

Transmitted Via Overnight Delivery

June 7, 2005

Mr. Mark Mateunas Bureau of Hazardous Site Control New York State Department of Environmental Conservation 625 Broadway, 12th Floor Albany, NY 12233-7012

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

Dear Mr. Mateunas:

This *Biannual Process Control Monitoring Report* (Biannual Report) for the McKesson Envirosystems, Bear Street Site (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 July 2004 through December 2004. 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 (July 2004 through December 2004), 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 approximately 813,500 gallons of water were pumped from the withdrawal trench and introduced into the Area 3 infiltration trenches as detailed herein.

The NYSDEC was notified of the November 2004 process control monitoring event (including hydraulic, biological, and chemicals of concern [COC] monitoring) prior to the commencement of the monitoring activities. The November 2004 event was the first round of monitoring conducted since completion of the NYSDEC-approved August 2004 supplemental remedial activities. Those activities were conducted to enhance the overall remediation of OU No. 2 and were described in detail in the November 2004 *Biannual Process Control Monitoring Report*.

The information provided in this letter has been organized into the following sections:

- <u>I. RAMM and Suga-Lik[®] Introduction Activities</u> A description of the Revised Anaerobic Mineral Media (RAMM) and Suga-Lik[®] (Blackstrap Molasses) introduction activities conducted between July 2004 and December 2004.
- <u>II. Hydraulic Process Control Monitoring</u> A description of the results of the hydraulic control monitoring activities conducted between July 2004 and December 2004.
- <u>III. Biological Process Control Monitoring</u> A description of the November 2004 results of the biological process control monitoring and 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.
- <u>IV. COC Process Control and Biannual Groundwater Monitoring Program</u> A description of the November 2004 results of the COC process control and biannual groundwater monitoring program, and a summary of the COC data obtained at the site from 1989 through December 2004.
- <u>V. Conclusions</u> Conclusions based on the results of the process control monitoring activities.
- <u>VI. Recommendations</u> Recommendations for the in-situ anaerobic bioremediation treatment program and monitoring activities.

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 November 2004 *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. See Figure 1 for referenced locations.

• 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 four 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.
- Continuing to introduce RAMM and Suga-Lik[®] on a monthly basis into six well points (WP-1, WP-2, WP-3, WP-6, WP-7, and WP-8) within Area 3 near monitoring wells MW-27 and MW-28 and two well points (WP-4 and WP-5) located downgradient of Area 1 near monitoring well MW-33. These well points were installed during the August 2004 supplemental remedial activities.

Approximately 10 gallons of the RAMM/Suga-Lik[®] solution has been introduced into each of the aforementioned piezometers and well points, and approximately 100 gallons of RAMM and/or Suga-Lik[®] solution has been introduced into Areas 1, 2, and 3 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 approximately 1,000:1.

II. Hydraulic Process Control Monitoring

As part of the hydraulic process control monitoring activities, 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. Additionally, a groundwater-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 November 1, 2004. The monitoring locations are shown on Figure 1.

Table 1 summarizes the groundwater level measurements obtained during the November 2004 hydraulic monitoring event, 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 November 1, 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 1.8 gallons per minute (gpm) to 4.7 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% of the recovered groundwater continues to be introduced to the secondary infiltration trench "B" and the remaining 25% 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 hydraulic data obtained over the 6-year operating history of the treatment system in Area 3 consistently indicated no discernable effect on the hydraulic gradient of the deep hydrogeologic unit; therefore, when the deep monitoring well located in the approximate center of Area 3 (MW-8D) was abandoned to facilitate soil removal activities in August 2004, MW-8D was not replaced, as identified in the previous biannual report (November 2004).
- The weekly conductivity measurements of groundwater pumped from the withdrawal trench in Area 3 ranged from 1.34 millisiemens per centimeter (mS/cm) to 2.16 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

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). The monitoring locations are shown on Figure 1. In addition, the following groundwater quality parameters were also measured in the field during the November 2004 biological sampling event: 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 November 2004 biological process control monitoring activities are presented in Table 2 and shown on Figures 3 through 11. These biological process control monitoring results are summarized below.

• The biological data (i.e., microbial analytes, indicator compounds, and permanent gases) obtained from the monitoring locations within Areas 1, 2, and 3 in November 2004 are consistent with previous data obtained. The biological data obtained since commencement of the in-situ anaerobic treatment program in 1998 (including the November 2004 data) 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, electron acceptors, and nutrients to sustain microbial activity with each of the three areas.

- The biomass levels were lower at replacement wells MW-8SR and TW-02RR than the levels previously measured at removed wells MW-8S and TW-02R, respectively. These replacement wells were installed in August 2004 as part of the supplemental remedial activities conducted to further address COCs at these locations. During these activities, soil was removed from each of these areas requiring abandonment of the previously existing monitoring wells. The relatively lower biomass levels are consistent with the lower COC concentrations also detected at these locations during the November 2004 sampling event, as further discussed below in Section IV. The biomass levels obtained at MW-8SR and TW-02RR are consistent with the biomass levels detected at the other monitoring locations within Areas 2 and 3 (see Figures 6 and 9) and continue to indicate that the anaerobic microbial populations are sufficient to support microbial degradation of COCs.
- 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 2 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 and biannual groundwater monitoring activities were conducted on November 1, 2004 through November 5, 2004, in accordance with the long-term COC process control monitoring program presented in the O&M Plan. The existing monitoring wells and piezometers that were used to conduct the long-term process control monitoring program and a schedule for implementing this program were provided in the previous biannual progress report. The monitoring locations are shown on Figure 1.

The laboratory analytical volatile organic compound (VOC) data for monitoring locations MW-1, MW-17R, MW-18, MW-231, MW-23S, MW-24DR, MW-24SR, MW-25S, MW-33, PZ-5D, and PZ-5S were inadvertently lost due to laboratory equipment failure. The initial laboratory analytical VOC data for monitoring locations MW-27, MW-28, MW-29, and MW-30 were also irretrievable due to laboratory equipment failure; however, the results of subsequent dilutions of the groundwater samples collected from these four locations were valid, but resulted in higher VOC detection limits. The lost VOC data were for perimeter monitoring locations, as well as upgradient monitoring well MW-1 and Area 1 monitoring well MW-33. At each of these locations, VOCs have generally not been detected since commencement of the COC process control and biannual monitoring program in 1998 and 1988, respectively (see Figures 12 and 13). In addition, the other COC data (aniline, N,N-dimethylaniline, and methanol) obtained during the November 2004 sampling event for these locations were not resampled. Each of these locations will, however, be sampled and analyzed for COCs during the first sampling event of 2005, including perimeter monitoring locations MW-24SR, PZ-5D, and PZ-5S that were not scheduled to be sampled until the second sampling event of 2005 (Tables 4 and 5).

In accordance with the requirements of the NYSDEC-approved monitoring program, laboratory analytical results for the November 2004 samples were validated. A summary of the validated COC groundwater analytical results is presented in Table 3 and shown on Figures 12 and 13. These figures also present the COC groundwater analytical results obtained in June and November 2004, collectively presenting the results obtained after the first five years of implementing the in-situ anaerobic bioremediation treatment program. The COC groundwater analytical results obtained prior to October 2003 are presented in Attachment A. Copies of the validated analytical laboratory reports associated with the November 2004

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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. The presence or absence of non-aqueous phase liquid (NAPL) was also assessed in existing monitoring wells and piezometers during the process control monitoring event. NAPL was not identified in any of the monitoring wells or piezometers used during the process control monitoring program.

<u>Area 1</u>

- As shown on Figure 12 and in Attachment A, the COC concentrations detected in groundwater samples collected from monitoring wells within Area 1 were generally low, ranging from not detected to concentrations just slightly greater than their respective NYSDEC Groundwater Quality Standard. These data demonstrate a significant decrease in COC concentrations in Area 1 since commencement of the in-situ anaerobic bioremediation treatment program. For example, the aniline concentration detected at MW-32 was 6,300 ppb in September 1998, but aniline has not been detected above the NYSDEC Groundwater Quality Standard at this location since May 2003. Similarly, the aniline concentration detected at TW-01 in February 1999 was 9,000 ppb, but aniline has not been detected above the NYSDEC Groundwater Quality Standard of 5 ppb since October 2002.
- Since commencement of the Suga-Lik[®] additions in August 2001 near MW-33, which is located immediately downgradient of Area 1, the concentrations of COCs detected in groundwater samples collected from MW-33 have remained consistent, including the aniline concentration of 2,700 ppb detected in November 2004. However, during this same time period COCs (in general) were not detected above their respective NYSDEC Groundwater Quality Standard in the groundwater samples collected from the monitoring well located downgradient of MW-33 (MW-3S).

<u>Area 2</u>

- As shown on Figure 12 and in Attachment A, the COC concentrations detected in groundwater samples collected from monitoring wells within Area 2 were generally low, with the exception of the aniline concentration detected in the groundwater sample collected from TW-02RR. This monitoring well was installed to replace TW-02R that was abandoned to facilitate the August 2004 supplemental remedial activities conducted to further address COCs at this location. Since commencement of the bioremediation treatment activities, the COC concentrations at this location have significantly decreased: N,N-dimethylaniline and methylene chloride were not detected in November 2004 compared to detections of 61,000 ppb and 86,000 ppb, respectively in September 1998. The aniline concentrations at TW-02RR, however, have remained relatively consistent since 1998 and therefore supplemental remedial activities were conducted at this location in August 2004. The aniline concentration detected at TW-02RR in November 2004 is approximately 90% lower than the concentrations previously detected: aniline was detected in June 2004 at a concentration of 82,000 ppb, compared to 7,100 ppb in November 2004.
- In the groundwater sample collected from monitoring well MW-36 (located downgradient of Area 2) during the November 2004 sampling event, only aniline was detected at a concentration greater than its respective NYSDEC Groundwater Quality Standard (5 ppb). Since the Suga-Lik[®] additions began in the vicinity of MW-36, the aniline concentration has decreased from 350 ppb (September 2001) to 22 ppb (November 2004).

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<u>Area 3</u>

- As presented on Figure 13 and in Attachment A, 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 implementation of the insitu anaerobic bioremediation treatment program.
- Monitoring well MW-8S, which was located in the center of Area 3 and within the area that has been identified as containing relatively higher concentrations of COCs, was replaced by monitoring well MW-8SR as part of the August 2004 supplemental remedial activities conducted to further address COCs in this location (see Figure 13). During these activities, approximately 65 cubic yards of soil were removed and disposed offsite. The November 2004 groundwater sample collected at MW-8SR had significantly lower COC concentrations compared to those detected prior to the supplemental remedial activities: the total COC concentration was reduced approximately 95% from 1,313,780 ppb in June 2004 to 50,564 ppb in November 2004. The November 2004 aniline concentration of 35,000 ppb was relatively consistent with the previous detections of aniline at this location.
- The aniline concentrations detected in the groundwater samples collected from monitoring well MW-27 decreased from 3,700 ppb in June 2004 to 1,100 ppb in November 2004, following the completion of the August 2004 supplemental remedial activities. The other COCs detected in the groundwater sample collected from MW-27 in November 2004 were relatively low, consistent with previously detected concentrations.
- Monitoring well MW-28 is also located within Area 3 and the area of relatively higher concentrations of COCs historically exhibiting relatively higher concentrations of methylene chloride and aniline. The methylene chloride concentrations detected in groundwater samples collected at MW-28 have decreased from 64,000 ppb (September 1998) to generally non-detect. The aniline concentrations however, remained relatively consistent since 1998 and therefore the soil in this area was amended with RAMM and Suga-Lik[®] as part of the August 2004 supplemental remedial activities. The November 2004 aniline concentration of 640 ppb is the lowest concentration detected at this location since September 2000. The other COCs have generally been not detected at this location or detected at concentrations just slightly greater than their respective NYSDEC Groundwater Quality Standard.

Downgradient Perimeter Monitoring Locations

As presented on Figure 13, COCs were not detected above their respective NYSDEC Groundwater Quality Standards at downgradient perimeter monitoring locations during November 2004. As previously discussed above, due to laboratory equipment failure, the VOC results were inadvertently lost for all but one (MW-19) of the downgradient perimeter monitoring locations. At each of these locations, VOCs have generally not been detected since commencement of the COC process control and biannual monitoring program in 1998 and 1988, respectively (see Attachment A). Based on the consistent historic VOC groundwater monitoring data, as well as, the consistent COC data (aniline, N,N-dimethylaniline, and methanol) obtained during the November 2004 sampling event, these monitoring locations were not resampled. Each of these locations will, however, be sampled and analyzed for COCs during the first sampling event of 2005, including perimeter monitoring locations MW-24DR, MW-24SR, PZ-5D, and PZ-5S that were not scheduled to be sampled until the second sampling event of 2005 (Table 4).

V. Conclusions

The process control monitoring data presented in this Biannual Report 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.
- Aniline and N,N-dimethylaniline were not detected above the NYSDEC Groundwater Quality Standards at the perimeter sampling locations in November 2004, which is consistent with prior perimeter groundwater data, obtained in some cases since 1989.
- The biological monitoring data collected at MW-33 indicates that biological activity has remained the same or slightly increased since the Suga-Lik[®] additions began in August 2001; however, aniline has consistently been detected at relatively higher concentrations at this location (2,700 ppb in November 2004). During this same time period, COCs (in general) were not detected above their respective NYSDEC Groundwater Quality Standard in the groundwater samples collected from the monitoring well located downgradient of MW-33 (MW-3S).
- The COC concentrations detected in the groundwater samples collected from Area 1 since the in-situ anaerobic treatment program began in 1998 demonstrate a significant decrease in COC concentrations since commencement of the in-situ anaerobic bioremediation treatment program. The COC concentrations detected in this area were either not detected or detected at concentrations only slightly greater than their respective NYSDEC Groundwater Quality Standard.
- The COC groundwater concentrations within Area 2 have been and continue to be relatively low, with the exception of aniline detected at monitoring location TW-02RR. After completing the August 2004 supplemental remedial activities, however, the aniline concentration detected at TW-02RR showed an approximate 90% decrease: 82,000 ppb in June 2004 compared to 7,100 ppb in November 2004.
- The concentrations of most COCs that were 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. After completion of the August 2004 supplemental remedial activities conducted to further address COCs at MW-8S, the total COC concentration measured at MW-8SR is approximately 95% lower.

VI. Recommendations

Based on the process control monitoring data obtained to date and the conclusions summarized above, the addition of RAMM and/or Suga-Lik[®] 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 September 2004 and described in Section I, with the exception of the Suga-Lik[®] additions in the vicinity of MW-33. The Suga-Lik[®] additions at PZ-S, WP-4, and WP-5 have been discontinued to further stimulate the biodegradation rate of aniline in the vicinity of MW-33, located downgradient of Area 1.

Suga-Lik[®] was introduced at discrete locations in the vicinity of MW-33 in August 2001 to provide a source of carbon to stimulate biological activity resulting in increased biomass. In addition, Suga-Lik[®] had been introduced in the vicinity of MW-33 on a monthly basis into piezometer PZ-S beginning in March 2002, as well as into well points (WP-4 and WP-5) beginning in September 2004. The biological monitoring data collected at MW-33 indicates that biological activity has remained the same or slightly increased since the Suga-Lik[®] additions began; however, aniline has consistently been detected at relatively higher concentrations at monitoring location MW-33. Suga-Lik[®] additions were discontinued at piezometer PZ-S and well points WP-4 and WP-5 to see if the microbial organisms will convert into a biphasic growth phase and begin to metabolize aniline in the vicinity of MW-33. The Suga-Lik[®] additions were discontinued in April 2005; however, RAMM will continue to be introduced at these locations as a source of macronutrients and micronutrients to enhance the anaerobic biodegradation of the COCs.

As discussed in this report and summarized in Table 4, the 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. Changes to the Process Control Monitoring Program were most recently presented in the November 2004 Biannual Report. Based on your June 2, 2005 telephone conversation with BBL (Cathy Geraci), BBL understands that NYSDEC has approved elimination of the biological monitoring activities from the Process Control Monitoring Program. NYSDEC, however, did not approve eliminating COC sampling at monitoring location TW-01 or changing the COC sampling schedule from biannual to annual at upgradient monitoring location MW-1 and monitoring Program is detailed in Table 5. As discussed during your June 2, 2005 telephone conversation with Cathy Geraci, the revised program will be implemented starting with the first sampling event in 2005.

In addition to the monitoring locations that are scheduled to be sampled during the first sampling event in 2005 (Table 5), groundwater samples from monitoring locations MW-24DR, MW-24SR, PZ-5D, and PZ-5S will also be collected and analyzed for COCs. As previously identified, these locations will be sampled because the VOC data was inadvertently lost due to laboratory equipment failure during the previous sampling event (November 2004). As identified in Tables 4 and 5, MW-24DR, MW-24SR, PZ-5D, and PZ-5D, and PZ-5S were not scheduled to be sampled again until the second sampling event of 2005.

The first sampling event of 2005 was conducted during the week of June 6, 2005. Consistent with the previous sampling events, BBL has coordinated the schedule with the NYSDEC. 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 or Cathy Geraci at (315) 446-9120.

