Don
Jim

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June 29, 2004

Mr. Thomas Reamon, P.E.
Bureau of Hazardous Site Control
New York State Department of Environmental Conservation
625 Broadway, 11th Floor
Albany, NY 12233-7014

Re: McKesson Envirosystems
Bear Street Facility
Syracuse, New York
Site No. 07-34-020
BBL Project #: 0260.26003 #10

Dear Mr. Reamon:

This *Biannual Process Control Monitoring Report* (Biannual Report) for the McKesson Envirosystems, Bear Street facility (the site), located at 400 Bear Street in Syracuse, New York has been prepared by Blasland, Bouck & Lee, Inc. (BBL), on behalf of McKesson Corporation (McKesson), to present a description of the operation and maintenance (O&M) activities conducted and the monitoring results obtained during the period from June 2003 through December 2003. This report has been prepared in accordance with the requirements of the New York State Department of Environmental Conservation-(NYSDEC-) approved *Site Operation and Maintenance Plan* (BBL, Revised August 1999) and a December 29, 1999 letter from David J. Ulm of BBL to Michael J. Ryan, P.E. of the NYSDEC, presenting the long-term process control monitoring program as an addendum to the Site O&M Plan. The Site O&M Plan and the addendum are collectively referred to herein as the O&M Plan.

The site is divided into two operable units: Operable Unit No. 1 (OU No. 1) - Unsaturated Soil and Operable Unit No. 2 (OU No. 2) - Saturated Soils and Groundwater. As a part of the NYSDEC-selected remedy for both of these operable units, there has been and continues to be ongoing O&M activities. Since completing the OU No. 1 remedial activities in 1994/1995 and commencing the OU No. 2 in-situ anaerobic bioremediation treatment activities in July 1998, the details regarding the O&M activities and the results of the process control monitoring program have been provided to the NYSDEC in biannual reports. A site description and history, along with a description of the remedial actions completed and the ongoing O&M activities being conducted were detailed in the previous biannual reports, including BBL's August 2001 Biannual Report covering the period from July 2000 through December 2000. That information has not changed and is not repeated herein.

During this reporting period (June 2003 through December 2003), no substantial system repairs were required and no unusual observations were made regarding system operations. The Area 3 in-situ anaerobic bioremediation treatment system has operated satisfactorily during this reporting period without interruption and 696,269 gallons of water were pumped from the withdrawal trench and introduced into the Area 3 infiltration trenches as detailed herein.

The process control monitoring activities conducted included hydraulic, biological, and chemicals of concern (COC) monitoring using existing monitoring wells and piezometers. The monitoring locations are shown on Figure 1. In addition, the presence or absence of non-aqueous phase liquid (NAPL) was assessed in existing monitoring wells and piezometers. Table 1 provides a listing of the existing monitoring wells and piezometers used to conduct the long-term process control monitoring program, and a schedule for implementing this program. As presented in this table, the hydraulic, biological and COC monitoring activities of the long-term process control monitoring program are being conducted on a biannual basis during the first and third quarters of each year. The October 2003 monitoring event is detailed herein. The NYSDEC (Carl Cuipylo) was notified of the October 2003 monitoring event prior to the commencement of the monitoring activities.

A description of the Revised Anaerobic Mineral Media (RAMM) and Suga-Lik™ (Blackstrap Molasses) introduction activities is presented below, followed by a description and the results of the process control monitoring activities conducted between June 2003 and December 2003. In addition, the information and data included herein provide a comprehensive summary of the biological indicator (phospholipids fatty acids [PLFA] and poly-b-hydroxy alkanoate [PHA]) results obtained since commencement of the in-situ anaerobic bioremediation treatment activities in 1998 and the COC data obtained at the site from 1989 through October 2003. The conclusions and recommendations based on these results are presented at the end of this letter.

I. RAMM and Suga-Lik™ Introduction Activities

Based on the results of the process control monitoring activities, the continued addition of RAMM into each of the three areas and the continued addition of Suga-Lik™ (with the RAMM) in Area 1 and downgradient of Area 2 were recommended in the September 2002 *Biannual Process Control Monitoring Report* to further stimulate the anaerobic biodegradation of the relatively low concentrations of COCs at these locations. As detailed in that Biannual Report, the relatively low COC concentrations detected at these locations may not provide a source of carbon sufficient to sustain microbial activity. To further stimulate growth of indigenous bacteria, the RAMM and Suga-Lik™ introduction activities listed below have been conducted.

- Continuing to introduce approximately 100 gallons of RAMM-amended groundwater into each of the three areas on a monthly basis.

- Continuing to add Suga-Lik™ with RAMM into the two Area 1 infiltration trenches on a monthly basis by manually filling each of the standpipes located in these trenches. Suga-Lik™ has been added during these monthly RAMM introduction activities to provide an easily metabolized carbon source to further stimulate the growth of the indigenous bacteria. Suga-Lik™ provides electron donors, while RAMM provides nutrients and electron acceptors.

- Continuing to introduce RAMM and Suga-Lik™ on a monthly basis into piezometers PZ-G, PZ-Q, PZ-R, and PZ-S located within and downgradient of Area 1. RAMM and Suga-Lik™ have been introduced into the shallow hydrogeologic unit within and downgradient of Area 1 using these piezometers to provide a better distribution of a readily degradable carbon source that otherwise may not reach these areas if distributed through the infiltration trenches only.

- Continuing to introduce RAMM and Suga-Lik™ on a monthly basis into piezometer PZ-W located downgradient of Area 2, near monitoring well MW-36.

Approximately 10 gallons of the RAMM/Suga-Lik™ solution has been introduced into each of the aforementioned piezometers and approximately 100 gallons of Suga-Lik™ and/or RAMM into each of the three areas on a monthly basis. The amount of Suga-Lik™ added to the RAMM has been proportional to the levels of COCs detected, at the dilution ratio of 1,000:1.

II. Hydraulic Process Control Monitoring

As part of the hydraulic process control monitoring activities conducted during June 2003 through December 2003, groundwater-level measurements were obtained at existing monitoring wells and piezometers that are screened entirely within the sand layer of the shallow hydrogeologic unit and located in and around each of the three areas. Groundwater-level measurements were also obtained from selected monitoring wells (MW-6D located upgradient of Area 3 and MW-8D located within Area 3) screened entirely within the deep hydrogeologic unit. Additionally, a water-level measurement was obtained from a staff gauge located in the Barge Canal adjacent to the site. The hydraulic process control monitoring activities were conducted on October 27, 2003.

The water-level measurements obtained on October 27, 2003 provide a potentiometric surface of the site's shallow hydrogeologic unit which is consistent with previous consistent with previous hydraulic monitoring events, except that the groundwater level at PZ-E was anomalously high with respect to the groundwater-level measurements obtained at surrounding piezometers. This piezometer is located between infiltration trenches A and B in Area 3 (see Figure 1). The anomalous groundwater level at PZ-E is likely due to the wet site conditions from the rainfall that occurred near the time the measurement was made. A high water level measurement at PZ-E was previously obtained during the April 15, 2002 hydraulic monitoring event. According to the preliminary local climatological data presented at the Eastern Regional Headquarters of the National Oceanic and Atmospheric Administration website (http://www.erh.noaa.gov/er/bgm/cli/syr) for Syracuse, New York, one commonality between the April 15, 2002 and October 27, 2003 hydraulic monitoring event was that there was approximately 1.4 inches of rain that fell prior to and including the day the water-level measurements were collected. This amount of rain was not recorded within 2 days prior to or on the day of any other hydraulic monitoring event that occurred between April 2002 and October 2003. The subsequent rounds of groundwater measurements collected in June 2002 and January 2004 showed that the anomalous readings observed at PZ-E in April 2002 and October 2003 did not reflect long-term changes in the hydraulic head at the location of PZ-E.

Table 2 summarizes the water-level measurements obtained during the October 2003 and January 2004 hydraulic monitoring events, as well as those obtained since June 1998 (immediately prior to commencing the in-situ anaerobic remedial activities). Figure 2 depicts the potentiometric surface of the site's shallow hydrogeologic unit using the January 13, 2004 data set, which is consistent with previous hydraulic monitoring events. The results and corresponding conclusions of the hydraulic process control monitoring are also summarized below.

- A closed-loop hydraulic cell continues to be maintained in Area 3, as shown on Figure 2.

- The groundwater withdrawal rate in Area 3 ranged from approximately 1.6 gallons per minute (gpm) to 4.3 gpm. These rates continue to induce a higher hydraulic gradient across the area of relatively higher concentrations of COCs within Area 3 (relative to baseline conditions), while maintaining hydraulic containment in Area 3.

- In Area 3, approximately 75 percent of the recovered groundwater continues to be introduced to the secondary infiltration trench "B" and the remaining 25 percent continues to be introduced to the secondary infiltration trench "A." This introduction of recovered groundwater into the secondary infiltration trenches increases the rate at which RAMM-amended groundwater moves through the

area of relatively higher concentrations of COCs (between the secondary infiltration trenches). The withdrawal of groundwater continues to induce a hydraulic gradient in Area 3 from perimeter monitoring wells MW-23S, MW-25S and MW-17R, toward the withdrawal trench.

- No discernable, long-term hydraulic effects were identified at or near Areas 1 and 2 as a result of introducing RAMM or RAMM/Suga-Lik™ into these areas on a monthly basis.

- The groundwater elevations measured at selected monitoring locations screened entirely within the deep hydrogeologic unit indicate that the operation of the Area 3 system is continuing to have no discernable effect on the hydraulic gradient of this unit.

- The weekly conductivity measurements of groundwater pumped from the withdrawal trench in Area 3 ranged from approximately 1.79 millisiemens per centimeter (mS/cm) to approximately 2.14 mS/cm, which is within the range of the conductivity levels measured prior to system operation (1 mS/cm to 4 mS/cm). These measurements are well below the measured conductivity of the deep unit, which is greater than the calibration range of the field instrument (10 mS/cm). These data indicate that the operation of the Area 3 treatment system has not caused the freshwater/saltwater interface to upcone to the base of the withdrawal trench.

III. Biological Process Control Monitoring

As detailed in Table 1, the biological process control monitoring includes collecting groundwater samples for laboratory analysis of PLFA and PHA, common biological indicators in both oxidized and reduced states (e.g., electron acceptors: nitrate, manganese, iron, sulfate, and carbon dioxide), and permanent gases (nitrogen, carbon dioxide, and methane). In addition, the following groundwater quality parameters were also measured in the field during the October 2003 biological sampling event: pH, temperature, conductivity, dissolved oxygen (DO), and oxidation/reduction potential (ORP). To better evaluate the availability of macronutrients necessary for biological growth, groundwater samples collected from monitoring locations within the three areas, and from perimeter monitoring wells MW-29 and MW-30 (downgradient of Area 3) and MW-33 and MW-36 (downgradient of Areas 1 and 2, respectively) were analyzed for ammonia, potassium, and ortho-phosphate.

The results of the October 2003 biological process control monitoring activities are presented in Table 3 and shown on Figures 3 through 11. These biological process control monitoring results are summarized below.

- The biomass (PLFA) level increased or remained the same in most Area 1 monitoring locations since the May 2003 sampling event, except at MW-32 and TW-01 where the PLFA level decreased (see Figure 3). The PLFA level increased from 3 picomole/milliliter (pmol/ml) (May 2003) to 19 pmol/ml (October 2003) at monitoring location MW-31, but decreased from 23 pmol/ml (May 2003) to 3 pmol/ml (October 2003) at monitoring location TW-01. At the two monitoring locations where the PLFA levels decreased (TW-01 and MW-32), COCs were generally not detected in the October 2003 groundwater samples (see Figure 12). In general, the level of anaerobic bacteria in Area 1 increased or remained the same since the previous sampling event and comprised a larger portion of the microbial community in Area 1 monitoring locations. The PLFA data used to monitor environmental stress and turnover rate indicate that the microbial community within Area 1 is undergoing limited stress and continues to have high turnover rates (see Figures 4 and 5). PHA was not detected in any of the October 2003 groundwater samples collected from Area 1, suggesting there are sufficient carbon, electron acceptors, and nutrients to sustain microbial activity within Area 1. Consistent with the activities conducted during the previous biannual sampling event (May 2003), the groundwater samples collected from monitoring locations within Area 1 were analyzed for ammonia, potassium, and ortho-phosphate to better evaluate the availability of macronutrients necessary for

biological growth (see Table 3). The results of these additional analyses and the PHA/PLFA data indicate that there are sufficient amounts of macronutrients available within Area 1 to sustain microbial growth.

- The highest biomass (PLFA) level in Area 2 continues to be at monitoring location TW-02R, where the relatively higher concentrations of COCs have been detected in this area. The biomass levels at the other two locations (MW-34 and MW-35) monitored in this area have remained relatively consistent (see Figure 6). Additionally, the level of anaerobic bacteria increased or remained the same since the May 2003 sampling event. As shown on Figures 7 and 8, the PLFA data used to monitor environmental stress and turnover rate suggest that the microbial community within Area 2 is undergoing limited stress and continues to have high turnover rates. PHA was not detected in any of the Area 2 groundwater samples collected during October 2003, suggesting that sufficient amounts of carbon, electron donors, and nutrients are available to maintain cell division and balanced growth within the Area 2 microbial community. Consistent with the activities conducted during the previous biannual sampling event (May 2003), the groundwater samples collected from monitoring locations within Area 2 were analyzed for ammonia, potassium, and ortho-phosphate to better evaluate the availability of macronutrients necessary for biological growth (see Table 3). The results of these additional analyses and the PHA/PLFA data indicate that there are sufficient amounts of macronutrients available within Area 2 to sustain microbial growth.

- The October 2003 sampling results for Area 3 indicate that the biomass (PLFA) levels have remained generally consistent since the last sampling event (see Figure 9). Please note that MW-8S was inadvertently not sampled for PLFA/PHA analyses during the October 2003 sampling event. As shown on Figures 10 and 11, the PLFA data used to monitor environmental stress and turnover rate suggest that the microbial community in Area 3 is undergoing limited stress and continues to have high turnover. PHA was not detected in samples collected in any of the Area 3 groundwater samples collected during October 2003, suggesting that sufficient amounts of carbon, electron donors, and nutrients are available to maintain cell division and balanced growth within the Area 3 microbial community. Consistent with the activities conducted during the previous biannual sampling event (May 2003), the groundwater samples collected from monitoring locations within Area 3 were analyzed for ammonia, potassium, and ortho-phosphate to better evaluate the availability of macronutrients necessary for biological growth (see Table 3). The results of these additional analyses and the PHA/PLFA data indicate that there are sufficient amounts of macronutrients available within Area 3 to sustain microbial growth.

- Dissolved gases results, together with ORP data, continue to indicate that conditions in the saturated soils/groundwater of the shallow hydrogeologic unit within each area are reduced, thus conducive to anaerobic bioremediation processes.

- The biological data (i.e., microbial analytes, indicator compounds, and permanent gases) obtained since commencement of the in-situ anaerobic treatment program in 1998, indicate that the saturated soil/groundwater conditions within the shallow hydrogeologic unit within each area are consistently conducive to microbial degradation of the COCs by anaerobic microbial populations. Additionally, these data have consistently confirmed that there are sufficient carbon, election acceptors, and nutrients to sustain microbial activity with each of the three areas.

- Common biological indicators were measured in groundwater samples collected from the four "sentinel" monitoring wells (MW-29, MW-30, MW-33, and MW-36) (see Table 3 and Figure 1). These results are consistent with previous sampling events and indicate no appreciable increase in RAMM constituents downgradient of each area.

IV. COC Process Control and Biannual Groundwater Monitoring Program

The COC process control biannual groundwater monitoring activities were conducted on October 28, 2003 through November 3, 2003 (collectively referred to herein as October 2003), in accordance with the long-term COC process control monitoring program presented in the O&M Plan. Table 1 provides a listing of the existing monitoring wells and piezometers that are used to conduct the long-term process control monitoring program, and a schedule for implementing this program.

As previously mentioned, and in accordance with the requirements of the NYSDEC-approved monitoring program, laboratory analytical results for the October 2003 samples were validated. A summary of the COC groundwater monitoring data is presented in Table 4 and shown on Figures 12 and 13. Copies of the validated analytical laboratory reports associated with the October 2003 sampling event are provided under separate cover. A summary of the COC analytical results is provided below for each of the three areas, and the downgradient perimeter monitoring locations. NAPL was not identified in any of the monitoring wells or piezometers used during the process control monitoring program.

Area 1

- As shown on Figure 12, the concentrations of most COCs detected in the groundwater samples collected from the monitoring locations within Area 1 during the October 2003 sampling event declined or remained relatively the same during implementation of the in-situ anaerobic bioremediation treatment program. Overall, the COC concentrations detected at the monitoring wells within Area 1 were generally low.

- The highest COC concentrations within Area 1 have historically been detected in groundwater samples collected from MW-32 and TW-01. The COC concentrations in May 2003 groundwater samples collected from these wells were all non-detect or just slightly above their respective groundwater standards. These data demonstrate a significant decrease in COC concentrations since commencement of the in-situ anaerobic bioremediation treatment program. For example, the aniline concentration detected at MW-32 has continued to decrease from 6,300 ppb detected in September 1998 to not detected in October 2003, and the aniline concentration detected at TW-01 has decreased from 9,000 ppb in February 1999 to an estimated 0.6 ppb in October 2003.

- The concentrations of COCs detected in groundwater samples collected from the monitoring well located immediately downgradient of Area 1 (MW-33) have decreased since the May 2003 sampling event (Figure 12). In particular, the methylene chloride concentration decreased from 2,800 ppb to not detected (May 2003 and October 2003, respectively). The aniline concentration slightly decreased from 2,000 ppb (May 2003) to 1,900 ppb (October 2003). These concentrations are generally consistent with aniline concentrations detected in groundwater samples collected from monitoring well MW-33 since March 2001.

- The concentration of acetone detected in the groundwater sample collected from monitoring well MW-31 (approximately in the center of Area 1) was 1,200 ppb. Previously at this location, acetone had only been detected once since commencement of the biannual sampling activities in 1998: March 2001 groundwater sample, 21 ppb acetone (see Figure 12). Acetone is a common laboratory contaminant.

Area 2

- As shown on Figure 12, most COC concentrations detected within Area 2 during the October 2003 sampling event have decreased or remained relatively the same during implementation of the in-situ anaerobic bioremediation treatment program.

- Monitoring well TW-02R is located within Area 2 at a location identified as containing relatively higher concentrations of COCs (see Figure 12) and has typically exhibited the higher concentrations in Area 2 of N,N-dimethylaniline, methylene chloride, and aniline. The N,N-dimethylaniline and methylene chloride concentrations have significantly decreased since 1998: from 61,000 ppb and 86,000 ppb (September 1998), respectively, to not detected and 91 ppb (October 2003), respectively. The aniline concentrations detected at TW-02R, however, have remained relatively consistent since commencement of the in-situ anaerobic bioremediation treatment activities, including the 92,000 ppb concentration of aniline detected during October 2003.

- COC concentrations detected in the October 2003 groundwater sample collected from monitoring well MW-35 located within Area 2 were not detected greater than their respective NYSDEC Groundwater Quality Standard, including aniline, which was detected at a concentration of 4 ppb. Aniline had been detected in the May 2003 sample at 1,000 ppb. At this groundwater monitoring location, COCs are typically either not detected or detected at concentrations which only slightly exceed their respective NYSDEC Groundwater Quality Standard.

- COCs detected in the October 2003 groundwater samples collected from monitoring well MW-36 located downgradient of Area 2 were not detected at concentrations greater than their respective NYSDEC Groundwater Quality Standard, except aniline and acetone, which were detected at concentrations of 100 ppb and 580 ppb, respectively. As previously mentioned, acetone is a common laboratory contaminant.

Area 3

- As presented on Figure 13, the concentrations of most COCs that were previously detected at Area 3 monitoring locations above their respective NYSDEC Groundwater Quality Standards have decreased or remained relatively the same during the implementation of the in-situ anaerobic bioremediation treatment program.

- At monitoring well MW-8S, located in the center of Area 3 and within the area that has been identified as containing relatively higher concentrations of COCs (see Figure 13), the concentrations of COCs detected in October 2003 are relatively consistent with those detected since commencement of the in-situ bioremediation treatment activities in 1998, with the exception of aniline. Since commencing the treatment activities, the concentrations of aniline have generally increased: 1,200 ppb aniline was detected in September 1998 compared to 67,000 ppb in October 2003. Prior to starting the in-situ anaerobic treatment activities, however, much greater COC concentrations were detected at this location, including 7,700,000 ppb of methylene chloride in August 1995 compared to 400,000 ppb detected in October 2003.

- At monitoring well MW-28, also located within Area 3 and within the area of relatively higher concentrations of COCs, the methylene chloride concentrations detected in groundwater samples have decreased from 64,000 ppb (September 1998) to not detected (October 2003). Since commencement of the in-situ anaerobic bioremediation treatment program in 1998, aniline concentrations have remained relatively consistent, including the aniline concentration of 1,900 ppb detected in October 2003. The other COCs have generally been not detected in groundwater samples collected at this

location or detected at concentrations just slightly greater than their respective NYSDEC Groundwater Standard.

- The aniline concentration detected at monitoring well MW-27 decreased from 15,000 ppb (May 2003) to 3,700 ppb (October 2003). Acetone and methylene chloride were detected at 170 ppb and 240 ppb, respectively, which are higher concentrations than previously detected at this monitoring location. The other COCs detected in the groundwater sample collected from MW-27 in October 2003 were at relatively low concentrations, ranging from not detected to approximately 5 ppb (benzene), which is consistent with concentrations detected since the implementation of the in-situ anaerobic treatment program in 1998.

