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March 29, 2002

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

2002

Re: McKesson Corporation
Bear Street Facility
Syracuse, New York
Site No. 07-34-020
BBL Project #: 0260.26003 #2

Dear Mr. Reamon:

This *Biannual Process Control Monitoring Report (Biannual Report)* for the McKesson Envirosystems, Bear Street facility (the site), located at 400 Bear Street in Syracuse, New York has been prepared by Blasland, Bouck & Lee, Inc. (BBL), on behalf of McKesson Corporation (McKesson), to present a description of the operation and maintenance (O&M) activities conducted and the monitoring results obtained during the period from July 2001 through December 2001. 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 *O&M Plan*. The *Site Operation and Maintenance 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 the *Biannual Report* covering the period from July 2000 through December 2000 (BBL, August 2001). That information has not changed and is not repeated herein.

During this reporting period (July 2001 through December 2001), 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 without interruption and

approximately 484,100 gallons of water were pumped from the withdrawal trench and introduced into the infiltration trenches as detailed herein.

The process control monitoring activities that were conducted included hydraulic, biological, and chemicals of concern (COC) monitoring using existing monitoring wells and piezometers. The monitoring locations are shown on Figure 1. In addition, non-aqueous phase liquid (NAPL) assessment activities were conducted to determine the presence and thickness of NAPL (if any) in existing monitoring wells and piezometers. Table 1 provides a listing of the existing monitoring wells and piezometers that are used to conduct the long-term process control monitoring program, and a schedule for implementing this program. As identified in this table, the hydraulic, biological and COC monitoring activities of the long-term process control monitoring program are being conducted on a biannual basis during the first and third quarters of each year (i.e., during March and September). The September 2001 monitoring event is detailed herein. Additionally, as recommended in the most recent *Biannual Report* (dated August 9, 2001 and covering the period from January 2001 through June 2001), an additional discrete Revised Anaerobic Mineral Media (RAMM) injection event was conducted during the last week of August 2001. Prior to conducting these activities, the NYSDEC (Ms. Cynthia Whitfield) was notified.

A description of the August 2001 discrete RAMM injection event is presented below, followed by the results of the process control monitoring activities conducted between July 2001 and December 2001 and the recommendations for continued implementation of the in-situ anaerobic bioremediation treatment activities.

I. August 2001 Discrete RAMM Injection Activities

Based on the results of the process control monitoring activities, completion of discrete RAMM injection event in each of the three areas and immediately downgradient of Area 1 was recommended in the most recent *Biannual Report* to further stimulate the anaerobic biodegradation of COCs. In addition to RAMM, Suga-Lik™ was injected at discrete locations within Area 1 and immediately downgradient of this Area, near monitoring well MW-33 (see Figure 1). Suga-Lik™ was added to provide the indigenous bacteria a readily degradable carbon source for growth and energy to stimulate the anaerobic bacteria in and downgradient of Area 1 where relatively low concentration of COCs may be limiting bacterial growth. The amount of Suga-Lik™ added to the RAMM recipe was proportional to the levels of COCs (aniline and methylene chloride) detected, at the dilution ratio of 1,000:1. At this proportion, the concentration of Suga-Lik™ provided in the amended water was approximately 360 parts per million (ppm). These RAMM (or RAMM/Suga-Lik™) injection activities were conducted from August 27 through August 30, 2001, in accordance with the procedures presented in the NYSDEC-approved *O&M Plan*. Ms. Cynthia Whitfield of the NYSDEC was present at the site on August 28, 2001 to observe the injection activities.

During this discrete RAMM injection event, approximately 10 gallons of RAMM (or RAMM/Suga-Lik™) were injected into the shallow hydrogeologic unit at 61 discrete locations. Ten injection points were established in Area 1 and ten immediately downgradient of Area 1, near monitoring well MW-33. Twelve injection points were established in Area 2 and 29 in Area 3. These locations were concentrated in the areas where relatively higher concentrations of COCs have been detected. The approximate injection locations are shown on Figure 2. Water level readings were also collected in relevant monitoring wells prior to and following each day of RAMM (or RAMM/Suga-Lik™) injection.

RAMM (or RAMM/Suga-Lik™) was injected into the shallow hydrogeologic unit at each injection point using a drilling rod with a three-foot screen on the bottom. The rod was pushed into the shallow hydrogeologic unit to a depth that was above the silt and clay layer which separates the shallow and deep hydrogeologic units (approximately 18 feet below ground surface [bgs]). The rod was then withdrawn to a depth of approximately 16 feet bgs and RAMM (or RAMM/Suga-Lik™) was injected into the formation using compressed air. After approximately 10 gallons of RAMM (or RAMM/Suga-Lik™) had been injected, the rod was removed and the RAMM (or RAMM/Suga-Lik™) remaining in the casing was allowed to gravity flow into the shallow hydrogeologic unit. Upon completing the injection at each location, loose material was cleaned from the rod prior to penetrating the subsurface at another location and returned to the hole. Each borehole was then backfilled with granular bentonite.

II. Hydraulic Process Control Monitoring

As part of the hydraulic process control monitoring activities conducted during July 2001 through December 2001, groundwater-level measurements were obtained on September 24, 2001 at existing monitoring wells and piezometers that are screened entirely within the sand layer of the shallow hydrogeologic unit and located sidegradient, downgradient, and upgradient of and within each of the three areas. Groundwater-level measurements were also obtained from selected monitoring wells (MW-6D located upgradient of Area 3 and MW-8D located within Area 3) screened entirely within the deep hydrogeologic unit. Additionally, a water-level measurement was obtained from a staff gauge located in the Barge Canal adjacent to the site.

The results of the water-level measurements from the September 2001 hydraulic monitoring event are summarized in Table 2, and shown on the potentiometric surface map provided as Figure 3. The results and corresponding conclusions are also summarized below.

- A closed-loop hydraulic cell continues to be maintained in Area 3, as shown on the potentiometric surface map provided on Figure 3.

- The groundwater withdrawal rate in Area 3 ranged from approximately 1.29 gallons per minute (gpm) to 3.40 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.

- The introduction of approximately 75 percent of the recovered groundwater to the secondary infiltration trench "B" and the remaining 25 percent to the secondary infiltration trench "A" continues to induce a hydraulic gradient in Area 3 from perimeter monitoring well MW-23S toward the withdrawal trench and hydraulically influencing monitoring wells MW-25S and MW-17R. COCs have historically been detected in groundwater samples collected from these wells at concentrations in excess of Groundwater Quality Standards (see Figure 13). COCs at concentrations in excess of Groundwater Quality Standards have not been detected in perimeter monitoring wells MW-23S and MW-25S since the June/July 1999 sampling event. Benzene has been detected in groundwater samples collected from monitoring well MW-17R at concentrations slightly in excess of the Groundwater Quality Standard during each of the biannual sampling events conducted since March 2000; however, monitoring well MW-17R is located within the capture zone of the withdrawal trench.

- No discernable, long-term hydraulic effects were identified within or in the vicinity of Areas 1 and 2 as a result of introducing approximately 100 gallons of RAMM into these areas on a monthly basis using the standpipes located within the infiltration trenches.

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

Water level readings were also collected in relevant monitoring wells prior to and following each day of RAMM (or RAMM/Suga-Lik™) injection conducted from August 27 through August 30, 2001. These data suggest that no long-term changes to groundwater flow directions resulted from these discrete RAMM (or RAMM/Suga-Lik™) injection activities.

Also during the hydraulic process control monitoring, weekly conductivity measurements were obtained from influent groundwater samples recovered from the withdrawal trench in Area 3. These measurements were obtained from the sampling port located before the equalization tank and inside the building. The conductivity of groundwater pumped from the withdrawal trench ranged from approximately 1.45 millisiemens per centimeter (mS/cm) to approximately 2.37 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 operation of the Area 3 treatment system has not caused the freshwater/saltwater interface to upcone to the base of the withdrawal trench.

III. Biological Process Control Monitoring

As detailed in Table 1, the biological process control monitoring includes collecting groundwater samples for laboratory analysis of phospholipid fatty acids (PLFA) and poly-b-hydroxy alkanoate (PHA), common biological indicators in both oxidized and reduced states (e.g., electron acceptors: nitrate, manganese, iron, sulfate, and carbon dioxide), and permanent gases (nitrogen, carbon dioxide, and methane). In addition, the following groundwater quality parameters were measured in the field during the biological sampling events: pH, temperature, conductivity, dissolved oxygen, and oxidation/reduction potential (ORP).

The results of the September 2001 biological process control monitoring activities are presented in Table 3 and shown on Figures 4 through 12. These biological process control monitoring results are summarized below.

