	None
		(<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)	None
		(<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	None
	Mar-08	<0.5	5.8	14	0.81	0.76	0.76	1.3	<0.5	<0.5	<0.5	5.2	

TABLE 4

(Continued)

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-DCPA	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	-	None
	May-03	0.34J	25D	30D	3.6	1.4	<0.5	5.2	<0.5	<0.5	<0.5	-	None
	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	None
	Mar-08	<0.5	80D	140D	16	5.5	1.2	45D	1.3	<0.5	<0.5	97D	
MW-14	Nov-98	<1	2	0.6J	<1	<1	<1	<1	<1	<1	<1	-	None
	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	
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	None
	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	
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	-	
	Apr-03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	None
	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	None
	Nov-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	None
	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	
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	-	None
	Apr-03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	None
	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	None
	Aug-06	<0.5	1.7	2.1	0.34J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7J	None
	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)
MW-18	Dec-00	<1	<1	0.6J	<1	<1	<0.5	<1	0.4J	<1	<1	-	None
	Feb-01	<1	<1	0.5J	<1	<1	<0.5	<1	0.3J	<1	<1	-	None
	Apr-03	<0.5	0.2J	0.8J	<0.5	<0.5	<0.5	<0.5	0.2J	<0.5	<0.5	-	None
	Jan-04	<0.5	0.24J	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	None
	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	
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)

TABLE 4

(Continued)

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-DCPA	1,4-Dioxane	Other VOCs detected
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)
	12/4/2003	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	3.00	150	
	Aug-05	2.7	230	81	11	5.5	2.3	30	11	0.5	4.30	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)
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)
	Jun-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	

TABLE 4

(Continued)

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-DCPA	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)
	Apr-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)
MW-22	Jan-04	<0.5	7.2	2.9	<0.5	0.21J	<0.5	<0.5	<0.5	1.8	<0.5		None
	Nov-04	<0.5	9.6	9.7	<0.5	0.53	0.56	0.38J	<0.5	3.7	<0.5	1.1	None
	Aug-06	<0.5	3.2	6.3	<0.5	<0.24J	<0.5	1.2	<0.5	4.1	<0.5	0.9	None
	Mar-08	<0.5	3.6	4.9	<0.5	0.28L	0.28J	0.91	<0.5	<0.5	<0.5	0.73J	
MW-23	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		None
	Nov-04	<0.5	<0.5	0.69	<0.5	<0.5	<0.5	0.21J	<0.5	<0.5	<0.5	2.7	None
	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)
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	None
	Aug-06	<0.5	2.1	1.3	<0.5	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	<1.0	None
	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)
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	None
	Mar-08	<0.5	12	22D	0.27J	1.7	0.32J	0.40J	1.7	0.47J	<0.5	1.7J	
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)
MW-26	Jan-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		None
	Nov-04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	None
	Aug-06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	None
	Mar-08	<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		None
	Jul-04	<0.5	3.4	2.3	<0.5	0.20J	<0.5	<0.5	1.7	<0.5	<0.5	0.5J	None
	Aug-06	<0.5	1.4	0.87	<0.5	<0.5	<0.5	<0.5	0.72	<0.5	<0.5	<1.0	None
	Mar-08	<0.5	1.6	1.1	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<2.0	
MW-28	Jan-04	<0.5	11	10	<0.5	0.48J	<0.5	<0.5	1.8J	<0.5	<0.5		None
	Nov-04	<0.5	18	21	<0.5	1.1	0.73	<0.5	2.4	<0.5	<0.5	<1.0	None
	Aug-06	<0.5	13	15	0.44J	0.77	<0.5	0.74	1.4	<0.5	<0.5	5	None
	Mar-08	<0.5	20	29D	0.73	1.7	0.63	0.73	1.8	<0.5	<0.5	15	

TABLE 4

(Continued)

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-DCPA	1,4-Dioxane	Other VOCs detected
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	
MW-29	Jan-04	<0.5	16	4.7	<0.5	0.63	<0.5	<0.5	1.5	<0.5	<0.5		None
	Nov-04	<0.5	21	5.7	0.38J	0.96	0.38J	<0.5	<0.5	<0.5	<0.5	2.2	None
	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)
MW-30	Jan-04	<0.5	110D	5.1	0.43J	0.84	<0.5	<0.5	2.7	<0.5	<0.5		None
	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)
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	
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)
MW-31B	Mar-08	<0.5	250D	13	1.7	4	0.34J	2	4.9	0.20J	<0.5	9.7	
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)		None
	Nov-04	<0.5	0.46J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	None
	Aug-06	<0.5	0.24J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	None
	Mar-08	<0.5	0.47J	<0.5	<0.5	<0.5	0.73	<0.5	0.32J	<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	0.60	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	5.0	1.9	0.7	12	1.9	0.3	1.0	120	Bromoform (29), chlorobenzene (1.3),1,2,3-trichloropropane (0.8), dibromomethane (2.6)
	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	22.0	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)

TABLE 4

(Continued)

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-DCPA	1,4-Dioxane	Other VOCs detected
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	2.40	<0.5	<0.5	<0.5	2.0	
	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	30.0	26.0	0.9	1.9	0.3	1.2	<0.5	0.3J	<0.5	0.8	
	May-06	<0.5	24.0	24.0	1.0	1.9	0.2J	1.1	<0.5	<0.5	<0.5	0.8	
	Jun-06	<0.5	25.0	28.0	0.9	2.1	0.2	1.0	0.2J	<0.5	<0.5	1.0	
	Aug-06	<0.5	21	27D	0.95	1.7	<0.5	1.4	<0.5	<0.5	<0.5	0.7 j	None
	Mar-08	<0.5	31D	140D	4.9	6.5	1.3	8.4	0.68	0.25J	0.77	16	
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)
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)
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	None
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)
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)
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)
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)
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)
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	5.0	1.2	2.9	590	chlorobenzene (4.4), 1,2,3-trichloropropane (1.2)
	Sep-05	3.0	470	140	30	8.6	4.0	53	4.9	1.1	3.0	530	chlorobenzene (3.9), 1,2,3-trichloropropane (1.4)
	Sep-05	1.1	200	55	8.2	3.0	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)

TABLE 4

(Continued)

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-DCPA	1,4-Dioxane	Other VOCs detected
	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])
EW-1 (cont'd)	Apr-06	1.2	170.0	41.0	5.9	2.2	0.7	25.0	2.7	0.4	1.8	390.0	chlorobenzene (1.6), 1,2,3-trichloropropane (1.4) bromoform (0.2J)
	May-06	1.3	200.0	48.0	7.6	2.5	1.0	23.0	3.0	0.5	1.9	410.0	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)
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)
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
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

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.

Duplicate value for 1,4-dioxane from EW-2 shown in parenthesis
Estimated and Dilution values shown for April 2005 sampling round.