Downgradient Perimeter Monitoring Locations

The results of the October 2003 biannual groundwater sampling and analysis program indicate that COCs at concentrations in excess of the NYSDEC Groundwater Quality Standards were detected in some of the downgradient perimeter monitoring locations. As presented on Figure 13, aniline was anomalously detected at downgradient perimeter monitoring locations MW-19 (51 ppb), MW-23S (60 ppb), MW-24SR (16 ppb), and PZ-5D (46 ppb). N,N-dimethylaniline was also anomalously detected at MW-19 (16 ppb) during the October 2003 biannual sampling event. These detections of COCs are considered anomalous based on a number of considerations, including the general absence of previous COC detections at these locations (in some cases since 1989) and the varied locations/screened intervals for these monitoring wells and piezometers, as summarized below.

- Previously, COCs have not been detected in groundwater samples collected from MW-19 since the monitoring well was installed in 1989, with the exception of an estimated 5 ppb detection of N,N-dimethylaniline in June 1998. This monitoring well is located approximately 300 feet north-northwest of Area 3 and is screened within the deep (saltwater) hydrogeologic unit (total well depth of approximately 67 feet).

- Since June 1999, COCs have not been detected at concentrations exceeding NYSDEC Groundwater Quality Standards in the groundwater samples collected from monitoring well MW-23S, except for an estimated 2 ppb detection of N,N-dimethylaniline in March 2000. As noted in Section II, the withdrawal of groundwater has and continues to induce a hydraulic gradient from this location toward the withdrawal trench in Area 3. This well is screened within the shallow hydrogeologic unit (total well depth of approximately 19 feet).

- Previously, COCs have not been detected in groundwater samples collected from MW-24SR since this well was installed in 1994. This shallow well is located about 75 feet north-northwest of Area 3, with a total depth of approximately 23.5 feet. Aniline was also detected in the October 2003 groundwater sample collected from the deeper monitoring well at this location (MW-24DR, total depth of approximately 33.7 feet), at an estimated concentration of 0.5 ppb. COCs had also not been previously detected in the groundwater samples collected from this deeper monitoring well that was installed in 1994.

- COCs have not historically been detected in groundwater samples collected from PZ-5D since this piezometer was installed in 1989. PZ-5D is located approximately 350 feet north-northwest of Area 3 (see Figure 13), with a total well depth of approximately 25 feet (shallow hydrogeologic unit).

- Benzene was detected at MW-17R at a concentration (7 ppb) slightly exceeding the NYSDEC Groundwater Quality Standard (1 ppb), which is consistent with the similarly low concentrations detected at this monitoring location. MW-17R is hydraulically influenced by the Area 3 closed-loop hydraulic cell.

V. Conclusions

The process control monitoring data presented in this Biannual Report provides information that has been and will continue to be used to monitor the effectiveness of the in-situ anaerobic bioremediation treatment program. The conclusions presented below are based on the process control monitoring data obtained to date.

- A closed loop hydraulic cell continues to be maintained in Area 3.

- Operation of the Area 3 treatment system has not caused the freshwater/saltwater interface to upcone to the base of the withdrawal trench.

- The biological data obtained since commencement of the in-situ anaerobic bioremediation treatment program since 1998 have consistently verified that the saturated soil/groundwater conditions within the shallow hydrogeologic unit at Areas 1, 2, and 3 have been and continue to be conducive to degradation of the COCs by anaerobic microbial populations. Additionally, these data have consistently confirmed that there are sufficient carbon, electron acceptors, and nutrients to sustain microbial activity in each of the three areas.

- Inconsistent with previous COC analytical results obtained, in some cases since 1989, aniline and/or N,N-dimethylanline were detected at concentrations above their respective NYSDEC Groundwater Quality Standards during the October 2003 sampling event at downgradient perimeter monitoring locations MW-19, MW-23S, MW-24SR, and PZ-5D. The detections are considered anomalous and no specific causes were identified.

- The COC concentrations detected in the groundwater samples collected from the monitoring locations within Area 1 since commencement of the in-situ anaerobic treatment program in 1998 have generally decreased to or remained at concentrations ranging from not detected to just slightly greater than their respective NYSDEC Groundwater Standard.

- The methylene chloride concentration decreased from 2,800 ppb to not detected (May 2003 and October 2003, respectively) in the groundwater sample collected from the monitoring well located immediately downgradient of Area 1 (MW-33). The aniline concentration detected in October 2003 (1,900 ppb), however, remained generally consistent with the concentrations detected since March 2001.

- The COC concentrations within Area 2 have decreased or remained relatively the same during implementation of the in-situ anaerobic treatment program, with the exception of the aniline concentrations detected at monitoring location TW-02R. The aniline concentrations detected in groundwater samples collected from TW-02R have increased from 38,000 ppb in September 1998 to 92,000 ppb in October 2003.

- The concentrations of most COCs that have been detected at Area 3 monitoring locations above their respective NYSDEC Groundwater Quality Standard have decreased or remained relatively the same since commencement of the in-situ anaerobic bioremediation treatment program in 1998. However, during the same time period aniline concentrations detected at monitoring location MW-8S have increased, from 1,200 ppb in September 1998 to 67,000 ppb in October 2003.

- The concentrations of methylene chloride and aniline at MW-8S and aniline concentrations at TW-02R have remained significantly higher than their respective NYSDEC Groundwater Quality Standard since commencement of the in-situ anaerobic bioremediation treatment activities, even with relatively high levels of biomass present. The relationship between relatively high COC concentrations and biomass levels suggest anaerobic biological processes are active, but may not be efficiently removing COC mass at these two locations.

VI. Recommendations

Based on the process control monitoring data obtained to date and the conclusions summarized above, the addition of RAMM and/or SugaLik™ in each of the three areas and the hydraulic control activities in Area 3 will continue to be implemented consistent with the operation procedures followed since January 2002 and described in Section I.

To further evaluate the October 2003 anomalous detections of aniline and/or N,N-dimethylaniline results at several downgradient perimeter monitoring locations, each of those locations were sampled in June 2004, including the downgradient monitoring locations (MW-24SR and PZ-5D) not typically sampled during the first sampling event of the year. These downgradient perimeter locations, along with the other monitoring wells/piezometers identified in Table 1, were sampled during June 2004. If aniline and N,N-dimethylaniline are not detected above their respective NYSDEC Groundwater Standard during the June 2004 biannual sampling event (i.e., concentrations are consistent with historical levels), the October 2003 detections of aniline and/or N,N-dimethylaniline at the perimeter monitoring locations will be dismissed as anomalous.

As presented in the previous biannual report (October 21, 2003) and discussed with the NYSDEC, to enhance the remediation of OU No. 2, supplemental remedial activities are planned to further address the relatively higher concentrations of COCs consistently detected in groundwater samples collected from monitoring wells MW-8S and TW-02R, and the aniline concentrations detected at monitoring locations MW-33 (Area 1), and MW-27, and MW-28 (Area 3). These activities were originally planned to be conducted during the fall/winter of 2003, however due to the weather and field conditions these activities were postponed until summer 2004 when conditions are more appropriate to conducting the supplemental remedial activities. These supplemental remedial activities are summarized below, along with the proposed changes in the process control monitoring program.

Supplemental Remedial Activities

To enhance the overall remediation of OU No. 2, the supplemental remedial activities described in the October 2003 biannual report and reiterated below are planned to be conducted during the next reporting period to further address the relatively higher concentrations of COCs consistently detected in groundwater samples collected from monitoring wells MW-8S (Area 3) and TW-02R (Area 2). Additionally, as detailed below, supplemental remedial (RAMM and SugaLik™ amendment) activities are also planned immediately downgradient of Area 1 (near monitoring well MW-33) and in the vicinity of monitoring wells MW-27 and MW-28 (Area 3) to address the aniline concentrations detected at these locations.

From: Michael Ryan
To: Mateunas, Mark
Date: 4/13/05 3:11PM
Subject: Re: McKesson Envirosystems

Mark - I took a look at the recommendations. Anytime a consultant proposes to tweak a treatment system with the goal of higher efficiently, it's hard to argue - I'd say let them do it. With regard to the reduced monitoring, they've probably got a point with the bio monitoring, but I'd be hesitant on the routine well (analytical) sampling. The remedial program had two goals: reduce the onsite contamination; and eliminate the potential for offsite (canal) contamination. Make sure what they are proposing doesn't compromise this.

While the letter might not be the place to do it, when you talk with Cathy ask about the possibility the RP will consider excavation and disposal. At some point they should evaluate the cost of continued OM&M vs. the offsite disposal option. I believe the economics have changed with regard to the value of this property. If the RP is looking to get an "all clear" from the State with regard to future use - excavation is a quicker means than bioremediation. Your inquiry might start a dialogue.

Good luck. Mike

>>> Mark Mateunas 4/13/2005 8:57:11 AM >>>
I left a copy of the recommendations and supplemental remedial activities for the above-subject site. Please take a look at them and then give me 10 minutes of your time to discuss.

Thanks.

- Remove approximately 20 tons of soil from an approximate 4-foot-by-4-foot area surrounding monitoring locations MW-8S and TW-02R (approximately 40 tons total). The soil will be removed by advancing a 14-inch diameter auger to a depth of approximately 20 feet below ground surface (bgs) to overdrill and remove monitoring wells MW-8S and TW-02R and then to remove soil from up to seven locations near these monitoring wells. This depth below grade is the total depth of monitoring wells TW-02R and MW-8S, and is above the silt and clay layer underlying the shallow hydrogeologic unit (see the site cross-section provided as Attachment 1). Monitoring well MW-8D will also be properly abandoned, as it is adjacent to MW-8S. MW-8D will be overdrilled and will be grouted with cement/bentonite grout up to the shallow hydrogeologic unit (from approximately 18 feet below grade) and the remaining depth will be backfilled as described below. The drill cuttings will be collected and containerized in lined roll-offs, characterized, and properly disposed of offsite in accordance with applicable rules and regulations. The roll-offs will be covered at the end of the work-day, during precipitation events, and after filling. The augers will be decontaminated between use at Areas 2 and 3, and the decontamination water collected for subsequent disposal.

  The soil removal areas surrounding monitoring locations MW-8S and TW-02R will be backfilled with approximately 6 inches of bentonite, which will be covered with imported clean material (pea stone), amended with RAMM. The upper portion of the removal areas will be appropriately restored using topsoil and grass seed, and an approximate 1-foot lift of bentonite will be placed at the top of the upper silt/clay layer (from approximately 6 to 7 feet below grade, see cross-section provided in Attachment 1).

- Install replacement monitoring wells for existing monitoring wells MW-8S and TW-02R that will be abandoned (removed) during the above-described soil removal activities. The replacement wells will be constructed similar to their respective existing monitoring wells, and these locations will continue to be sampled biannually for COCs as part of the Process Control Monitoring Program. MW-8D will not be replaced, as hydraulic data obtained over the 5-year operating history of the treatment system in Area 3 consistently indicate no discernable effect on the hydraulic gradient of the deep hydrogeologic unit. The newly installed wells will be appropriately developed after installation.

- Amend the area immediately downgradient of Area 1 (near monitoring well MW-33) and in the vicinity of monitoring wells MW-27 and MW-28 (Area 3) by advancing a 14-inch auger to a depth of approximately 20 feet and adding RAMM and SugaLik™ into the subsurface. The boreholes will be backfilled with approximately 6 inches of bentonite, which will be covered with the drill cuttings (soil) from these boreholes, amended with RAMM and SugaLik™. The drill cuttings will be backfilled (returned) into their respective borehole to the depths they were removed from (e.g., soil removed from the bottom of the borehole will be returned to the bottom of the borehole). The upper portion of the boreholes will be appropriately restored using topsoil and grass seed, and an approximate 1-foot lift of bentonite will be placed at the top of the upper silt/clay layer (from approximately 6 to 7 feet below grade, see cross-section provided in Attachment 1). Any drill cuttings not returned to the boreholes will be managed with the soil to be removed from the areas surrounding monitoring locations MW-8S and TW-02R (discussed above), and disposed offsite in accordance with applicable rules and regulations.

- Install three well points in the shallow hydrogeologic unit around monitoring wells MW-27 and MW-28 (Area 3) to allow RAMM and SugaLik™ to be introduced into these locations on a monthly basis. The well points will be constructed of 1-inch diameter stainless steel pipe that is 20 feet in length, with a 10-foot screened (slotted) interval at the bottom of the well point. The monthly addition of RAMM and SugaLik™ is anticipated to enhance the anaerobic biodegradation of the COCs present in the shallow hydrogeologic unit at these locations.

The supplemental remedial activities will be conducted in accordance with the procedures and requirements set forth in the site-specific Health and Safety Plan. The soil removal and backfilling activities, and the monitoring well and well point installation activities are anticipated to require approximately one week to complete.

Process Control Monitoring Program

As discussed in this report and summarized in Table 1, the ongoing monitoring activities conducted at the site are included in the Biannual Groundwater Monitoring Program and the Process Control Monitoring Program. The activities included in the Biannual Groundwater Monitoring Program will continue, and include the biannual collection of chemical and hydraulic data from downgradient perimeter wells/piezometers to determine whether or not groundwater that contains concentrations of COCs in excess of their respective NYSDEC Groundwater Quality Standard is migrating beyond the site boundary. The Process Control Monitoring Program has consisted of collecting COC, microbiological, and hydraulic groundwater data on a biannual basis to assess the effectiveness of the in-situ anaerobic bioremediation activities.

The following changes presented below were proposed in the October 21, 2003 Biannual Report and are planned to be implemented during the second reporting period of 2004, pending NYSDEC approval. The proposed revised Process Control Monitoring Program is summarized in Table 5.

- The biological data (i.e., microbiological analytes, indicator compounds, and permanent gases, see Table 1) obtained during the five years since commencement of the in-situ anaerobic bioremediation treatment program have consistently verified that the saturated soils/groundwater of the shallow hydrogeologic unit within each area are conducive to anaerobic bioremediation. Additionally, these data have consistently confirmed that there are sufficient carbon, electron acceptors, and nutrients to sustain microbial activity in each of the three areas. Because the biological data in each of the three areas have been consistent, the biological monitoring activities are proposed to be eliminated from the Process Control Monitoring Program.

- The COC sampling schedule is proposed to be changed from biannual to annual at upgradient monitoring location MW-1 and monitoring locations MW-3S, MW-9S, MW-29, MW-30, and MW-34, due to the consistent concentrations of COCs detected below or slightly higher than the NYSDEC Groundwater Quality Standards at these monitoring locations.

- The COC sampling at monitoring location TW-01 is proposed to be discontinued because of the low COC concentrations detected since September 2000 and its close proximity to MW-32. The COC concentrations detected at these two locations in Area 1 have been similar over the past 5 years, except that aniline has consistently been detected at higher concentrations in groundwater samples collected from MW-32 since March 2000. Monitoring well MW-32 has been and will continue to be sampled biannually under the Process Control Monitoring Program.

We will follow up with the NYSDEC in the near future regarding the proposed changes to the Process Control Monitoring Program and the supplemental remedial activities, and the schedule for implementation. McKesson would like to complete the supplemental remedial activities during the summer of 2004 (when field conditions are appropriate) to enhance the overall remediation of the saturated soils/groundwater within the shallow hydrogeologic unit.

The first 2004 biannual monitoring event was conducted during the week of June 14, 2004. Consistent with the previous sampling events, BBL coordinated the schedule with Mr. Carl Cuipylo of the

NYSDEC. The hydraulic and COC process control monitoring event are summarized in Table 1, which includes the additional sampling of perimeter monitoring well locations MW-24SR and PZ-5D for COCs (as identified above). A summary of the O&M activities and the results of the process control monitoring activities will continue to be presented to the NYSDEC on a biannual basis.

If you have any questions or require additional information, please do not hesitate to contact me at (315) 446-2570, ext. 210.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

David J. Ulm /mbg

David J. Ulm
Senior Vice President

CWS/jlc

cc: Mr. Jim Burke, P.E., New York State Department of Environmental Conservation
Mr. Carl Cuipylo, New York State Department of Environmental Conservation
Ms. Cynthia Whitfield, New York State Department of Environmental Conservation
Ms. Henriette Hamel, R.S., New York State Department of Health
Ms. Jean A. Mescher, McKesson Corporation
Mr. Christopher R. Young, P.G., de maximis, inc.

Tables

BBL®
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engineers, scientists, economists

Table 1
Long-Term Hydraulic, Biological, and COC Process Control Monitoring Schedule

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Location	Sampling Schedule	
	First Quarter	Third Quarter
Upgradient		
MW-1	B1, B2, C	B1, B2, C
MW-3S	B1, B2, C	B1, B2, C
MW-3D	H	H
Area 1		
TW-01	B1, B2, C	B1, B2, C
MW-6D	H	H
MW-9S	B1, B2, C	B1, B2, C
MW-9D	H	H
MW-31	B1, B2, C	B1, B2, C
MW-32	B1, B2, C	B1, B2, C
MW-33	B2, C	B2, C
PZ-F	H	H
PZ-G	H	H
PZ-HR	H	H
PZ-P	H	H
PZ-Q	H	H
PZ-R	H	H
PZ-S	H	H
Area 2		
TW-02R	B1, B2, C	B1, B2, C
PZ-9D	H	H
MW-34	B1, B2, C	B1, B2, C
MW-35	B1, B2, C	B1, B2, C
MW-36	B2, C	B2, C
PZ-I	H	H
PZ-J	H	H
PZ-T	H	H
PZ-U	H	H
PZ-V	H	H
PZ-W	H	H

Table 1
Long-Term Hydraulic, Biological, and COC Process Control Monitoring Schedule

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Location	Sampling Schedule	
	First Quarter	Third Quarter
MW-8S	B1, B2, C	B1, B2, C
MW-8D	H	H
MW-27	B1, B2, C	B1, B2, C
MW-28	B1, B2, C	B1, B2, C
MW-29	B2, C	B2, C
MW-30	B2, C	B2, C
PZ-A	H	H
PZ-B	H	H
PZ-C	H	H
PZ-D	H	H
PZ-E	H	H
PZ-K	H	H
PZ-L	H	H
PZ-M	H	H
PZ-N	H	H
PZ-O	H	H
MW-11S	H	H
MW-11D	H	H
Downgradient Perimeter Monitoring Locations		
MW-17R	C	C[a]
MW-18	C, H	C, H
MW-19	C, H	C, H
MW-23I	C, H	C, H
MW-23S	C, H	C, H
MW-24SR	H	C, H
MW-24DR	H	C, H
MW-25S	C, H	C, H
MW-25D	C, H	H
PZ-4S	C	
PZ-4D	C, H	H
PZ-5S		C
PZ-5D	H	C, H

Table 1
Long-Term Hydraulic, Biological, and COC Process Control Monitoring Schedule

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Notes:

1. H = Hydraulic Monitoring (Groundwater Level Measurements).

2. B1 = Biological Monitoring for Poly-b-hydroxy alkanoate (PHA) and Phospholipid Fatty Acid (PLFA).

3. B2 = Biological Monitoring for Common Biological Indicators and permanent gases including nitrate, total/dissolved iron, total/dissolved manganese, sulfate/sulfide, nitrogen, carbon dioxide, and methane.

4. C = Monitoring for the Chemicals of Concern (COCs).

5. The hydraulic monitoring identified in this table was conducted on a quarterly basis for the first year of the long-term process control monitoring program, and has been/will be conducted on a semi-annual basis thereafter. The hydraulic monitoring also includes measuring the conductivity of groundwater recovered from Area 3 from a sampling port located before the equalization tank.

6. Field groundwater parameters including pH, temperature, conductivity, dissolved oxygen (DO), and oxidation/reduction potential (ORP) are measured during each biological sampling event.

7. Each of the monitoring wells and piezometers used for hydraulic, biological and COC monitoring during the semi-annual monitoring event are checked for the presence (if any) of non-aqueous phase liquid (NAPL).

8. Based on the results obtained, the scope and/or the frequency for the hydraulic, biological, and/or COC components of the long-term process control monitoring program, as detailed herein, may be modified. Any modifications would be made in consultation with the New York State Department of Environmental Conservation (NYSDEC).

9. This table is based on the NYSDEC-approved *Operation and Maintenance (O&M) Plan* (BBL, Revised August 1999), including the NYSDEC-approved December 29, 1999 Addendum.

10. Piezometers PZ-8S/PZ-8D were identified in the *O&M Plan* to be sampled during the long-term process control monitoring program; however, as presented in the August 2000 *Biannual Process Control Monitoring Report*, these piezometers were damaged and no longer needed for the process control monitoring program. These piezometers were abandoned in August 2000.

11. As presented in the August 2000 *Biannual Process Control Monitoring Report*, monitoring well MW-17R was identified in the *O&M Plan* to be sampled only during the first biannual monitoring event; however, because benzene has been detected at concentrations slightly exceeding the NYSDEC Groundwater Quality Standard since the March 2000 sampling event, this well was also sampled during the second biannual monitoring event conducted during 2000 and 2001 (i.e., September 2000 and September 2001).

12. Monitoring wells MW-24SR and MW-24DR were additionally sampled for N,N-dimethylaniline and aniline on June 18, 2002 because N,N-dimethylaniline and/or aniline was detected at nearby downgradient perimeter monitoring locations during the April 2002 sampling event.

13. Monitoring well PZ-4S was additionally sampled for COCs on October 10, 2002 because aniline was detected at this location during the April 2002 sampling event.

14. Monitoring wells MW17R, MW-18, MW-19, MW-23I, MW-23S, MW-24SR, MW-24DR, MW-25S, PZ-4S, PZ-5S, and PZ-5D were additionally sampled for N,N-dimethylaniline and aniline on January 20, 21, and 23, 2003 because the October 2002 N,N-dimethylaniline and aniline results for these locations were rejected during the validation process due to matrix spike and matrix spike duplicate recoveries below control limits.