- The biomass (PLFA) levels slightly increased within most Area 1 monitoring locations during the September 2001 sampling event (see Figure 4). Additionally, the anaerobic community increased since the last sampling event, although the select PLFA data suggest that aerobic bacteria are still more prevalent than anaerobic bacteria. The PLFA data used to monitor environmental stress and turnover rate indicate that the microbial community within Area 1 is undergoing limited stress and continues to have high turnover rates (see Figures 5 and 6). However, the PLFA to PHA ratio was above 0.2 at all Area 1 monitoring locations during the September 2001 sampling event. Collectively, these data indicate that the microbial community underwent a growth phase which became unbalanced and now may be entering or is in a decay phase. This suggests that the addition of Suga-Lik™ influenced the growth of the microbial community and once depleted, caused an unbalanced condition and decay of the microbial community. Furthermore, the low concentrations of

COCs (i.e., low levels of electron donors) present within the Area 1 may be limiting biological activity within this Area.

- At Area 2 TW-02R monitoring location the biomass (PLFA) level increased more than three times since the last sampling event (see Figure 7). Additionally, the anaerobic bacteria comprise a significant portion of microbial community in the TW-02R monitoring location and within other Area 2 monitoring wells. The PLFA and PHA results, combined with the common biological indicators results, suggest that sufficient amounts of nutrients continue to be available to maintain cell division and balanced growth within the microbial community. As shown on Figures 8 and 9, the PLFA data used to monitor environmental stress and turnover rate suggest that the microbial community within Area 2 is undergoing limited stress and continues to have high turnover rates.

- The September 2001 sampling results for Area 3 indicate an increase in PLFA levels since the last sampling event conducted in March 2001 (see Figure 10), with the exception of monitoring location MW-8S. At this location, the PLFA biomass level decreased since the last sampling events and the PLFA/PHA ratio (above 0.2) indicates that microbial community may have entered an unbalanced growth. The select PLFA results, however, obtained from Area 3 monitoring locations continue to indicate that the anaerobic community is more prevalent than the aerobic community within Area 3, including monitoring location MW-8S. As shown on Figures 11 and 12, the PLFA data used to monitor environmental stress and turnover rate suggest that the microbial community in Area 3, with the exception of MW-8S location, is undergoing limited stress and continues to have high turnover.

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

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

IV. COC Process Control and Biannual Groundwater Monitoring Program

The COC process control biannual groundwater monitoring activities were conducted on September 24, 2001 through September 28, 2001, in accordance with the long-term process control monitoring program presented in the *O&M Plan*. Table 1 provides a listing of the existing monitoring wells and piezometers that are used to conduct the long-term process control monitoring program, and a schedule for implementing this program. As identified in this table, the hydraulic, biological and COC monitoring activities of the long-term process control monitoring program are being conducted on a biannual basis.

A summary of the COC groundwater monitoring data is presented in Table 4 and shown on Figure 13. A copy of the validated analytical laboratory reports associated with the September 2001 groundwater sampling is provided under separate cover. A summary of the results is provided below.

- The concentrations of COCs detected in the groundwater samples collected from all of the monitoring wells within Area 1 declined or remained relatively the same during implementation of the in-situ anaerobic bioremediation treatment program (see Figure 13).

- Consistent with the previous sampling events, benzene, aniline, and N,N-dimethylaniline were detected above their respective Groundwater Quality Standards in the groundwater sample collected from monitoring well MW-33, located downgradient of Area 1. The concentration of aniline was higher than the previously detected concentrations at this location, whereas the concentrations of benzene and N,N-dimethylaniline remained relatively the same or decreased since the previous sampling events (see Figure 13).

- A comparison of the September 2001 COC data to the data collected during the previous sampling events indicate that COC concentrations within Area 2 have decreased or remained relatively the same during implementation of the in-situ anaerobic treatment program. For example, the concentrations of N,N-dimethylaniline and methylene chloride in monitoring well TW-02R have decreased approximately two orders of magnitude since beginning the anaerobic bioremediation treatment program.

- Acetone and aniline were detected above their respective Groundwater Quality Standard in the groundwater sample collected during the September 2001 sampling event from monitoring well MW-36, located downgradient of Area 2. Aniline was detected at concentrations exceeding Groundwater Quality Standard during the previous sampling events at this location (see Figure 13). Acetone is a common laboratory contaminant.

- Benzene and toluene were detected in the September 2001 groundwater sample collected from monitoring well MW-3S at concentrations (less than 10 parts per billion [ppb]) which slightly exceed their respective Groundwater Quality Standard. Aniline was also detected in that sample at 690 ppb. Because of this detection of aniline, MW-3S was resampled for aniline on November 8, 2001. A significantly lower concentration of aniline (69 ppb) was detected in the groundwater sample collected during November 2001.

- The concentrations of COCs detected in Area 3 monitoring wells are similar to or less than those previously detected in groundwater samples collected from the Area 3 monitoring wells. At monitoring location MW-8S, which historically exhibits the highest concentrations of COCs, the concentrations of aniline, N,N-dimethylaniline, and methylene chloride have decreased approximately 77%, 76%, and 56%, respectively, since the last sampling event conducted in March 2001.

- Aniline was detected in the samples obtained from monitoring wells MW-29 and MW-30, located between the Area 3 withdrawal trench and site boundary at concentrations slightly exceeding the Groundwater Quality Standard (5 ppb). The concentrations of aniline detected in these wells (7 ppb and 8 ppb) have decreased or remained the same since the previous sampling events (see Figure 13). Benzene was also detected at monitoring well MW-30 at a concentration (2 ppb) which slightly exceeds the Groundwater Quality Standard of 1 ppb.

- The results of the September 2001 biannual groundwater sampling and analysis program indicate that COCs at concentrations in excess of the Groundwater Quality Standards have not migrated beyond the site boundary. No COCs were detected in the downgradient perimeter monitoring locations, with the exception of the slight detection of benzene (5ppb) in the groundwater sample collected from monitoring well MW-17R. Although monitoring well MW-17R is sampled as a perimeter groundwater monitoring location, this well is located on-site and within the capture zone of the Area 3 withdrawal trench (see Figure 3).

- NAPL was not identified in any of the monitoring wells or piezometers used during the process control monitoring program.

V. Conclusions and Recommendations

Based on the process control monitoring data obtained to date and the results summarized above, the in-situ anaerobic bioremediation treatment process is meeting the remedial goals for OU No. 2 presented in the Record of Decision (ROD). Accordingly, the in-situ anaerobic bioremediation treatment activities will continue consistent with the operation procedures followed since commencement in mid-December 1998. However, to further stimulate the bioremediation rate within the areas where relatively low concentrations of COCs may be limiting microbial activity, the addition of Suga-Lik™ (Blackstrap Molasses) has been/will continue to be introduced into these areas, as detailed below. Additionally, to better assess the availability of the macronutrients within Area 3, supplemental analyses will be conducted. These analyses will include ammonium, potassium, and ortho-phosphate, as detailed below.

As previously detailed in this *Biannual Report*, certain COCs were detected in excess of Groundwater Quality Standards in the groundwater samples collected from monitoring wells MW-33 and MW-36 (located downgradient of Area 1 and Area 2, respectively). Furthermore, the concentrations of aniline detected in these groundwater samples increased since the last sampling event conducted in March 2001. The COC concentrations detected at monitoring wells MW-33 and MW-36, and at other Area 1 monitoring locations, however, are relatively low and may not provide a source of carbon sufficient to sustain microbial activity. Therefore, to further stimulate growth of indigenous bacteria in areas where low COC concentrations may be limiting bacterial growth, the additional activities listed below have been/will be conducted.

- Suga-Lik™ was added with RAMM into the two Area 1 infiltration trenches during February 2002. RAMM is introduced into the Area 1 infiltration trenches on a monthly basis by manually filling each of the standpipes located in these trenches. Suga-Lik™ was added during the February 2002 monthly RAMM introduction event to provide an easily metabolized carbon source that will further stimulate (enhance) the growth of the indigenous bacteria. The addition of RAMM/ Suga-Lik™ will continue on a monthly basis. Suga-Lik™ will provide electron donors, while RAMM will provide nutrients and electron acceptors.

- Beginning in March 2002, RAMM/Suga-Lik™ will be introduced on a monthly basis into piezometers PZ-G, PZ-Q, PZ-R, and PZ-S located within and downgradient of Area 1. RAMM/Suga-Lik™ will be 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 the targeted areas if distributed through the infiltration trenches only.

- Beginning in March 2002, RAMM/Suga-Lik™ will also be introduced on a monthly basis into piezometer PZ-W located downgradient of Area 2, near monitoring well MW-36.

Approximately 10 gallons of RAMM/Suga-Lik™ has been/will be introduced into each of the aforementioned piezometers and approximately 100 gallons (total) into the Area 1 infiltration trenches. The amount of Suga-Lik™ added to the RAMM recipe has been/will be proportional to the levels of COCs detected, at the dilution ratio of 1,000:1.