Sincerely,

BLASLAND, BOUCK & LEE, INC. alm/meg David J. Ulm Senior Vice President

CWS/jlc Attachments

 cc: Mr. Jim Burke, P.E., New York State Department of Environmental Conservation Mr. Gerald J. Rider, Jr., New York State Department of Environmental Conservation Mr. Chris Mannes, 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

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TABLE 1 SUMMARY OF SELECT GROUNDWATER LEVEL MEASUREMENTS

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

	Reference	6/10/98	6/22/98	7/6/98	7/20/98	7/27/98	8/6/98	8/10/98	8/10/98	8/11/98	8/11/98	8/12/98	8/12/98	10/16/98	11/17/98	12/16/98	12/22/98	1/6/99	1/13/99
Location	Elevation	Static			Week 1	Mask B	Mark 9	(morning)	(afternoon)	(morning)	(afternoon)	(morning)	(afternoon)			Sec. 14		a logical	
	(feat AMSL)		200.07	000 70		Week 2	Week 3	Week 4	Week 4	Week 4	Week 4	Week 4	Week 4	Week 13	Week 18	Week 22	Week 23	Week 25	Week 26
Canal	393.39*	362.91	363.37		363.08	363.08	362.94	0.04 00	362.78	362.94			362.84	363.27		363.14	362.21	363.11	
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
MW-35	376.54	365.93	366.26	367.82	366.20			365.29							365.25	365.67	366.81	365.67	365.25
MW-3D	375.56	365.63	365.87	366.16			364.97	364.85				<u> </u>		365.08	365.00	365.04	 	365.04	
MW-6D	377.07	365.75	366.01	366.29								ļ		365.25	365.15	365.23	365.36	365.23	365.06
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	<u> </u>	364.88	364.74
MW-9D	376.76***	365.78					365,14	365.10						365.25	365.16	365.22	365.36	365.26	365.08
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
MW-115	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
MW-18	372.57	362.64											_	<u> </u>	361.90	361.93	362.05	362.05	361.84
MW-19	376.00	362.42	_									<u> </u>			361.78	361.84	361.98	361.87	361.89
MW-231	372.77	365.04	365.34	365.72		L	364.34		364.45	364.16			364.43	364.43	364.34	364.36		364.47	364.26
MW-235	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
MW-24DR	375.14	365.41					·	L							364.63	364.67	364.81	364.69	364.54
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		364.33
MW-25D	373.67	365.43												_	364.74	364.76		364.77	364.64
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
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
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
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
PZ-9D	377.29	365.73					365.47	365.28		_				365.12	365.03	365.08	365.24		364.94
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
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
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
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
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
PZ-F	377.06	366.17					365.56	365.50						365.37	365.27	365.52	365.73	365.62	365.27
PZ-G	377.16	366.21				— —	365.66	365.60						365.46	365.36	365.60	365.76	365.71	365.44
PZ-HR	376.99	366.16					365.54							365.44	365.34	365.54	365,84	365.60	365.39
PZ-I	375.15	366.56					365.86	365.64						365.88	365.57	365.90	366.59	366.05	365.76
PZ-J	374.89	366.15	[365.53	365.40				t——		365.53	365.39	365.55	365.93	365.59	365.47
РZ-К	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
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
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
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
PZ-0	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				
PZ-P	375.50	366.25	000.00	504.25	505.21	002.04	365.65	365.60	302.78	505.05		302.00	303.03			362.75	363.74	362.87	362.68
PZ-P	376.89	366.23	<u> </u>				365.65	365.60						365.52	365.39	365.61 365.59	365.78	365.73	365.44
PZ-Q	377.05	366.23	┼───	366.94										365.45	365.35		365.70	365.71	365.42
			<u> </u>	1 300.94			365.65	365.57					- <u> </u>	365.50	365.38	365.61	365.81	365.67	365.47
PZ-S	378.13	366.19				<u> </u>	365.57	365.52			<u> </u>			365.43	365.35	365.57	365.94	365.65	365.40
PZ-T	376.25	366.14	┣──			<u> </u>	365.54	365.43				<u> </u>		365.52	365.38	365.58	365.96	365.64	365.47
PZ-U	375.35	365.99		366.81			365.50	365.33				<u> </u>		365.37	365.30	365.49	365.91	365.55	365.40
PZ-V	375.78	366.07	┣—	 		<u> </u>	365.48	365.35				 -		365.43	365.29	365.47	365.90	365.52	365.37
PZ-W	375.78	366.07	L			L	365.46	_365.31						365.41	365.28	365.44	365.78	365.53	365.33

TABLE 1 SUMMARY OF SELECT GROUNDWATER LEVEL MEASUREMENTS

2

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT MCKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

	Reference	4/14/99	6/3/99	7/13/99	3/27/00	6/1/00	9/18/00	11/14/00	3/19/01	9/24/01	4/15/02	6/3/02	6/18/02	10/7/02	1/20/03	5/5/03	10/27/03	6/14/04	11/1/04
Location	Elevation (feet AMSL)	Week 39	Week 46	Week 62				Sec. in										Giltare	
Canai	393.39*	1100K 23	363.22	362.78	363.73	363.75	362.75^	363.24	363.01	362.96	364.59	363.64	364.17	362.19	٨٨	363.34	363.34	363.39	363.39
Collection Sump	372.81	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	362.11	362.00
MW-3S	376.54	303.17	365.26	301.07	357.10	301.40	301.03	301.00	001.03	302.04	367.70	366.26	367.50	364.26	366.27	366.38	366.98	366.65	365.54
MW-3D	375.56	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	365.59	365.27
MW-6D	377.07	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	365.80	365.46
MW-8D	374,68	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	365.39	
MW-9D	376.76***	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	365.85	365.51
MW-11D	373.68	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	365.26	364.93
MW-11S	373.50	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	364.34	363.98
MW-18	372.57	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	362.62	362.29
MW-19	376.00	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	362.89	362.59
MW-231	372.77	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	364.99	364.67
MW-235	372.61	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	363.04	362.77
MW-24DR	375.14	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	365.19	364.86
MW-24SR	375,55	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	365.12	364.78
MW-25D	373.67	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	365.26	364.93
MW-25S	373.39	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	363.49	363.08
PZ-4D	376.11	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	365.28	364.96
PZ-5D	375.58	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	365.53	365.20
PZ-8D	375.83	365.78	365.08	365.00															
PZ-9D	377.29	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	365.68	365.35
PZ-A	373.94	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	363.18	362.89
PZ-B	373.92	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	363.21	362.92
PZ-C	374.85	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	366.07	365.50
PZ-D	375.12	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	366.11	365.62
PZ-E	374.12	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	364.58	364.07
PZ-F	377.06	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	366.65	365.75
PZ-G	377.16	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	366.68	365.81
PZ-HR	376.99	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	366.62	365.81
PZ-I	375.15	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	367.01	365.26
PZ-J	374.89	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	366.45	365.86
PZ-K	373.19	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	363.13	362.84
PZ-L	374.62	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	363.04	362.79
PZ-M	374.35	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	363.61	363.31
PZ-N	376.94**	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	365.95	365.47
PZ-O	375.36	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	363.43	363.04
PZ-P	376.89	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	366.65	365.87
PZ-Q	377.61	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	366.77	365.85
PZ-R	377.05	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	366.72	365.85
PZ-S	378.13	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	367.18	367.10
PZ-T	376.25	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	366.54	365.85
PZ-U	375.35	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	366.43	365.82
PZ-V	375.78	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	366.44	365.76
PZ-W	375.78	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	366.36	365.72

TABLE 1 SUMMARY OF SELECT GROUNDWATER LEVEL MEASUREMENTS

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

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 1/03 resampling event could not be measured due to strong winds and ice on the water surface.

11. Monitoring location MW-8D was decommissioned on August 3, 2004.

TABLE 2 BIOLOGICAL MONITORING DATA 11/2 - 11/5/04

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT MCKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

				a an	•				owei e	Biological P	arameter				e here en la s	and a stranger	an a	a de Reine	araan in i		
Monitoring Location	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)	D.O. (mg/L)	Temp. (C)	ORP (mV)	Cond. (mS/cm)
AREA 1																					
MW-1	1	ND	0.54	80.0	0.964	21	14.9	11.5	2.55	2.79	72.2	<2.00	78	0.048	-	-		0.95	13.10	-133	1.52
TW-01	1	ND	0.30	0.12	0.452	21	2.78	2.46	0.939	0.918	266	<2.00	150	1.2	8.61	0.81	3.07	2.00	12.13	-122	1.62
MW-31	9	0.142	0.07	0.07	1.11	11	4.52	4.74	1.26	1.33	49	<2.00	210	7.6	5.94	<0.04	1.53	1.65	10.83	-111	2.12
MW-32	8	ND	0.12	0.08	0.816	18	4.04	4.62	1.21	1.35	318	<2.00	160	1.5	6.80	0.460	1.79	1,75	12.50	-109	1.56
MW-9S	11	ND	0.21	0.16	1.36	14	9.21	9.13	1.41	1.43	22.4	<2.00	160	2.7	3.76	0.071	0.393	2.33	12.13	-142	1.84
MW-33	-		-		2.28	7.8	0.378	0.248	0.712	0.679	188	<2.00	430	9.2	9.78	0.25	1.46	1.51	11.63	-343	4.19
AREA 2																					
TW-02RR	21	0.074	0.05	0.04	1.31	14	1.30	0.753	1.37	1.34	24.4	<2.00	220	5.4	18.2	0.33	24.8	1.50	11.26	-307	2.19
MW-34	2	ND	0.17	0.05	0.973	13	1.84	1.66	0.81	0.757	14.9	<2.00	170	2.5	11.3	0.31	7.95	1.84	12.48	-183	1.65
MW-35	3	0.023	0.32	0.23	0.299	17	4.85	5.30	0.677	0.800	51.6	<2.00	150	0.72	6.30	0.57	4.82	0.71	13.85	-73	0.61
MW-36		-	-		2.04	13	0.257	0.165	3.43	3.44	82.5	<2.00	290	3.9	26.8	0.92	37.1	0.82	12.72	-222	3.31
AREA 3					_																
MW-3S	15	0.202	0.10	0.09	0.306	17	5.95	5.64	4.39	4.46	12.0	<2.00	86	0.000015	-			0.68	12.15	-127	0.46
MW-8SR	8	0.343	0.31	0.06	3.12	7.8	32.5 J	39.8 J	5.22 J	6.30 J	16.1	<2.00	650	5.2	9.86	2.40	16.2	1.30	12.07	-206	4.72
MW-27	2	0.034	0.23	0.10	1.82	12	7.71	8.53	0.904	0.940	36.5	<2.00	280	6.3	8.58	0.16	7.09	2.80	11.86	-273	2.06
MW-28	2	0.088	0.33	0.07	1.56	11	17.8	16.3	1.03	1.00	60.8	<2.00	230	4.5	8.37	0.72	3.73	1.51	11.19	-265	2.52
MW-29	-		-	-	1.64	17	0.071	0.0818	0.187	0.232	147	<2.00	100	2.8	13.1	0.072	0.020	2.71	11.85	-242	2.65
MW-30			-	-	1.46	21	0.123	0.0836	0.082	0.0759	111	<2.00	90	1.7	11.7	0.14	1.06	0.96	12.30	-296	2.21

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.
- 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 = The associated numerical value is an estimated concentration only.

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11 - M. 11 - 11 - 11 - 11 - 11 - 11 - 11	Sampling	Screen El	ev. (ft. AMSL)			1. 1987. COM	Ethyl-	en ser file fil		Trichloro-		N,N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Chloride
MW-1	3/88	370.3	355.3	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89	1		<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	3		<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	<u><</u> 10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00	1		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	10>
	9/01	1		<10	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
	4/02	4		<12	<5	<5	<5	<10	L 066	<5	<5	<5	<5
	10/02	4		<25	<10	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03	4		<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
	6/04	4		<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04								<1,000		<5	<5	
MW-2S	3/88	368.1	353.1	<1,000	1,900	110	610	2,800	<1,000	<10	<10	<10	<10
	1/89	_		<1,000	2,000	65	330	1,200	<1,000	<10	<11	<11	<10
	11/89			<1,000	1,800	<100	360	810	38,000	<100	<100	<100	<100
MW-3S	3/88	365.1	350.1	<100	<1	<1	<1	<1	<1,000	50	<10	<10	110
	1/89	4		<10,000	<100	120	<100	<100	<1,000	1,100	<11	5,570	4,700
	11/89	4		<10,000	<100	<100	<100	<100	<1,000	100	<52	440	2,700
	11/91	4		2,900	10	10	4	31	<1,000	<10	790	170	<10
	8/95	-		<1,000	<5	<5	<5	<5	<1,000	<5	15	. <u>∕</u> 2J	<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	9 J 🗠	<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 4/02	-		<10	3 J <5	8 J <5	1J	2 J	<1,000 J	<10	690 D (69)	4 J	<10
	10/02	4			<10	<5 <10	<5	<10	370 J	<5	1.7 J	<5	<5
	5/03	-1		<25	<10	<10	<10 <5	<20 <10	<1,000 <1,000	<10 <5	<5	R	<10
	10/03	-1		<12	<5	<5	<5	<10		<5	<5 4 J	<5 <5	<5
	6/04	-		6J	<10	<10	<10	<10	<1,000 <1,000	<0	4 J 0.8 J	<5	<5
	11/04	-		<25	<10	<10	<10	<20	150 J	<10	4 J	< <u>6</u> <5	<10 <10
MW-3D	8/95	343.8	339	<1,000	<10 <25 D	<10 <25 D	<10 <25 D	<20 <25 D	<1,000	<10 <25 D	4J 1J	<u> </u>	<10 200 D
MW-4S	3/88	365.5	350.5	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	200 D <1
	1/89	-	350.5	<100	<1	<1	<1	<1	<1,000	<1	<11	19	280
	1/89	-		<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1

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Monitoring Well MW-5 ⁷	Sampling Date 3/88	Тор	v. (ft. AMSL) Bottom		 P. 1914 	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ethyl-			Trichloro-	A state of the state of the state	N,N-Dimethyl-	
MW-5 ^F	3/88		1	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Methylene Chloride
		363.3	348.3	<100	<1	<1	<1	<1	<1,000	<1	230	130	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	34	<11	<1
	11/89	1		<100	<1	<1	<1	<1	<1,000	<1	17	<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	100
	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	2,900	24,000	3,200,000
(Replaced by MW-8S) ^N	11/89			470,000	<10,000	<10,000	<10,000	<10,000	300,000	<10,000	8,500	52,000	2,800,000
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	150,000	<10,000	8,000	33,000	1,600,000
	8/95			<1,000	<250,000D	<250,000D	<250,000D	<250,000D	22,000	60,000 JD	<25,000D	380,000 D	7,700,000 D
	9/98			<10,000 J	<10,000	<10,000	<10,000	<10,000	7,900	3,300 J	1,200 J	26,000 D	140,000
	2/99			<20,000	<20,000	<20,000	<20,000	<20,000	16,000JN	11,000 J	30,000 D	120,000 D	650,000 DB
	7/99	-		10 J	22 J	240 J	58`J	220 J	17,000	11,000 J	24,000	77,000	450,000 D
	3/00			<100,000	<100,000	<100,000	<100,000	<100,000	30,000 J	<100,000	62,000	270,000 D	1,300,000
	9/00	ł		<50,000 J	<50,000 J	<50,000 J	<50,000 J	<50,000 J	14,000 J	9,200 J	42,000 J	59,000	540,000 BJ
	3/01			<50,000	<50,000	<50,000	<50,000	<50,000	53,000	11,000 J	90,000 D	120,000 D	990,000
	9/01	4		<400	<400	430	170 J	680	L 006,8	18,000 JD	21,000	29,000	440,000 BD
	4/02	4		2,100	50 J	410	100 J 🛒	400	<1,000	9,600 J	793,000 D	⊃ 5 773,000 D	660,000 D
	10/02			120 J	23	310	73	267	<1,000	3,100	80,000	21,000 J	320,000
	5/03			<12	20 J	600 D	81	300	<1,000	6,700 D	79,000 D	29 J	910,000 D
	10/03	4		21	25	330 D	93	360	1,200 J	3,100 D	67,000 D	24,000 D	400,000 D
	6/04			<25	40	330 EJ	110	400	<1,000	5,900 D	56,000	51,000	1,200,000 D
MW-8SR MW-9 ^C	11/04	362.7	352.7	<1,200	<500	100 DJ	<500	164 DJ	<1,000	<500	35,000 D	5,300 D	10,000 D
-	1/89	365.6	356	1,600	NA	64	130	270	<1,000	<10	650	1,200	1,500
(Replaced by MW-9S)	11/89	4		<1,000	48	25	60	K ~ 60 · · · ·	<1,000	<10	670	150	<10
	11/91	-		<100	<10	9	19	30	<1,000	<1	95	18	<1
	8/95			<1,000	11 JD	28 JD	69 D	226 JD	<1,000	<50	50	28	110 D
	7/99			<10	4 J	2 J	9 J	18	<1,000	<10	<10	5 J	<10
	3/00			<10	2 J	2 J	11	21	<1,000 J	<10	2 J	<u> </u>	<10
	9/00 3/01	-		<10 J <10	11 J	2 J 3 J	6 J 17	18 J	<1,000	<10 J	1 J	6 J	<10 J
	9/01	4			1 J 10	3 J	1/ 7 J	61 35	<1,000 <1,000 J	<10 <10	2 J <10	11 10	<10
	9/01 4/02	-	}	<10	10	2 J	7 J 6	17 J	370 J	<10	<10 9	43	<10 <5
	10/02	{		16 J	38	40	2 J	17 J	<1,000	<10	9 <5	43 2 J	<5
	5/03	-		<12	11	40 <5	7	15 J	<1,000	<5	<5 0.9 J	2J 3J	
	10/03			<12	2 J	<5	5	19	<1,000	<5	0.9J		<5
	6/04	1		14 J	6 J	2 J	с 8 Ј	19 J	<1,000	<5	1 J <5	<5 <5	<5
	11/04	1		<25	4J	2 J 2 J	81 81	30 J	<1,000	<10	<5	<5 <5	<10
MW-10 ^c	1/89	355.5	345.9	<1,000,000	4 J <10,000	<10,000	9 J <10,000	<10,000	210,000	<10,000	<5 720	<5 9,400	<10 520,000
(Replaced by MW-9D)	1/89		343.9	<100,000	<1,000	<1,000	<1,000	<1,000	<1,000		900	9,400	28,000
(Replaced by MW-9D)	11/89	1		<100,000	<1,000	<1,000 3	<1,000 2	<1,000	<1,000	<1,000 <1	230	2,400 <10	28,000
	8/95	1		<100	<1 <25 UD	3 <25 UD	∠ <25 UD	<3 <25 UD	<1,000	<1 <25 UD	230 <5	<10 <10	41 350 D

SEE NOTES ON PAGE 13.