15. Monitoring locations MW-24SR and PZ-5D were additionally sampled for COCs during the first 2004 COC biannual sampling event, because there were aniline detections at these locations during the October 2003 sampling event.

Table 2

Summary of Select Groundwater Level Measurements

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Canal	393.39*	362.91	363.37	363.72	363.08	363.08	362.94		362.78	362.94			362.84	363.27		363.14	362.21	363.11			363.22	362.78	363.73	363.75	362.75^	363.24	363.01	362.96	364.59	363.64	364.17	362.19	^^	363.34	363.34	^^^
Collection Sump	372.81	364.33	363.08	363.68	362.50	361.31	361.83	361.89	362.14	361.00	361.71	361.95	362.31	362.01	361.48	361.75	363.09	361.93	361.73	363.17	362.45	361.87	362.99	361.48	361.69	361.66	361.59	362.04	362.27	361.50	361.42	362.05	361.90	361.91	361.86	362.06
MW-3S	376.54	365.93	366.26	367.82	366.20			365.29							365.25	365.67	366.81	365.67	365.25		365.26		357.10						367.70	366.26	367.50	364.26	366.27	366.38	366.98	
MW-3D	375.56	365.63	365.87	366.16			364.97	364.85						365.08	365.00	365.04		365.04	364.91	365.41	364.92	364.57	355.64	365.57	364.81	355.16	365.40	364.54	364.16	364.55	365.10	363.92	365.10	365.53	365.05	
MW-6D	377.07	365.75	366.01	366.29										365.25	365.15	365.23	365.36	365.23	365.06	365.62	365.12	364.79	365.85	365.77	364.97	365.34	365.64	364.75	364.22	364.62	365.21	364.07	365.31	365.75	365.24	
MW-8D	374.68	365.51	365.74	366.05			364.80		364.67	364.79	364.88	364.87	364.87	364.93	364.83	364.86		364.88	364.74	365.22	364.77	364.35	365.42	365.36	364.62	364.94	365.18	364.34	364.13	364.51	365.01	363.82	^^	365.30	364.83	
MW-9D	376.76***	365.78					365.14	365.10						365.25	365.16	365.22	365.36	365.26	365.08	365.65	365.17	364.83	365.88	365.80	365.01	365.36	365.68	364.76	364.05	364.47	365.10	364.00	365.31	365.79	365.26	
MW-11D	373.68	365.46	365.67	365.29			364.62	364.49	364.50	364.62		364.69	364.67	364.77	364.68	364.73		364.73	364.57	365.02	364.60	364.18	365.24	365.18	364.46	364.81	364.96	364.18	364.07	364.44	364.92	363.73	364.81	365.17	364.75	
MW-11S	373.50	364.88	364.62	365.11	364.12	363.70	363.58	363.52	363.58	363.73		363.69	363.74	363.74	363.69	363.69	364.27	363.79	363.61	364.50	363.88	363.39	364.72	364.35	363.55	363.86	364.48	363.33	363.57	363.89	364.33	363.09	364.15	364.38	363.89	364.71
MW-18	372.57	362.64													361.90	361.93	362.05	362.05	361.84	362.18	361.79	361.38	362.43	361.77	361.71	362.08	362.17	361.50	361.65	362.09	362.50	361.37	362.26	362.69	362.26	
MW-19	376.00	362.42													361.78	361.84	361.98	361.87	361.89	362.15	361.80	361.46	362.58	361.88	361.90	362.25	362.44	361.82	361.83	362.11	362.57	361.51	362.52	361.91	362.46	
MW-23I	372.77	365.04	365.34	365.72			364.34		364.45	364.16			364.43	364.43	364.34	364.36		364.47	364.26	364.69	364.28	363.83	364.99	364.93	364.25	364.58	364.73	363.99	363.99	364.34	364.80	363.62	364.60	365.01	364.56	
MW-23S	372.61	363.99	363.43	364.04	362.92	362.50	362.41		362.40	362.66		362.54	362.67	362.68	362.56	362.52	363.35	362.66	362.46	363.64	362.94	362.42	363.85	363.17	362.64	362.87	363.59	362.36	363.97	363.38	363.68	362.50	362.26	363.31	362.81	363.78
MW-24DR	375.14	365.41													364.63	364.67	364.81	364.69	364.54	364.96	364.49	364.09	365.19	364.60	364.39	364.77	364.91	364.16	364.06	364.43	364.90	363.71	364.75	365.13	364.69	
MW-24SR	375.55	365.15	365.32	365.66	364.91	364.45	364.27		364.20				364.36	364.47	364.37	364.44	364.66	364.50	364.33	364.87	364.41	363.95	365.12	365.55	364.30	364.60	364.86	364.05	364.00	364.40	364.86	363.64	364.69	365.03	364.62	365.34
MW-25D	373.67	365.43													364.74	364.76		364.77	364.64	365.07	364.64	364.20	365.28	365.20	364.51	364.84	364.97	364.22	364.19	364.57	365.02	363.82	364.82	365.24	364.74	
MW-25S	373.39	363.91	363.64	364.14	363.21	362.95	362.75		362.75			362.89	362.96	363.01	362.89	362.87	363.48	362.96	362.79	363.89	363.20	364.75	364.12	363.69	362.94	363.23	364.14	362.61	364.39	363.83	364.21	362.74	363.61	363.67	363.19	364.01
PZ-4D	376.11	365.46	365.73	366.01	365.21	364.83	364.63		364.54	364.67	364.75	364.74	364.70	364.80	364.69	364.73	364.87	364.72	364.55	365.02	364.60	364.22	365.28	365.21	364.49	364.82	365.03	364.22	364.06	364.43	364.94	363.73	364.81	365.23	364.78	365.50
PZ-5D	375.58	365.66	365.91	366.18	365.36	365.07	364.84		364.76	364.88	364.94	364.93	364.91	364.99	364.89	364.93	365.09	364.94	364.78	365.28	364.86	364.47	365.57	365.48	364.71	365.10	365.36	364.46	364.12	364.47	365.03	363.81	365.05	365.49	365.02	365.76
PZ-8D	375.83	365.90	366.11	366.35			365.25	365.13	365.83					365.35	365.27	365.33	365.48	365.33	365.19	365.78	365.08	365.00														
PZ-9D	377.29	365.73					365.47	365.28						365.12	365.03	365.08	365.24		364.94	365.50	365.04	364.68	365.70	365.72	364.87	365.16	365.55	364.60	363.75	364.14	364.79	363.71	365.08	365.64	365.09	
PZ-A	373.94	364.49	363.69	364.28	363.13	362.58	362.56	362.62	362.76	363.39	362.82	362.64	363.02	362.75	362.56	362.60	364.04	362.72	362.56	363.81	363.12	362.61	363.95	363.15	362.75	362.91	363.56	362.58	363.92	363.05	363.22	362.59	^^	363.40	363.57	363.61
PZ-B	373.92	364.49	363.60	364.21	363.02	362.62	362.50	363.26	362.71	363.00	362.97	362.59	363.01	362.67	362.54	362.51	364.27	362.62	363.45	363.91	363.19	362.67	364.08	363.32	362.79	362.94	363.94	362.55	364.44	363.24	363.40	362.65	363.39	363.47	363.89	363.70
PZ-C	374.85	365.69	366.29	367.02	365.93	365.97	365.47	365.38	365.30	365.54	365.99	365.53	365.54	365.56	365.52	365.52	365.97	365.18	365.02	365.79	365.10	364.75	366.04	366.04	365.03	365.35	366.39	364.54	365.68	365.38	366.26	364.19	365.65	365.76	365.44	366.10
PZ-D	375.12	365.78	366.25	366.99	365.99	365.91	365.53	365.37	365.30	365.53	366.06	365.58	365.67	365.59	365.55	365.53	366.06	365.25	365.12	365.79	365.18	364.89	366.09	366.10	365.10	365.46	366.36	364.65	365.58	365.41	366.21	364.21	365.65	365.84	365.53	366.17
PZ-E	374.12	364.75	364.25	364.86	363.73	364.00	363.41	363.61	363.54	364.22	364.67	364.67	364.08	363.57	363.67	363.53	366.41	363.57	363.52	364.93	364.20	363.81	365.16	365.03	363.92	364.40	365.90	363.49	366.51	364.63	364.77	363.47	364.94	365.00	366.92	365.35
PZ-F	377.06	366.17					365.56	365.50						365.37	365.27	365.52	365.73	365.62	365.27	366.36	365.53	365.11	366.89	366.72	365.27	365.70	367.06	364.93	365.50	365.51	366.29	364.29	366.25	366.41	365.46	366.89
PZ-G	377.16	366.21					365.66	365.60						365.46	365.36	365.60	365.76	365.71	365.44	366.44	365.61	365.17	366.89	366.80	365.36	365.75	367.11	364.93	365.39	365.53	366.22	364.36	366.35	366.46	365.43	366.92
PZ-HR	376.99	366.16					365.54							365.44	365.34	365.54	365.84	365.60	365.39	366.34	365.55	365.11	366.80	366.68	365.33	365.66	367.02	364.91	365.39	365.46	366.19	364.24	366.22	366.41	365.50	366.87
PZ-I	375.15	366.56					365.86	365.64						365.88	365.57	365.90	366.59	366.05	365.76	366.93	365.79	365.23	367.30	367.23	365.55	366.08	367.81	364.91	366.29	366.16	367.05	364.22	366.58	366.90	365.97	367.31
PZ-J	374.89	366.15					365.53	365.40						365.53	365.39	365.55	365.93	365.59	365.47	366.21	365.53	365.14	366.55	366.50	365.32	365.64	366.69	364.96	365.10	365.18	365.89	364.21	365.96	366.73	365.61	366.51
PZ-K	373.19	364.53	363.78	364.35	363.27	362.69	362.69	362.71	362.75	362.92	362.80	362.78	362.98	362.82	362.66	362.66	363.70	362.78	362.58	363.87	363.13	362.59	363.97	363.19	362.69	362.86	363.53	362.49	363.82	363.19	363.48	362.56	363.25	363.36	363.12	363.59
PZ-L	374.62	364.25	363.59	364.18	363.04	362.42	362.48	362.44		362.88	362.63	362.57	362.84	362.65	362.40	362.51	363.59	362.65	362.45	363.69	363.00	362.47	363.84	363.03	362.61	362.68	363.42	362.47	363.44	362.96	363.26	362.53	363.42	363.25	363.06	363.58
PZ-M	374.35	364.70	364.09	364.64	363.52	362.96	362.96	362.96	363.09	363.29	363.15	363.05	363.30	363.12	362.93	363.01	364.07	363.13	362.94	364.06	363.40	362.90	364.22	363.54	363.05	363.24	363.86	362.90	363.93	363.37	363.62	362.82	363.60	363.77	363.66	364.04
PZ-N	376.94**	365.79	366.37	367.06	365.99	365.91	365.53	365.39	365.33	365.55	365.97	365.58	365.59	365.59	365.55	365.56	366.09	365.31	365.12	365.87	365.19	364.87	366.17	366.12	NM	365.35	366.43	364.47	366.60	365.29	366.13	364.09	365.54	365.74	364.48	366.11
PZ-O	375.36	364.29	363.68	364.29	363.21	362.84	362.72	362.87	362.78	363.05	362.97	362.80	363.03	362.81	362.74	362.75	363.74	362.87	362.68	364.01	363.25	362.73	364.22	363.57	362.86	363.06	364.22	362.64	364.47	363.63	363.98	362.75	363.61	363.53	363.36	364.00
PZ-P	376.89	366.25					365.65	365.60						365.52	365.39	365.61	365.78	365.73	365.44	366.43	365.59	365.18	366.85	366.73	365.34	365.77	367.02	364.93	365.31	365.48	366.19	364.25	366.25	366.45	365.53	366.88
PZ-Q	377.61	366.23					365.64	365.57						365.45	365.35	365.59	365.70	365.71	365.42	366.44	365.60	365.16	366.93	366.78	365.26	365.76	367.21	364.89	366.11	365.70	366.41	364.41	366.40	366.55	365.38	367.01
PZ-R	377.05	366.23		366.94			365.65	365.57						365.50	365.38	365.61	365.81	365.67	365.47	366.46	365.61	365.20	366.89	366.81	365.37	365.72	367.21	364.93	365.40	365.58	366.31	364.31	366.34	366.46	365.31	366.97
PZ-S	378.13	366.19					365.57	365.52						365.43	365.35	365.57	365.94	365.65	365.40	366.39	365.56	365.15	366.84	366.73	365.32	365.71	367.12	364.90	365.27	365.53	366.29	364.31	366.29	366.42	365.42	366.95
PZ-T	376.25	366.14					365.54	365.43						365.52	365.38	365.58	365.96	365.64	365.47	366.34	365.53	365.10	366.71	366.65	365.29	375.70	366.90	364.90	365.34	365.37	366.10	364.20	366.16	366.38	365.74	366.86
PZ-U	375.35	365.99		366.81			365.50	365.33						365.37	365.30	365.49	365.91	365.55	365.40	366.17	365.46	365.08	366.55	366.49	365.22	365.60	366.75	364.85	365.18	365.23	365.96	364.18	366.00	365.83	365.66	366.64
PZ-V	375.78	366.07					365.48	365.35						365.43	365.29	365.47	365.90	365.52	365.37	366.20	365.44	365.06	366.54	366.50	365.25	365.58	366.76	364.83	365.30	365.24	365.97	364.15	365.98	366.71	365.84	366.66
PZ-W	375.78	366.07					365.46	365.31						365.41	365.28	365.44	365.78	365.53	365.33	366.15	365.41	365.02	366.49	366.41	365.20	365.59	366.63	364.85	365.05	365.12	365.86	364.09	365.88	366.18	365.49	366.56

Notes:

1. Weeks 1, 2, 3, 4, 13, 18, 22, 23, 25, 26, 39, 46, and 52 are weeks after the initial introduction of Revised Anaerobic Mineral Media (RAMM) into the three impacted areas.
2. 8/10, 8/11, and 8/12/98 water level measurements were taken during the initial discrete RAMM injection event.
3. AMSL = Above Mean Sea Level (NGVD of 1929)
4. The ground-water level in PZ-8D was not measured on 3/27/00 and 6/1/00 because this piezometer was damaged. This piezometer was decommissioned on August 30, 2000.
5. ^ = The canal water-level measurement for the third quarter of the first year of the long-term process control monitoring program was obtained on September 29, 2000.
6. * = The reference elevation for canal gauging point was 363.06 feet AMSL prior to 11/16/00. The canal gauging point was re-marked and re-surveyed 11/16/00. The new reference elevation is 393.39 feet AMSL.
7. NM = The groundwater level in PZ-N was not measured on 9/18/00 because this piezometer was damaged. This piezometer was repaired and subsequently resurveyed on 11/16/00. The new reference elevation for PZ-N is 376.94 feet AMSL.
8. ** = The reference elevation for PZ-N was 376.02 feet AMSL prior to 11/16/00 and, as noted above, the new reference elevation is 376.94 feet AMSL.
9. *** = Monitoring well MW-9D inner PVC pipe was reduced (cut) by 1½ inches on 9/19/01. The reference elevation prior to 9/19/01 was 376.88 feet AMSL. The new reference elevation for MW-9D is 376.76 feet AMSL.
10. ^^ = Due to frigid weather conditions, the groundwater level in PZ-A and MW-8D could not be measured on 1/20/03, because the locks were frozen. The canal water-level for the 1/20/03 resampling event could not be measured due to strong winds and ice on the water surface.
11. ^^^ = The canal water-level for the 1/13/04 hydraulic monitoring event could not be measured due to ice on the water surface.

Table 3

Biological Monitoring Data
10/28 - 10/30/03

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Location	Biological Parameters																				
	PLFA (Pmol/mL)	PHA (Pmol/mL)	Turnover Rate	Environmental Stress	Nitrate (mg/L)	Nitrogen (mg/L)	Total Fe (mg/L)	Dissolved Fe (mg/L)	Total Mn (mg/L)	Dissolved Mn (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Carbon Dioxide (mg/L)	Methane (mg/L)	Potassium (mg/L)	Ortho-Phosphate (mg/L)	Ammonia (mg/L)	pH (S.U.)	D.O. (mg/L)	Temp. (C)	ORP (mV)	Cond. (mS/cm)
AREA 1																					
MW-1	2	ND	1.00	0.00	< 1.00	19	0.341 J	0.0532 J	0.0104 J	0.0201	83.2	< 2.00	30	0.0066	--	--	--	7.27	--	15.42	2	1.24
TW-01	3	ND	0.14	0.14	< 1.00	20	2.33 J	1.61 J	0.953 J	0.765	270	< 2.00	140	1.2	10.50 J	0.41	1.68	6.80	--	13.33	-111	1.95
MW-31	19	ND	0.08	0.05	0.100	9.4	4.73	5.89	1.34	1.74	34.2	< 2.00	240	7.9	5.20	0.23	1.12	6.58	--	14.60	-120	3.28
MW-32	3	ND	0.16	0.00	< 1.00	23	4.96 J	4.37 J	1.38 J	1.26	287	< 2.00	170	0.51	8.07 J	0.120	1.07	6.81	--	13.66	-138	2.16
MW-9S	7	ND	0.38	0.09	< 1.00	--	10.9 J	7.70 J	1.62 J	1.14	< 10.0	< 2.00	--	--	4.05 J	0.031	0.311	6.84	--	6.84	-166	2.04
MW-33	--	--	--	--	< 1.00	2.8	0.489 J	0.327 J	0.74 J	0.544	67.2	< 2.00	460	12	10.1 J	0.20	0.780	6.52	--	13.61	-219	5.57
AREA 2																					
TW-02R	76	ND	0.04	0.08	< 1.00	14	6.15	4.13	8.3	5.74	< 10.0	< 2.00	260	6.4	21.8	0.61	87.4	6.50	--	11.88	-207	5.16
MW-34	3	ND	0.15	0.00	< 0.100	19	2.33	1.95	0.83	0.732	16.3	< 2.00	170	2	11.9	0.16	7.30	6.75	--	13.40	-172	2.07
MW-35	7	ND	0.17	0.22	0.174	--	3.36	2.70	0.804	0.640	62.0	< 2.00	--	--	7.08	0.47	1.65	6.53	--	14.36	-108	1.26
MW-36	--	--	--	--	0.100	17	0.304	0.106	2.25	1.90	44.7	< 2.00	260	5.6	22.1	0.56	14.6	6.63	--	13.95	-195	3.92
AREA 3																					
MW-3S	46	ND	0.07	0.12	< 0.100	20	26.0 J	7.07 J	5.05 J	4.32	24.3	< 2.00	100	0.0085	--	--	--	6.81	--	13.51	-138	0.80
MW-8S	--	--	--	--	< 1.00	6.6	83.1	84.8	2.21	2.59	11.6	< 2.00	440	5.2	11.90	1.7	19.1	6.03	--	15.60	-167	6.36
MW-27	8	ND	0.16	0.10	< 0.100	11	11.1	12.7	1.09	1.08	7.80	< 2.00	300	5.2	7.78	0.33	7.68	6.34	--	13.63	-213	3.94
MW-28	8	ND	1.17	0.09	< 1.00	11	51.5	48.0	2.31	2.30	28.0	< 2.00	370	6.3	8.25	0.64	11.0	6.22	--	14.01	-171	4.58
MW-29	--	--	--	--	< 1.00	--	0.836	0.314	0.152	0.178	80.0	< 2.00	--	--	9.51	0.20	0.489	7.01	--	13.54	-311	3.45
MW-30	--	--	--	--	<1.00	18	1.850	1.68	0.120	0.109	84.9	< 2.00	100	2.4	8.96	0.24	0.488	6.95	--	12.57	-334	2.71

Notes:

1. PLFA = Phospholipid fatty acids.
2. PHA = Poly-b-hydroxy alkanoate.
3. Turnover Rate = The summation of cy17:0/16:1w7c plus cy19:0/18:1w7c.
4. Environmental Stress = The summation of 16:1w7t/16:1w7c plus 18:1w7t/18:1w7c.
5. Fe = Iron.
6. Mn = Manganese.
7. D.O. = Dissolved oxygen.
8. Temp. = Temperature.
9. ORP = Oxidation/reduction potential.
10. Cond. = Conductivity.
11. Pmol/mL = Picomoles per milliliter.
12. mg/L = Milligrams per liter.
13. C = Degrees Celsius.
14. mV = Millivolts.
15. mS/cm = Millisiemens per centimeter.
16. -- = Not measured.
17. < = Parameter was not detected at the listed limit.
18. J = Result is estimated, reported value is less than practical quantitation limit (PQL).
19. ND = Not detected.
20. Dissolved oxygen was not measured during the October 2003 biannual sampling event, due to equipment failure.
21. MW-8S was inadvertently not sampled for PLFA and PHA analyses.