The biological process control monitoring results for September 2001 indicate that the PLFA biomass level at monitoring well MW-8S has decreased since the last sampling events and that the microbial community may have entered an unbalanced growth. To better evaluate the availability of macronutrients that are necessary for biological growth, the groundwater samples collected from Area 3 monitoring locations during the March 2002 sampling event will additionally be analyzed for ammonium, potassium, and ortho-phosphate.

As presented in Section IV this *Biannual Report,* aniline was detected in the groundwater sample collected from monitoring well MW-3S during the September 2001 sampling event at 690 ppb and during the November 8, 2001 resampling at a significantly lower concentration of 69 ppb. MW-3S is located between Areas 1 and 3 and will be sampled during the next COC monitoring event.

As recently discussed with the NYSDEC (Ms. Cynthia Whitfield and Mr. Carl Cuipylo), the next biannual monitoring event is tentatively scheduled for mid April 2002, depending on the status of the road construction activities along Van Rensselaer Street where the vehicular access gates to the site are located. BBL will continue to coordinate the schedule with the NYSDEC. The hydraulic, biological, and COC process control monitoring activities to be conducted are summarized in Table 1. 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.

As presented in the ROD, one of the components of the selected remedy for the site is reclassification from a Class 2 Inactive Hazardous Waste Disposal Site to a Class 4 Site. Class 4 is defined by the NYSDEC as a site that has been properly closed but that requires continued operation, maintenance, and/or monitoring. Based on information obtained on March 1, 2002 from the NYSDEC, the McKesson Envirosystems site is still listed by the NYSDEC as a Class 2 Site.

As presented in the NYSDEC's July 9, 1998 letter to BBL, site reclassification was to be initiated upon NYSDEC's approval of the *RD/RA Documentation Report*. That report was approved by the NYSDEC in a February 22, 2000 letter to McKesson. BBL had previously understood that the reclassification process was initiated during the spring of 2000, based on telephone conversations with the NYSDEC, as documented in the appropriate biannual reports. BBL now understands that the NYSDEC is reviewing the reclassification, based on our March 2002 telephone conversations with NYSDEC (Mr. Carl Cuipylo, Mr. Kevin Delaney, and Ms. Cynthia Whitfield). We will follow up with the NYSDEC in the near future regarding the status of the reclassification.

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

Sincerely,

BLASLAND, BOUCK & LEE, INC.

David J. Ulm
Senior Vice President

MS/mbg

cc: Mr. Reginald Parker, P.E., New York State Department of Environmental Conservation
Ms. Henriette Hamel, R.S., New York State Department of Health
Ms. Jean A. Mescher, McKesson Corporation.
Ms. Susan Anton-Switka, Bristol-Myers Squibb Co.
Mr. Christopher R. Young, P.G., de maximis, inc.

Tables

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TABLE 1

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

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

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

TABLE 1

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

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Location	Sampling Schedule	
	First Quarter	Third Quarter
Area 3		
MW-8S	B1, B2, C	B1, B2, C
MW-8D	H	H
MW-27	B1, B2, C	B1, B2, C
MW-28	B1, B2, C	B1, B2, C
MW-29	B2, C	B2, C
MW-30	B2, C	B2, C
PZ-A	H	H
PZ-B	H	H
PZ-C	H	H
PZ-D	H	H
PZ-E	H	H
PZ-K	H	H
PZ-L	H	H
PZ-M	H	H
PZ-N	H	H
PZ-O	H	H
MW-11S	H	H
MW-11D	H	H
Downgradient Perimeter Monitoring Locations		
MW-17R	C	C**
MW-18	C, H	C, H
MW-19	C, H	C, H
MW-23I	C, H	C, H
MW-23S	C, H	C, H
MW-24SR	H	C, H
MW-24DR	H	C, H
MW-25S	C, H	C, H
MW-25D	C, H	H
PZ-4S	C	
PZ-4D	C, H	H
PZ-5S		C
PZ-5D	H	C, H

TABLE 1

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

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Notes:

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

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

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

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

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

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

7. Each of the monitoring wells and piezometers used for hydraulic, biological and COC monitoring during the semi-annual monitoring event are checked for the presence of NAPL.