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	Sampling	Screen Elev	. (ft. AMSL)		必要受		Ethyl-			Trichloro-		N,N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	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	230	<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		<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<26
	10/95	1		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		<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	10/95	1 1		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	67	410	120,000
(Replaced MW-8D) ^N	11/89	1		69,000	<1,000	<1,000	<1,000	<1,000	39,000	<1,000	<1,000	4,900	360,000
	11/91	1		<1,000,000	<10,000	<10,000	<10,000	<30,000	<10,000	<10,000	750	5,800	220,000
	8/95	1		<1,000	450 JD	430 JD	430 JD	1,250 JD	<1,000	<1,300 D	30 D	230 D	<13,000 D
	8/96	1 1		13	<10	<10	<10	<10	< 1,000	2 J	<5	<10	40
MW-13S	11/89	368.7	359.1	<100	3	<1	<1	<1	<1,000	<1	<52	<52	<1
	11/90	1 (<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91	1		<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92	1		<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	1		<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	< 1 1	<11	<1
	11/89	7 1		<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	1		<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-17 [#]	11/90	365.7	356.1	<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
(Replaced by MW-17R)	11/91	1		<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		<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	1		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	1		<10	8 J	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00]		<10 J	15 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	24 J	4 J	1 J
	3/01	ן ך		<10	1 B J	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01]		<10	5 J	<10	<10	< 10	<1,000	<10	<10	<10	<10
	4/02	7		<10	6	<5	< 5	<10	620 J	<5	150 (<5) ^K	110 (<5) ^K	<5
	10/02	7		<25 J	14	<10	<10	<20	<1,000	<10	<5 ^L	<5 ^L	<10
	5/03	1		<12	8	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03	1		<12	7 6	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04	1		<25	5.3	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04	1				-	-		200 J	-	<5	<5	

TABLE 3 SUMMARY OF HISTORICAL GROUNDWATER MONITORING DATA

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

	Sampling	Screen Ele	v. (ft. AMSL)	1998 - 1997 - 1997 - 19		State State	Ethyl-	8 M	mar danan a	Trichloro-		at AL DESIGNAL	Carland Sector
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	N,N-Dimethyl-	Methylene Chloride
MW-18	11/89	325.15	316.15	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90	1		<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91	1		<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
	2/9 7			<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	4		<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99	1		<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 10/02 5/03		<10	<10	<10	<10	<20	720 J	<10	280 D (<5) ^K	200 D (<5) ^K <5 ^L	<10	
				6 J	<10	<10	<10	<20	<1,000	<10			<10
		-		<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
	6/04	4		<25	<10	<10	<10	<20	<1,000	<10	R	R	<u><1</u> 0
MW-19	11/04 11/89	318.45	200.45	 <100	<1		<1	<1	<1,000		<5	<5	
MAA-12	12/94	316.40	309.45	<100	<1	<1 <5			<1,000	<1	<10	<10	<1
	8/95	-		<1,000	<5	<5	<5 <5	<5 <5	<200	<5	<5	<10	<5
	10/95	-		NA	<5	<5	<5	<5	<1,000 NA	<5	<5 NA	<10 NA	<12 <5
	2/96	4		<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	1		<10	<10	<10	<10	<10	<1,000	<10	<5 ^H	5 J	<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	1		<100	<10.5	<10.5	<10	<10.5	<1,000 J	<10.5	<5	<10	<10 3
	9/00	1		<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01	1		<10	<10	<10	<10	<10	<1.000	<10	<10	<10	<10
	9/01	1		<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02	1		<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02	1		<25 J	<10	<10	<10	<20 J	<1,000	<10	<5 ^L	<5 ^L	<10
	5/03	1		<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	10/03	1		<11	<5	<5	<5	<10	<1,000	<5	51 J	16 J	<5
	6/04	1		<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04	1		<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10

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and the second	Sampling	Screen Ele	v. (ft. AMSL)	430. CAR			Ethyl-	a server	- Br	Trichloro-	Congr. Age	N.N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xviene ^A	Methanol	ethene	Aniline	aniline	Chloride
MW-20 ^F	11/89	329.85	320.85	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90	1		<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91	1		<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92	1		<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	7	<10	<10
	2/97	[<10	<10	<10	<10	<10	<1,000	<10	11	<10	<10
	8/97			12	< 10	<10	<10	<10	<1,000	<10	92	<10	<10
	9/98			<10	<10	<10	<10	<10	<1.000	<10	56 ^H	्	<10
	2/99			<10	<10	<10	<10	<10	<1,000	< 10	<10	10	<10 J
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	2 J	<10 J
	7/99			<10 J	<10	<u><1</u> 0	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	2 J	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	2 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	60	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04					-			<1,000		<5	<5	-
MW-231	12/94	341.2	336.2	<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95	4		<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96 8/96	4		<1,000 <10	<10 <10	<10 <10	<10 <10	<10 <10	<1,000	<10	<5	<10	<10
	2/96	4		<10	<10	<10	<10	<10	<1,000 <1,000	<10 <10	<5 <5	<10 <10	<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	1		<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	1		<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01	4		<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	1		<10	<5	<5	<5	<10	<1,000	<5	<5	<5	2 J
	10/02	1		<25 J	<10	<10	<10	<20 J	<1,000	<10	<5	<5 ^L	<10
	5/03	1		<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	10/03	1		<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04	4		<25	<10	<10	<10	<20	<1,000	<10	1 J	<5	<10
	11/04	I							<1,000		<5	<5	

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	Sampling	Screen Ele	v. (ft. AMSL)				Ethyl-	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		Trichloro-		ALL Dimethod	
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	N,N-Dimethyl- aniline	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		<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	<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	16.1.16	<6	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04						-		<1,000		<5	<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	<u><</u> 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	<1,000	<10 J	<10	<10	<10 J				
	9/00			<10 J	<1,000 J	<10 J	<10 J	<u> </u>	<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	4		<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
	11/04								<1,000		<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	4		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	4		<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99	-		<10	<10	<10	<10	<10	<1,000	<10	130	<10	<10 J
	6/99	-		<10 J	<10	<10	<10	<10	<1,000 J	<10	110 J	21 J	<10 J
	7/99	-		<10 J	<10	<10	<10	<10	<1,000	<10	5 J	<10	<10
	3/00	4		<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00	4		<10 J	<1,000 J	<10 J	<10 J	<10	<10 J				
	3/01	4		<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01	4		<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	4/02	4		<10	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	10/02	4		<25	<10	<10	<10	<20	<1,000	<10	<5 ^L	<5 ^L	<10
	5/03	4		<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	11/03	4		<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04	-		<25	<10	<10	<10	<20	<1,000	<u><</u> 10	<5	<5	<10
	11/04	I							<1,000		<5	<5	

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	Sampling	Screen El	ev. (ft. AMSL)	a sala tati			Ethyl-	N. Mary J	S. S. D. M.	Trichloro-	1	N,N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Chloride
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	1		<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
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
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	3 J 🦂	_ 4 J	<10	3 J	<1,000	<10	340 DJ	<10	<10
	7/99	[10 J	4 J	_2 J	3 J	8 J	<1,000	<10	740 D	<10	<10
	3/00			<10	6 J	<10	8 J 🖓	2 J	<1,000 J	<10	110 D	, 1J	<10
	9/00			<10 J	4,J	<10 J	3 J _	1 J	<1,000 J	<10 J	16 J	2 J	1 J
	3/01			<10	5 J 🔗	<10	5 J	2 J	<u><1,000</u>	<10	260 D	2 J	<10
	9/01			<10	5 J	<10	2 J	<10	<1,000 J	<10	26	<10	<10
	4/02			<18	7	11	12	26	<1,000	<5	176,000 DJ	19 J	<5
	10/02	4		9 J	3 J	<10	<10	<20	<1,000	4 J	2,700 D	100 J	60 JN
	5/03	1		<12	8	<u></u>	23	<u> </u>	<1,000	<5	15,000 DJ	<u> - 11</u>	<u> 1320 - 1</u>
	10/03			170	5	<5	<5	3 J	<1,000	<5	3,700 D	<5	240 D
	6/04			23 J	5 J	4 J	<u>2</u> J	6 J	<1,000	<10	3,700 D	20 J	<10
	11/04			<120 (28)	<50 (4 J)	<50 (2 J)	<50 (<10)	<100 (<20)	<1,000	<50 (<10)	1,100 DJ	<5	310 (490 D)
MW-28	9/98	363.6	355.6	<5,000 J	<5,000	<5,000	<5,000	<5,000	2,200	<5,000	546 D ^H	54	64,000 J
	7/99	1		<500 J	<500	<500	<500	<500	<1,000	<500	1,100 D	40	39,000 D
	3/00	4		<10,000	<10,000	<10.000	<10,000	<10,000	<1,000 J	<10,000	1,300 D	30	130,000 J
	9/00	-		<1,000 J	<1,000 J	<1,0 <u>00</u> J	<1,000 J	<1,000 J	<1,000 J	<1,000 J	540 DJ 🥢	<10	8,100 BJ
	3/01	-		<400	<400	<400	<400	<400	<1,000	<400	3,200 D	<u> </u>	5,900 B
	9/01	4		<400	<400	<400	<400	<400	<1,000 J	<400	1,000 D	<10	4,700 B
	4/02	4		<49	8.00	6	9	_10 J	<1,000	<5	33,400 D	57	4,600 D
	10/02	4		14 J	8J	6 J 🎂	11	12 J	<1,000	<10	2,700 D	R	<10
	5/03	-		13	4 J	2 J	2 J	8 J	<1,000	<5	1,000 DJ	3 J	52
	10/03			24	<u>11</u>	6	12	13 J	<1,000	<5	1,900 D	<5	<5
	6/04	4		20 J	43	2 J	5 J	4 J	<1,000	<10	910 D	<5	<10
	11/04			<120 (<25)	<50 (4 J)	<50 (<10)	<50 (5 J)	<100 (3 J)	190 J	<50 (<10)	640 DJ	<5	< <u>50</u> (<10)
MW-29	9/98	362.9	345.9	<10	<10	<10	<10	2 J	<1,000	<10	<10	13	<10
	2/99	4		7 J	<10	<10	<10	1 J	<1,000	<10	5 J	4 J	<10
	7/99	4		<10	<10	<10	<10	<10	<1,000	<10	2 J	4 J	<10
	3/00	-		<10	<10	<10	<10	<10	<1,000 J	<10	450 D	6 J	<10
	9/00	4		<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	24 J	4 J	<10 J
	3/01	4		<10	<10	<10	<10	<10	<1,000	<10	30	4 J	<10
	9/01	4		<10	<10	<10	<10	<10	<1,000	<10	7 J	2 J	<10
		4		<10 <25 J	<5	<5	<5 <10	<10 <20	<1,000	<5	3 J	9.0%	<6
	10/02			<u> <72 1</u>	<10	<10	<10		<1,000	<10	8	R	4 JN

 TABLE 3

 SUMMARY OF HISTORICAL GROUNDWATER MONITORING DATA

	Sampling	Screen Elev	/. (ft. AMSL)			417-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Ethyl-			Trichloro-		N,N-Dimethyl-	
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Methylene Chloride
MW-29	5/03			<12	<5	<5	<5	<10	<1,000	<5	19	1 J	<3
(Conťd.)	10/03	1		<12	<5	<5	<5	<10	<1,000	<5	2 J	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	3 J	<5	< 10
	11/04]		<120	<50	<50	<50	<100	420 J	<50	<5	<5	<50
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	2 J	<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	18	2 J	4 J
	9/00]		<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	9 J	** ~2 J	2 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	8 J	2 J	<10
	9/01]		4 J	2 J	<10	<10	<10	<1,000 J	<10	8 J	1J	<10
	4/02			<10	<5	<5	<5	<10	<1,000	<5	250	210	<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	18	0.6 J	8 J
	10/03			<12	<5	<5	<5	<10	<1,000	<5	4 J	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			<120	<50	<50	<50	<100	<1,000	<50	<5	<5	<50
MW-31	9/98	363.7	355.4	<10	12	<10	<10	<10	<1,000	<10	34	4 J	<10
	7/99			<10	16	<10	<10	<10	<1,000	<10	230 D	3.J	<10
	3/00			<10	16	<10	<10	<10	<1,000 J	<10	3 J	4 3 - 24	<10
	9/00			<10 J	12 J	<10 J	<10 J	<10 J	<1,000	<10 J	10	6 J	<10 J
	3/01			21	S. 911	<10	<10	<10	<1,000	<10	<10	5 J	<10
	9/01			<10	14	<10	<10	<10	<1,000 J	<10	91 D	3.	<10
	4/02			<14	9	<5	<5	<10	<1,000	<5	804 D	21	<5
	10/02			<25	11	<10	<10	<20	<1,000	<10	560 D	1 J	<10
	5/03			<12	9	<5	<5	<10	<1,000	<5	0.9 J	3 J	<5
	10/03			1,200 D	13	<5	<5	<5	<1,000	<5	88	<5	<5
	6/04			15 J	12	<u><1</u> 0	<10	<20	<1,000	<10	<u>3 J</u>	<5	<10
	11/04			<25	9 J	<10	<10	<20	<1,000	<10	<5	<5	<10
MW-32	9/98	364	356	<10	<u></u>	2 J	5 J	3 J	<1,000	<10	6,300 D	4 J	<10
	7/99			3 J	14	2 J	4 J	<10	<1,000	56	<10	3.J .	<10
	3/00			<10		<10	<10	<10	<1,000 J	<10	800 D	<10	<10
	9/00			<10 J	12 J	<10 J	<10 J	<10 J	<1,000	<10 J	4,500 D	<10	<10 J
	3/01			<10	5 J	<10	<10	<10	<1,000	<10	1,900 D	2 J	<10
	9/01	4		<10	10	<10	<10	<10	<1,000 J	<10	1,100 D	2 J	<10
	4/02	1		<15	4 J ∞	<5	<5	<10	<1,000	<5	4,620 D	11	<5
	10/02			<25	4 J 😳	<10	<10	<20	<1,000	<10	50	R	<10
	5/03	4		<12	<5	<5	<5	<10	<1,000	<5	0.6 J	0.7 J	<5
	10/03	4		20	2 J	<5	<5	<10	<1,000	<5	<5	<5	<5
	6/04	4		6 J	1 J	<10	<10	<20	<1,000	<10	<u>1 J</u>	<5	<10
	11/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10