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screened Interval (AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl benzene	Xylene	Methanol	Methylene chloride	Naphthalene	2-Methyl naphthalene	Vinyl chloride
MW-1	3/88	370.3	355.3	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			**0.7 JN**	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			**8 J**	<10 J	**3 J**	<10 J	**5 J**	<1,000	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	[redacted]
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
	4/02			<12	<5	<5	<5	<10	**990 J**	<5	<5	<5	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**2 J**	<5	<5
MW-2S	3/88	368.1	353.1	<1,000	[redacted]		[redacted]	[redacted]	<1,000	<10	<10	<10	<10
	1/89			<1,000	[redacted]		[redacted]	[redacted]	<1,000	<10	<11	<11	<10
	11/89			<1,000	[redacted]	<100	[redacted]	[redacted]	**38,000**	<100	<100	<100	<100
MW-3S	3/88	365.1	350.1	<100	<1	<1	<1	<1	<1,000	[redacted]	<10	<10	[redacted]
	1/89			<10,000	<100	[redacted]	<100	<100	<1,000	[redacted]	<11	[redacted]	[redacted]
	11/89			<10,000	<100	<100	<100	<100	<1,000	[redacted]	<52	[redacted]	[redacted]
	11/91			[redacted]	[redacted]	[redacted]	**4**	[redacted]	<1,000	<10	[redacted]	[redacted]	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	[redacted]	[redacted]	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10	**1 J**	**0.7 J**	<10	<10	<1,000	<10	[redacted]	<10	<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
	9/00			<10 J	**1 J**	**2 J**	<10 J	<10 J	<1,000	<10 J	**2 J**	**1 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	[redacted]	[redacted]	**1 J**	**2 J**	<1,000 J	<10	[redacted]	[redacted]	<10
	4/02			<12	<5	<5	<5	<10	**370 J**	<5	**1.7 J**	<5	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5
MW-3D	8/95	343.8	339	<1,000	<25 D	<25 D	<25 D	<25 D	<1,000	<25 D	**1 J**	[redacted]	[redacted]
MW-4S	3/88	365.5	350.5	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	[redacted]	[redacted]
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screened Interval (ft MSL) Top	Bottom	Acetone	Benzene	Toluene	Ethylbenzene	Xylenes	Methanol	Trichloroethene	Aniline	N,N-Dimethylaniline	Methylene Chloride
MW-5[F]	3/88	363.3	348.3	<100	<1	<1	<1	<1	<1,000	<1	[illegible]	[illegible]	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	[illegible]	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	[illegible]	<10	<1
MW-6[C]	1/89	365.5	355.9	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
(Replaced by MW-6S)	11/89			<10	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
MW-7[C]	1/89	367	357.4	<100	<1	<1	<1	**2**	<1,000	<1	<11	<11	[illegible]
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-8[C]	1/89	364.7	355.1	<1,000,000	<10,000	<10,000	<10,000	<10,000	**430,000**	<10,000	[illegible]	[illegible]	[illegible]
(Replaced by MW-8S)	11/89			470,000	<10,000	<10,000	<10,000	<10,000	**300,000**	<10,000	[illegible]	[illegible]	[illegible]
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	**150,000**	<10,000	[illegible]	[illegible]	[illegible]
	8/95			<1,000	<250,000D	<250,000D	<250,000D	<250,000D	**22,000**	[illegible]	<25,000D	[illegible]	[illegible]
	9/98			<10,000 J	<10,000	<10,000	<10,000	<10,000	**7,900**	[illegible]	[illegible]	[illegible]	[illegible]
	2/99			<20,000	<20,000	<20,000	<20,000	<20,000	**16,000JN**	[illegible]	[illegible]	[illegible]	[illegible]
	7/99			**10 J**	22 J	240 J	[illegible]	220 J	**17,000**	[illegible]	[illegible]	[illegible]	[illegible]
	3/00			<100,000	<100,000	<100,000	<100,000	<100,000	**30,000 J**	<100,000	[illegible]	[illegible]	[illegible]
	9/00			<50,000 J	<50,000 J	<50,000 J	<50,000 J	<50,000 J	**14,000 J**	[illegible]	[illegible]	[illegible]	[illegible]
	3/01			<50,000	<50,000	<50,000	<50,000	<50,000	**53,000**	[illegible]	[illegible]	[illegible]	[illegible]
	9/01			<400	<400	[illegible]	[illegible]	[illegible]	**8,900 J**	[illegible]	[illegible]	[illegible]	[illegible]
	4/02			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	[illegible]	[illegible]
	10/02			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	[illegible]	[illegible]
	5/03			<12	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	[illegible]	[illegible]
	10/03			**21**	[illegible]	[illegible]	[illegible]	[illegible]	**1,200 J**	[illegible]	[illegible]	[illegible]	[illegible]
MW-9[C]	1/89	365.6	356	1,600	NA	[illegible]	[illegible]	[illegible]	<1,000	<10	[illegible]	[illegible]	[illegible]
(Replaced by MW-9S)	11/89			<1,000	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<10	[illegible]	[illegible]	<10
	11/91			<100	<10	[illegible]	[illegible]	[illegible]	<1,000	<1	[illegible]	[illegible]	<1
	8/95			<1,000	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<50	[illegible]	[illegible]	[illegible]
	7/99			<10	[illegible]	**2 J**	[illegible]	[illegible]	<1,000	<10	<10	[illegible]	<10
	3/00			<10	[illegible]	**2 J**	[illegible]	[illegible]	<1,000 J	<10	**2 J**	[illegible]	<10
	9/00			<10 J	[illegible]	**2 J**	[illegible]	[illegible]	<1,000	<10 J	**1 J**	[illegible]	<10 J
	3/01			<10	**1 J**	**3 J**	[illegible]	[illegible]	<1,000	<10	**2 J**	[illegible]	<10
	9/01			<10	[illegible]	**3 J**	[illegible]	[illegible]	<1,000 J	<10	<10	[illegible]	<10
	4/02			<23	[illegible]	**2 J**	[illegible]	[illegible]	**370 J**	<5	[illegible]	[illegible]	<5
	10/02			**16 J**	[illegible]	[illegible]	**2 J**	[illegible]	<1,000	<10	<5	[illegible]	<10
	5/03			<12	[illegible]	<5	[illegible]	[illegible]	<1,000	<5	**0.9 J**	[illegible]	<5
	10/03			<12	[illegible]	<5	**5**	[illegible]	<1,000	<5	**1 J**	<5	<5
MW-10[C]	1/89	355.5	345.9	<1,000,000	<10,000	<10,000	<10,000	<10,000	**210,000**	<10,000	[illegible]	[illegible]	[illegible]
(Replaced by MW-9D)	11/89			<100,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	[illegible]	[illegible]	[illegible]
	11/91			<100	<1	**3**	**2**	<3	<1,000	<1	[illegible]	<10	[illegible]
	8/95			<1,000	<25 UD	<25 UD	<25 UD	<25 UD	<1,000	<25 UD	<5	<10	[illegible]

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screen Top (ft MSL)	Screen Bottom (ft MSL)	Acetone	Benzene	Chloroform	Toluene	Xylene	Methanol	Ethanol	Acetic Acid	THF	Methylene Chloride
MW-11[C]	1/89	355.1	345.5	<100	<1	<1	<1	<1	**8,400**	<1	<12	<12	**1**
(Replaced MW-6D)	11/89			<100	<1	<1	<1	<1	<1,000	<1	[redacted]	<52	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
MW-11S	12/94	359.9	354.9	<380	<10	<10	<10	<10	**880**	<10	<5	<10	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<26
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-11D	12/94	349.8	344.8	<310	<5	<5	<5	<5	**2,100**	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-12D[C]	1/89	354.8	345.2	<100,000	<1,000	<1,000	<1,000	<1,000	**12,000**	<1,000	[redacted]	[redacted]	[redacted]
(Replaced MW-8D)	11/89			[redacted]	<1,000	<1,000	<1,000	<1,000	**39,000**	<1,000	<1,000	[redacted]	[redacted]
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	<10,000	<10,000	[redacted]	[redacted]	[redacted]
	8/95			<1,000	[redacted]	[redacted]	[redacted]	[redacted]	<1,000	<1,300 D	[redacted]	[redacted]	<13,000 D
	8/96			**13**	<10	<10	<10	<10	<1,000	**2 J**	<5	<10	[redacted]
MW-13S	11/89	368.7	359.1	<100	[redacted]	<1	<1	<1	<1,000	<1	<52	<52	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
MW-14D[F]	1/89	359	349.4	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-15S	1/89	370	360.25	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<52	<52	<1
MW-16D[F]	1/89	350.8	341.2	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-17[F]	11/90	365.7	356.1	<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
(Replaced by MW-17R)	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<11
	10/95			NA	<5	<5	<5	<5	NA	**2 J**	NA	NA	<5
	8/96			**11**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	**1 J**	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	[redacted]	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	[redacted]	<10 J	<10 J	<10 J	<1,000 J	<10 J	[redacted]	[redacted]	**1 J**
	3/01			<10	[redacted]	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	[redacted]	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	[redacted]	<5	<5	<10	**620 J**	<5	[redacted]	[redacted]	<5
	10/02			<25 J	[redacted]	<10	<10	<20	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	[redacted]	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03			<12	[redacted]	<5	<5	<10	<1,000	<5	<5	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screen Interval Top	Screen Interval Bottom	Acetone	Benzene	Toluene	Ethyl benzene	Xylene	Methanol	Chloroform	Arsenic	Cadmium	Methylene Chloride
MW-18	11/89	325.15	316.15	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<10	<10	<10	<20	**720 J**	<10	[redacted]	[redacted]	<10
	10/02			**6 J**	<10	<10	<10	<20	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	<5	<5	<5	<5	**280 J**	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**0.7 J**	<5	<5
MW-19	11/89	318.45	309.45	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<12
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	[redacted]	<11
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	10/03			<11	<5	<5	<5	<10	<1,000	<5	[redacted]	[redacted]	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screened Interval (MSL) Top	Screened Interval (MSL) Bottom	Acetone	Benzene	Toluene	Ethylbenzene	Xylenes	Methanol	Ethanol	Aniline	2,4-Dimethyl aniline	Methylene Chloride
MW-20[F]	11/89	329.85	320.85	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
MW-21[F]	11/89	323.65	314.65	<100	<5	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-22	11/89	368.55	359.55	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-23S	12/94	364.1	354.1	<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10		<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10		<10	<10
	8/97			**12**	<10	<10	<10	<10	<1,000	<10		<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10			<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10		<10 J
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J		<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5		<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J		<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<62	<25	<25	<25	<50	**380 J**	<25	<5	<5	<25
	10/03			<12	<5	<5	<5	<10	<1,000	<5		<5	<5
MW-23I	12/94	341.2	336.2	<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			**4 J**	<10	<10	<10	**2 J**	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	**2 J**
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	10/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screened Interval Top of	Screened Interval Bottom of	Acetone	Benzene	Toluene	Ethylbenzene	Xylene	Methanol	Ethanol	Sulfide	Sulfate	Methylene Chloride
MW-24S[F]	12/94	358.4	352.4	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24SR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/02[K]			NS	NS	NS	NS	NS	NS	NS	ND	ND	NS
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	[redacted]	<6	<5
MW-24D[F]	12/94	334.4	341.2	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24DR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<10
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/02[K]			NS	NS	NS	NS	NS	NS	NS	ND	ND	NS
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**0.5 J**	<5	<5
MW-25S	8/95	361.2	356.2	<1,000	<5	<5	<5	<5	<1,000	<5	<5	**0.7 J**	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	[redacted]	<10	<10 J
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	[redacted]	[redacted]	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	**5 J**	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
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Syracuse, New York

Monitoring Well	Sampling Date	Screen Interval Top	Screen Interval Bottom	Acetone	Benzene	Toluene	Ethyl Benzene	Xylene	Methylene Chloride	Chloroform	Acetone	Carbon Disulfide	Dichloro-difluoro-methane
MW-25D	8/95	349.55	344.55	<1,000	<5	<5	<5	<5	<1,000	<5	<5	1 J	<5
	10/95			NA	<5	<5	<5	<5	NA	3 J	<5	<10	<5
	8/96			15	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	5 J	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
MW-26	12/96	365	355.3	<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
MW-27	9/98	362.5	354.5	23	[illegible]	4 J	<10	3 J	<1,000	<10	[illegible]	<10	<10
	7/99			<10 J	[illegible]	2 J	3 J	[illegible]	<1,000	<10	[illegible]	<10	<10
	3/00			<10	[illegible]	<10	[illegible]	2 J	<1,000 J	<10	[illegible]	1 J	<10
	9/00			<10 J	[illegible]	<10 J	3 J	1 J	<1,000 J	<10 J	[illegible]	[illegible]	1 J
	3/01			<10	[illegible]	<10	5 J	2 J	<1,000	<10	[illegible]	[illegible]	<10
	9/01			<10	[illegible]	<10	2 J	<10	<1,000 J	<10	[illegible]	<10	<10
	4/02			<18	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	[illegible]	<5
	10/02			9 J	[illegible]	<10	<10	<20	<1,000	4 J	[illegible]	[illegible]	[illegible]
	5/03			<12	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	[illegible]	[illegible]
	10/03			[illegible]	[illegible]	<5	<5	3 J	<1,000	<5	[illegible]	<5	[illegible]
MW-28	9/98	363.6	355.6	<5,000 J	<5,000	<5,000	<5,000	<5,000	2,200	<5,000	[illegible]	[illegible]	[illegible]
	7/99			<500 J	<500	<500	<500	<500	<1,000	<500	[illegible]	[illegible]	[illegible]
	3/00			<10,000	<10,000	<10,000	<10,000	<10,000	<1,000 J	<10,000	[illegible]	[illegible]	[illegible]
	9/00			<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	[illegible]	<10	[illegible]
	3/01			<400	<400	<400	<400	<400	<1,000	<400	[illegible]	[illegible]	[illegible]
	9/01			<400	<400	<400	<400	<400	<1,000 J	<400	[illegible]	<10	[illegible]
	4/02			<49	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	[illegible]	[illegible]
	10/02			14 J	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<10	[illegible]	R	<10
	5/03			13	[illegible]	2 J	2 J	[illegible]	<1,000	<5	[illegible]	[illegible]	[illegible]
	10/03			24	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	<5	<5
MW-29	9/98	362.9	345.9	<10	<10	<10	<10	2 J	<1,000	<10	<10	[illegible]	<10
	2/99			7 J	<10	<10	<10	1 J	<1,000	<10	5 J	[illegible]	<10
	7/99			<10	<10	<10	<10	<10	<1,000	<10	2 J	[illegible]	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	[illegible]	[illegible]	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	[illegible]	[illegible]	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	[illegible]	[illegible]	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	[illegible]	[illegible]	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	3 J	[illegible]	<6
	10/02			<25 J	<10	<10	<10	<20	<1,000	<10	[illegible]	R	[illegible]
	5/03			<12	<5	<5	<5	<10	<1,000	<5	[illegible]	1 J	<3
	10/03			<12	<5	<5	<5	<10	<1,000	<5	2 J	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sample Date	TOC	GW Elevation	Acetone	Benzene	Toluene	Ethyl benzene	Xylene	Methanol	Methyl ethyl ketone	Naphthalene	Methyl isobutyl ketone	Methylene chloride
MW-30	9/98	363.5	355.5	<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	2/99			**7 J**	<10	<10	<10	<10	<1,000	<10	<10		<10
	7/99			<10	**0.7 J**	<10	<10	<10	<1,000	**0.5 J**	<10	**1 J**	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10			**4 J**
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J			**2 J**
	3/01			<10	<10	<10	<10	<10	<1,000	<10			<10
	9/01			**4 J**		<10	<10	<10	<1,000 J	<10		**1 J**	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5			<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	R	R	<10
	5/03			<62	<25	<25	<25	<50	<1,000	<25		0.6 J	
	10/03			<12	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5
MW-31	9/98	363.7	355.4	<10		<10	<10	<10	<1,000	<10			<10
	7/99			<10		<10	<10	<10	<1,000	<10			<10
	3/00			<10		<10	<10	<10	<1,000 J	<10	**3 J**		<10
	9/00			<10 J		<10 J	<10 J	<10 J	<1,000	<10 J			<10 J
	3/01			**21**		<10	<10	<10	<1,000	<10	<10		<10
	9/01			<10		<10	<10	<10	<1,000 J	<10			<10
	4/02			<14		<5	<5	<10	<1,000	<5			<5
	10/02			<25		<10	<10	<20	<1,000	<10		**1 J**	<10
	5/03			<12		<5	<5	<10	<1,000	<5	**0.9 J**		<5
	10/03					<5	<5	<5	<1,000	<5		<5	<5
MW-32	9/98	364	356	<10		**2 J**	**5 J**	**3 J**	<1,000	<10			<10
	7/99			**3 J**		**2 J**	**4 J**	<10	<1,000		<10		<10
	3/00			<10		<10	<10	<10	<1,000 J	<10		<10	<10
	9/00			<10 J		<10 J	<10 J	<10 J	<1,000	<10 J		<10	<10 J
	3/01			<10		<10	<10	<10	<1,000	<10			<10
	9/01			<10		<10	<10	<10	<1,000 J	<10			<10
	4/02			<15		<5	<5	<10	<1,000	<5			<5
	10/02			<25		<10	<10	<20	<1,000	<10		R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	**0.6 J**	**0.7 J**	<5
	10/03			**20**		<5	<5	<10	<1,000	<5	<5	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sample Date	Screen Interval AMSL Top	Screen Interval AMSL Bottom	Acetone	Benzene	Toluene	Ethyl Benzene	p-Xylene	Methylene Chloride	Chloroform	[illegible]	[illegible]	Carbon Disulfide
MW-33	9/98	344.1	356.1	<10	<10	<10	<10	<10	<1,000	<10			<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10			<10
	7/99			**5 J**	[illegible]	**0.7 J**	<10	<10	<1,000	<10			<23
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10			[illegible]
	9/00			**45 J**	[illegible]	**1 J**	<10 J	<10 J	<1,000	<10 J			[illegible]
	3/01			**17 J**	<20	<20	<20	<20	<1,000	<20			[illegible]
	9/01			**21**	[illegible]	<10	<10	<10	<1,000 J	<10			<18
	4/02			<18	[illegible]	<5	<5	<10	<1,000	<5			[illegible]
	10/02			**11 J**	[illegible]	<10	<10	<20	<1,000	<10			**4 J**
	5/03			[illegible]	[illegible]	<5	<5	<10	<1,000	<5	[illegible]		[illegible]
	10/03			**22**	[illegible]	<5	<5	<10	<1,000	<5		<6	<5
MW-34	9/98	362.7	354.7	<10	<10	<10	<10	<10	<1,000	<10		<10	<10
	7/99			**2 J**	**0.9 J**	**1 J**	<10	<10	<1,000	<10			<10
	3/00			<10 J	**1 J**	**2 J**	<10	<10	<1,000 J	<10			<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J			<10 J
	3/01			<10	<10	**2 J**	<10	**2 J**	<1,000	<10			<10
	9/01			**7 J**	[illegible]	**2 J**	<10	**2 J**	<1,000 J	<10			<10
	4/02			<32	<5	<5	<5	<10	<1,000	<5			<5
	10/02			**37 J**	<10	<10	<10	<20	<1,000	<10			<10
	5/03			**16**	<5	<5	<5	<10	<1,000	<5			<5
	10/03			**9 J**	<5	<5	<5	<10	<1,000	<5		<5	<5
MW-35	9/98	363	355	<10	<10	<10	<10	<10	<1,000	<10			<10
	7/99			<10	**0.7 J**	<10	<10	<10	<1,000	<10	**3 J**		<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10		<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	[illegible]	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	[illegible]	<10
	4/02			<13	<5	<5	<5	<10	<1,000	<5	**3 J**	[illegible]	<5
	10/02			<25	<10	<10	<10	<20	<1,000	<10	**2 J**	R	<10
	5/03			<12	<5	<5	<5	<10	<1,000	<5	[illegible]	<100	<5
	10/03			**5 J**	<5	<5	<5	<10	<1,000	<5	**4 J**	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Elevation (ft. MSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene	Methanol	[illegible]	Aniline	[illegible]	[illegible]
MW-36	9/98	363.6	355.6	<10	<10	<10	<10	<10	<1,000	<10	[illegible]	[illegible]	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	[illegible]	[illegible]	<10
	7/99			**8 J**	**0.8 J**	<10	<10	<10	<1,000	<10	[illegible]	<10	<10
	3/00			<10 J	<10	<10	<10	<10	<1,000 J	<10	[illegible]	[illegible]	<10
	9/00			**5 J**	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	[illegible]	[illegible]	<5
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			[illegible]	<10	<10	<10	<10	<1,000 J	<10	[illegible]	[illegible]	<10
	4/02			<20	<5	<5	<5	<10	<1,000	<5	[illegible]	[illegible]	<5
	10/02			**12 J**	<10	<10	<10	<20	<1,000	<10	**2 J**	[illegible]	<10
	5/03			**9 J**	<5	<5	<5	<10	<1,000	<5	[illegible]	[illegible]	<5
	10/03			580 D	<5	<5	<5	<10	<1,000	<5	[illegible]	<5	<5
TW-01	12/96	365.1	355.4	<10	[illegible]	**4 J**	[illegible]	**4 J**	<1,000	<10	[illegible]	[illegible]	**4 J**
	9/98			<10	[illegible]	<10	**4 J**	<10	<1,000	<10	[illegible]	[illegible]	<10
	2/99			<10	[illegible]	**2 J**	**2 J**	**2 J**	<1,000	<10	[illegible]	[illegible]	<10
	7/99			<10	[illegible]	**1 J**	**3 J**	<10	<1,000	<10	[illegible]	[illegible]	<10
	3/00			<10	[illegible]	<10	<10	<10	<1,000 J	<10	[illegible]	[illegible]	<10
	9/00			<10 J	[illegible]	<10 J	<10 J	<10 J	<1,000	<10 J	[illegible]	[illegible]	<10 J
	3/01			<10	[illegible]	<10	<10	<10	<1,000	<10	<10	[illegible]	<10
	9/01			<10	[illegible]	<10	<10	<10	<1,000 J	<10	<10	[illegible]	<10
	4/02			<14	[illegible]	<5	<5	<10	<1,000	<5	[illegible]	[illegible]	<5
	10/02			<25	[illegible]	<10	<10	<20	<1,000	<10	<5	**R**	<10
	5/03			<12	[illegible]	<5	<5	<10	<1,000	<5	<5	**1 J**	<5
	10/03			<12	[illegible]	<5	<5	<10	<1,000	<5	**0.6 J**	<5	<5
TW-02[F]	12/96	363.3	353.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	[illegible]	[illegible]
(Replaced by TW-02R)	9/98			<500 J	<500 J	<500 J	<500 J	53,000	**5,000**	[illegible]	[illegible]	[illegible]	[illegible]
	2/99			<1,000	<1,000	[illegible]	<1,000	[illegible]	**14,000JN**	<1,000	[illegible]	[illegible]	[illegible]
	7/99			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	[illegible]	[illegible]
	3/00			<1,000 J	<1,000	[illegible]	<1,000	[illegible]	<1,000 J	<1,000	[illegible]	[illegible]	[illegible]
	9/00			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	[illegible]	[illegible]	<10,000	[illegible]
	3/01			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<10	[illegible]	[illegible]	[illegible]
	9/01			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000 J	<20	[illegible]	[illegible]	[illegible]
	4/02			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	<5,300	[illegible]
	10/02			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<10	[illegible]	[illegible]	<10
	5/03			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<1,000	<5	[illegible]	[illegible]	[illegible]
	10/03			[illegible]	[illegible]	[illegible]	<5	<10	<1,000	**2 J**	[illegible]	<260	[illegible]