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

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

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

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

TABLE 2

SUMMARY OF SELECT GROUNDWATER LEVEL MEASUREMENTS

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Location	Reference Elevation (feet AMSL)	6/10/98 Same	6/22/98	7/6/98	7/20/98 Week 1	7/27/98 Week 2	8/3/98 Week 3	8/10/98 (morning) Week 4	8/10/98 (afternoon) Week 4	8/11/98 (morning) Week 4	8/11/98 (afternoon) Week 4	8/12/98 (morning) Week 4	8/12/98 (afternoon) Week 4	10/16/98 Week 13	11/17/98 Week 18	12/16/98 Week 22	12/22/98 Week 23	1/6/99 Week 25	1/13/99 Week 26	2/3/99 Week 30	6/3/99 Week 43	9/13/99 Week 52	3/27/00	6/1/00	9/18/00	12/14/00	3/19/01	9/21/01
Canal	393.39*	362.91	363.37	363.72	363.08	363.08	362.94		362.78	362.94			362.84	363.27		363.14	362.21	363.11			363.22	362.78	363.73	363.75	362.75^	363.24	363.01	362.96
Collection Sump	372.81	364.33	363.08	363.68	362.50	361.31	361.83	361.89	362.14	361.00	361.71	361.95	362.31	362.01	361.48	361.75	363.09	361.93	361.73	363.17	362.45	361.87	362.99	361.48	361.69	361.66	361.59	362.04
MW-3S	376.54	365.93	366.26	367.82	366.20			365.29							365.25	365.67	366.81	365.67	365.25		365.26		357.10					
MW-3D	375.56	365.63	365.87	366.16			364.97	364.85						365.08	365.00	365.04		365.04	364.91	365.41	364.92	364.57	355.64	365.57	364.81	355.16	365.40	364.54
MW-6D	377.07	365.75	366.01	366.29										365.25	365.15	365.23	365.36	365.23	365.06	365.62	365.12	364.79	365.85	365.77	364.97	365.34	365.64	364.75
MW-8D	374.68	365.51	365.74	366.05			364.80		364.67	364.79	364.88	364.87	364.87	364.93	364.83	364.86		364.88	364.74	365.22	364.77	364.35	365.42	365.36	364.62	364.94	365.18	364.34
MW-9D	376.76***	365.78					365.14	365.10						365.25	365.16	365.22	365.36	365.26	365.08	365.65	365.17	364.83	365.88	365.80	365.01	365.36	365.68	364.76
MW-11D	373.68	365.46	365.67	365.29			364.62	364.49	364.50	364.62		364.69	364.67	364.77	364.68	364.73		364.73	364.57	365.02	364.60	364.18	365.24	365.18	364.46	364.81	364.96	364.18
MW-11S	373.50	364.88	364.62	365.11	364.12	363.70	363.58	363.52	363.58	363.73		363.69	363.74	363.74	363.69	363.69	364.27	363.79	363.61	364.50	363.88	363.39	364.72	364.35	363.55	363.86	364.48	363.33
MW-18	372.57	362.64													361.90	361.93	362.05	362.05	361.84	362.18	361.79	361.38	362.43	361.77	361.71	362.08	362.17	361.50
MW-19	376.00	362.42													361.78	361.84	361.98	361.87	361.89	362.15	361.80	361.46	362.58	361.88	361.90	362.25	362.44	361.82
MW-23I	372.77	365.04	365.34	365.72			364.34		364.45	364.16			364.43	364.43	364.34	364.36		364.47	364.26	364.69	364.28	363.83	364.99	364.93	364.25	364.58	364.73	363.99
MW-23S	372.61	363.99	363.43	364.04	362.92	362.50	362.41		362.40	362.66		362.54	362.67	362.68	362.56	362.52	363.35	362.66	362.46	363.64	362.94	362.42	363.85	363.17	362.64	362.87	363.59	362.36
MW-24DR	375.14	365.41													364.63	364.67	364.81	364.69	364.54	364.96	364.49	364.09	365.19	364.60	364.39	364.77	364.91	364.16
MW-24SR	375.55	365.15	365.32	365.66	364.91	364.45	364.27		364.20				364.36	364.47	364.37	364.44	364.66	364.50	364.33	364.87	364.41	363.95	365.12	365.55	364.30	364.60	364.86	364.05
MW-25D	373.67	365.43													364.74	364.76		364.77	364.64	365.07	364.64	364.20	365.28	365.20	364.51	364.84	364.97	364.22
MW-25S	373.39	363.91	363.64	364.14	363.21	362.95	362.75		362.75			362.89	362.96	363.01	362.89	362.87	363.48	362.96	362.79	363.89	363.20	364.75	364.12	363.69	362.94	363.23	364.14	362.61
PZ-4D	376.11	365.46	365.73	366.01	365.21	364.83	364.63		364.54	364.67	364.75	364.74	364.70	364.80	364.69	364.73	364.87	364.72	364.55	365.02	364.60	364.22	365.28	365.21	364.49	364.82	365.03	364.22
PZ-5D	375.58	365.66	365.91	366.18	365.36	365.07	364.84		364.76	364.88	364.94	364.93	364.91	364.99	364.89	364.93	365.09	364.94	364.78	365.28	364.86	364.47	365.57	365.48	364.71	365.10	365.36	364.46
PZ-8D	375.83	365.90	366.11	366.35			365.25	365.13	365.83					365.35	365.27	365.33	365.48	365.33	365.19	365.78	365.08	365.00						
PZ-9D	377.29	365.73					365.47	365.28						365.12	365.03	365.08	365.24		364.94	365.50	365.04	364.68	365.70	365.72	364.87	365.16	365.55	364.60
PZ-A	373.94	364.49	363.69	364.28	363.13	362.58	362.56	362.62	362.76	363.39	362.82	362.64	363.02	362.75	362.56	362.60	364.04	362.72	362.56	363.81	363.12	362.61	363.95	363.15	362.75	362.91	363.56	362.58
PZ-B	373.92	364.49	363.60	364.21	363.02	362.62	362.50	363.26	362.71	363.00	362.97	362.59	363.01	362.67	362.54	362.51	364.27	362.62	363.45	363.91	363.19	362.67	364.08	363.32	362.79	362.94	363.94	362.55
PZ-C	374.85	365.69	366.29	367.02	365.93	365.97	365.47	365.38	365.30	365.54	365.99	365.53	365.54	365.56	365.52	365.52	365.97	365.18	365.02	365.79	365.10	364.75	366.04	366.04	365.03	365.35	366.39	364.54
PZ-D	375.12	365.78	366.25	366.99	365.99	365.91	365.53	365.37	365.30	365.53	366.06	365.58	365.67	365.59	365.55	365.53	366.06	365.25	365.12	365.79	365.18	364.89	366.09	366.10	365.10	365.46	366.36	364.65
PZ-E	374.12	364.75	364.25	364.86	363.73	364.00	363.41	363.61	363.54	364.22	364.67	364.67	364.08	363.57	363.67	363.53	366.41	363.57	363.52	364.93	364.20	363.81	365.16	365.03	363.92	364.40	365.90	363.49
PZ-F	377.06	366.17					365.56	365.50						365.37	365.27	365.52	365.73	365.62	365.27	366.36	365.53	365.11	366.89	366.72	365.27	365.70	367.06	364.93
PZ-G	377.16	366.21					365.66	365.60						365.46	365.36	365.60	365.76	365.71	365.44	366.44	365.61	365.17	366.89	366.80	365.36	365.75	367.11	364.93
PZ-HR	376.99	366.16					365.54							365.44	365.34	365.54	365.84	365.60	365.39	366.34	365.55	365.11	366.80	366.68	365.33	365.66	367.02	364.91
PZ-I	375.15	366.56					365.86	365.64						365.88	365.57	365.90	366.59	366.05	365.76	366.93	365.79	365.23	367.30	367.23	365.55	366.08	367.81	364.91
PZ-J	374.89	366.15					365.53	365.40						365.53	365.39	365.55	365.93	365.59	365.47	366.21	365.53	365.14	366.55	366.50	365.32	365.64	366.69	364.96
PZ-K	373.19	364.53	363.78	364.35	363.27	362.69	362.69	362.71	362.75	362.92	362.80	362.78	362.98	362.82	362.66	362.66	363.70	362.78	362.58	363.87	363.13	362.59	363.97	363.19	362.69	362.86	363.53	362.49
PZ-L	374.62	364.25	363.59	364.18	363.04	362.42	362.48	362.44		362.88	362.63	362.57	362.84	362.65	362.40	362.51	363.59	362.65	362.45	363.69	363.00	362.47	363.84	363.03	362.61	362.68	363.42	362.47
PZ-M	374.35	364.70	364.09	364.64	363.52	362.96	362.96	362.96	363.09	363.29	363.15	363.05	363.30	363.12	362.93	363.01	364.07	363.13	362.94	364.06	363.40	362.90	364.22	363.54	363.05	363.24	363.86	362.90
PZ-N	376.94**	365.79	366.37	367.06	365.99	365.91	365.53	365.39	365.33	365.55	365.97	365.58	365.59	365.59	365.55	365.56	366.09	365.31	365.12	365.87	365.19	364.87	366.17	366.12	NM	365.35	366.43	364.47
PZ-O	375.36	364.29	363.68	364.29	363.21	362.84	362.72	362.87	362.78	363.05	362.97	362.80	363.03	362.81	362.74	362.75	363.74	362.87	362.68	364.01	363.25	362.73	364.22	363.57	362.86	363.06	364.22	362.64
PZ-P	376.89	366.25					365.65	365.60						365.52	365.39	365.61	365.78	365.73	365.44	366.43	365.59	365.18	366.85	366.73	365.34	365.77	367.02	364.93
PZ-Q	377.61	366.23					365.64	365.57						365.45	365.35	365.59	365.70	365.71	365.42	366.44	365.60	365.16	366.93	366.78	365.26	365.76	367.21	364.89
PZ-R	377.05	366.23		366.94			365.65	365.57						365.50	365.38	365.61	365.81	365.67	365.47	366.46	365.61	365.20	366.89	366.81	365.37	365.72	367.21	364.93
PZ-S	378.13	366.19					365.57	365.52						365.43	365.35	365.57	365.94	365.65	365.40	366.39	365.56	365.15	366.84	366.73	365.32	365.71	367.12	364.90
PZ-T	376.25	366.14					365.54	365.43						365.52	365.38	365.58	365.96	365.64	365.47	366.34	365.53	365.10	366.71	366.65	365.29	375.70	366.90	364.90
PZ-U	375.35	365.99		366.81			365.50	365.33						365.37	365.30	365.49	365.91	365.55	365.40	366.17	365.46	365.08	366.55	366.49	365.22	365.60	366.75	364.85
PZ-V	375.78	366.07					365.48	365.35						365.43	365.29	365.47	365.90	365.52	365.37	366.20	365.44	365.06	366.54	366.50	365.25	365.58	366.76	364.83
PZ-W	375.78	366.07					365.46	365.31						365.41	365.28	365.44	365.78	365.53	365.33	366.15	365.41	365.02	366.49	366.41	365.20	365.59	366.63	364.85

Notes:

1. Weeks 1, 2, 3, 4, 13, 18, 22, 23, 25, 26, 39, 46, and 52 are weeks after the initial introduction of 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.

TABLE 3

BIOLOGICAL MONITORING DATA
9/24 - 9/26/2001

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

	Biological Parameters																		
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)	pH	D.O. (mg/L)	Temp. (C)	ORP (mV)	Cond. (mS/cm)
AREA 1																			
MW-1	5	0.30	0.83	0.14	0.06	20.0	NA	NA	NA	NA	137.0	<1.0	82	0.16	7.09	NA	16.45	-105	1.72
TW-01	2	1.04	0.26	0.00	<0.05	22.0	1.5	NA	0.77	NA	448.0	2.9	160	3.10	6.76	NA	13.06	-240	2.41
MW-31	1	0.92	0.00	0.00	<0.05	9.0	4.6	NA	1.40	NA	48.6	1.1	270	12.00	6.71	NA	13.90	-111	2.88
MW-32	5	2.60	0.36	0.00	<0.05	20.0	5.5	NA	1.80	NA	352.0	3.0	240	4.60	6.60	NA	13.54	-224	3.16
MW-9S	4	1.64	0.72	0.00	<0.05	14.0	13.0	NA	1.80	NA	8.39	<1.0	210	7.40	6.85	NA	14.11	-148	1.89
MW-33	--	--	--	--	<0.05	9.0	0.84	NA	0.71	NA	59.5	10.7	380	15.00	6.47	NA	13.95	-289	5.84
AREA 2																			
TW-02R	168	0.83	0.10	0.02	<0.05	17.0	10.0	NA	8.60	NA	12.9	8.0	200	2.40	6.43	NA	12.97	-199	5.49
MW-34	2	<0.05	0.04	0.00	0.06	11.0	4.0	NA	1.10	NA	22.9	1.4	260	5.20	6.68	NA	13.07	-160	2.08
MW-35	7	<0.05	0.30	0.00	0.06	17.0	8.5	NA	0.83	NA	73.5	<1.0	290	1.40	6.57	NA	16.61	-78	1.270
MW-36	--	--	--	--	<0.05	11.0	<0.1	NA	2.90	NA	63.9	7.7	290	8.10	6.57	NA	14.25	2.5	4.12
AREA 3																			
MW-3S	6	1.20	0.13	0.12	<0.05	15.0	NA	NA	NA	NA	11.5	2.6	130	9.7	6.74	NA	13.57	-232	0.78
MW-8S	11	8.67	0.34	0.00	<0.05	8.2	39.0	NA	1.70	NA	11.5	3.4	650	7.00	6.25	NA	14.10	-254	3.94
MW-27	87	2.61	0.09	0.04	<0.05	13	34.0	NA	0.96	NA	18.2	2.7	290	6.90	6.56	NA	15.34	-158	2.65
MW-28	12	1.56	2.40	0.08	<0.05	7.1	45.0	NA	2.30	NA	15.9	1.3	520	11.0	6.43	NA	14.03	-149	3.68
MW-29	--	--	--	--	<0.05	18.0	0.75	NA	0.096	NA	63.9	12.8	99	7.10	7.01	NA	12.82	-307	2.33
MW-30	--	--	--	--	<0.05	20.0	<0.1	NA	0.092	NA	66.5	11.4	140	4.90	6.92	NA	12.18	-277	2.50