Screen Elev. (ft. AMSL) CONCLUSIO Sampling Ethyl-Trichloro-N,N-Dimethyl-Methylene Monitoring Well Date Top Bottom Acetone Benzene Toluene Xylene^A benzene Methanol ethene Aniline aniline Chloride MW-33 9/98 344.1 356.1 <10 <10 <10 <10 <10 <1,000 9 J <10 6 J <10 2/99 <10 <10 <10 <10 <10 <1,000 <10 120 6 J <10 7/99 5 J 2 J 0.7 J <10 <10 <1.000 <10 150 8 J <23 3/00 <10 J <10 <10 <10 <10 <1,000 J <10 51 7. J 11 9/00 45 J 41 1 J <10 J <10 J <1,000 <10 J 540 D 23 330 DJ 3/01 17 J <20 <20 <20 <20 <1,000 <20 1,300 D 16 370 B 21 5 J 9/01 <10 <10 <10 <1,000 J <10 1,900 D 12 <18 4/02 <18 3 J <5 <5 <10 <1,000 <5 2,780 D 21 19 10/02 11 J 41 <10 <10 <20 <1,000 <10 290 D 3 J 4 J 5/03 88 13 <5 <5 <10 <1,000 <5 2.000 35 J 2.800 D 10/03 <5 22 2 J <5 <10 <1,000 1,900 D <5 <6 <5 6/04 12 J <10 J <10 J <20 J <1.000 9 J <10 J 2,700 D 5 J <10 J 11/04 --------------<1,000 ---2.700 D 5 J ---MW-34 9/98 362.7 354.7 <10 <10 <10 <10 <10 <1,000 <10 83 <10 <10 7/99 2 J 0.9 J 1 J <10 <10 <1,000 <10 380 D 2 J <10 2 J 3/00 <10 J 1 J <10 <10 <1,000 J <10 200 D 3.1 <10 <10 J 9/00 <10 J <10 J <10 J <10 J <1,000 <10 J 320 D 43 <10 J 3/01 <10 <10 2 J <10 2 J <1,000 <10 700 D 5 J <10 2 J 9/01 7 J 2 J <10 2 J <1,000 J <10 76 3 J <10 4/02 <32 <5 <5 <1,000 <5 <10 <5 640 D 15° <5 10/02 37 J <10 <10 <10 <20 <1,000 <10 380 DJ 21 <10 5/03 16 <5 <5 <5 <10 <1,000 <5 140 3 J <5 10/03 9 J <5 <5 <5 <10 <1,000 <5 18 <5 <5 6/04 24 J <10 <10 <10 <20 <1,000 <10 30 <5 <10 11/04 <25 <10 <10 <10 <20 180 J <10 14 <5 <10 MW-35 9/98 363 355 <10 <10 <10 <10 <10 <1,000 <10 6 J 5 J <10 7/99 <10 0.7 J <10 <10 <10 <1,000 <10 3 J 4 J <10 3/00 <10 J <10 <10 <10 <10 <1.000 J <10 <10 2 J <10 9/00 <10 J <10 J <10 J <10 J <10 J <1,000 <10 J <10 3 J <10 J 3/01 <10 <10 <10 <1,000 <10 <10 <10 <10 <10 <10 9/01 <10 <10 <10 <10 <10 <1.000 J <10 <10 2 J <10 4/02 <13 <5 <5 <5 <10 <1.000 <5 3 J 4.J <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 1,000 <100 <5 5 J 10/03 <5 <5 <5 <10 <1,000 <5 4 J <5 <5 6/04 <25 <10 <10 <10 <20 <1,000 <10 30 4 J <10 11/04 <25 <10 <10 <10 <20 240 J <10 82 <5 <10

	Sampling	Screen Ele	v. (ft AMSL)	(Selection)			Ethyl-			Trichloro-	lee sawisi	N.N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Chloride
MW-36	9/98	363.6	355.6	<10	<10	<10	<10	<10	<1,000	<10	290 D	6 J	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	860 D	4 J	<10
	7/99	1	[8.1	L 8.0	<10	<10	<10	<1,000	<10	250	<10	<10
	3/00			<10 J	< 10	<10	<10	<10	<1,000 J	<10	60	7 J	<10
	9/00		[5 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	8 J	6 J	<5
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			54	<10	<10	<10	<10	<1,000 J	<10	350 D	5 J	<10
	4/02			<20	<5	<5	<5	<10	<1,000	<5	9	41	<5
	10/02			12 J	<10	<10	<10	<20	<1,000	<10	2 J	2 J	<10
	5/03			9 J	<5	<5	<5	<10	<1,000	<5	67	4.J	<5
	10/03			580 D	<5	<5	<5	<10	<1,000	<5	100	<5	<5
	6/04			22 J	<10 J	<10 J	<10 J	<20 J	<1,000	<10 J	33	7	<10 J
	11/04			<u>1</u> 3 J	<10	<10	<10	<20	<1,000	<10	22	<5	<10
TW-01	12/96	365.1	355.4	<10	82	4 J	6 J	4 J	<1,000	<10	2,090 D	i 13	4 J
	9/98			<10	15	<10	4 J	<10	<1,000	<10	4,400 DEJ	ິ	<10
	2/99			<10	24	2 J	2 J	2 J	<1,000	<10	9,000 D	5 J	<10
	7/99			<10	16	1 J	3 J	<10	<1,000	<10	4,400 D	<u>⊘</u> • . 4 J . • . •	<10
	3/00			<10	16	<10	<10	<10	<1,000 J	<10	280 D	9 4 3 5 5	<10
	9/00			<10 J	11 J	<10 J	<10 J	<10 J	<1,000	<10 J	15	2 J	<10 J
	3/01			<10	5 J	<10	<10	<10	<1,000	<10	<10	3.1	<10
	9/01			<10	10	<10	<10	<10	<1,000 J	<10	< 10	2 J	<10
	4/02			<14	3 J	<5	<5	<10	<1,000	<5	8	13	<5
	10/02			<25	7 J	<10	<10	<20	<1,000	<10	<5	R	<10
	5/03			<12	7.00	<5	<5	<10	<1,000	<5	<5	1 J	<5
	10/03			<12	6	<5	<5	<10	<1,000	<5	0.6 J	<5	<5
	6/04			6 J	3 J	<10	<10	<20	<1,000	<10	<5	<5	<10
	11/04			<25	2 J	<10	<10	<20	<1,000	<10	<5	<5	<10
TW-02 ^F	12/96	363.3	353.3	53	10	77	16	65	<1,000	585 D	15,900 JD	3,920 D	42,449 D
(Replaced by TW-02R) ^N	9/98			<500 J	<500 J	<500 J	<500 J	53,000	5,000	300 J	38,000 D	51,000 D	86,000 D
	2/99			<1,000	<1,000	190 J	<1,000	150 J	14,000JN	<1,000	83,000 D	7,900	14,000 B
	7/99			630	37	240 J	31	150	<1,000		100,000 D	3,500 J	9,700 D
	3/00			<1,000 J	<1,000	160 J	<1,000	240 J	<1,000 J	<1,000	64,000 D	3,900	13,000
	9/00			190 J	28 J	95 J	35 J	160 J	<1,000	6 J 7 6	79,000	<10,000	390 J
	3/01]		81	19	68	28	130	<1,000	<10	67,000 D	650 J	400 D
	9/01	1		57	25	70	31	140	<1,000 J	<20	63,000 D	32	48 B
	4/02	1] [240	19	65	23	96	<1,000	<5	1,090,000 D	<5,300	14
	10/02	1		110 J 💥	15	19	23	65	<1,000	<10	80,000 D	10 J	<10
	5/03	1	1	240	30	130	49	226	<1,000	<5	160,000 D	230	97
	10/03]		58 SA 68	28	75 J	<5	<10	<1,000	2 J	92,000 D	<260	91
	6/04			140 J	19 J.	. (39 J	° 31 J	💐 111 J	<1,000	<10 J	82,000	<5,200	4 J
TW-02RR	11/04	363.3	353.3	18 J	• "4"J;;;;;	8 J	4 J	:::∵_:16′J	<1,000	<10	7,100 D	<5	<10

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	Sampling	Screen Ele	V. (TL AMSL)			0.000	Ethyl-			Trichloro-		N.N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	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	1		<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
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
PZ-4S	1 1/89	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		1	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	4		<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	3.5	<10
	4/02			<14	<5	<5	<5	<10	<1,000	<5	8 (<5) ^K	<5 (<5) ^K	<5
	10/02			<25 J	<10	<10	<10	<20 J	<1,000	<10	<5 ^L	<5	<10
	5/03	-		<12	<5	<5	<5	<5	<1,000	<5	<5	<5	<5
	6/04			<25	<10	<10	<10	<20	<1,000	<10	<5	<5	<10
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	Į		<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	< 10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5 <5 ^H	<10	<10
	9/98	-		<10	<10 <10 J	<10	<10	<10 <10 J	<1,000	<10		<10	<12
	7/99	-		<10 J <10 J	<10 J	<10 J <10 J	<10 J <10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00	4		<10 J <10	<10 J <10	<10 J <10	<10 J	<10 J <10	<1,000 J <1,000	<10 J <10	<10 J <10	<10	<10 J
	10/02	4		<10 <25 J	<10	<10	<10	<10 <20 J	· · · ·	<10	<10 <5 ^L	<10 <5 ^L	<10
	10/02	1		<25 J <12	<5	<10	<10	<20 J <10	<1,000 <1.000	<5	46	<5	<10 <5
	6/04	1		<12	<10	<10	<5	<10	<1,000	<10	<5	<5	<5 <10
	11/04	1		~25		<u> <10</u>	<10	~20	<1,000	~10	<5	<5 <5	<10
	11/04					· · ·		**	1,000		<u> </u>	1 5	

 TABLE 3

 SUMMARY OF HISTORICAL GROUNDWATER MONITORING DATA

	Sampling	Screen Ele	v. (ft. AMSL)				Ethyl-			Trichioro-		N.N-Dimethyl-	Methylene
Monitoring Well	Date	Тор	Bottom	Acetone	Benzene	Toluene	benzene	Xylene ^A	Methanol	ethene	Aniline	aniline	Chloride
PZ-5S	11/89	361.42	356.52	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	12/94	1		<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	1		<10 J	<10	<10	<10	<10	<1,000	<10	<10 J	<10 J	<10 J
	7/99	1		<10 J	<1,000 J	<10 J	<10	<10	<10 J				
	9/00			<10 J	<1,000 J	<10 J	<10 J	<10	<10 J				
	9/01	1		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-	<10
	10//03			<12	<5	<5	<5	<10	<1,000	<5	<5	<5	<5
	11/04	1							<1,000		<5	<5	-
PZ-8S ^G	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 Star	dards (Part 700)		50	1	5	5	5	NA	5	5	1	5

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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-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 duplicate recoveries below control limits. These wells and piezometers are not perimeter monitoring locations and were not resampled.
- 8. Aniline and N,N-dimethylaniline results of nondetect for the 6/04 sampling event at MW-18 were rejected due to the deviation from a surrogate recovery that was below 10 percent. This well was not resampled.
- 9. Volatile organic compound (VOC) results for the 11/04 sampling event were inadvertently lost due to laboratory equipment failure for monitoring locations MW-1, MW-17R, MW-18, MW-23I, MW-23I, MW-24DR, MW-24SR, MW-25, MW-33, PZ-5D, and PZ-5S. In addition, the initial VOC results were also irretrievable due to laboratory equipment failure for monitoring locations MW-27, MW-28, MW-29, and MW-30; however, results for subsequent dilutions of these groundwater samples were valid, but the detection limits were high. The duplicate sample VOC results for MW-27 and MW-28 have lower detection limits and are presented in parentheses. These wells were not resampled.

Superscript Notes:

- *= 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-11D, PZ-12D, and PZ-12D 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-231, MW-235, MW24DR, MW-24SR, MW-28, PZ-55, and PZ-5D wells/piezometers were resampled for aniline during 12/98, because the 9/98 results were rejected due to laboratory error.
- 1 = 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-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.
- M = MW-24SR and PZ-5D well and piezometer were sampled during the June 2004 sampling event because N,N-dimethylaniline and/or aniline was detected at nearby perimeter monitoring locations during the October 2003 sampling event.
- N = Wells MW-8S, MW-8D, and TW-02R were abandoned in 8/04 and replacement wells MW-8SR and TW-02RR were installed in 8/04.

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.
- -= Samples results are not available (See Note 9.)

TABLE 4

LONG-TERM HYDRAULIC, BIOLOGICAL, AND COC PROCESS CONTROL MONITORING SCHEDULE

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Monitoring Location	Annual Sampling Schedule						
monitoring Location	First Sampling Event	Second Sampling Event					
Upgradient							
MW-1	B1, B2*, C	B1, B2*, C					
MW-3S	B1, B2*, C	B1, B2*, C					
MW-3D	н	H					
Area 1							
TW-01	B1, B2, C	B1, B2, C					
MW-6D	н	<u>H</u>					
MW-9S	B1, B2, C	B1, B2, C					
MW-9D	H	Н					
MW-31	B1, B2, C	B1, B2, C					
MW-32	B1, B2, C	<u>B1, B2, C</u>					
MW-33	B2, C	B2, C					
PZ-F	H	H					
PZ-G	Н	H					
PZ-HR	н	Н					
PZ-P	Н	<u>H</u>					
PZ-Q	H	Н					
PZ-R	H	<u> </u>					
PZ-S	Н	Η					
Area 2							
TW-02RR	B1, B2, C	B1, B2, C					
PZ-9D	H	Н					
MW-34	B1, B2, C	B1, B2, C					
MW-35	B1, B2, C	B1, B2, C					
MW-36	B2, C	B2, C					
PZ-I	<u> </u>	<u>н_</u>					
PZ-J	<u> </u>	н					
PZ-T	<u>H</u>	<u> </u>					
PZ-U	H	Н					
PZ-V	<u>H</u>	Н					
PZ-W	H	Н					
Area 3							
MW-8SR	B1, B2, C	B1, B2, C					
MW-8D	<u> </u>	н					
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					

SEE NOTES ON PAGE 3.

.

TABLE 4

LONG-TERM HYDRAULIC, BIOLOGICAL, AND COC PROCESS CONTROL MONITORING SCHEDULE

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

Monitoring Location	Annual Sampling Schedule					
- monitoring Location	First Sampling Event	Second Sampling Event				
PZ-A	H	H				
PZ-B	Н	н				
PZ-C	H _	Н				
PZ-D	н	н				
PZ-E	Н	H				
PZ-K	H	Н				
PZ-L	Н	н				
PZ-M	Н	Н				
PZ-N	Н	Н				
PZ-O	Н	H				
MW-11S	н	н				
MW-11D	Н	Н				
Downgradient Perimeter	Monitoring Locations					
MW-17R	C	С				
MW-18	С, Н	С, Н				
MW-19	С, Н	С, Н				
MW-23I	С, Н	С, Н				
MW-23S	С, Н	С, Н				
MW-24SR	Н	С, Н				
MW-24DR	Н	С, Н				
MW-25S	С, Н	С, Н				
MW-25D	С, Н	н				
PZ-4S	C					
PZ-4D	С, Н	Н				
PZ-5S		С				
PZ-5D	Н	С, Н				

SEE NOTES ON PAGE 3.

6/7/05 P:\AMS\2005\03252574.doc

TABLE 4

LONG-TERM HYDRAULIC, BIOLOGICAL, AND COC PROCESS CONTROL MONITORING SCHEDULE

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER 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, methane, potassium, ortho-phosphate, and ammonia.
- 4. ***** = MW-1 and MW-3S are not monitored for potassium, orthophosphate, and ammonia.
- 5. C = Monitoring for the Chemicals of Concern (COCs).
- 6. 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.
- 7. Field groundwater parameters including pH, temperature, conductivity, dissolved oxygen (DO), and oxidation/reduction potential (ORP) are measured during each biological sampling event.
- 8. 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).
- 9. 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).
- 10. 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.
- 11. 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.
- 12. 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).
- 13. 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.
- 14. 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.
- 15. 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.
- 16. Monitoring locations MW-24SR and PZ-5D were additionally sampled for COCs during the June 2004 COC biannual sampling event, because there were aniline detections at these locations during the October 2003 sampling event.
- 17. Monitoring well MW-8D was abandoned in August 2004 during the NYSDEC-approved supplemental remedial activities.
- 18. Monitoring locations MW-24DR, MW-24SR, PZ-5D, and PZ-5S will be additionally sampled for COCs during the first biannual sampling event in 2005, because the November 2004 VOC data for these locations were inadvertently lost due to laboratory equipment failure.