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screened Interval (MSL) Top	Screened Interval (MSL) Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylenes	Methanol	[illegible]	[illegible]	[illegible]	Methylene Chloride
PZ-4D	11/89	350.8	345.9	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	**0.8 J**	<5
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<6	<12	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
PZ-4S	11/89	362.79	357.88	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<18
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	[illegible]	<10
	4/02			<14	<5	<5	<5	<10	<1,000	<5	[illegible]	<5 (<5)[K]	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	5/03			<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
PZ-5D	11/89	353.5	348.6	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<12
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	10/03			<12	<5	<5	<5	<10	<1,000	<5	[illegible]	<5	<5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

Monitoring Well	Sampling Date	Screen Interval (ft AMSL) Top	Screen Interval (ft AMSL) Bottom	Acetone	Benzene	Toluene	Ethyl Benzene	Xylenes	Methanol	Phenol	Aniline	Bis(2-chloroethyl) ether	Vinyl Chloride
PZ-5S	11/89	361.42	356.52	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			**5 J**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<5[H]	<10	<12
	6/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			**7 J**	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5[L]	<5[L]	<10
	10//03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
PZ-8S[O]	9/98	362.6	357.7	<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
PZ-11D[C]	11/89	352.09	347.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-11S[C]	11/89	359.09	354.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-12D[C]	11/89	350	345.1	<100	<1	<1	<1	<1	<1,000	<1	<53	<53	<1
	11/90			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<1	**3**	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
PZ-12S[C]	11/89	360	355.1	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	**6**	<1	<10	<10	**5**
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
PZ-13D[F]	11/89	349.4	344.4	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-13S[F]	11/89	359.5	354.5	<100	<1	2	<1	2	<1,000	<1	<11	<11	<1
NYSDEC Groundwater Standards (Part 700)				50	1	5	5	5	NA	5	5	1	5

Table 4

Summary of Historic Groundwater Monitoring Data

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

General Notes:

1. Concentrations are presented in micrograms per liter (ug/L), which is equivalent to parts per billion (ppb).
2. Compounds detected are indicated by bold-faced type.
3. Detections exceeding New York State Department of Environmental Conservation (NYSDEC) Groundwater Standards (Part 700) are indicated by shading.
4. Replacement wells for MW-6, MW-8, MW-9, MW-10, MW-11, and MW-12D were installed 8/95.
5. Replacement wells for MW-17, MW-24S, MW-24D, and TW-02 were installed 11/97 - 12/97.
6. The laboratory analytical results for the duplicate sample collected from monitoring well MW-23S during the 7/99 sampling event, indicated the presence of methanol at 5.1 mg/l. Because methanol was not detected in the original sample, the duplicate results were determined, based on the results of the data validation process, to be unacceptable. Furthermore, methanol has not been previously detected in groundwater samples collected from this monitoring well. Accordingly, the detection of methanol appears to be the result of a laboratory error and not representative of actual groundwater quality in the vicinity of monitoring well MW-23S.
7. N,N-dimethylaniline data for 10/02 sampling event for MW-1, MW-3S, MW-28, MW-29, MW-32, MW-35, and TW-01 were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. Aniline and n,n-dimethylaniline data for 10/02 sampling event for MW-30 were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. These wells and piezometers are not perimeter monitoring locations and were not resampled.

Superscript Notes:

[A] = Data presented is total xylenes (m- and p-xylenes and o-xylenes). For the 1995 data, the listed quantitation limit applies to the analyses conducted for m- and p-xylenes and o-xylenes.

[C] = Wells/piezometers MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12D, PZ-11D, PZ-11S, PZ-12D, and PZ-12S were abandoned during OU No.1 soil remediation activities (1994).

[F] = Wells/piezometers MW-5, MW-14D, MW-16D, MW-17, MW-20, MW-21, MW-24S, MW-24D, TW-02, PZ-13S, and PZ-13D were abandoned 11/97 - 1/98.

[G] = Piezometer PZ-8S was decommissioned 8/2000.

[H] = MW-18, MW-19, MW-23I, MW-23S, MW24DR, MW-24SR, MW-28, PZ-5S, and PZ-5D wells/piezometers were resampled for aniline during 12/98, because the 9/98 results were rejected due to laboratory error.

[I] = Because aniline was detected at monitoring well MW-3S at a concentration of 690 ug/l during the September 2001 sampling event, this well was resampled for aniline on November 8, 2001. Aniline was detected in MW-3S during the November 8, 2001 resampling event at a concentration of 69 ug/l.

[K] = MW-17R, MW-18, and PZ-4S wells/piezometers were resampled for aniline and N,N-dimethylaniline on June 18, 2002 because N,N-dimethylaniline and/or aniline was detected during the April 2002 sampling event. The results of this additional sampling event are shown in parenthesis. MW-24SR and MW-24DR were also sampled for aniline and N,N-dimethylaniline on June 18, 2002, because N,N-dimethylaniline and/or aniline was detected at nearby perimeter monitoring locations during the April 2002 sampling event.

[L] = MW-17R, MW-18, MW-19, MW-23S, MW-23I, MW-24DR, MW-24SR, MW-25S, PZ-4S, PZ-5S, and PZ-5D wells/peizometers were resampled for aniline and N,N-dimethylaniline during 1/03, because the 10/02 results were rejected due to matrix spike and matrix spike duplicate recoveries below control limits. These wells and piezometers are perimeter monitoring locations.

Abbreviations:

AMSL = Above Mean Sea Level (NGVD of 1929)

NA = Not available.

ND = Not detected.

NS = Not sampled.

Analytical Qualifiers:

D = Indicates the presence of a compound in a secondary dilution analysis.

J = The compound was positively identified; however, the numerical value is an estimated concentration only.

E = The compound was quantitated above the calibration range.

JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

< = Compound was not detected at the listed quantitation limit.

R = The sample results were rejected.

Table 5

Proposed Revised Long-Term Hydraulic and COC Process Control Monitoring Schedule

McKesson Enviroystems
Bear Street Facility
Syracuse, New York

Monitoring Location	Sampling Schedule	
	First Quarter	Third Quarter
Upgradient		
MW-1	C	
MW-3S	C	
MW-3D	H	H
Area 1		
MW-6D	H	H
MW-9S	C	
MW-9D	H	H
MW-31	C	C
MW-32	C	C
MW-33	C	C
PZ-F	H	H
PZ-G	H	H
PZ-HR	H	H
PZ-P	H	H
PZ-Q	H	H
PZ-R	H	H
PZ-S	H	H
Area 2		
TW-02R	C	C
PZ-9D	H	H
MW-34	C	
MW-35	C	C
MW-36	C	C
PZ-I	H	H
PZ-J	H	H
PZ-T	H	H
PZ-U	H	H
PZ-V	H	H
PZ-W	H	H

Table 5

Proposed Revised Long-Term Hydraulic and COC Process Control Monitoring Schedule

McKesson Enviroystems
Bear Street Facility
Syracuse, New York

Monitoring Location	Sampling Schedule	
	[illegible]	Third Quarter
[illegible]		
MW-8S	C	C
MW-27	C	C
MW-28	C	C
MW-29	C	
MW-30	C	
PZ-A	H	H
PZ-B	H	H
PZ-C	H	H
PZ-D	H	H
PZ-E	H	H
PZ-K	H	H
PZ-L	H	H
PZ-M	H	H
PZ-N	H	H
PZ-O	H	H
MW-11S	H	H
MW-11D	H	H
Downgradient Perimeter Monitoring Locations		
MW-17R	C	C
MW-18	C, H	C, H
MW-19	C, H	C, H
MW-23I	C, H	C, H
MW-23S	C, H	C, H
MW-24SR	H	C, H
MW-24DR	H	C, H
MW-25S	C, H	C, H
MW-25D	C, H	H
PZ-4S	C	
PZ-4D	C, H	H
PZ-5S		C
PZ-5D	H	C, H

Table 5

Proposed Revised Long-Term Hydraulic and COC Process Control Monitoring Schedule

McKesson Enviroystems
Bear Street Facility
Syracuse, New York

Notes:

1. H = Hydraulic Monitoring (Groundwater Level Measurements).

2. C = Monitoring for the Chemicals of Concern (COCs).

3. The hydraulic monitoring identified in this table was conducted on a quarterly basis for the first year of the long-term process control monitoring program, and has been/will be conducted on a semi-annual basis thereafter. The hydraulic monitoring also includes measuring the conductivity of groundwater recovered from Area 3 from a sampling port located before the equalization tank.

4. Field groundwater parameters including pH, temperature, conductivity, dissolved oxygen (DO), and oxidation/reduction potential (ORP) are measured during each COC sampling event.

5. Each of the monitoring wells and piezometers used for hydraulic and COC monitoring during the semi-annual monitoring event are checked for the presence (if any) of non-aqueous phase liquid (NAPL).

6. Based on the results obtained, the scope and/or the frequency for the hydraulic and/or COC components of the long-term process control monitoring program, as detailed herein, may be modified. Any modifications would be made in consultation with the New York State Department of Environmental Conservation (NYSDEC).

7. This table is based on the NYSDEC-approved *Operation and Maintenance (O&M) Plan* (BBL, Revised August 1999), including the NYSDEC-approved December 29, 1999 Addendum with the modifications detailed in the October 2003 *Biannual Process Control Monitoring Report* and reiterated in the June 2004 *Biannual Process Control Monitoring Report*.

Figures

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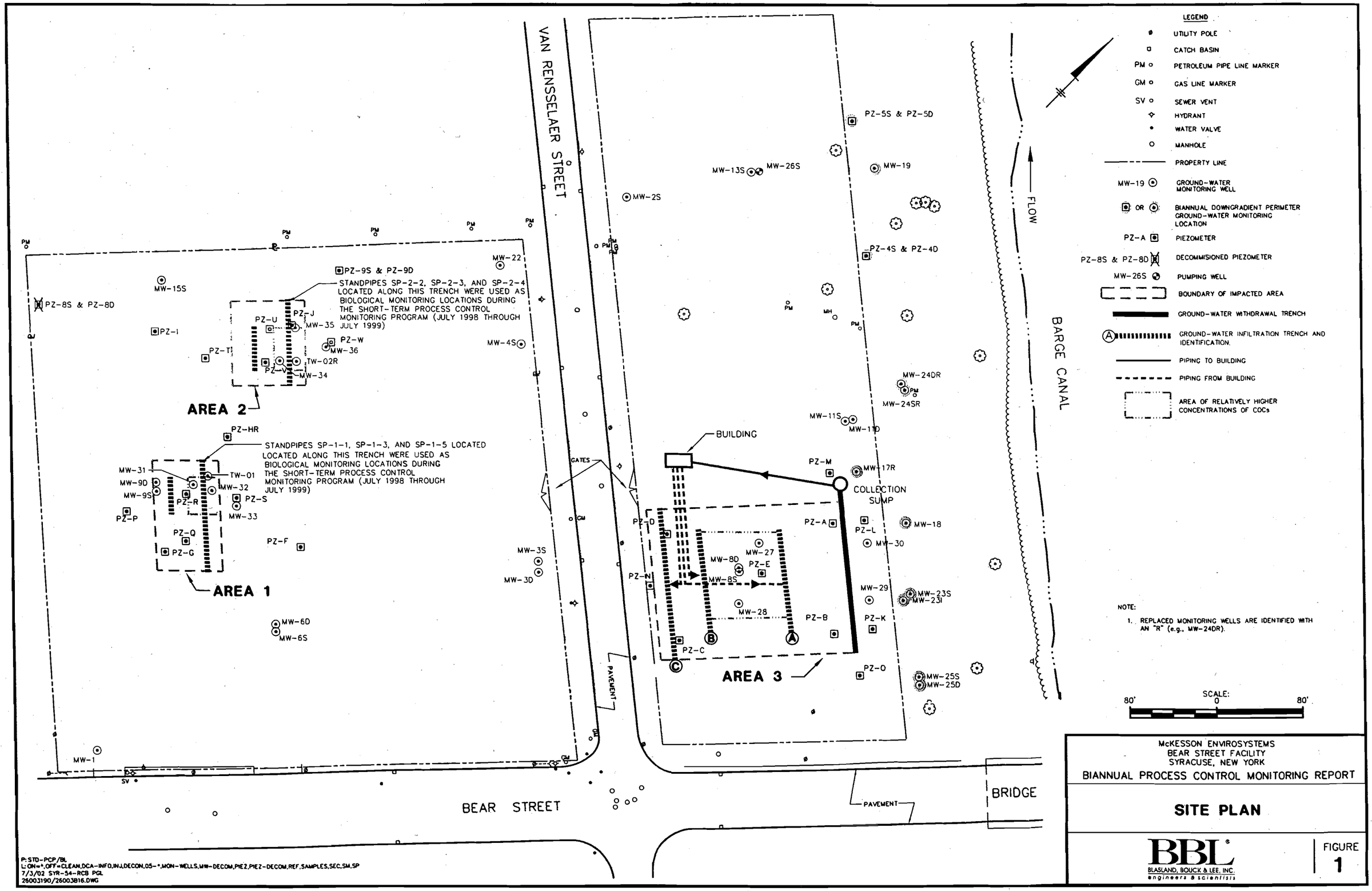

P:STD-PCP/BL
L:ON=*,OFF=CLEAN,DCA-INFO,INJ,DECON,05-*,MON-WELLS,MW-DECOM,PIEZ,PIEZ-DECOM,REF,SAMPLES,SEC,SM,SP
7/3/02 SYR-54-RCB PGL
26003190/26003816.DWG

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SITE PLAN

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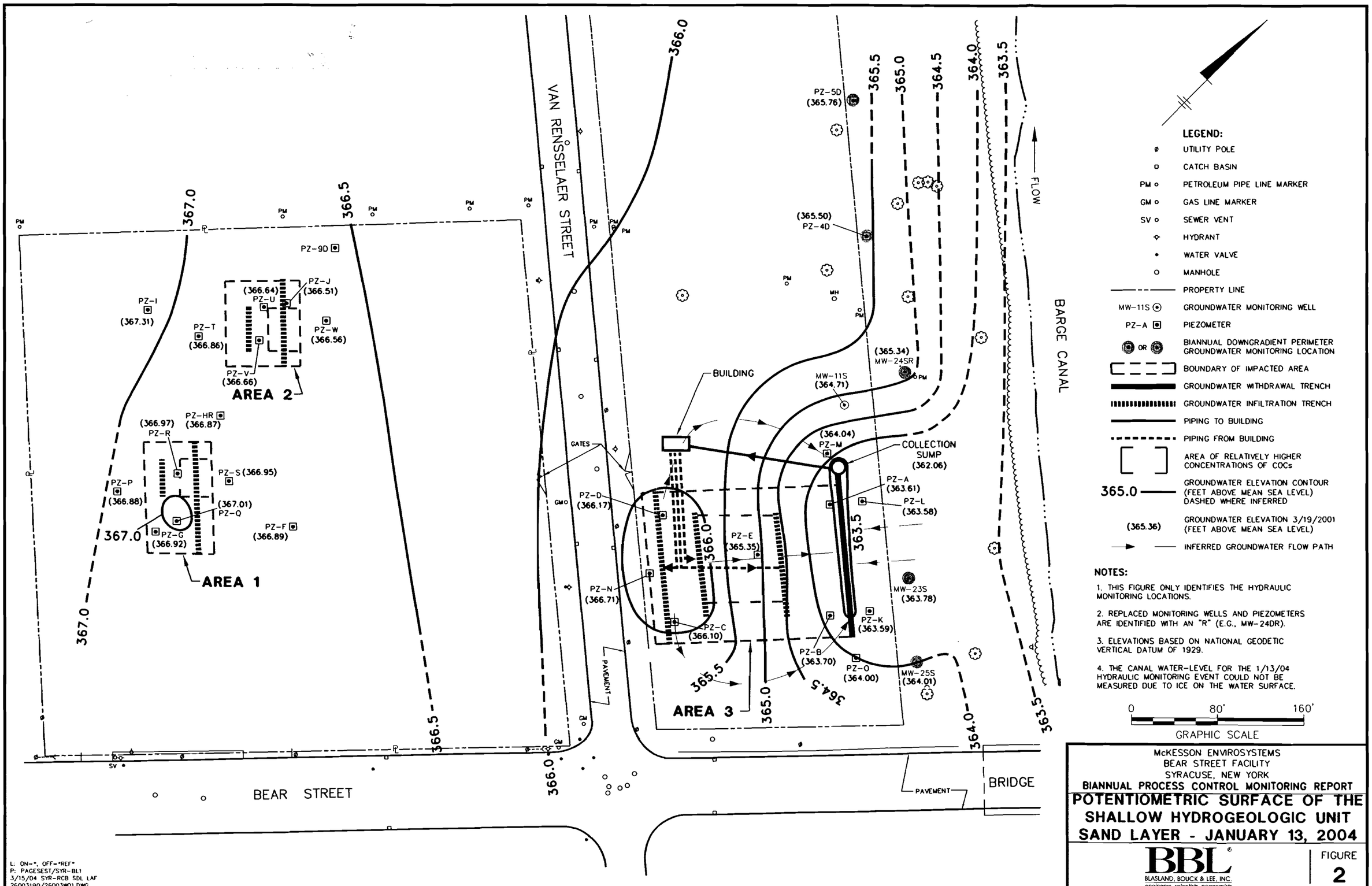
FIGURE 1



NOTES:

1. THIS FIGURE ONLY IDENTIFIES THE HYDRAULIC MONITORING LOCATIONS.
2. REPLACED MONITORING WELLS AND PIEZOMETERS ARE IDENTIFIED WITH AN "R" (E.G., MW-24DR).
3. ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. THE CANAL WATER-LEVEL FOR THE 1/13/04 HYDRAULIC MONITORING EVENT COULD NOT BE MEASURED DUE TO ICE ON THE WATER SURFACE.