Notes:

1. Pmol/mL = Picomoles per milliliter
2. mg/L = Milligrams per liter
3. C = Degrees Celcius
4. mV = Millivolts
5. mS/cm = Millisiemens per centimeter
6. -- = Not measured
7. < = Parameter was not detected at the listed limit.
8. Fe = Iron
9. Mn = Manganese
10. D.O. = Dissolved oxygen
11. Temp. = Temperature
12. ORP = Oxidation/reduction potential
13. Cond. = Conductivity
14. PLFA = Phospholipid fatty acids
15. Turnover Rate = The summation of cy17.0/16:1w7c plus cy19.0/18.1w7c.
16. Environmental Stress = The summation of 16:1w7t/16.1w7c plus 18.1w7t/18.1w7c.
17. NA - Due to laboratory error or equipment malfunction, these parameters were not measured.

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
MW-1	3/88	370.30	355.30	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	9/98			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			0.7 JN	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			**8 J**	<10 J	**3 J**	<10 J	**5 J**	<1,000	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	**10**
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	<10	<10
MW-2S	3/88	368.10	353.10	<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	365.10	350.10	<100	<1	<1	<1	<1	<1,000	**50**	<10	<10	**110**
	1/89			<10,000	<100	**120**	<100	<100	<1,000	**1,100**	<11	**5,570**	**4,700**
	11/89			<10,000	<100	<100	<100	<100	<1,000	**100**	<52	**440**	**2,700**
	11/91			**2,900**	**10**	**10**	**4**	**31**	<1,000	<10	**790**	**170**	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	**15**	**2 J**	<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			<10	**3 J**	**8 J**	**1 J**	**2 J**	<1,000 J	<10	**690 D (69)****	**4 J**	<10
MW-3D	8/95	343.80	339.00	<1,000	<25 D	<25 D	<25 D	<25 D	<1,000	<25 D	**1 J**	**5 J**	**200 D**
MW-4S	3/88	365.50	350.50	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	<11	**19**	**280**
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-5***	3/88	363.30	348.30	<100	<1	<1	<1	<1	<1,000	<1	**230**	**130**	<1
	1/89			<100	<1	<1	<1	<1	<1,000	<1	**84**	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	**17**	<10	<1
MW-6** (Replaced by MW-6S)	1/89	365.50	355.90	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	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**	1/89	367.00	357.40	<100	<1	<1	<1	**2**	<1,000	<1	<11	<11	**100**
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline*	N,N-dimethyl aniline*	Methylene Chloride
MW-8**	1/89	364.70	355.10	<1,000,000	<10,000	<10,000	<10,000	<10,000	**430,000**	<10,000	2,900	23,000	3,200,000
(Replaced by MW-8S)	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	2,200,000 D
	9/98			<10,000 J	<10,000	<10,000	<10,000	<10,000	**7,900**	3,300 J	1,200 J	16,000 J	140,000
	2/99			<20,000	<20,000	<20,000	<20,000	<20,000	**16,000JN**	11,000 J	30,000 DJ	120,000 DJ	3,650,000 DB
	7/99			**10 J**	22 J	5240 J	6258 J	220 J	**17,000**	11,000 J	9,100 D	87,000 D	2,180,000 D
	3/00			<100,000	<100,000	<100,000	<100,000	<100,000	**30,000 J**	<100,000	6,200 D	226,000 D	1,400,000
	9/00			<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 J	540,000 BJ
	3/01			<50,000	<50,000	<50,000	<50,000	<50,000	**53,000**	11,000 J	390,000 DJ	120,000 DJ	1,990,000
	9/01			<400	<400	430	170 J	680 J	**8,900 J**	18,000 JD	21,000	29,000	440,000 BD
MW-9**	1/89	365.60	356.00	1,600	NA	64	130	290	<1,000	<10	660	1,200	1,500
(Replaced by MW-9S)	11/89			<1,000	48	25	60	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	26 JD	69 D	226 JD	<1,000	<50	50	28	110 D
	7/99			<10	4 J	**2 J**	9 J	18 J	<1,000	<10	<10	**5 J**	<10
	3/00			<10	2 J	**2 J**	11	21	<1,000 J	<10	**2 J**	9 J	<10
	9/00			<10 J	21 J	**2 J**	6 J	18 J	<1,000	<10 J	**1 J**	6 J	<10 J
	3/01			<10	**1 J**	**3 J**	17	61	<1,000	<10	**2 J**	11	<10
	9/01			<10	10	**3 J**	7 J	35	<1,000 J	<10	<10	10	<10
MW-10	1/89	355.50	345.90	<1,000,000	<10,000	<10,000	<10,000	<10,000	**210,000**	<10,000	720	9,400	520,000
(Replaced by MW-9D)	11/89			<100,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	900	2,400	28,000
	11/91			<100	<1	**3**	**2**	<3	<1,000	<1	230	<10	41
	8/95			<1,000	<25 UD	<25 UD	<25 UD	<25 UD	<1,000	<25 UD	<5	<10	350 D
	1/89	355.10	345.50	<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	359.90	354.90	<380	<10	<10	<10	<10	**880**	<10	<5	<10	<10
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<26
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-11D	12/94	349.80	344.80	<310	<5	<5	<5	<5	**2,100**	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
MW-12D**	1/89	354.80	345.20	<100,000	<1,000	<1,000	<1,000	<1,000	**12,000**	<1,000	67	410	120,000
(Replaced MW-8D)	11/89			69,000	<1,000	<1,000	<1,000	<1,000	**39,000**	<1,000	<1,000	4,300	360,000
	11/91			<1,000,000	<10,000	<10,000	<10,000	<30,000	<10,000	<10,000	750	5,800	220,000
	8/95			<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			**13**	<10	<10	<10	<10	<1,000	**2 J**	<5	<10	40
MW-13S	11/89	368.70	359.10	<100	3	<1	<1	<1	<1,000	<1	<52	<52	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
MW-14D***	1/89	359.00	349.40	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-15S	1/89	370.00	360.25	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<52	<52	<1

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl-aniline	Methylene Chloride
MW-16D***	1/89	350.80	341.20	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	11/89			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
MW-17***	11/90	365.70	356.10	<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
(Replaced by MW-17R)	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<11
	10/95			NA	<5	<5	<5	<5	NA	**2 J**	NA	NA	<5
	8/96			**11**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	**1 J**	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	**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			<10	**8 J**	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	**5 J**	<10	<10	<10	<1,000	<10	<10	<10	<10
MW-18	11/89	325.15	316.15	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
MW-19	11/89	318.45	309.45	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<12
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	**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			<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