TABLE 5 REVISED LONG-TERM HYDRAULIC AND COC PROCESS CONTROL MONITORING SCHEDULE (To be Implemented Beginning with the First Sampling Event in 2005)

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

	Annual Sampling Schedule						
Monitoring Location	First Sampling Event	Second Sampling Event					
Upgradient							
MW-1	С	C					
MW-3S	С	С					
MW-3D	Н	Н					
Area 1	16						
TW-01	C	С					
MW-6D	Н	H					
MW-9S	C	С					
MW-9D	Н	Н					
MW-31	С	C					
MW-32	С	С					
MW-33	C	С					
PZ-F	H	H					
PZ-G	Η_	Н					
PZ-HR	Н	Н					
PZ-P	Н						
PZ-Q	H	н					
PZ-R	Н	Н					
PZ-S	H	H					
TW-02RR	С	C					
PZ-9D	Н	<u> </u>					
MW-34	C	<u> </u>					
MW-35	C	С					
MW-36	с	с					
PZ-I	<u> </u>	н					
PZ-J	Η	Н					
PZ-T	Н	Н					
PZ-U	H	Н					
PZ-V	Н	<u> </u>					
PZ-W	<u> </u>	<u> </u>					
Area 3							
MW-8SR	C	С					
MW-27	С	СС					
MW-28	С	С					
MW-29	С	С					
MW-30	С	С					
PZ-A	Н	H					

TABLE 5 REVISED LONG-TERM HYDRAULIC AND COC PROCESS CONTROL MONITORING SCHEDULE (To be Implemented Beginning with the First Sampling Event in 2005)

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

	Annual Sampling Schedule					
Monitoring Location	First Sampling Event	Second Sampling Event				
PZ-B	Н	H				
PZ-C	H	н				
PZ-D	Н	Н				
PZ-E	Н	Н				
PZ-K	Н	н				
PZ-L	Н	Н				
PZ-M	Н	Н				
PZ-N	Н	н				
PZ-O	Н	н				
MW-11S	н	н				
MW-11D	н	Н				
Downgradient Perimeter I	Monitoring Locations					
MW-17R	С	С				
MW-18	С, Н	С, Н				
MW-19	С, Н	С, Н				
MW-231	С, Н	С, Н				
MW-23S	С, Н	С, Н				
MW-24SR	<u>н</u>	С, Н				
MW-24DR	H	С, Н				
MW-25S	С, Н	С, Н				
MW-25D	С, Н	<u>H</u>				
PZ-4S	C					
PZ-4D	C, H	H				
PZ-5S		C				
PZ-5D	<u>H</u>	С, Н				

SEE NOTES ON PAGE 3.

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TABLE 5 REVISED LONG-TERM HYDRAULIC AND COC PROCESS CONTROL MONITORING SCHEDULE (To be Implemented Beginning with the First Sampling Event in 2005)

FEBRUARY 2005 BIANNUAL PROCESS CONTROL MONITORING REPORT McKESSON ENVIROSYSTEMS - FORMER BEAR STREET FACILITY, SYRACUSE, NEW YORK

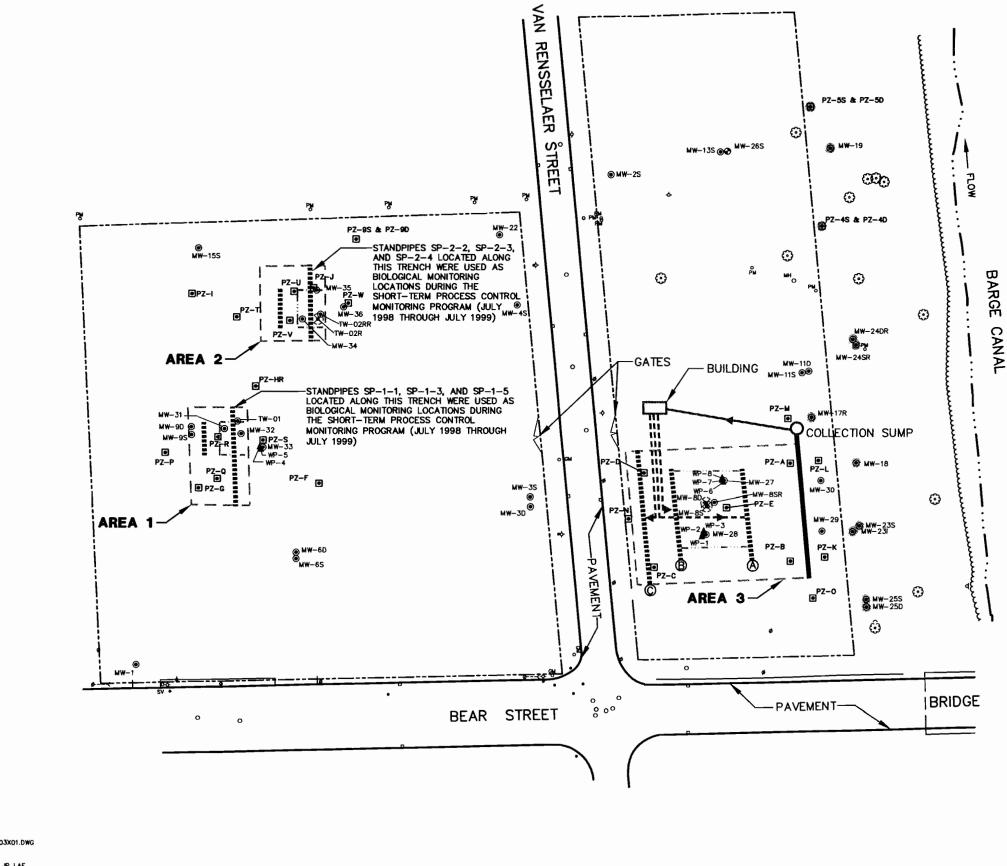
<u>Notes:</u>

- 1. H = Hydraulic Monitoring (Groundwater Level Measurements).
- 2. C = Monitoring for the Chemicals of Concern (COCs).
- 3. The hydraulic monitoring identified in this table will be conducted on a semi-annual basis. 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 2004 *Biannual Process Control Monitoring Report*.
 - 8. Monitoring locations MW-24DR, MW-24SR, PZ-5D, and PZ-5S will be additionally sampled for COCs during the first biannual sampling event in 2005, because the November 2004 VOC data for these locations were inadvertently lost due to laboratory equipment failure.

Figures



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X: 26003X00.DWG, 26003X01.DWG L: 0H=*, OFF=REF* P: PACESEST/PLT-BL 6/7/05 SYR-85-RCB LJP LAF 26003190/BIANNUAL/REVISED/26003B01.DWG

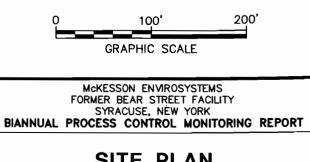


LEGEND:

	LEGEND:
ø	UTILITY POLE
D	CATCH BASIN
PNIO	PETROLEUM PIPE LINE MARKER
GMIO	GAS LINE MARKER
sy o	SEWER VENT
۰	HYDRANT
•	WATER VALVE
o	MANHOLE
	PROPERTY LINE
M₩-19 @	GROUNDWATER MONITORING WELL
MW-BS (8)	ABANDONED/REMOVED GROUNDWATER MONITORING WELL
🖲 OR 🎯	BIANNUAL DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION
PZA 🔳	PIEZOMETER
MW-265 😧	PUMPING WELL
₩P-8 🛦	WELL POINT
ニニニリ	BOUNDARY OF IMPACTED AREA
	GROUNDWATER WITHDRAWAL TRENCH
Ø	GROUNDWATER INFILTRATION TRENCH AND IDENTIFICATION
	PIPING TO BUILDING
	PIPING FROM BUILDING
	AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

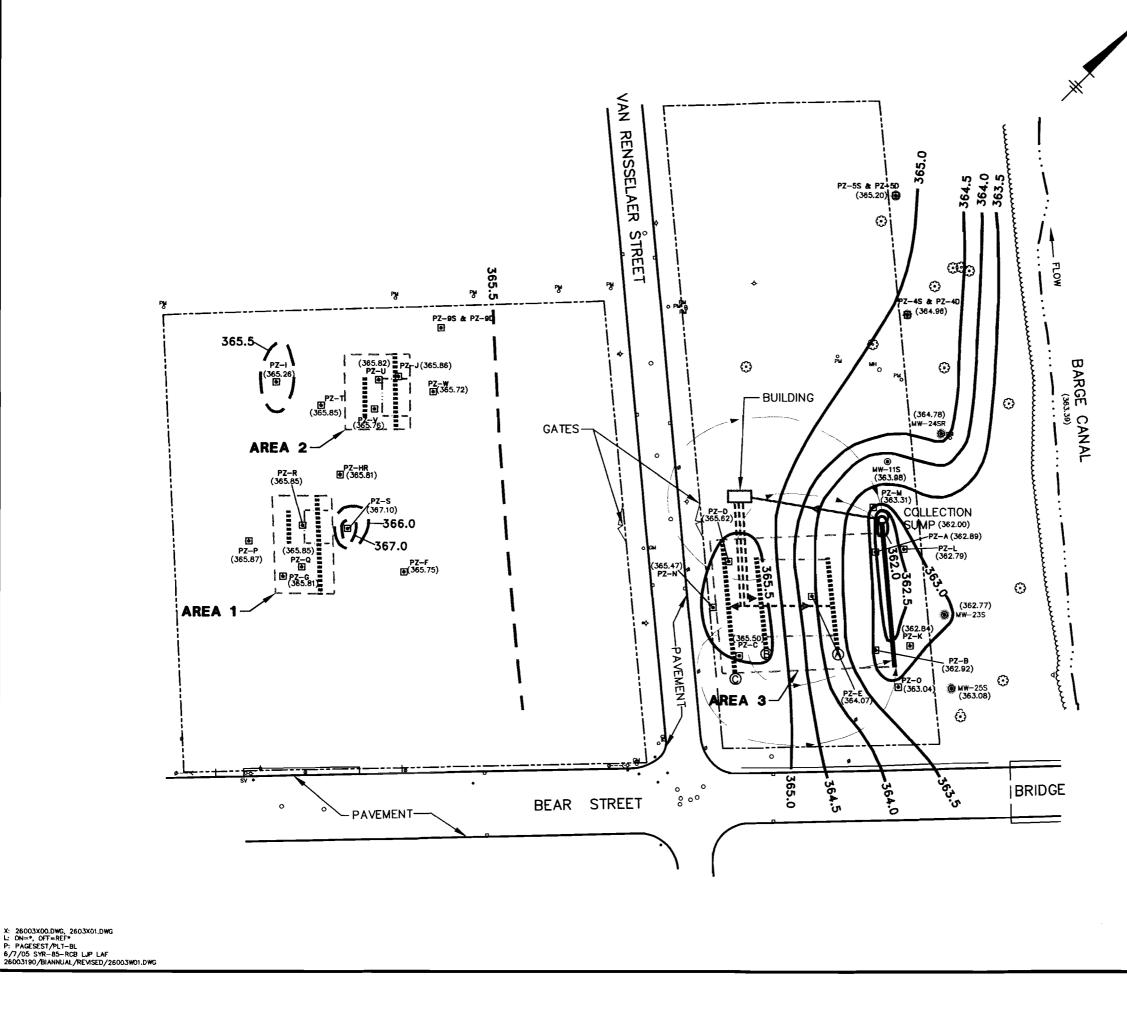
NOTES:

- 1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
- 2. LOCATIONS ARE APPROXIMATE.



SITE PLAN

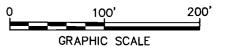


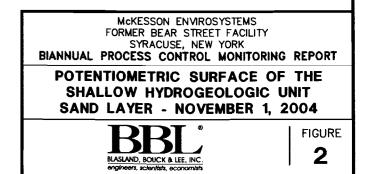


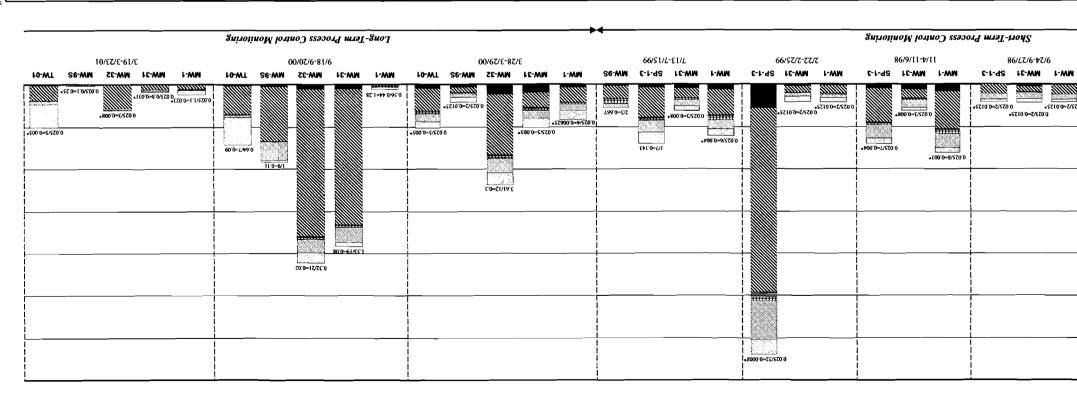
LEGEND:	
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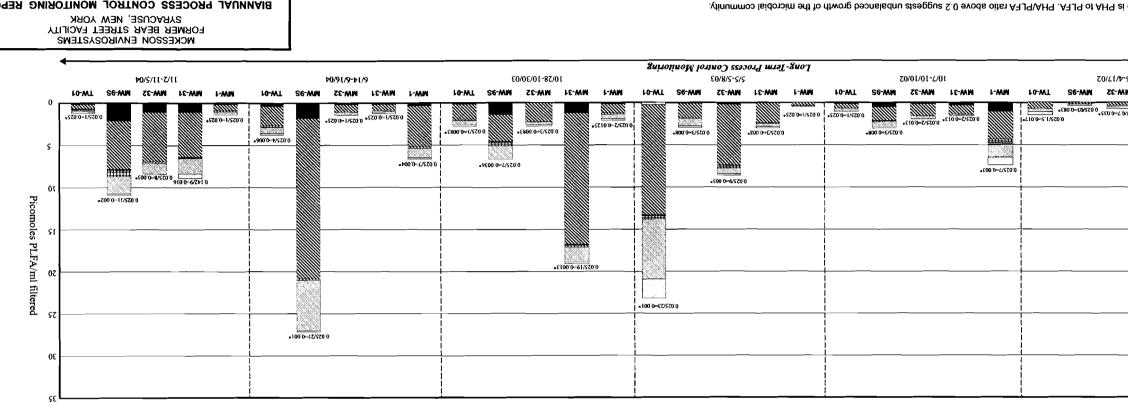
- UTILITY POLE
- CATCH BASIN
- ▶ PETROLEUM PIPE LINE MARKER
- © GAS LINE MARKER
- svo SEWER VENT
- ♦ HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- BIANNUAL DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION
- PZ-A D PIEZOMETER
- ____ BOUNDARY OF IMPACTED AREA
- GROUNDWATER WITHDRAWAL TRENCH
- GROUNDWATER INFILTRATION TRENCH AND IDENTIFICATION
- PIPING TO BUILDING
- ---- PIPING FROM BUILDING
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs
- 365.0 GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL) DASHED WHERE INFERRED
- (362.89) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- INFERRED GROUNDWATER FLOW PATH

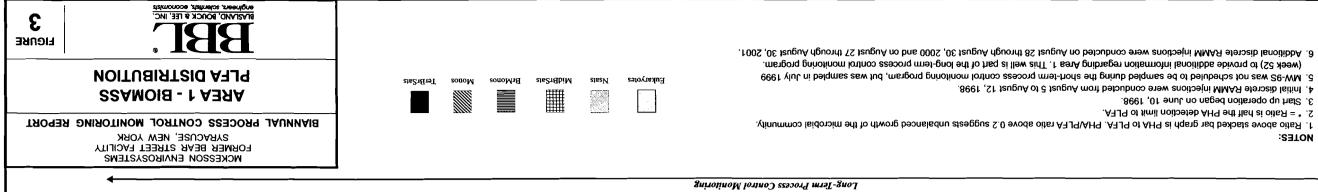
- 1. THIS FIGURE ONLY IDENTIFIES THE HYDRAULIC MONITORING LOCATIONS.
- 2. REPLACED MONITORING WELLS AND PIEZOMETERS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
- 3. ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929