0 80' 160'

GRAPHIC SCALE

McKESSON ENVIROSYSTEMS
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POTENTIOMETRIC SURFACE OF THE SHALLOW HYDROGEOLOGIC UNIT SAND LAYER - JANUARY 13, 2004

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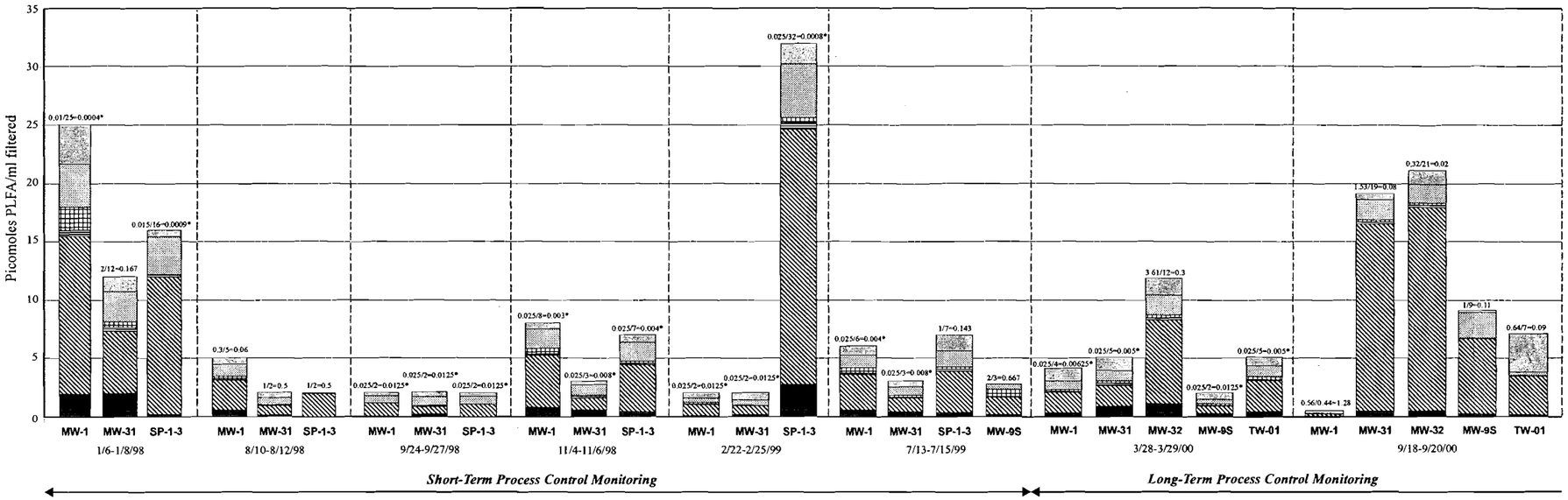
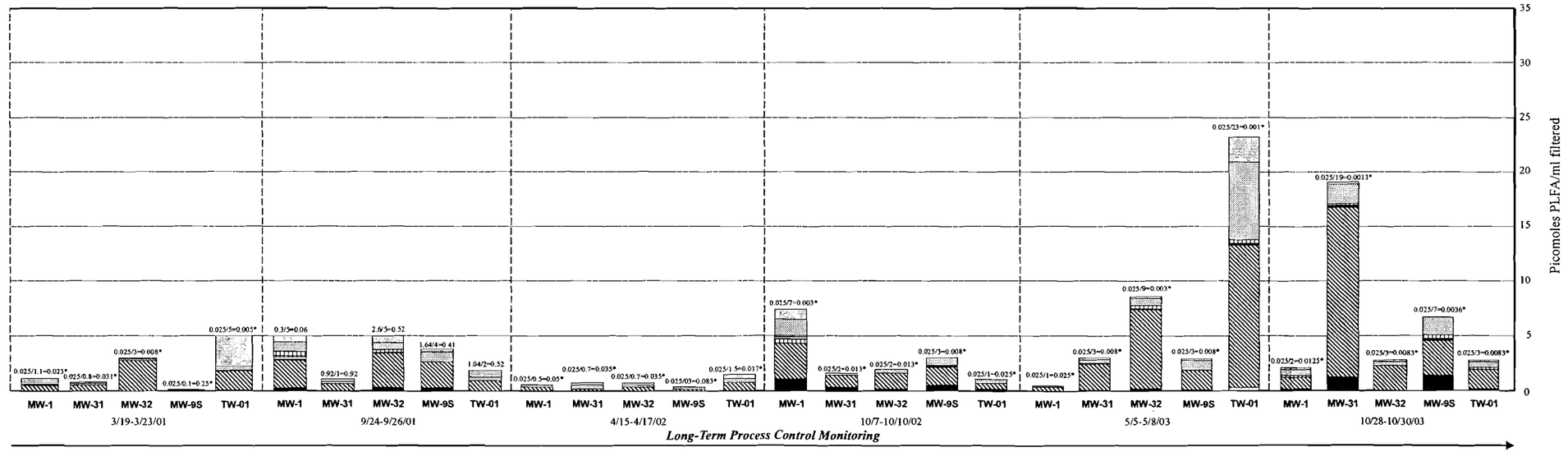
FIGURE 2

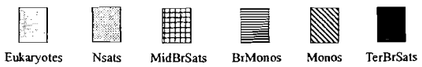
L: ON=*, OFF=*REF*
P: PAGESEST/SYR-BL1
3/15/04 SYR-RCB SDL LAF
26003190/26003W01.DWG





NOTES:

1. Ratio above stacked bar graph is PHA to PLFA. PHA/PLFA ratio above 0.2 suggests unbalanced growth of the microbial community.
2. * = Ratio is half the PHA detection limit to PLFA.
3. Start up operation began on June 10, 1998.
4. Initial discrete RAMM injections were conducted from August 5 to August 12, 1998.
5. MW-9S was not scheduled to be sampled during the short-term process control monitoring program, but was sampled in July 1999 (week 52) to provide additional information regarding Area 1. This well is part of the long-term process control monitoring program.
6. Additional discrete RAMM injections were conducted on August 28 through August 30, 2000 and on August 27 through August 30, 2001.



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BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 1 - BIOMASS PLFA DISTRIBUTION

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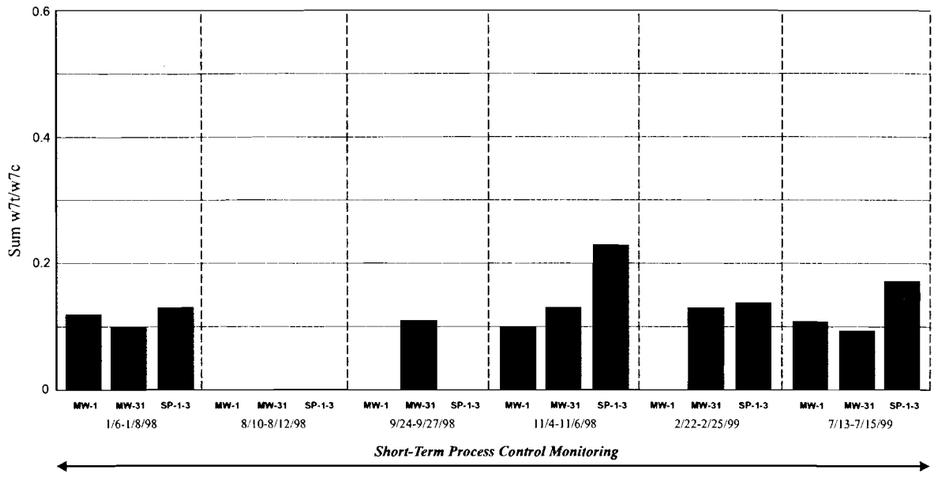
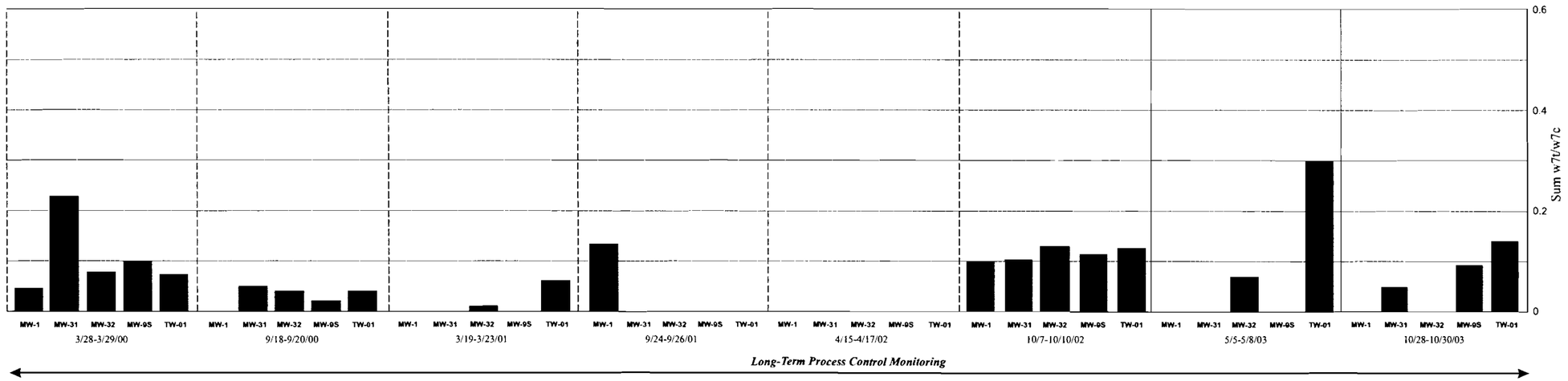
FIGURE 3

12/30/03 SYR-D85-DJH
26003190/26003n03.cdr





NOTES:

1. Sum w7t/w7c = The sum of 16:1w7t/16:1w7c and 18:1w7t/18:1w7c.
2. The ratios 16:1w7t/16:1w7c and 18:1w7t/18:1w7c show the effect of toxicity or starvation on the microbial community. The range (for the sum w7t/w7c) is generally between 0.1 (healthy) to 0.6 (starved). A higher ratio indicates increased stress.
3. MW-9S was not scheduled to be sampled during the short-term process control monitoring program, but was sampled in July 1999 (week 52) to provide additional information regarding Area 1. This well is part of the long-term process control monitoring program.

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BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 1 - ENVIRONMENTAL STRESS

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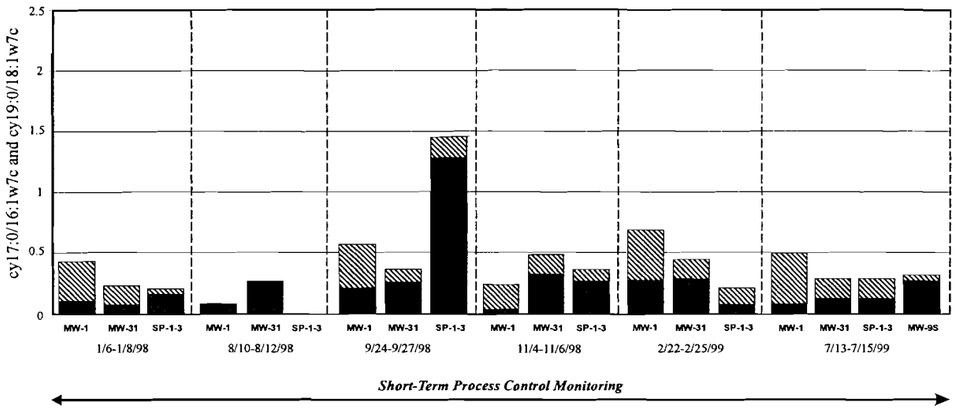
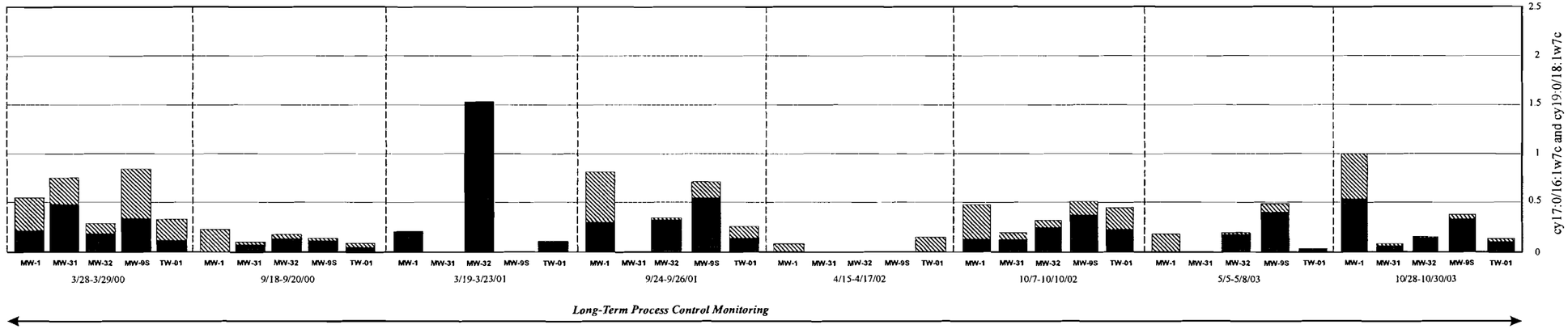
FIGURE 4

03/15/04 SYR-D85-DJH, KFS
26003190/26003n01.cdr





NOTES:

1. The two ratios: cy17:0/16:1w7c and cy19:0/18:1w7c express a growth rate of the microbial community. The sum of these two ratios falls within the range of 0.1 (log phase) to 5.0 (stationary phase). A lower ratio suggests a higher turnover rate.
2. MW-9S was not scheduled to be sampled during the short-term process control monitoring program, but was sampled in July 1999 (week 52) to provide additional information regarding Area 1. This well is part of the long-term process control monitoring program.

cy19:0/18:1w7c cy17:0/16:1w7c

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AREA 1 - TURNOVER RATE

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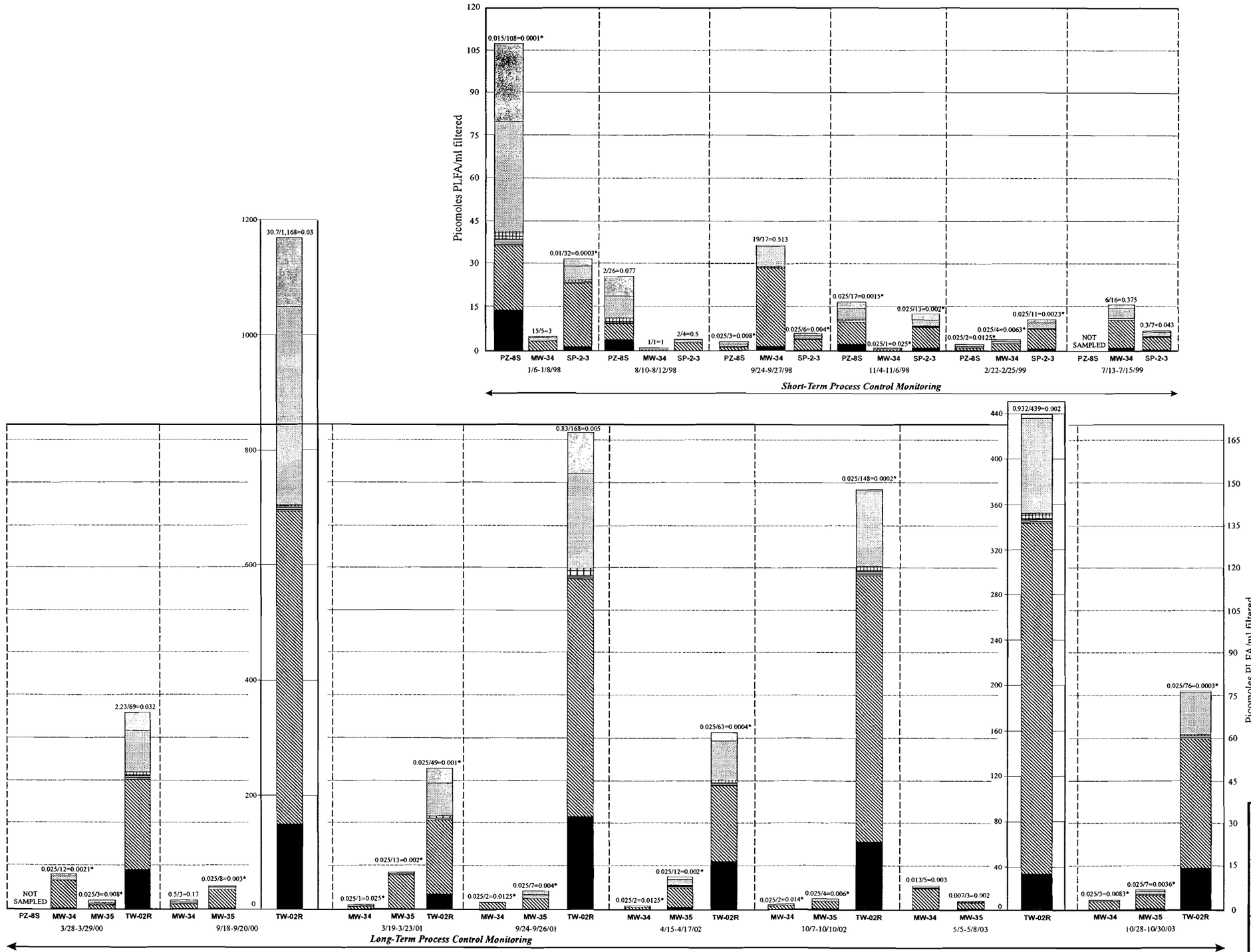
FIGURE 5

12/31/03 SYR-D85-DJH
26003190/26003n02.cdr



NOTES:

1. Ratio above stacked bar graph is PHA to PLFA. PHA/PLFA ratio above 0.2 suggests unbalanced growth of the microbial community.
2. * = Ratio is half the PHA detection limit to PLFA.
3. Start up operation began on June 10, 1998.
4. Initial discrete RAMM injections were conducted from August 5 to August 12, 1998.
5. PZ-8S was not sampled in July 1999 and in March 2000 because this piezometer was damaged. This piezometer was decommissioned in August 2000.
6. Additional discrete RAMM injections were conducted on August 28 through August 30, 2000 and on August 27 through August 30, 2001.

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AREA 2 - BIOMASS PLFA DISTRIBUTION

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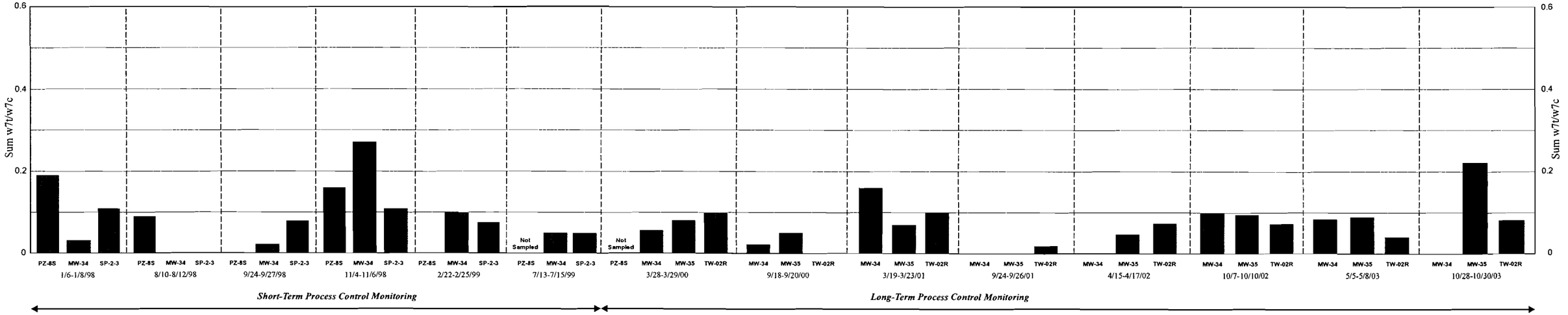
FIGURE 6

01/02/04 SYR-D85-DJH
26003190/26003n10.cdr



NOTES:

1. Sum w7t/w7c = The sum of 16:1w7t/16:1w7c and 18:1w7t/18:1w7c.
2. The ratios 16:1w7t/16:1w7c and 18:1w7t/18:1w7c show the effect of toxicity or starvation on the microbial community. The range (for the sum w7t/w7c) is generally between 0.1 (healthy) to 0.6 (starved). A higher ratio indicates increased stress.
3. PZ-8S was not sampled in July 1999 and in March 2000 because this piezometer was damaged. This piezometer was decommissioned in August 2000.

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AREA 2 - ENVIRONMENTAL STRESS

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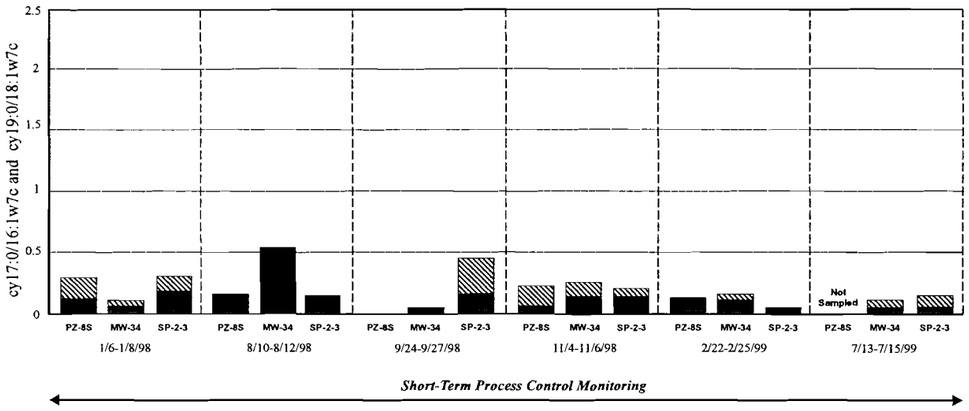
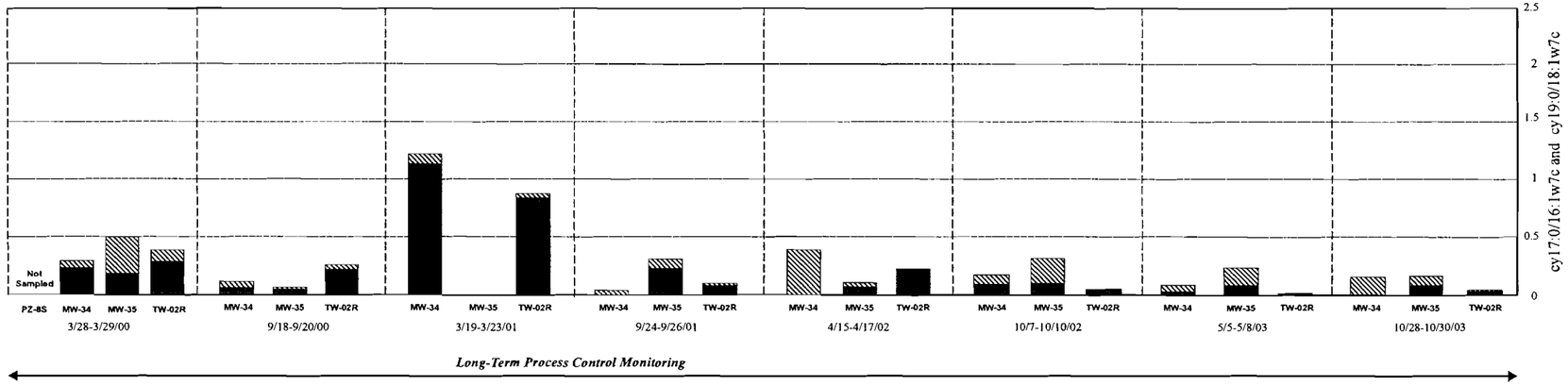
FIGURE 7

12/31/03 SYR-D85-DJH
26003190/26003n04.cdr





NOTES:

1. The two ratios: cy17:0/16:1w7c and cy19:0/18:1w7c express a growth rate of the microbial community. The sum of these two ratios falls within the range of 0.1 (log phase) to 5.0 (stationary phase). A lower ratio suggests a higher turnover rate.
2. PZ-8S was not sampled in July 1999 and in March 2000 because this piezometer was damaged. This piezometer was decommissioned in August 2000.