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
MW-20***	11/89	329.85	320.85	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
MW-21***	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	364.10	354.10	<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	7 J	<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	<10	<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
MW-23I	12/94	341.20	336.20	<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	9/01			**4 J**	<10	<10	<10	**2 J**	<1,000	<10	<10	<10	<10
MW-24S***	12/94	358.40	352.40	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24SR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	3/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
MW-24D***	12/94	334.40	341.20	<10	<5	<5	<5	<5	<1,000	<5	<5	<10	<5
(Replaced by MW-24DR)	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<10
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
MW-25S	8/95	361.20	356.20	<1,000	<5	<5	<5	<5	<1,000	<5	<5	**0.7 J**	<10
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	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			<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
MW-25D	8/95	349.55	344.55	<1,000	<5	<5	<5	<5	<1,000	<5	<5	**1 J**	<5
	10/95			NA	<5	<5	<5	<5	NA	**3 J**	<5	<10	<5
	8/96			**15**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<11	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	**5 J**	<10	<10
MW-26	12/96	365.00	355.30	<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
MW-27	9/98	362.50	354.50	**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	**1 J**	<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**	<1,000	<10	260 D	**2 J**	<10
	9/01			<10	**5 J**	<10	**2 J**	<10	<1,000 J	<10	26	<10	<10
MW-28	9/98^	363.60	355.60	<5,000 J	<5,000	<5,000	<5,000	<5,000	**2,200**	<5,000	546 D	54	64,000 J
	7/99			<500 J	<500	<500	<500	<500	<1,000	<500	1,100 D	40	39,000 D
	3/00			<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	<1,000 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	71	5,900 B
	9/01			<400	<400	<400	<400	<400	<1,000 J	<400	1,000 D	<10	3,700 B
MW-29	9/98	362.90	345.90	<10	<10	<10	<10	**2 J**	<1,000	<10	<10	13	<10
	2/99			**7 J**	<10	<10	<10	**1 J**	<1,000	<10	**5 J**	**4 J**	<10
	7/99			<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			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	4.2 DJ	**4 J**	<10 J
	3/01			<10	<10	<10	<10	<10	<1,000	<10	30	**4 J**	<10
	9/01			<10	<10	<10	<10	<10	<1,000	<10	4.1	**2 J**	<10

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
MW-30	9/98	363.50	355.50	<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	1 J	<10
MW-31	9/98	363.70	355.40	<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 J	<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	11	<10	<10	<10	<1,000	<10	<10	5 J	<10
	9/01			<10	14	<10	<10	<10	<1,000 J	<10	91 D	3 J	<10
MW-32	9/98	364.00	356.00	<10	16	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	5 J	<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			<10	10	<10	<10	<10	<1,000 J	<10	1,100 D	2 J	<10
MW-33	9/98	344.10	356.10	<10	<10	<10	<10	<10	<1,000	<10	9 J	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	4 J	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
	9/01			21	5 J	<10	<10	<10	<1,000 J	<10	1,900 D	12	<18
MW-34	9/98	362.70	354.70	<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
	3/00			<10 J	1 J	2 J	<10	<10	<1,000 J	<10	200 D	3 J	<10
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	320 D	4 J	<10 J
	3/01			<10	<10	2 J	<10	2 J	<1,000	<10	700 D	5 J	<10
	9/01			7 J	2 J	2 J	<10	2 J	<1,000 J	<10	76	3 J	<10
MW-35	9/98	363.00	355.00	<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	<10	<10	<1,000	<10	<10	<10	<10
	9/01			<10	<10	<10	<10	<10	<1,000 J	<10	<10	2 J	<10
MW-36	9/98	363.60	355.60	<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			8 J	0.8 J	<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	2 J
	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

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
TW-01	12/96	365.10	355.40	<10	82	4 J	6 J	4 J	<1,000	<10	2,090 D	13	4 J
	9/98			<10	15	<10	4 J	<10	<1,000	<10	4,400 DEJ	4 J	<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	4 J	<10
	3/00			<10	16	<10	<10	<10	<1,000 J	<10	280 D	4 J	<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 J	<10
	9/01			<10	10	<10	<10	<10	<1,000 J	<10	<10	2 J	<10
TW-02*** (Replaced by TW-02R)	12/96	363.30	353.30	53	10	77	16	65	<1,000	585 D	15,000 JD	3,920 D	42,449 D
	9/98			<500 J	<500 J	<500 J	<500 J	140 J	5,000	300 J	38,000 D	61,000 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	55	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	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			57	25	70	31	140	<1,000 J	<20	63,000 D	32	48 B
PZ-4D	11/89	350.80	345.90	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<3	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	0.8 J	<5
	10/95			NA	<5	<5	<5	<5	NA	<5	<5	<10	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<6	<12	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
PZ-4S	11/89	362.79	357.88	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/90			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/91			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	11/92			<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	8/95			<1,000	<5	<5	<5	<5	<1,000	<5	<5	<10	<18
	10/95			NA	<5	<5	<5	<5	NA	<5	NA	NA	<5
	8/96			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	8/97			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/99			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
	6/99			<10 J	<10	<10	<10	<10	<1,000 J	<10	<10 J	<10 J	<10 J
	3/00			<10	<10	<10	<10	<10	<1,000 J	<10	<5	<10	<10
	3/01			<10	<10	<10	<10	<10	<1,000	<10	<10	3 J	<10
PZ-5D	11/89	353.50	348.60	<100	<1	<1	<1	<1	<1,000	<1	<10	<10	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<12
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10

TABLE 4

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

Monitoring Well	Sampling Date	Screen Elev. (ft. AMSL) Top	Bottom	Acetone	Benzene	Toluene	Ethyl-benzene	Xylene*	Methanol	Trichloro-ethene	Aniline	N,N-dimethyl aniline	Methylene Chloride
PZ-5S	11/89	361.42	356.52	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
	12/94			<10	<5	<5	<5	<5	<200	<5	<5	<10	<5
	2/96			<1,000	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	2/97			**5 J**	<10	<10	<10	<10	<1,000	<10	<5	<10	<10
	9/98^			<10	<10	<10	<10	<10	<1,000	<10	<5	<10	<12
	6/99			<10 J	<10	<10	<10	<10	<1,000	<10	<10 J	<10 J	<10 J
	7/99			<10 J	<10 J	<10 J	<10 J	<10 J.	<1,000 J	<10 J	<10	<10	<10 J
	9/00			<10 J	<10 J	<10 J	<10 J	<10 J	<1,000 J	<10 J	<10 J	<10	<10 J
	9/01			**7 J**	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
PZ-8S ****	9/98	362.60	357.70	<10	<10	<10	<10	<10	<1,000	<10	<10	<10	<10
PZ-11D**	11/89	352.09	347.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-11S**	11/89	359.09	354.19	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-12D**	11/89	350.00	345.10	<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**	11/89	360.00	355.10	<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***	11/89	349.40	344.40	<100	<1	<1	<1	<1	<1,000	<1	<11	<11	<1
PZ-13S***	11/89	359.50	354.50	<100	<1	**2**	<1	**2**	<1,000	<1	<11	<11	<1
NYSDEC Ground-Water Standards (Part 700)				50	1	5	5	5	NA	5	5	5	5

Notes:

1. Concentrations are reported as ug/L (parts per billion).
2. * = 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.
3. ** = Wells/piezometers MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12D, PZ-11D, PZ-11S, PZ-12D, and PZ-12S were abandoned during OU No.1 soil remediation activities (1994).
4. *** = 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.
5. **** = Piezometer PZ-8S was decomissioned 8/2000.
6. ^ = MW-18, MW-19, MW-23I, MW-23S, MW24DR, MW-24SR, MW-28, PZ-5S, and PZ-5D wells/piezometers were resampled for aniline on 12/8/98 and 12/9/98, because the 9/98 results were rejected due to laboratory error.
7. < = Compound was not detected at the listed quantitation limit
8. D = Indicates the presence of a compound in a secondary dilution analysis.
9. J = The compound was positively identified; however, the numerical value is an estimated concentration only.
10. E = The compound was quantitated above the calibration range.
11. 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.
12. B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
13. NA = Not available.
14. Compounds detected are indicated by bold-faced type.
15. Detections exceeding NYSDEC Groundwater Standards (Part 700) are indicated by shading.
16. Replacement wells for MW-6, MW-8, MW-9, MW-10, MW-11, and MW-12D were installed 8/95.
17. Replacement wells for MW-17, MW-24S, MW-24D, and TW-02 were installed 11/97 - 12/97.
18. 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 ground-water quality in the vicinity of monitoring well MW-23S.
19. ^^ = 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.