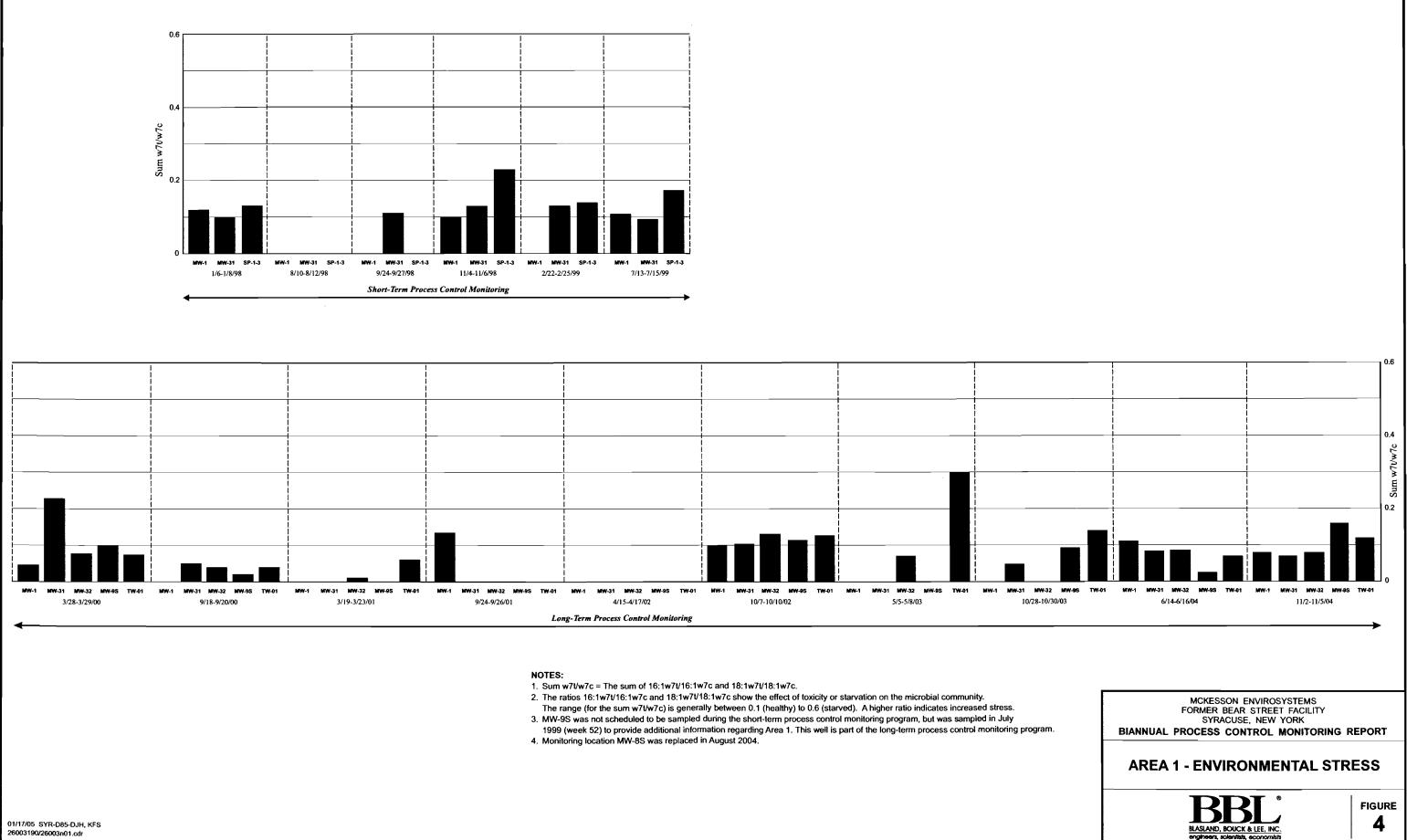


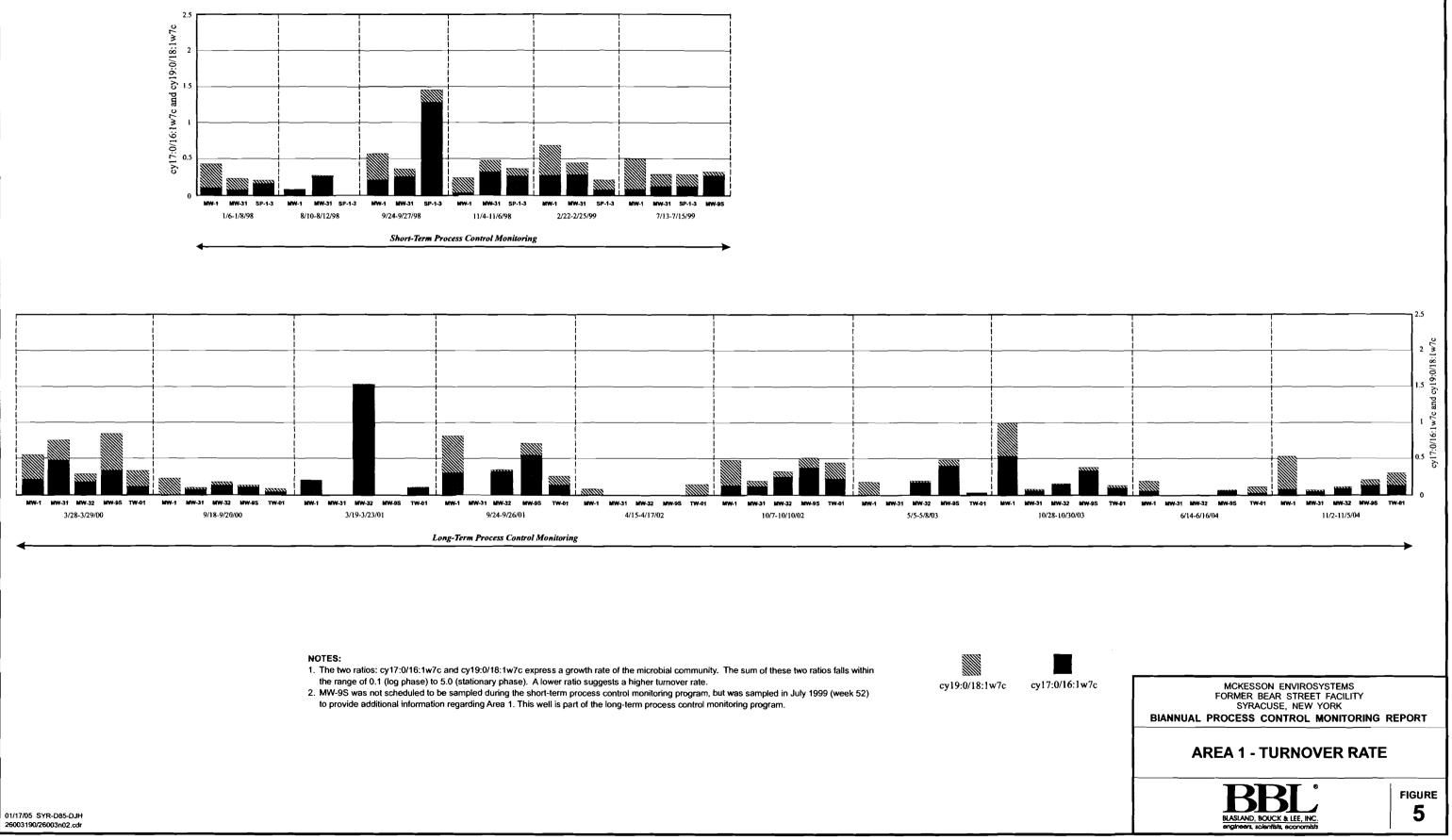
103.00190/26003n03.cdf HLO-280-942 20171/10

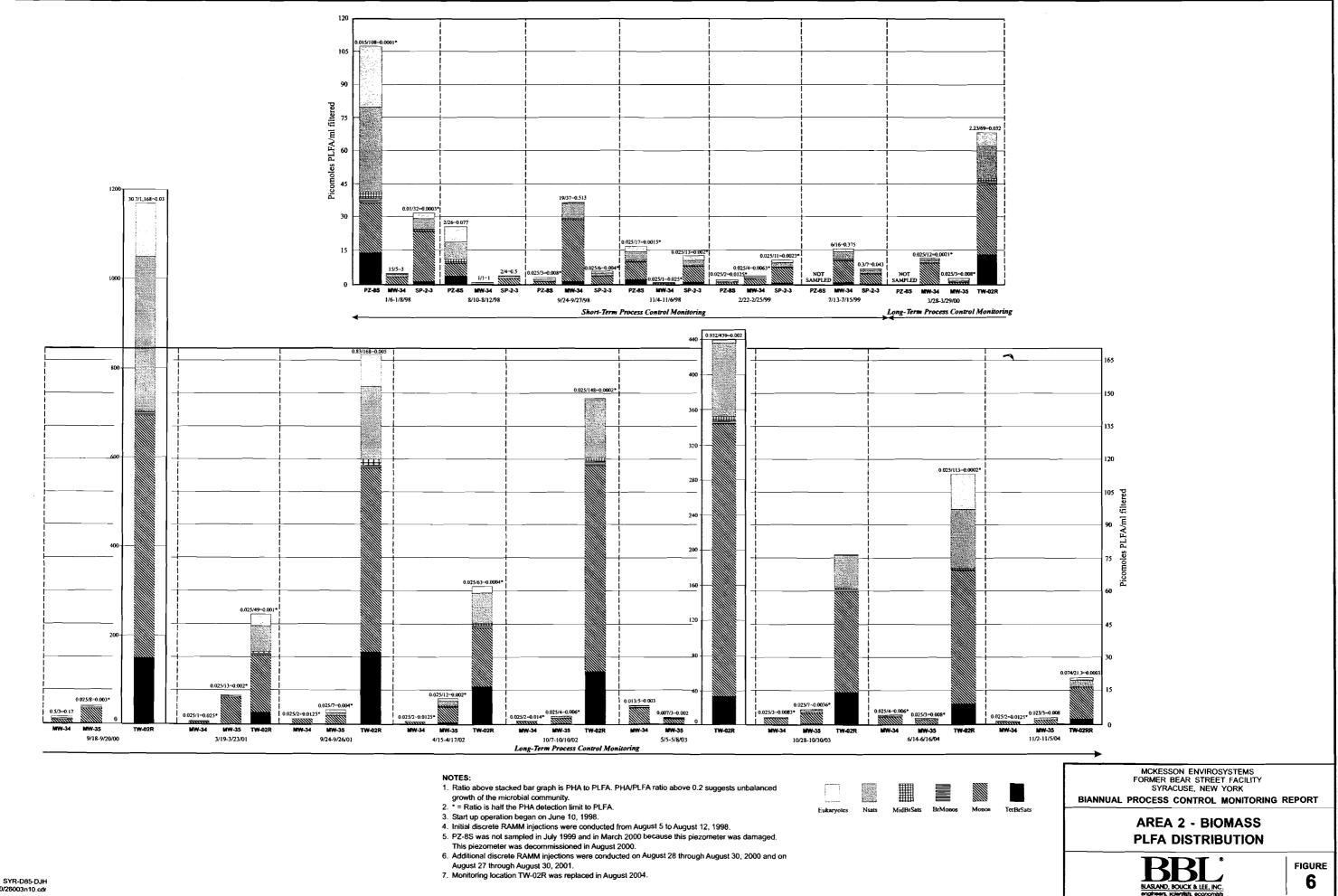
- 3. Start up operation began on June 10, 1998.
- 2. * = Ratio is half the PHA detection limit to PLFA.
 - :SETON

-51/Þ			10/97/6-77/6					
W.	15-WM	I-WM	10-ML	S6-MW	NM-32	15-WM	1-WW	
0.220.0 2	60'0- <i>L</i> 0/570'0	\$0:0=\$`0/\$Z0`0	ZS 0=Z/p0 1	IF 0-+/149 [26'0=1/26'0		
					ZS:0=S/9 ⁻ Z		90'0 ≃ \$/£'0	
		i						
		l						

	8	6/71/8-01	/8		86/8/1-9/1			
M	6-1-92	15-WM	ŀ-WW	5P-1-3	NW-31	I-WM		
2/520'0	I\3=0'2	\$0=2/I						
			90'0~\$/ <u>1</u> '0				Ş	
					£91'0=Z1/Z		01	Picom
				+6000'0-91/S	10.0		51	oles PLF/
							07	Picomoles PLFA/ml filtered
					•1	000.0-22/10.0	52	ed
							30	



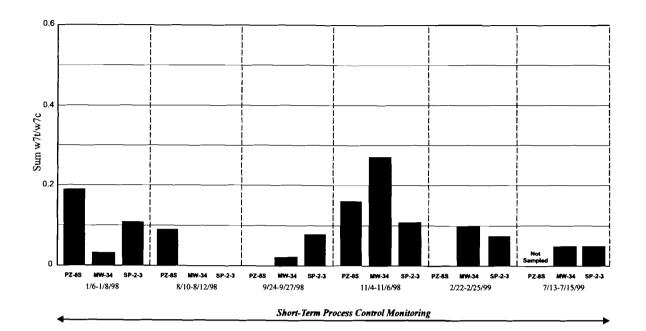


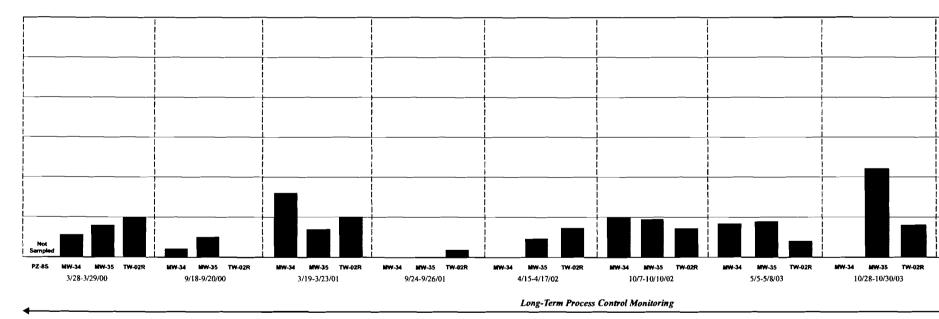


01/17/05 SYR-D85-DJH 26003190/26003n10.cdr

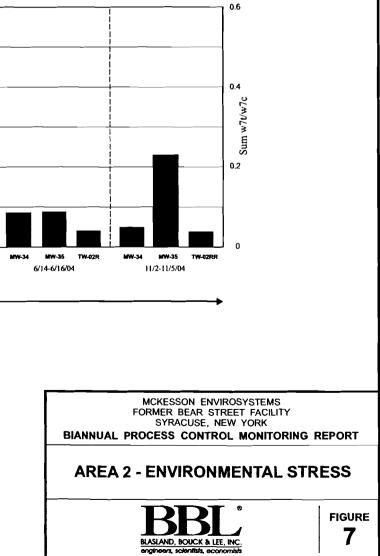


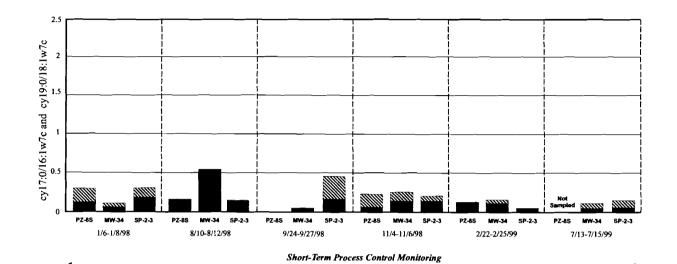


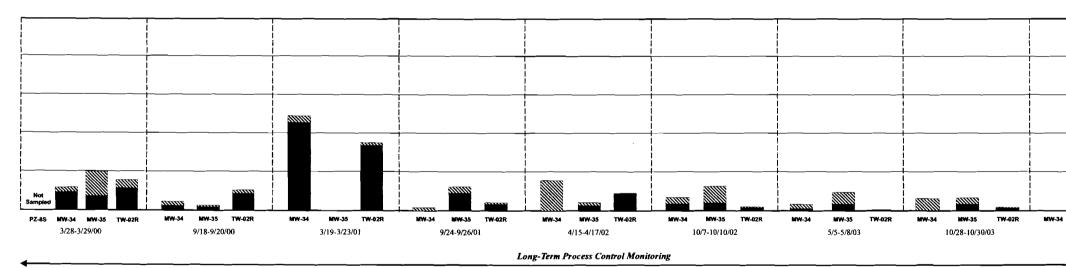




- 1. Sum w7t/w7c = The sum of 16:1w7t/16:1w7c and 18:1w7t/18:1w7c.
- The ratios 16:1w7V16:1w7c and 18:1w7V18:1w7c show the effect of toxicity or starvation on the microbial community. The range (for the sum w7t/w7c) is generally between 0.1 (healthy) to 0.6 (starved). A higher ratio indicates increased stress.
- PZ-8S was not sampled in July 1999 and in March 2000 because this piezometer was damaged. This piezometer was decommissioned in August 2000.
- 4. Monitoring location TW-02R was replaced in August 2004.