cy19:0/18:1w7c cy17:0/16:1w7c

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AREA 2 - TURNOVER RATE

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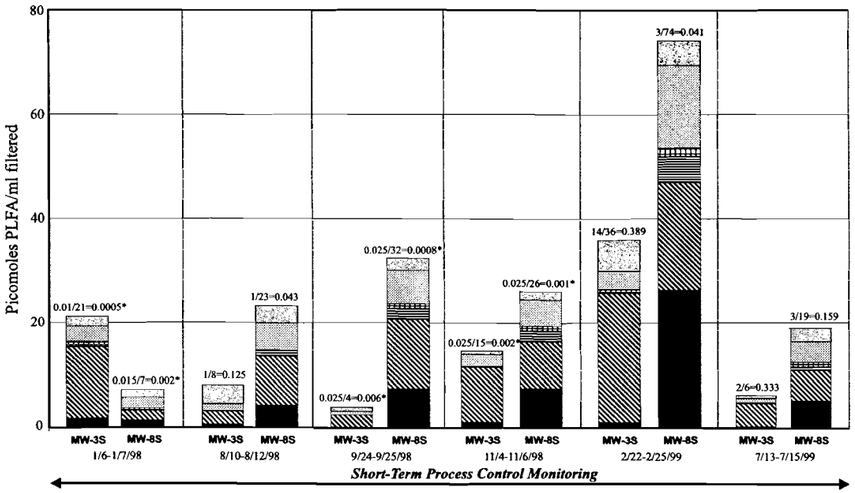
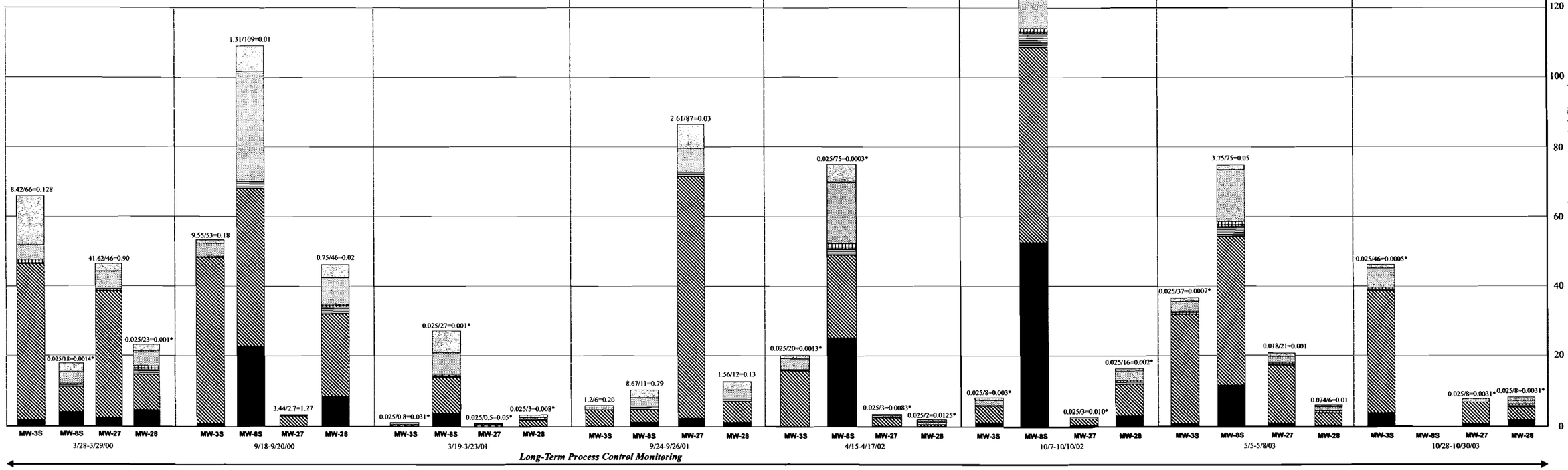
FIGURE 8

01/12/04 SYR-D85-DJH
26003190/26003n06.cdr





Eukaryotes Nsats MidBrSats BrMonos Monos TerBrSats

NOTES:

1. Ratio above stacked bar graph is PHA to PLFA. PHA/PLFA ratio above 0.2 suggests unbalanced growth of the microbial community.
2. * = Ratio is half the PHA detection limit to PLFA.
3. Start up operation began on June 10, 1998.
4. Initial discrete RAMM injections were conducted from August 5 to August 12, 1998.
5. Additional discrete RAMM injections were conducted on August 28 through August 30, 2000 and on August 27 through August 30, 2001.
6. MW-8S was inadvertently not sampled during the October 2003 sampling event.

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BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 3 - BIOMASS PLFA DISTRIBUTION

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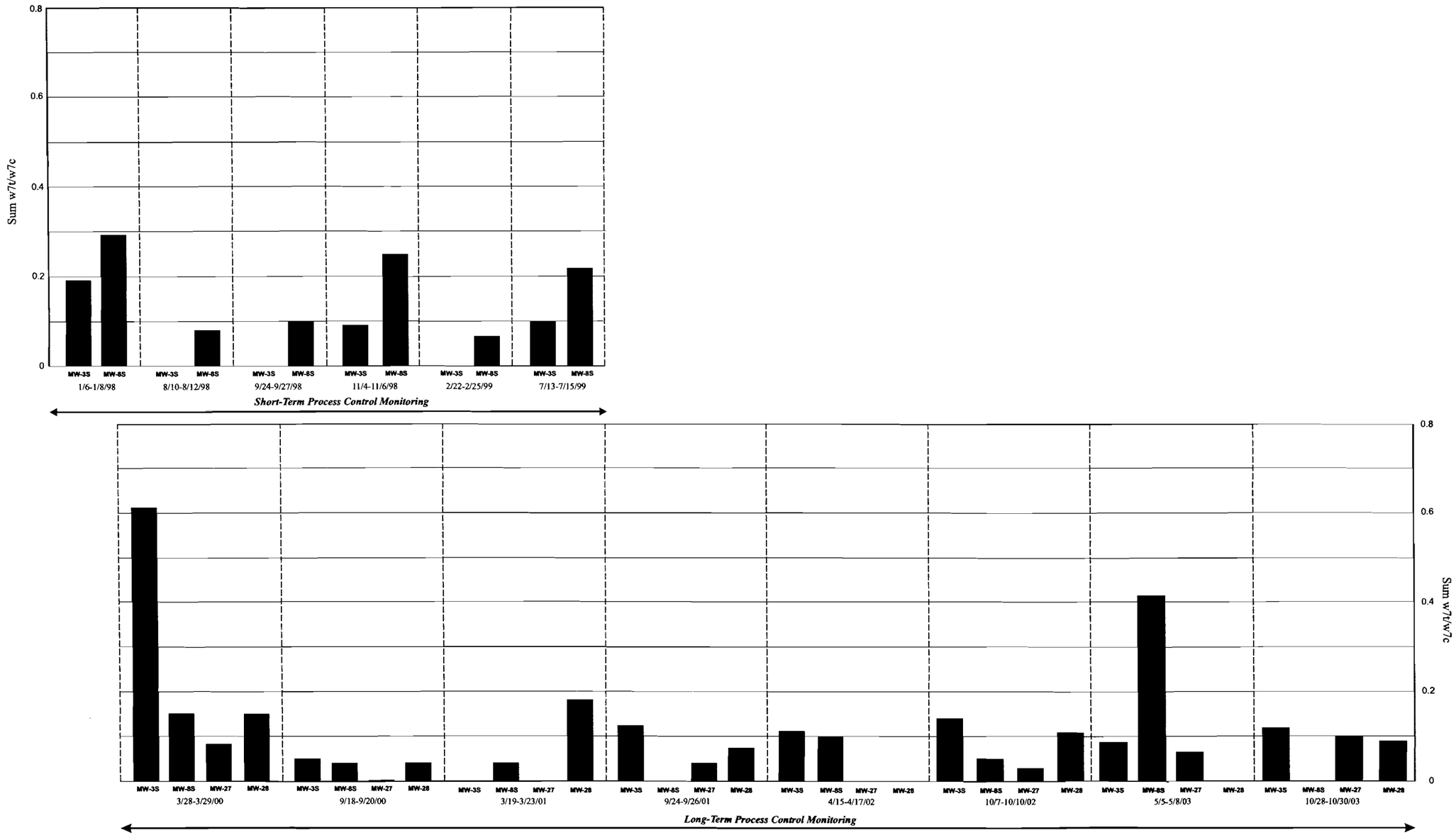
FIGURE 9

01/02/04 SYR-D85-DJH
26003190/26003n09.cdr



NOTES:

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2. The ratios 16:1w7t/16:1w7c and 18:1w7t/18:1w7c show the effect of toxicity or starvation on the microbial community. The range (for the sum w7t/w7c) is generally between 0.1 (healthy) to 0.6 (starved). A higher ratio indicates increased stress.
3. MW-8S was inadvertently not sampled during the October 2003 sampling event.

MCKESSON ENVIROSYSTEMS
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SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 3 - ENVIRONMENTAL STRESS

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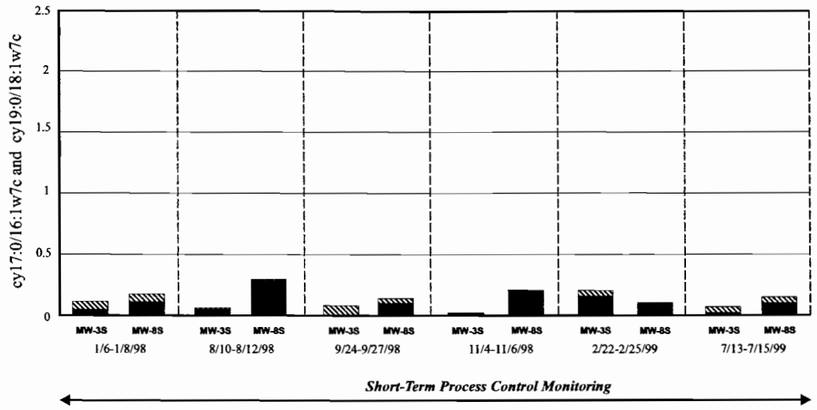
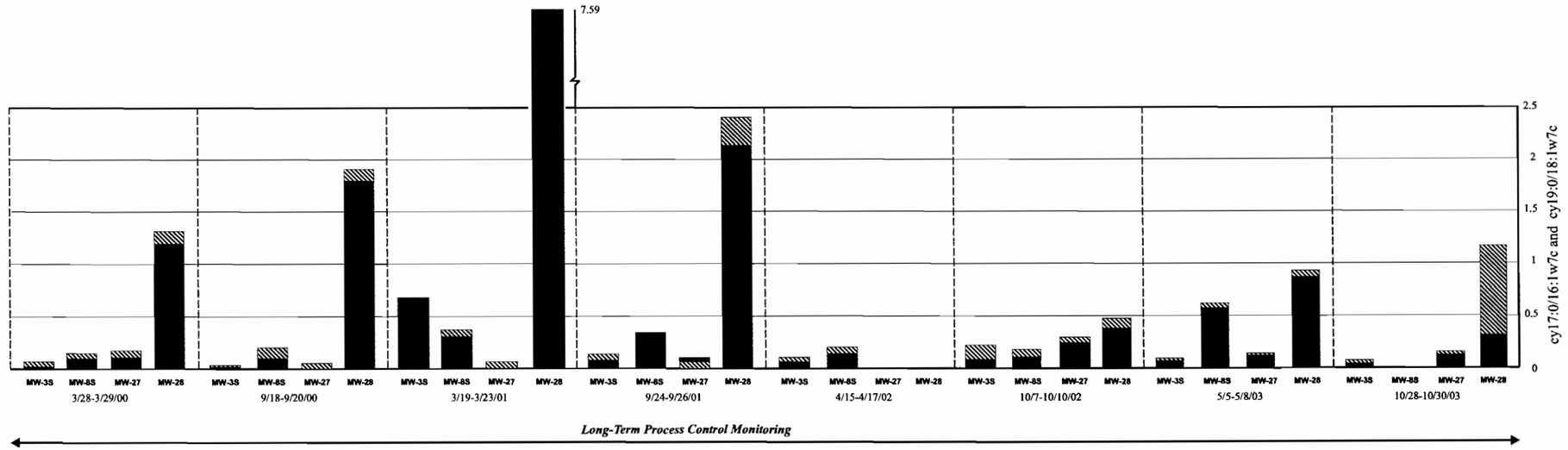
FIGURE 10

01/12/04 SYR-D85-DJH
26003190/26003n08.cdr





NOTE:

1. The two ratios: cy17:0/16:1w7c and cy19:0/18:1w7c express a growth rate of the microbial community. The sum of these two ratios falls within the range of 0.1 (log phase) to 5.0 (stationary phase). A lower ratio suggests a higher turnover rate.
2. MW-8S was inadvertently not sampled during the October 2003 sampling event.

cy19:0/18:1w7c cy17:0/16:1w7c

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 3 - TURNOVER RATE

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 11

01/12/04 SYR-D85-DJH
26003190/26003n07.cdr

MW-35

Date	3/88	1/89	11/89	11/91	8/95	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<100	<10,000	<10,000	2,900	<1,000	<10	<10	<10 J	<10 J	<10	<10	<12	<25	<12	<12
Benzene	<1	<100	<100	10	<5	<10	1 J	<10	1 J	<10	3 J	<5	<10	<5	<5
Toluene	<1	120	<100	10	<5	<10	0.7 J	<10	2 J	<10	8 J	<5	<10	<5	<5
Ethylbenzene	<1	<100	<100	4	<5	<10	<10	<10	<10 J	<10	1 J	<5	<10	<5	<5
Xylene	<1	<100	<100	31	<5	<10	<10	<10	<10 J	<10	2 J	<10	<20	<10	<10
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000 J	370 J	<1,000	<1,000	<1,000
Trichloroethene	50	1,100	100	<10	<5	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	<10	<11	<52	790	15	<10	9 J	<10	2 J	<10	690 D (69*)	1.7 J	<5	<5	4 J
N,N-dimethylaniline	<10	5,570	440	170	2 J	<10	<10	<10	1 J	<10	4 J	<5	NA	<5	<5
Methylene Chloride	110	4,700	2,700	<10	<10	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5

MW-36

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	<10	8 J	<10 J	5 J	<10	54	<20	12 J	9 J	580 D
Benzene	<10	<10	0.8 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	290 D	860 D	250	60	8 J	<10	350 D	9	2 J	67	100
N,N-dimethylaniline	6 J	4 J	<10	7 J	6 J	<10	5 J	41	2 J	4 J	<5
Methylene Chloride	<10	<10	<10	<10	2 J	<10	<10	<5	<10	<5	<5

MW-35

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Benzene	<10	0.7 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	6 J	3 J	<10	<10	<10	<10	3 J	2 J	1,000	4 J
N,N-dimethylaniline	5 J	4 J	2 J	3 J	<10	2 J	4 J	NA	<100	<5
Acetone	<10	<10	<10 J	<10 J	<10	<10	<13	<25	<12	5 J

TW-02R

Date	12/96	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	53	<500 J	<1,000	630	<1,000 J	190 J	81	57	240	110 J	240	68
Benzene	10	<500 J	<1,000	37	<1,000	28 J	19	25	19	15	30	28
Toluene	77	<500 J	190 J	240 J	160 J	95 J	68	70	65	19	130	75 J
Ethylbenzene	16	<500 J	<1,000	31	<1,000	35 J	28	31	23	23	49	<5
Xylene	65	140 J	150 J	150	240 J	150 J	130	140	96	65	226	<10
Methanol	<1,000	5,000	14,000 JN	<1,000	<1,000 J	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000	<1,000
Trichloroethene	585 D	300 J	<1,000	55	<1,000	6 J	<10	<20	<5	<10	<5	2 J
Aniline	15,900 JD	38,000 D	83,000 D	100,000 D	64,000 D	79,000	67,000 D	63,000 D	1,090,000 D	80,000 D	160,000 D	92,000 D
N,N-dimethylaniline	3,920 D	61,000 D	7,900	3,500 J	3,900	<10,000	650 J	32	<5,300	10 J	230	<260
Methylene Chloride	42,449 D	86,000 D	14,000 B	9,700 D	13,000	390 J	400 D	48 B	14	<10	97	91

MW-34

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	2 J	<10 J	<10 J	<10	7 J	<32	37 J	16	9 J
Benzene	<10	0.9 J	1 J	<10 J	<10	2 J	<5	<10	<5	<5
Toluene	<10	1 J	2 J	<10 J	2 J	2 J	<5	<10	<5	<5
Xylene	<10	<10	<10	<10 J	2 J	2 J	<10	<20	<10	<10
Aniline	83	380 D	200 D	320 D	700 D	76	640 D	380 DJ	140	18
N,N-dimethylaniline	<10	2 J	3 J	4 J	5 J	3 J	15	2 J	3 J	<5

TW-01

Date	12/96	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Benzene	82	15	24	16	16	11 J	5 J	10	3 J	7 J	7	6
Toluene	4 J	<10	2 J	1 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Ethylbenzene	6 J	4 J	2 J	3 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Xylene	4 J	<10	2 J	<10	<10	<10 J	<10	<10	<10	<20	<10	<10
Aniline	2,090 D	4,400 DEJ	9,000 D	4,400 D	280 D	15	<10	<10	8	<5	<5	0.6 J
N,N-dimethylaniline	13	4 J	5 J	4 J	4 J	2 J	3 J	2 J	13	NA	1 J	<5
Methylene Chloride	4 J	<10	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5

MW-95

Date	1/89	11/89	11/91	8/95	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	1,600	<1,000	<100	<1,000	<10	<10	<10 J	<10	<10	<23	16 J	<12	<12
Benzene	NA	48	<10	11 JD	4 J	2 J	11 J	1 J	10	10	38	11	2 J
Toluene	64	25	9	26 JD	2 J	2 J	2 J	3 J	3 J	2 J	40	<5	<5
Ethylbenzene	130	60	19	69 D	9 J	11	6 J	17	7 J	6	2 J	7	5
Xylene	270	60	30	226 JD	18	21	18 J	61	35	17 J	15 J	18	19
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000 J	370 J	<1,000	<1,000	<1,000
Aniline	660	670	95	50	<10	2 J	1 J	2 J	<10	9	<5	0.9 J	1 J
N,N-dimethylaniline	1,200	150	18	28	5 J	9 J	6 J	11	10	43	2 J	3 J	<5
Methylene Chloride	1,500	<10	<1	110 D	<10	<10	<10 J	<10	<10	<5	<10	<5	<5

MW-31

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	<10	<10	<10 J	21	<10	<14	<25	<12	1,200 D
Benzene	12	16	16	12 J	11	14	9	11	9	13
Aniline	34	230 D	3 J	10	<10	91 D	804 D	560 D	0.9 J	88
N,N-dimethylaniline	4 J	3 J	4 J	6 J	5 J	3 J	21	1 J	3 J	<5

MW-32

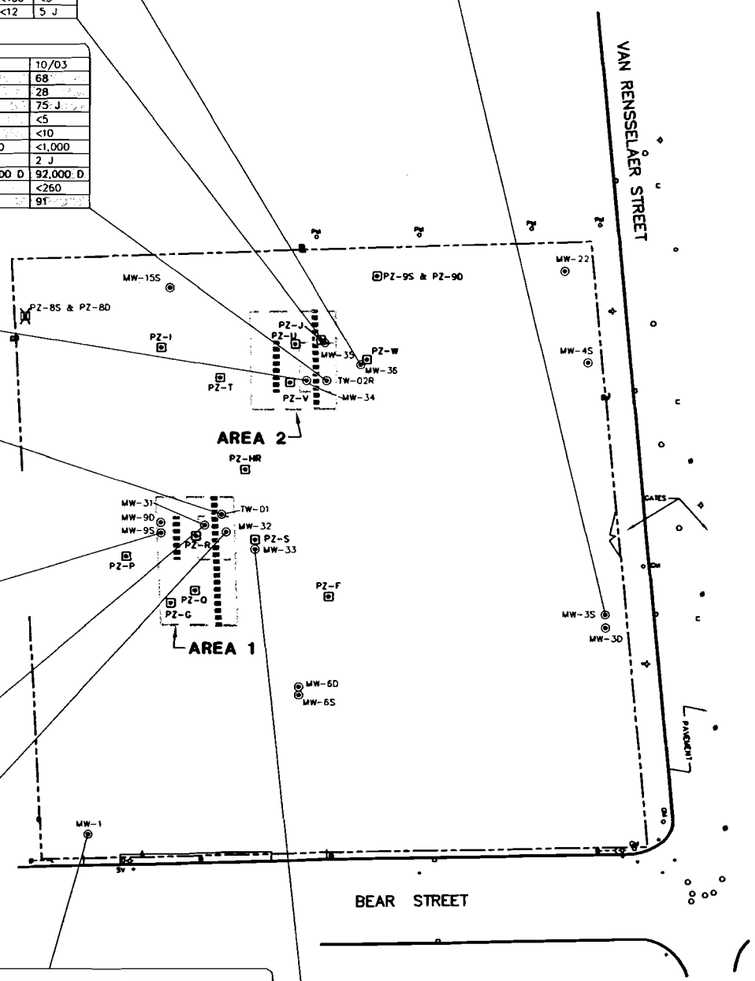
Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	3 J	<10	<10 J	<10	<10	<15	<25	<12	20
Benzene	16	14	5 J	12 J	5 J	10	4 J	4 J	<5	2 J
Toluene	2 J	2 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Ethylbenzene	5 J	4 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Xylene	3 J	<10	<10	<10 J	<10	<10	<10	<20	<10	<10
Trichloroethene	<10	56	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	6,300 D	<10	800 D	4,500 D	1,900 D	1,100 D	4,620 D	50	0.6 J	<5
N,N-dimethylaniline	4 J	3 J	<10	<10	2 J	2 J	11	NA	0.7 J	<5