Figures

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LEGEND

- UTILITY POLE
- CATCH BASIN
- PM — PETROLEUM PIPE LINE MARKER
- GM — GAS LINE MARKER
- SV — SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 — GROUND-WATER MONITORING WELL
- OR — BIANNUAL DOWNGRADIENT PERIMETER GROUND-WATER MONITORING LOCATION
- PZ-A — PIEZOMETER
- PZ-8S & PZ-8D — DECOMMISIONED PIEZOMETER
- MW-26S — PUMPING WELL
- BOUNDARY OF IMPACTED AREA
- GROUND-WATER WITHDRAWAL TRENCH
- A — GROUND-WATER INFILTRATION TRENCH AND IDENTIFICATION.
- PIPING TO BUILDING
- PIPING FROM BUILDING
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

NOTE:

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

SCALE: 80' 0 80'

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

SITE PLAN

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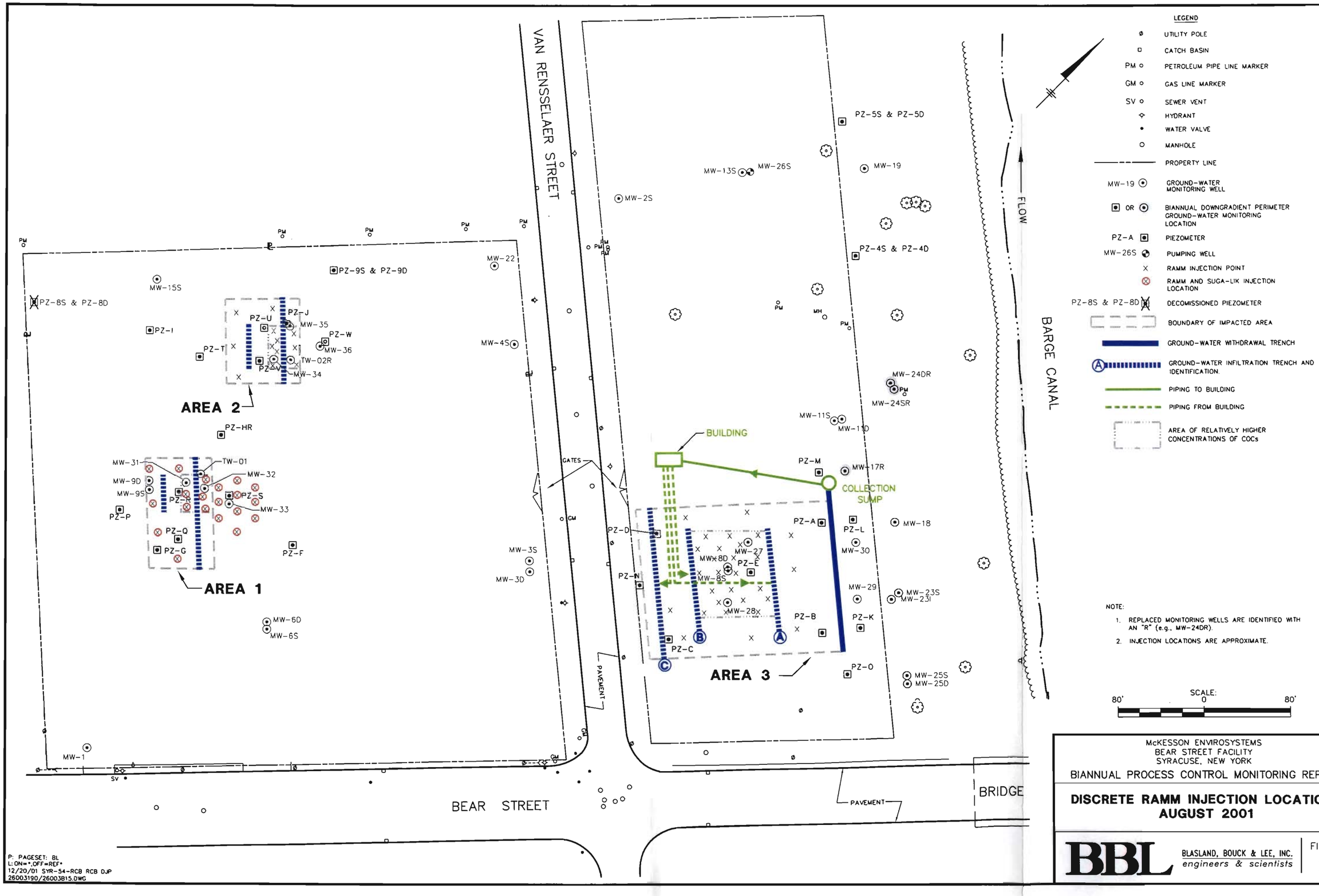
FIGURE 1

P:\STD-PCP/BL
L:\ON=*,OFF=CLEAN,DCA-INFO,INJ,DECON,OS-*,MON-WELLS,MW-DECOM,PIEZ,PIEZ-DECOM,REF,SAMPLES,SEC,SM,SP
1/29/02 SYR-54-RCB PGL RCB
26003190/26003B16.DWG



LEGEND

- UTILITY POLE
- CATCH BASIN
- PM — PETROLEUM PIPE LINE MARKER
- GM — GAS LINE MARKER
- SV — SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 — GROUND-WATER MONITORING WELL
- OR — BIANNUAL DOWNGRADIENT PERIMETER GROUND-WATER MONITORING LOCATION
- PZ-A — PIEZOMETER
- MW-26S — PUMPING WELL
- RAMM INJECTION POINT
- RAMM AND SUGA-LIK INJECTION LOCATION
- PZ-8S & PZ-8D — DECOMISSIONED PIEZOMETER
- BOUNDARY OF IMPACTED AREA
- GROUND-WATER WITHDRAWAL TRENCH
- A — GROUND-WATER INFILTRATION TRENCH AND IDENTIFICATION.
- PIPING TO BUILDING
- PIPING FROM BUILDING
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

NOTE:

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

SCALE: 80' 0 80'

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

DISCRETE RAMM INJECTION LOCATIONS AUGUST 2001

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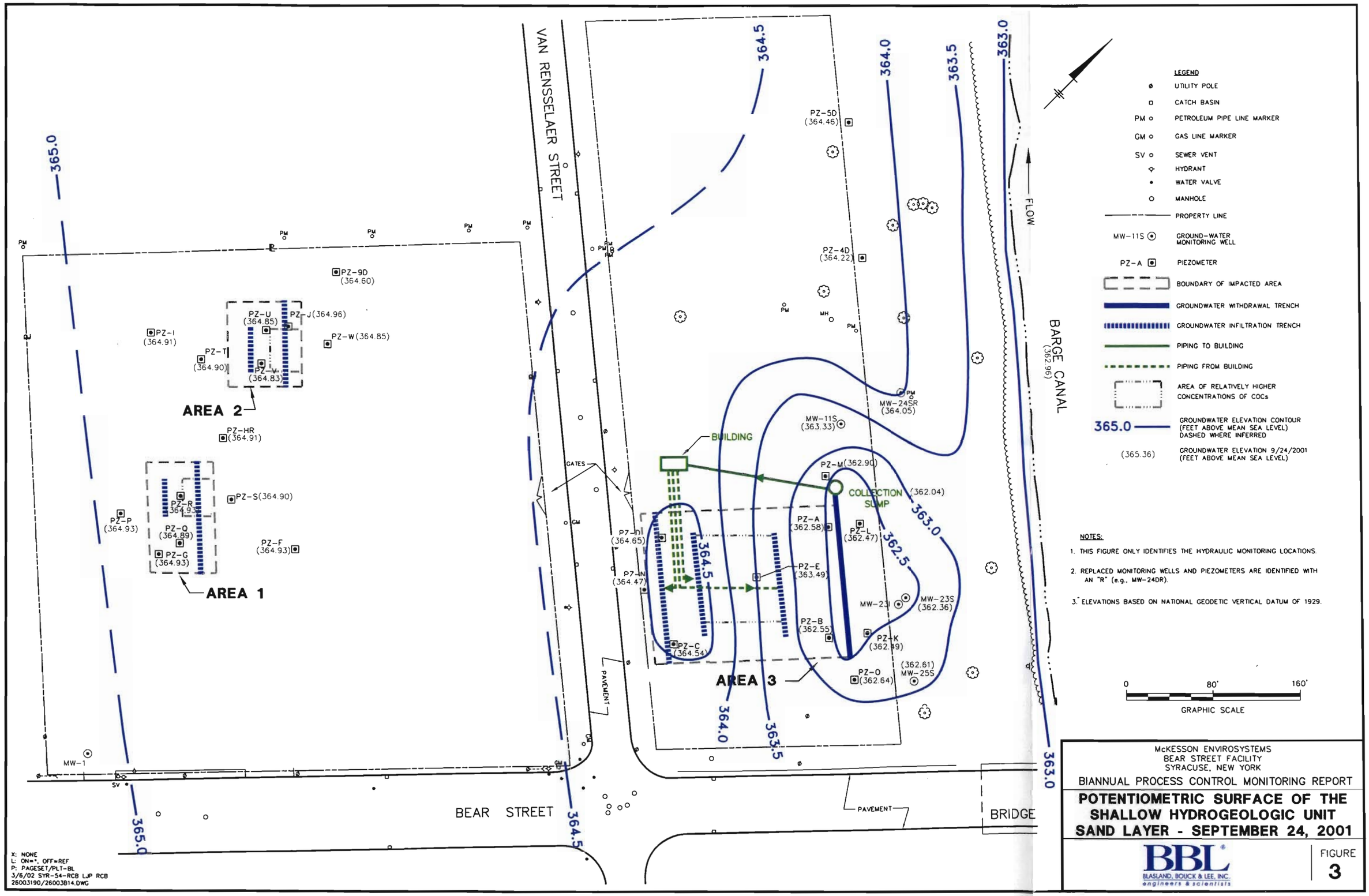
FIGURE 2