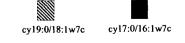






1. The two ratios: cy17:0/16:1w7c and cy19:0/18:1w7c express a growth rate of the microbial community. The sum of

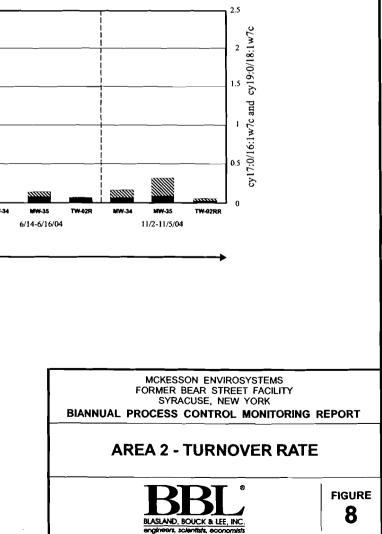
these two ratios falls within the range of 0.1 (log phase) to 5.0 (stationary phase). A lower ratio suggests a higher turnover rate. 2. PZ-8S was not sampled in July 1999 and in March 2000 because this piezometer was damaged. This piezometer was

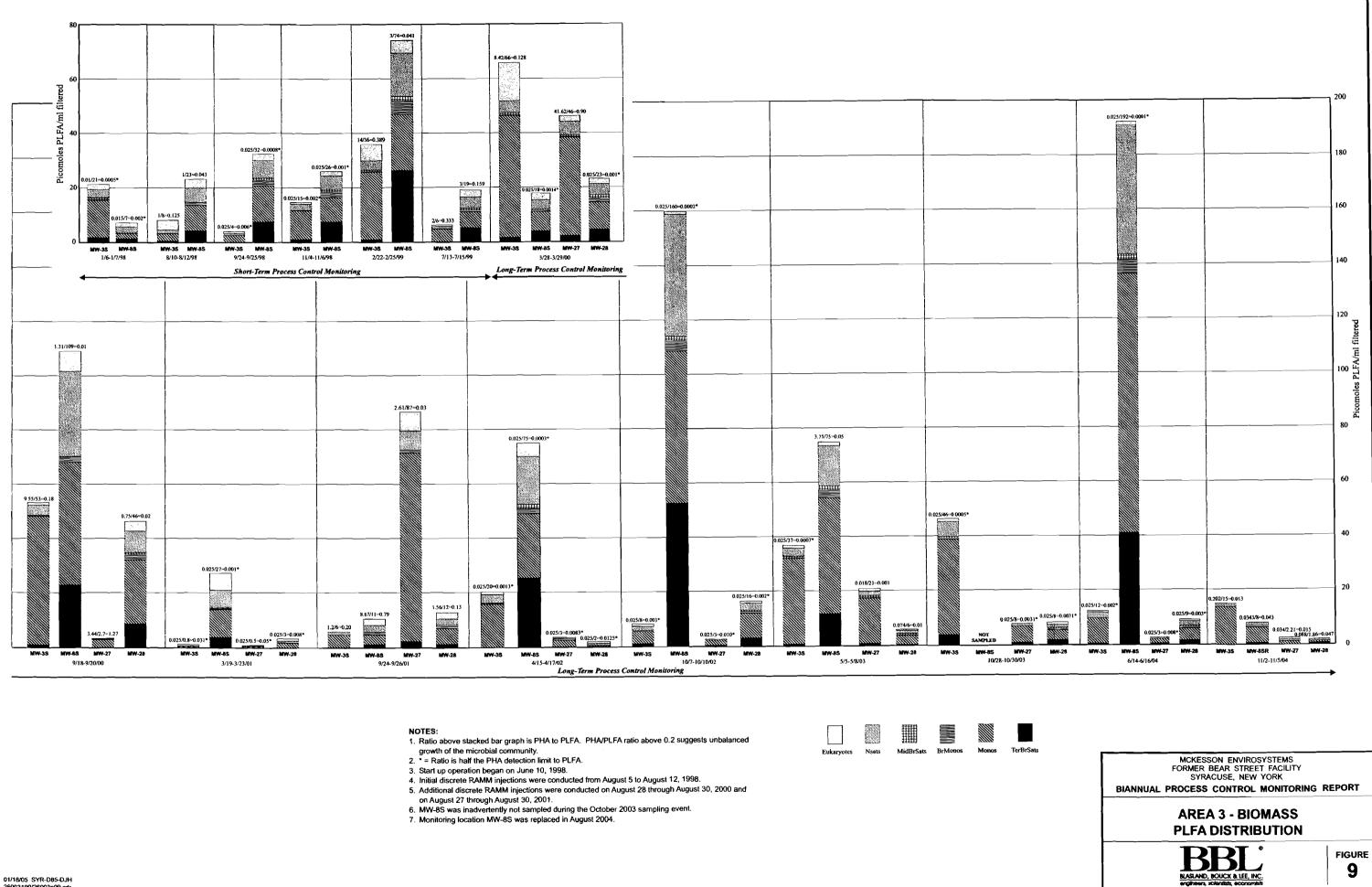


decommissioned in August 2000.

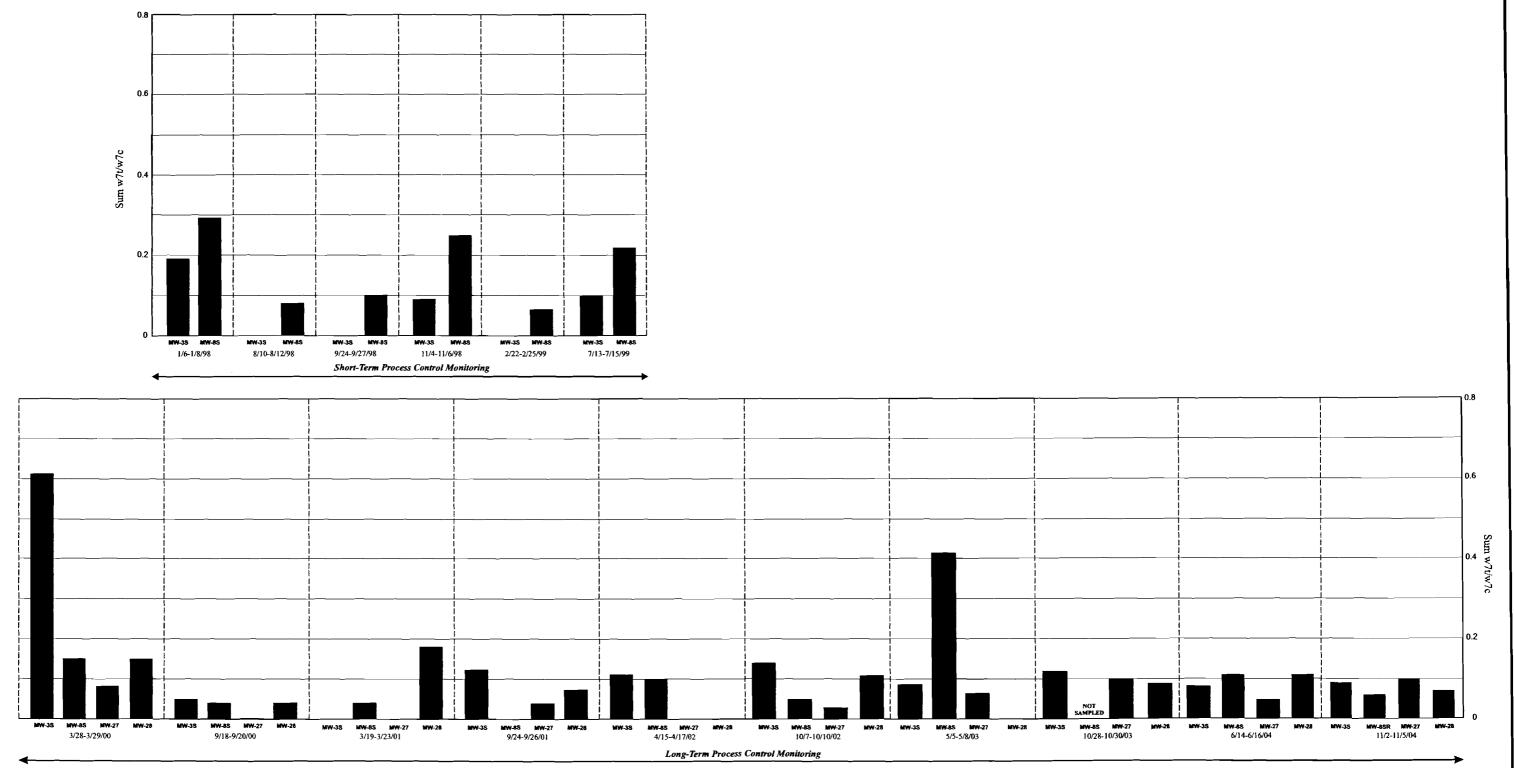
3. Monitoring location TW-02R was replaced in August 2004.

01/17/05 SYR-D85-DJH 26003190/26003n06.cdr









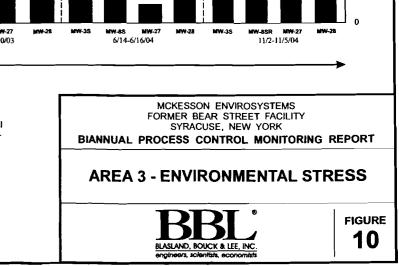
1. Sum w7t/w7c = The sum of 16:1w7t/16:1w7c and 18:1w7t/18:1w7c.

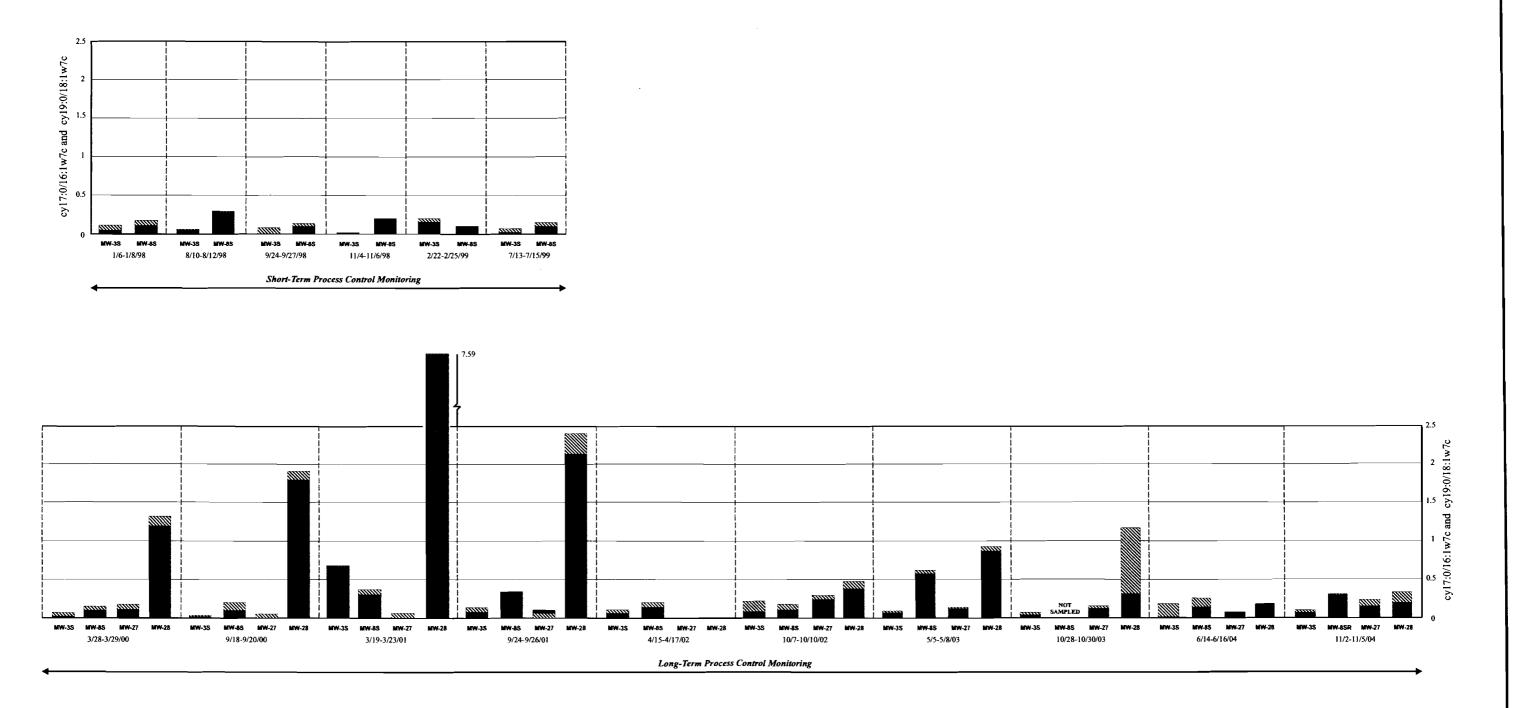
 The ratios 16:1w7t/16:1w7c and 18:1w7t/18:1w7c show the effect of toxicity or starvation on the microbial community. The range (for the sum w7t/w7c) is generally between 0.1 (healthy) to 0.6 (starved). A higher ratio indicates increased stress.

3. MW-8S was inadvertently not sampled during the October 2003 sampling event.

4. Monitoring location MW-8S was replaced in August 2004.

01/17/05 SYR-D85-DJH 26003190/26003n08.cdr



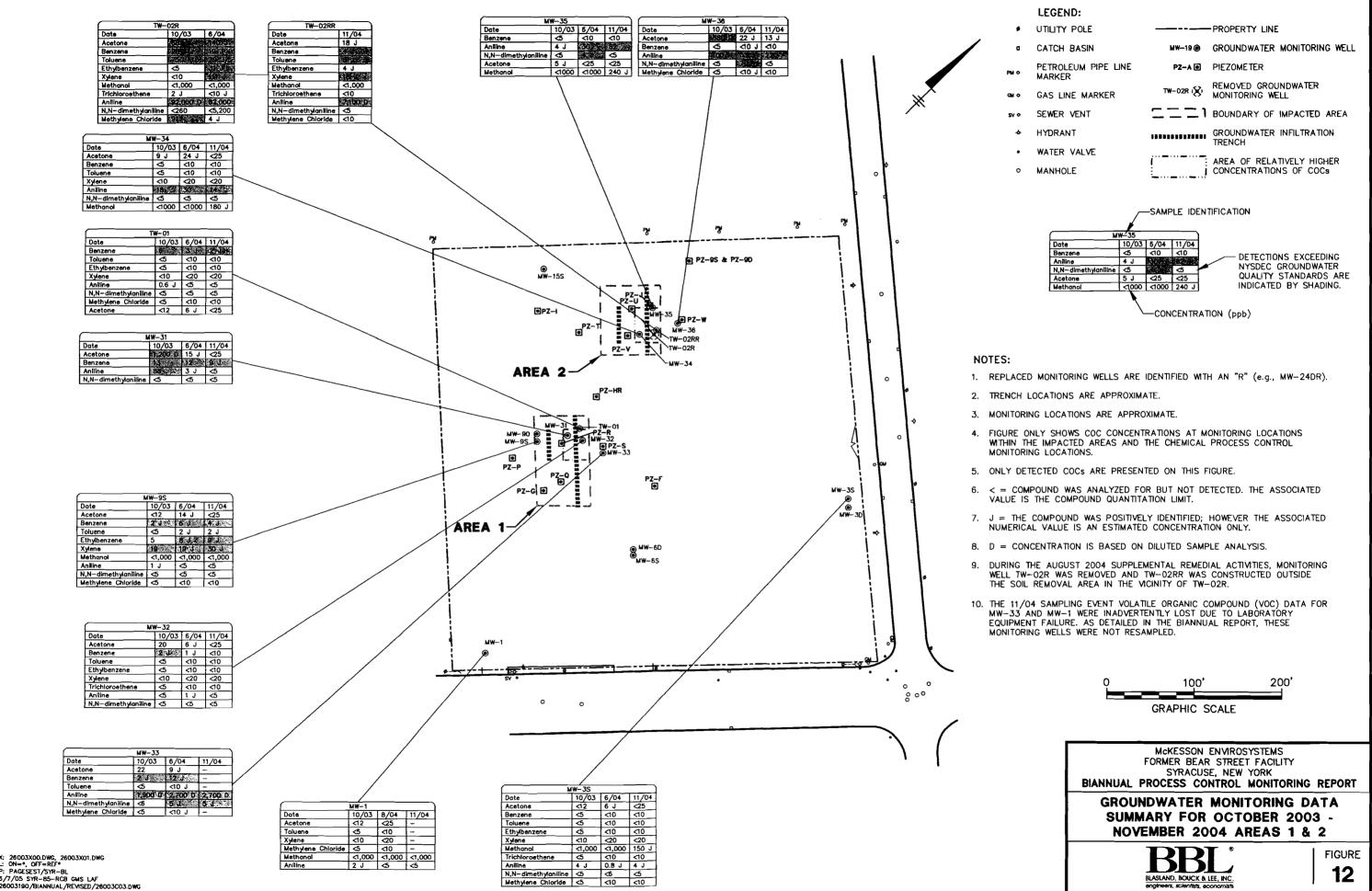


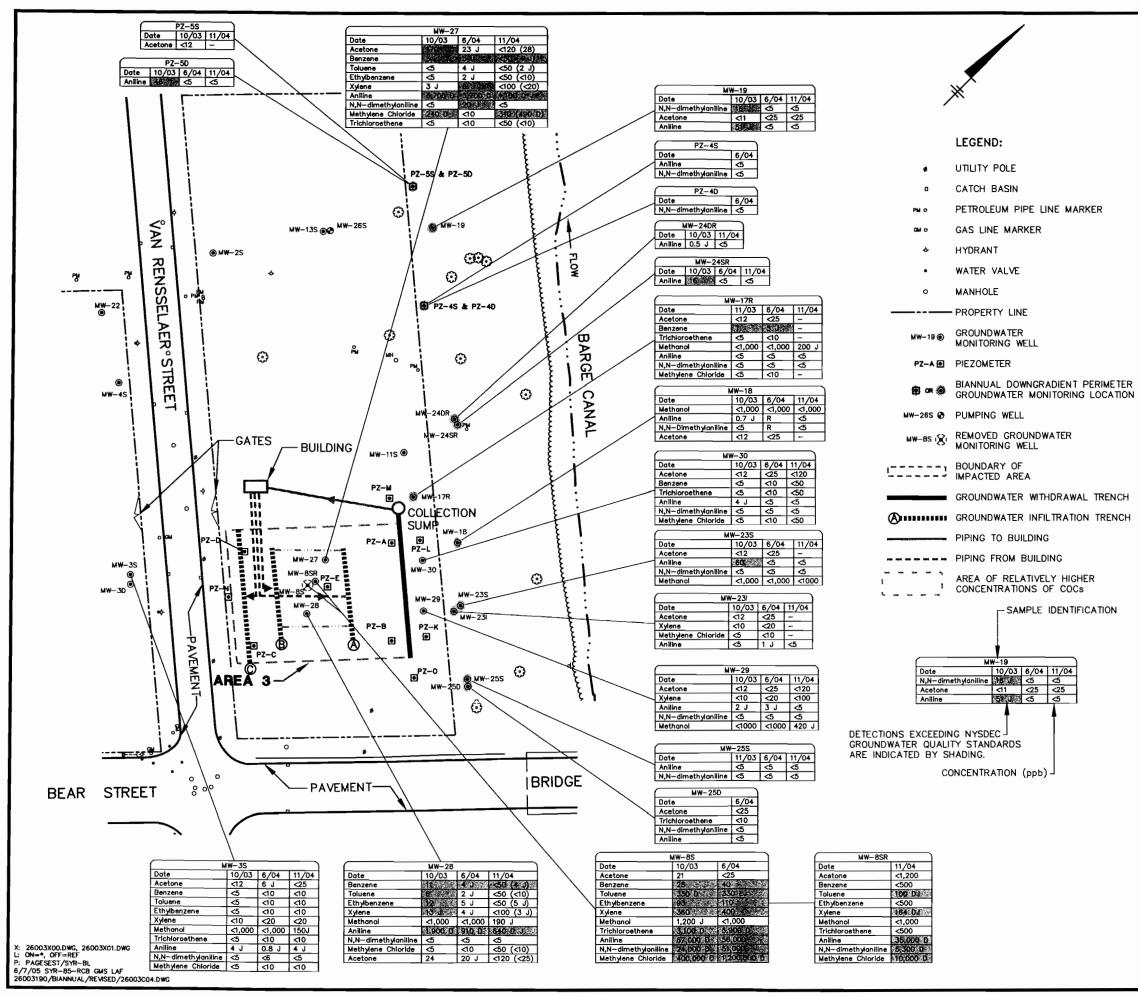
1. The two ratios: cy17:0/16:1w7c and cy19:0/18:1w7c express a growth rate of the microbial community. The sum of these two ratios falls within the range of 0.1 (log phase) to 5.0 (stationary



- phase). A lower ratio suggests a higher turnover rate.
- MW-8S was inadvertently not sampled during the October 2003 sampling event.
 Monitoring location MW-8S was replaced in August 2004.