MW-1

Date	3/88	1/89	11/89	11/90	11/91	11/92	8/95	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<100	<100	<100	<100	<100	<100	<1,000	<10	0.7 JN	<10	8 J	<10	<10	<12	<25	<12	<12
Toluene	<1	<1	<1	<1	<1	<1	<5	<10	<10	<10	3 J	<10	<10	<5	<10	<5	<5
Xylene	<1	<1	<1	<3	<3	<3	<5	<10	<10	<10	5 J	<10	<10	<10	<20	<10	<10
Methylene Chloride	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10	<10 J	10	<10	<5	<10	<5	<5
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000 J	990 J	<1,000	<1,000	<1,000
Aniline	<10	<11	<10	<10	<10	<10	<5	<10	<10	<5	<10 J	<10	<10	<5	<5	<5	2 J

MW-33

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	<10	5 J	<10 J	45 J	17 J	21	<18	11 J	88	22
Benzene	<10	<10	2 J	<10	4 J	<20	5 J	3 J	4 J	13	2 J
Toluene	<10	<10	0.7 J	<10	1 J	<20	<10	<5	<10	<5	<5
Aniline	9 J	120	150	51	540 D	1,300 D	1,900 D	2,780 D	290 D	2,000	1,900 D
N,N-dimethylaniline	6 J	6 J	8 J	7 J	23	16	12	21	3 J	35 J	<6
Methylene Chloride	<10	<10	5 J	11	330 DJ	370 B	<18	19	4 J	2,800 D	<5



LEGEND:

- UTILITY POLE
- CATCH BASIN
- PM PETROLEUM PIPE LINE MARKER
- GM GAS LINE MARKER
- SV SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 GROUNDWATER MONITORING WELL
- PZ-A PIEZOMETER
- PZ-8S & PZ-8D DECOMMISSIONED PIEZOMETERS
- BOUNDARY OF IMPACTED AREA
- GROUNDWATER INFILTRATION TRENCH
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

SAMPLE IDENTIFICATION

MW-35

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Benzene	<10	0.7 J	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	6 J	3 J	<10	<10	<10	<10	3 J	2 J	1,000	4 J
N,N-dimethylaniline	5 J	4 J	2 J	3 J	<10	2 J	4 J	NA	<100	<5
Acetone	<10	<10	<10 J	<10 J	<10	<10	<13	<25	<12	5 J

CONCENTRATION (ppb)

NOTES:

1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR)
2. TRENCH LOCATIONS ARE APPROXIMATE.
3. MONITORING LOCATIONS ARE APPROXIMATE.
4. FIGURE ONLY SHOWS COC CONCENTRATIONS AT MONITORING LOCATIONS WITHIN THE IMPACTED AREAS AND THE CHEMICAL PROCESS CONTROL MONITORING LOCATIONS.
5. ONLY DETECTED COCs ARE PRESENTED ON THIS FIGURE.
6. < = COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
7. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
8. D = CONCENTRATION IS BASED ON DILUTED SAMPLE ANALYSIS
9. E = IDENTIFIES COMPOUNDS WHOSE CONCENTRATIONS EXCEED THE CALIBRATION RANGE OF THE INSTRUMENTS
10. NA = NOT AVAILABLE.
11. B = THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS IN ITS ASSOCIATED BLANK; ITS PRESENCE IN THE SAMPLE MAY BE SUSPECT.
12. N = THIS ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE AN TENTATIVE IDENTIFICATION.
13. DETECTIONS EXCEEDING NYSDEC GROUNDWATER QUALITY STANDARDS ARE INDICATED BY SHADING.
14. THE 10/02 SAMPLING EVENT N,N-DIMETHYLANILINE DATA FOR MW-1, MW-35, MW-32, MW-35, AND TW-01 WERE REJECTED DUE TO MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERIES BELOW CONTROL LIMITS. AS DETAILED IN THE BIANNUAL REPORT, THESE MONITORING WELLS WERE NOT RESAMPLED.

120' 0 120'

GRAPHIC SCALE

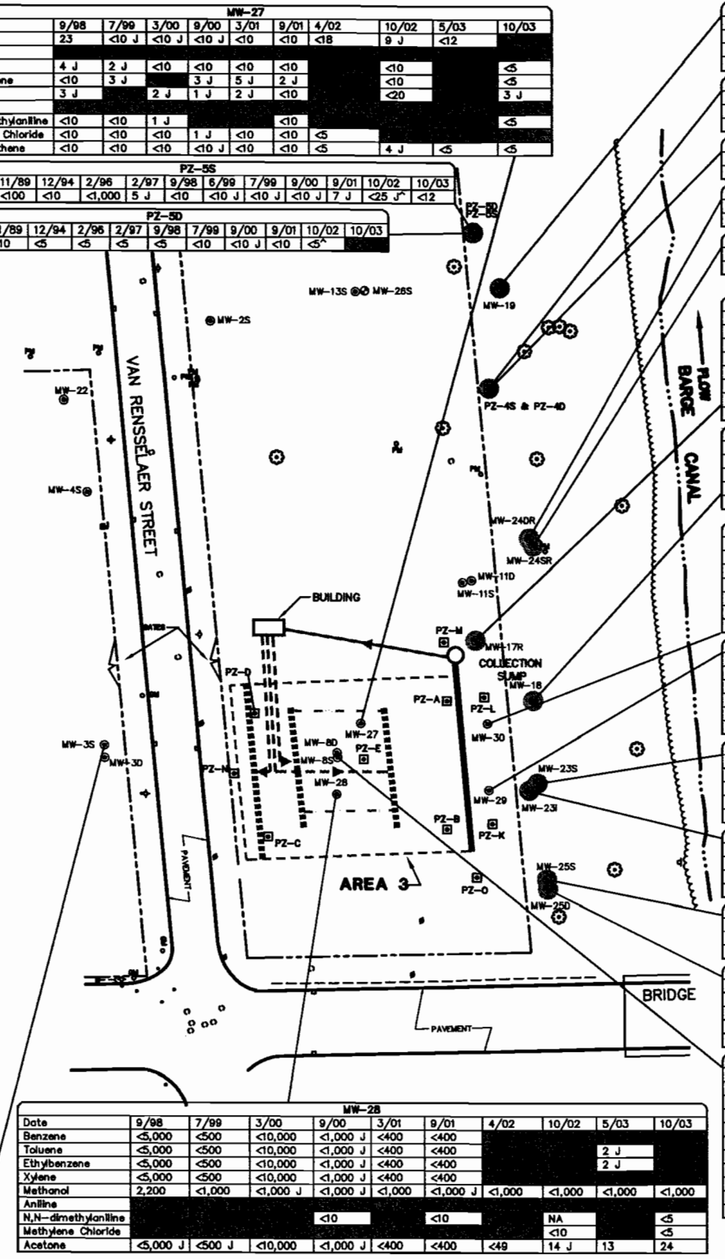
McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK
BIANNUAL PROCESS CONTROL MONITORING REPORT

SUMMARY OF AREAS 1&2 HISTORIC GROUNDWATER MONITORING DATA

BBL BLASLAND BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 12

L: ON=*, OFF=REF*
P: PAGESEST/SYR-BL
3/16/04 SYR-RCB SDL DMJ
26003190/26003C14.DWG



MW-27

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	23	<10 J	<10 J	<10 J	<10	<10	<18	9 J	<12	
Benzene										
Toluene	4 J	2 J	<10	<10	<10	<10		<10		<5
Ethylbenzene	<10	3 J		3 J	5 J	2 J		<10		<5
Xylene	3 J		2 J	1 J	2 J	<10		<20		3 J
Aniline										
N,N-dimethylaniline	<10	<10	1 J			<10				<5
Methylene Chloride	<10	<10	<10	1 J	<10	<10	<5			
Trichloroethene	<10	<10	<10	<10 J	<10	<10	<5	4 J	<5	<5

PZ-5S

Date	11/89	12/94	2/96	2/97	9/98	6/99	7/99	9/00	9/01	10/02	10/03
Acetone	<100	<10	<1,000	5 J	<10	<10 J	<10 J	<10 J	7 J	<25 J^	<12

PZ-5D

Date	11/89	12/94	2/96	2/97	9/98	7/99	9/00	9/01	10/02	10/03
Aniline	<10	<5	<5	<5	<5	<10	<10 J	<10	<5^	

MW-19

Date	11/89	12/94	8/95	2/96	8/96	2/97	8/97	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
N,N-dimethylaniline	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<5	<5^	<5	
Acetone	<100	<10	<1,000	<1,000	<10	<10	<10	<10	<10	<10 J	<10	<10 J	<10	<10	<5	5 J	<12	<11
Aniline	<10	<5	<5	NA	<5	<5	<5	<5	<10	<10	<5	<10 J	<10	<10	<5	<5	<5	

PZ-4S

Date	11/89	11/90	11/91	11/92	8/95	8/96	8/97	2/99	6/99	3/00	3/01	4/02	10/02	5/03
Aniline	<10	<10	<10	<10	<5	<5	<8	<10	<5	<5	<10		<5^	<5
N,N-dimethylaniline	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10		<5 (<5)**	<5^	<5

PZ-4D

Date	11/89	11/90	11/91	11/92	8/95	10/95	8/96	8/97	2/99	3/00	9/00	3/01	4/02	5/03
N,N-dimethylaniline	<10	<10	<10	<10	0.8 J	<10	<10	<12	<10	<10	<10	<10	<5	<5

MW-24DR

Date	12/94	8/95	2/96	2/97	9/98	7/99	9/00	9/01	6/02	10/02	10/03
Aniline	<5	<5	<5	<5	<5	<10	<10 J	<10	ND**	<5^	0.5 J

MW-24SR

Date	12/94	8/95	2/96	2/97	9/98	6/99	7/99	3/00	9/01	6/02	10/02	10/03
Aniline	<5	<5	<5	<5	<5	<10 J	<10	<10 J	<10	ND**	<5^	

MW-17R

Date	11/90	11/91	11/92	8/95	10/95	8/96	8/97	2/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	11/03
Acetone	<100	<100	<100	<1,000	NA	11	<10	<10	<10	<10 J	<10	<10	<10	<25 J	<12	<12
Benzene	<1	<1	<1	<5	<5	<10	<10	1 J								
Trichloroethene	<1	<1	<1	<5	2J	<10	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5
Methanol	<1,000	<1,000	<1,000	<1,000	NA	1,000	1,000	1,000	<1,000 J	<1,000 J	<1,000 J	<1,000 J	620 J	<1,000	<1,000	<1,000
Aniline	<10	<10	<10	<5	NA	<5	<5	<10	<5		<10	<10		<5^	<5	<5
N,N-dimethylaniline	<10	<10	<10	<10	NA	<10	<10	<10	<10		<10	<10		<5^	<5	<5
Methylene Chloride	<1	<1	<1	<11	<5	<10	<10	<10 J	<10	1 J	<10	<10	<5	<10	<5	<5

MW-18

Date	11/89	11/90	11/91	11/92	12/94	8/95	2/98	8/96	2/97	8/97	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Methanol	<1,000	<1,000	<1,000	<1,000	<200	<1,000 J	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000 J	<1,000	<1,000	720 J	<1,000	280 J	<1,000
Aniline	<10	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<10	<10	<5	<10 J	<10	<10		<5^	<5	0.7 J
N,N-Dimethylaniline	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	<10		<5^	<5	<5
Acetone	<100	<100	<100	<100	<10	<1,000	<1,000	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	<10	<10	6 J	<12	<12

MW-30

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	7 J	<10	<10	<10 J	<10	4 J	<10	<25 J	<82	<12
Benzene	<10	<10	0.7 J	<10	<10 J	<10		<5	<10	<25	<5
Trichloroethene	<10	<10	0.5 J	<10	<10 J	<10	<10	<5	<10	<25	<5
Aniline	<10	<10	<10						NA		4 J
N,N-dimethylaniline	<10		1 J				1 J		NA	0.6 J	<5
Methylene Chloride	<10	<10	<10	4 J	2 J	<10	<10	<5	<10		<5

MW-29

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	7 J	<10	<10	<10 J	<10	<10	<10	<25 J	<12	<12
Xylene	2 J	1 J	<10	<10	<10 J	<10	<10	<10	<20	<10	<10
Aniline	<10	5 J	2 J					3 J			2 J
N,N-dimethylaniline									NA	1 J	<5
Methylene Chloride	<10	<10	<10	<10	<10 J	<10	<10	<8	4 JN	<3	<5

MW-23S

Date	12/94	8/95	2/96	8/96	2/97	8/97	9/98	2/99	6/99	7/99	3/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	<1,000	<1,000	<10	<10	12	<10	<10	<10 J	<10 J	<10	<10	<10	<10	<25 J	<82	<12
Aniline	<5	<5	<5					<10	<5		<10	<10	<10	<5	<5^	<5	
N,N-dimethylaniline	<10	<10	<10	<10	<10	<10						<10	<10	<5	<5^	<5	<5
Methanol	<200	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000 J	<1,000 J	<1,000 J	<1,000	<1,000	<1,000	380 J	<1,000

MW-23I

Date	12/94	8/95	2/96	8/96	2/97	8/97	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<10	<1,000	<1,000	<10	<10	<10	<10	<10	<10 J	<10	<10 J	<10	4 J	<10	<25 J	<12	<12
Xylene	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	2 J	<10	<20 J	<5	<10
Methylene Chloride	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	<10	2 J	<10	<5	<5

MW-25S

Date	8/95	10/95	8/96	8/97	2/99	6/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	11/03
Aniline	<5	<5	<5	<5			5 J	<5	<10 J	<10	<10	<5	<5^	<5	<5
N,N-dimethylaniline	0.7 J	<10	<10	<10	<10		<10	<10	<10	<10	<10	<5	<5^	<5	<5

MW-25D

Date	8/95	10/95	8/96	8/97	2/99	3/00	9/00	3/01	4/02	5/03
Acetone	<1,000	NA	15	<10	<10	<10	<10	<10	<10	<12
Trichloroethene	<5	3 J	<10	<10	<10	<10	<10	<5	<5	
N,N-dimethylaniline	1 J	<10	<10	<11	<10	<10	<10	<10	<5	<5
Aniline	<5	<5	<5	<5	<10	<5	<5 J	<5	<5	

MW-8S

Date	1/89	11/89	11/91	8/95	9/98	2/99	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<1,000,000		<1,000,000	<1,000	<10,000 J	<20,000	10 J	<100,000	<50,000 J	<50,000	<400			<12	21
Benzene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000		<100,000	<50,000 J	<50,000	<400				
Toluene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000		<100,000	<50,000 J	<50,000					
Ethylbenzene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000		<100,000	<50,000 J	<50,000					
Xylene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000		<100,000	<50,000 J	<50,000					
Methanol	430,000	300,000	150,000	22,000	7,900	16,000 JN	17,000	30,000 J	14,000 J	53,000	8,900 J	<1,000	<1,000	<1,000	1,200 J
Trichloroethene	<10,000	<10,000	<10,000					<100,000							
Aniline				<25,000 D											
N,N-dimethylaniline															
Methylene Chloride															

MW-28

Date	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Benzene	<5,000	<500	<10,000	<1,000 J	<400	<400				
Toluene	<5,000	<500	<10,000	<1,000 J	<400	<400			2 J	
Ethylbenzene	<5,000	<500	<10,000	<1,000 J	<400	<400			2 J	
Xylene	<5,000	<500	<10,000	<1,000 J	<400	<400				
Methanol	2,200	<1,000	<1,000 J	<1,000 J	<1,000	<1,000 J	<1,000	<1,000	<1,000	<1,000
Aniline										
N,N-dimethylaniline				<10		<10		NA		<5
Methylene Chloride								<10		<5
Acetone	<5,000 J	<500 J	<10,000	<1,000 J	<400	<400	<49	14 J	13	24

MW-35

Date	3/88	1/89	11/89	11/91	8/95	9/98	7/99	3/00	9/00	3/01	9/01	4/02	10/02	5/03	10/03
Acetone	<100	<10,000	<10,000		<1,000	<10	<10	<10 J	<10 J	<10	<10	<12	<25	<12	<12
Benzene	<1	<100	<100		<5	<10	1 J	<10	1 J	<10		<5	<10	<5	<5
Toluene	<1		<100		<5	<10	0.7 J	<10	2 J	<10		<5	<10	<5	<5
Ethylbenzene	<1	<100	<100	4	<5	<10	<10	<10	<10 J	<10	1 J	<5	<10	<5	<5
Xylene	<1	<100	<100		<5	<10	<10	<10	<10 J	<10	2 J	<10	<20	<10	<10
Methanol	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000 J	<1,000	<1,000	<1,000 J	370 J	<1,000	<1,000	<1,000
Trichloroethene				<10	<5	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5
Aniline	<10	<11	<52			<10		<10	2 J	<10		1.7 J	<5	<5	4 J
N,N-dimethylaniline	<10					<10	<10	<10	1 J	<10		<5	NA	<5	<5
Methylene Chloride				<10	<10	<10	<10	<10	<10 J	<10	<10	<5	<10	<5	<5

MW-25

Date	8/95	10/95
Acetone	<1,000	NA
Trichloroethene	<5	3 J
N,N-dimethylaniline	1 J	<10
Aniline	<5	<5

SAMPLE IDENTIFICATION

CONCENTRATION (ppb)

LEGEND:

- UTILITY POLE
- CATCH BASIN
- PM PETROLEUM PIPE LINE MARKER
- GM GAS LINE MARKER
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 GROUNDWATER MONITORING WELL
- PZ-A PIEZOMETER
- MW-23S OR MW-23I BIANNUAL DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION
- MW-28S PUMPING WELL
- BOUNDARY OF IMPACTED AREA
- GROUNDWATER WITHDRAWAL TRENCH
- GROUNDWATER INFILTRATION TRENCH
- PIPING TO BUILDING
- PIPING FROM BUILDING
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

NOTES:

1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
2. TRENCH LOCATIONS ARE APPROXIMATE.
3. MONITORING LOCATIONS ARE APPROXIMATE.
4. FIGURE ONLY SHOWS COC CONCENTRATIONS AT MONITORING LOCATIONS WITHIN THE IMPACTED AREAS AND THE CHEMICAL PROCESS CONTROL MONITORING LOCATIONS.
5. ONLY DETECTED COCs ARE PRESENTED ON THIS FIGURE.
6. < = COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
7. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
8. D = CONCENTRATION IS BASED ON DILUTED SAMPLE ANALYSIS.
9. E = IDENTIFIES COMPOUNDS WHOSE CONCENTRATIONS EXCEED THE CALIBRATION RANGE OF THE INSTRUMENTS.
10. NA = NOT AVAILABLE.
11. B = THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS IN ITS ASSOCIATED BLANK; ITS PRESENCE IN THE SAMPLE MAY BE SUSPECT.
12. N = THIS ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE AN TENTATIVE IDENTIFICATION.
13. DETECTIONS EXCEEDING NYSDEC GROUNDWATER QUALITY STANDARDS ARE INDICATED BY SHADING.
14. THE ANILINE DATA FOR THE 9/98 SAMPLING EVENT FOR MW-18, MW-19, MW-23S, MW-23I, MW-24SR, MW-24DR, MW-28, PZ-5S AND PZ-5D WERE OBTAINED IN 12/98, BECAUSE THE 9/98 RESULTS WERE REJECTED DUE TO LABORATORY ERROR.
15. * = MW-3S WAS RESAMPLED ON 11/8/01 DUE TO ANILINE DETECTION DURING 9/2001 SAMPLING EVENT AT A CONCENTRATION OF 690 PPB. ANILINE WAS DETECTED ON 11/8/01 AT A CONCENTRATION OF 69 PPB.
16. ** = MONITORING WELLS MW-17R, MW-18, AND PZ-4S WERE RESAMPLED FOR ANILINE AND N,N-DIMETHYLANILINE ON JUNE 18, 2002 DUE TO N,N-DIMETHYLANILINE AND/ OR ANILINE DETECTION AT THESE PERIMETER MONITORING LOCATIONS DURING THE APRIL 2002 SAMPLING EVENT. THE RESULTS OF THIS RESAMPLING EVENT ARE SHOWN IN PARENTHESIS. MONITORING WELLS MW-24SR AND MW-24DR WERE ALSO SAMPLED ON JUNE 18, 2002 FOR ANALYSIS OF ANILINE AND N,N-DIMETHYLANILINE. AS DETAILED IN THE BIANNUAL REPORT, THESE COMPOUNDS WERE NOT DETECTED.
17. ^ = THE ANILINE AND N,N-DIMETHYLANILINE DATA FOR THE 10/02 SAMPLING EVENT FOR MW-17R, MW-18, MW-19, MW-23S, MW-23I, MW-24SR, MW-24DR, MW-25S, PZ-4S, PZ-5S, AND PZ-5D WERE OBTAINED IN 1/03, BECAUSE THE 10/02 RESULTS WERE REJECTED DUE TO MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERIES BELOW CONTROL LIMITS.
18. THE 10/02 SAMPLING EVENT N,N-DIMETHYLANILINE DATA FOR MW-3S, MW-28 AND MW-29 AND THE 10/02 SAMPLING EVENT ANILINE AND N,N-DIMETHYLANILINE DATA FOR MW-30 WERE REJECTED DUE TO MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERIES BELOW CONTROL LIMITS. AS DETAILED IN THE BIANNUAL REPORT, THESE MONITORING WELLS WERE NOT RESAMPLED.

120' 0 120'
GRAPHIC SCALE

L: ON=*, OFF=REF*
P: PAGESEST/PLT-BL
6/29/04 SYR-RCB DMJ KMD
26003190/26003C15.DWG

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK
BIANNUAL PROCESS CONTROL MONITORING REPORT

SUMMARY OF AREA 3 HISTORIC GROUNDWATER MONITORING DATA

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 13