- 1. REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., MW-24DR).
- 2. TRENCH LOCATIONS ARE APPROXIMATE.
- 3. MONITORING LOCATIONS ARE APPROXIMATE.
- FIGURE ONLY SHOWS COC CONCENTRATIONS AT MONITORING 4. LOCATIONS WITHIN THE IMPACTED AREAS AND THE CHEMICAL PROCESS CONTROL MONITORING LOCATIONS.
- 5. ONLY DETECTED COCs ARE PRESENTED ON THIS FIGURE.
- < = COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE 6. ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- 7. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER THEASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
- 8. D = CONCENTRATION IS BASED ON DILUTED SAMPLE ANALYSIS.

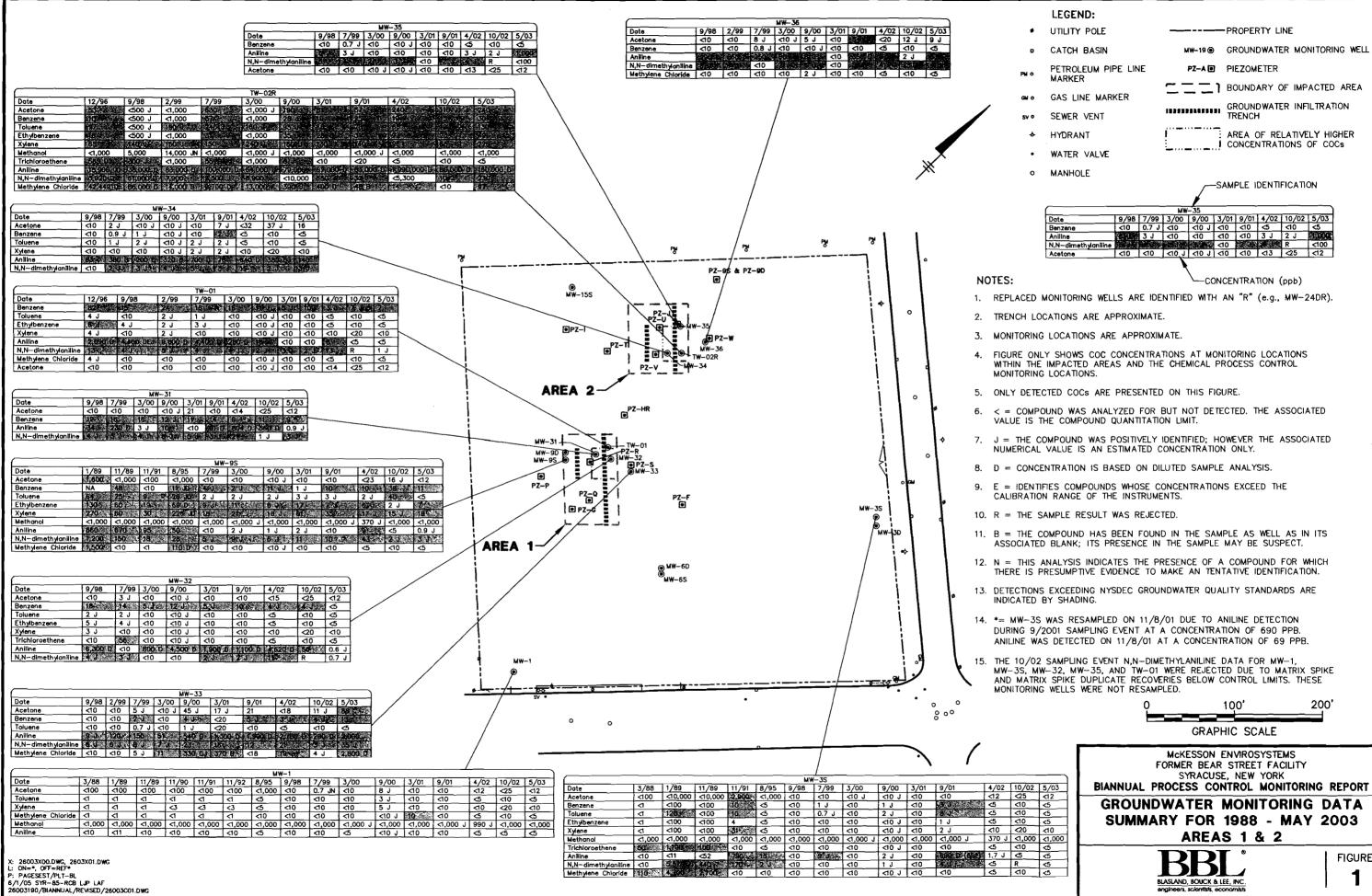
- 9. R = THE SAMPLE RESULT WAS REJECTED.
- 10. THE 6/04 SAMPLING EVENT ANILINE AND N,N-DIMETHYLANILINE DATA FOR MW-18 WERE REJECTED DUE TO THE DEVIATION FROM A SURROGATE RECOVERY BELOW 10 PERCENT. THIS MONITORING WELL WAS NOT RESAMPLED.
- 11. DURING THE AUGUST 2004 SUPPLEMENTAL REMEDIAL ACTIVITIES. MONITORING WELL MW-8S WAS REMOVED AND MW-8SR WAS CONSTRUCTED DOWNGRADIENT OF THE SOIL REMOVAL AREA IN THE VICINITY OF MW-8S.
- THE 11/04 SAMPLING EVENT VOLATILE ORGANIC COMPOUND (VOC) 12. DATA FOR MW-17R, MW-18, MW-23I, MW-23S, MW-24DR, MW-24SR, MW-25S, PZ-5D, AND PZ-5S WERE INADVERTENTLY LOST DUE TO LABORATORY EQUIPMENT FAILURE. AS DETAILED IN THE BIANNUAL REPORT, THESE MONITORING WELLS WERE NOT RESAMPLED.
 - 13. THE 11/04 SAMPLING EVENT VOC INITIAL DATA FOR MW-27, MW-28, MW-29, AND MW-30 WERE INADVERTENTLY LOST DUE TO LABORATORY EQUIPMENT FAILURE. HOWEVER, VALID DATA WAS OBTAINED FROM SUBSEQUENT DILUTIONS OF THESE SAMPLES, RESULTING IN HIGHER DETECTION LIMITS. THE VOC RESULTS OBTAINED FROM THE DUPLICATE SAMPLES COLLECTED AT MW-27 AND MW-28 HAVE LOWER DETECTION LIMITS AND ARE PRESENTED ON THIS FIGURE IN PARENTHESES.

O G	100' RAPHIC SCALE	200'
FORM	KESSON ENVIRO IER BEAR STREE SYRACUSE, NEW ESS CONTROL	T FACILITY
SUMMARY		ITORING DATA Ober 2003 - 4 Area 3
	ND, BOUCK & LEE, INC. ars, scientists, economists	FIGURE 13

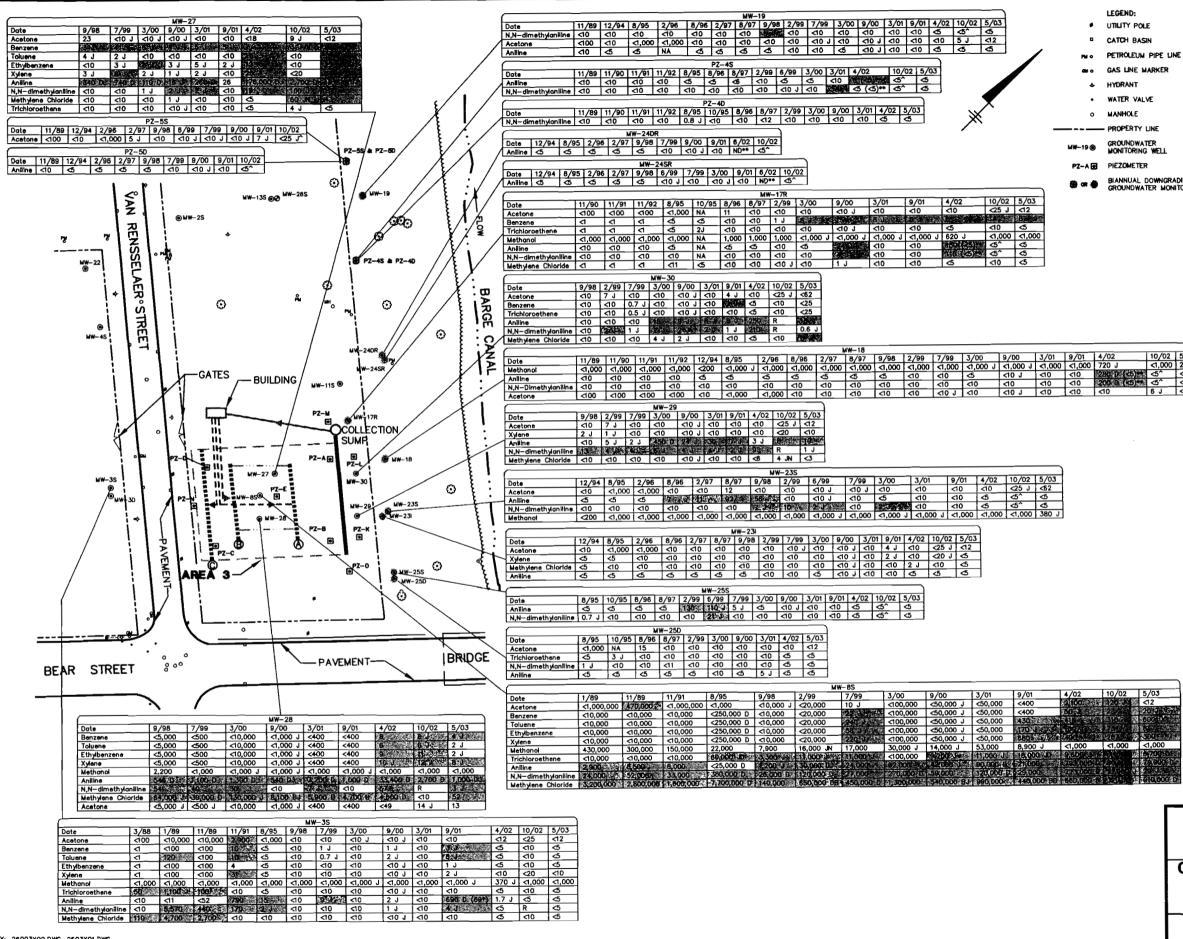
Attachment A

Groundwater Monitoring Data Summary Figures for 1988 – May 2003





		0 100' 2	.00'
		GRAPHIC SCALE	
0/02	5/03	McKESSON ENVIROSYSTEMS FORMER BEAR STREET FACILITY SYRACUSE, NEW YORK BIANNUAL PROCESS CONTROL MONITORIN	G REPORT
25 10 10 20 20 1,000	<12 <5 <5 <10 <1,000	GROUNDWATER MONITORING SUMMARY FOR 1988 - MAY AREAS 1 & 2	
0 5 10	৩ ৩ ৩ ৩ ৩ ৩ ৩	BASLAND, BOUCK & LEE, INC.	FIGURE



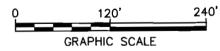
X: 26003X00.DWG, 2603X01.DWG : ON=+, OFF=REF+ P: PAGESEST/PLT-BL

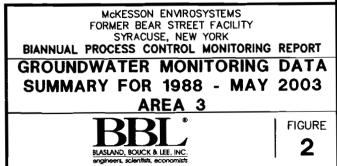
6/1/05 SYR--85-RCB LJP LAF 26003190 / BIANNUAL / REVISED / 26003C02. DWG

	LEGEND:						
	UTILITY POLE	WW-285 🕑	PUMPIN	g well			
	CATCH BASIN			RY OF			
	PETROLEUM PIPE LINE MARKER				MTHORA	WAL TRENCH	
	GAS LINE MARKER	(A	GROUND	WATER I	NFILTRA	tion trench	
	HYDRANT	0		TO BUILD			
	WATER VALVE			FROM BL			
	MANHOLE			FRELAT		ICHER	
	PROPERTY LINE			TRATION			
I	GROUNDWATER MONITORING WELL			∕_s/	MPLE IC	DENTIFICATION	
1	PIEZOMETER	Date	MW-2	5 8/95	10/95)	
	BIANNUAL DOWNGRADIENT PERIMETER GROUNDWATER MONITORING LOCATION	Acetone	en e	ব,000 শ্	NA 3 J	ļ	
		N,N-dimeth	ylaniline		<10		
		Anlline		6	3]	

CONCENTRATION (ppb) -----

- REPLACED MONITORING WELLS ARE IDENTIFIED WITH AN "R" (e.g., ₩₩-24DR).
- 2. TRENCH LOCATIONS ARE APPROXIMATE.
- 3. MONITORING LOCATIONS ARE APPROXIMATE.
- 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.
- < COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
- 8. D \approx concentration is based on diluted sample analysis.
- 9. E = IDENTIFIES COMPOUNDS WHOSE CONCENTRATIONS EXCEED THE CALIBRATION RANGE OF THE INSTRUMENTS.
- 10. B = THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS IN ITS ASSOCIATED BLANK; ITS PRESENCE IN THE SAMPLE MAY BE SUSPECT.
- 11. N = THIS ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE AN TENTATIVE IDENTIFICATION.
- 12. R = THE SAMPLE RESULT WAS REJECTED.
- 13. DETECTIONS EXCEEDING NYSDEC GROUNDWATER QUALITY STANDAROS ARE INDICATED BY SHADING.
- 14. THE ANILINE DATA FOR THE 9/98 SAMPLING EVENT FOR MW-18, MW-19, MW-235, MW-234, MW-240R, MW-240R, MW-28, PZ-55 AND PZ-50 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.
- •• = MONITORING WELLS MW-17R, MW-18, AND PZ-4S WERE RESAMPLED FOR ANILINE AND NN-DIMETHYLANILINE ON JUNE 18, 2002 DUE TO NN-DIMETHYLANILINE AND/ OR ANILINE ODETECTION 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 AMILINE AND NN-DIMETHYLANILINE. 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-23J, 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-35. THE 10/02 SAMFUNG EVENT N,N-DIMETRICANDURE DATA FOR MM-33, MM-28 AND AMM-29 AND THE 10/02 SAMFUNG EVENT ANULINE AND N,N-DIMETHYLANIUNE DATA FOR MM-30 WERE REJECTED DUE TO MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERIES BELOW CONTROL LIMITS. THESE MONITORING WELLS WERE NOT RESAMPLED.





4/02	10/02	5/03	
720 J	<1,000	280 J	
280 D (<5)**	⊲5^	0	
200 D ((6)**.	⊲5^	0	
<10	6 J	<12	