P: PAGESET: BL
L: ON=*,OFF=REF*
12/20/01 SYR-54-RCB RCB DJP
26003190/26003B15.DWG



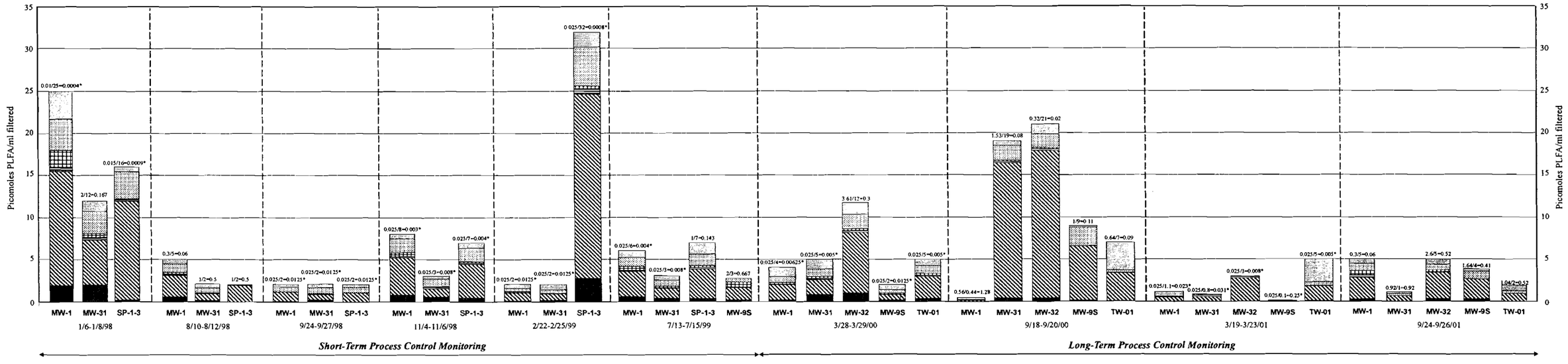
McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

POTENTIOMETRIC SURFACE OF THE SHALLOW HYDROGEOLOGIC UNIT SAND LAYER - SEPTEMBER 24, 2001

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

FIGURE 3



NOTES:

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

MCKESSON ENVIROSYSTEMS
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AREA 1 - BIOMASS PLFA DISTRIBUTION

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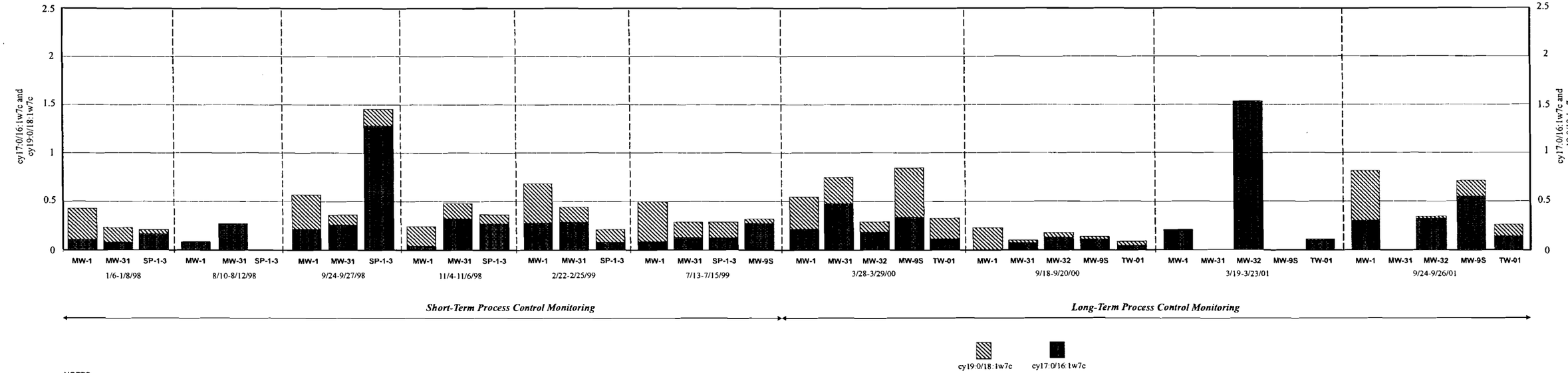
engineers & scientists

FIGURE 4

2/02 SYR-DS4-DJH MRC
28003190/28003n03.cdr



NOTES:

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

12/01 SYR-054-DJH
28003190/26003n02.cdr

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AREA 1 - TURNOVER RATE

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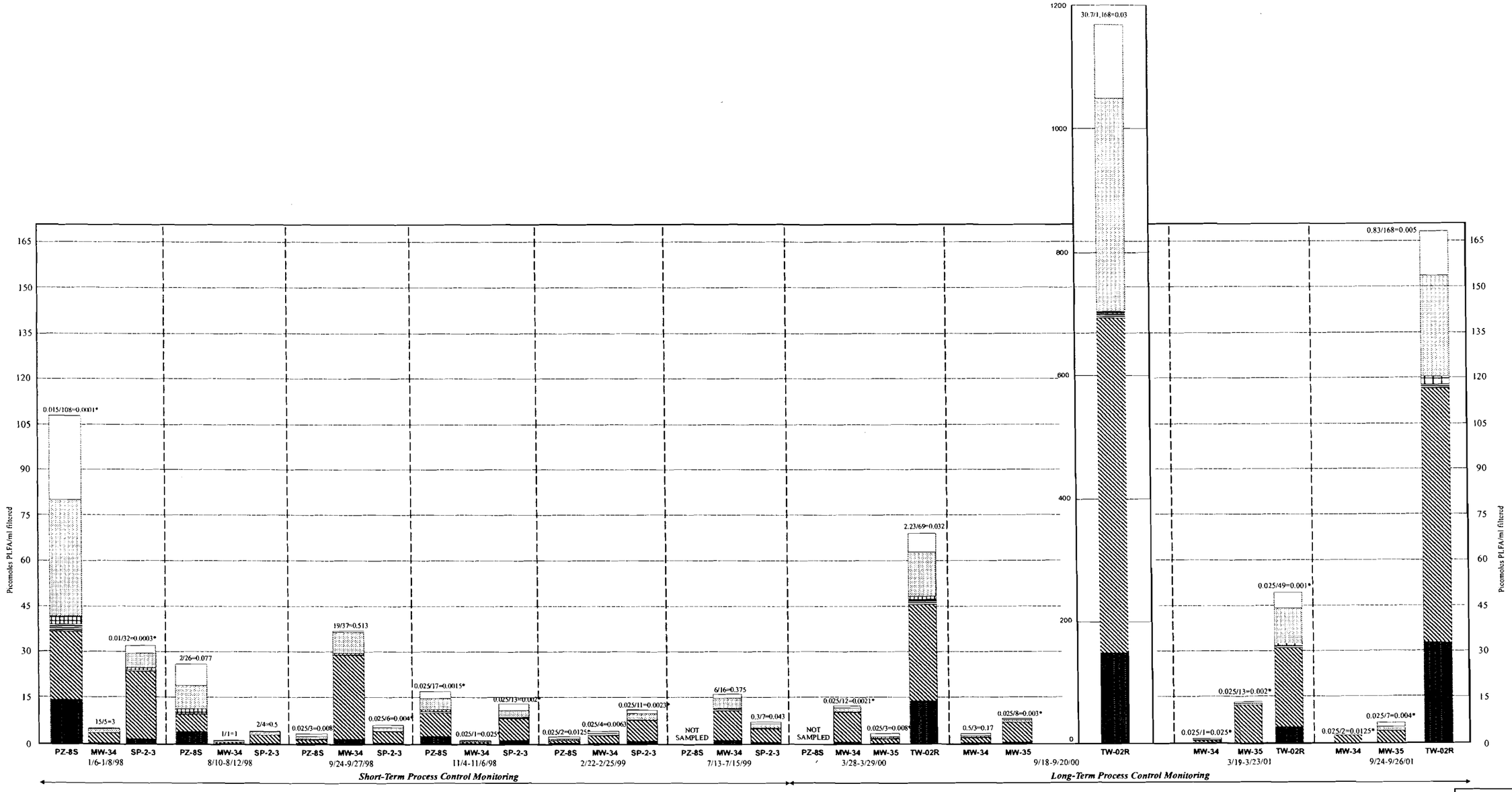
FIGURE 6



NOTES:

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

12/01 SYR-054-DJH LBR
260031190/26003n10.cdr

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AREA 2 - BIOMASS PLFA DISTRIBUTION

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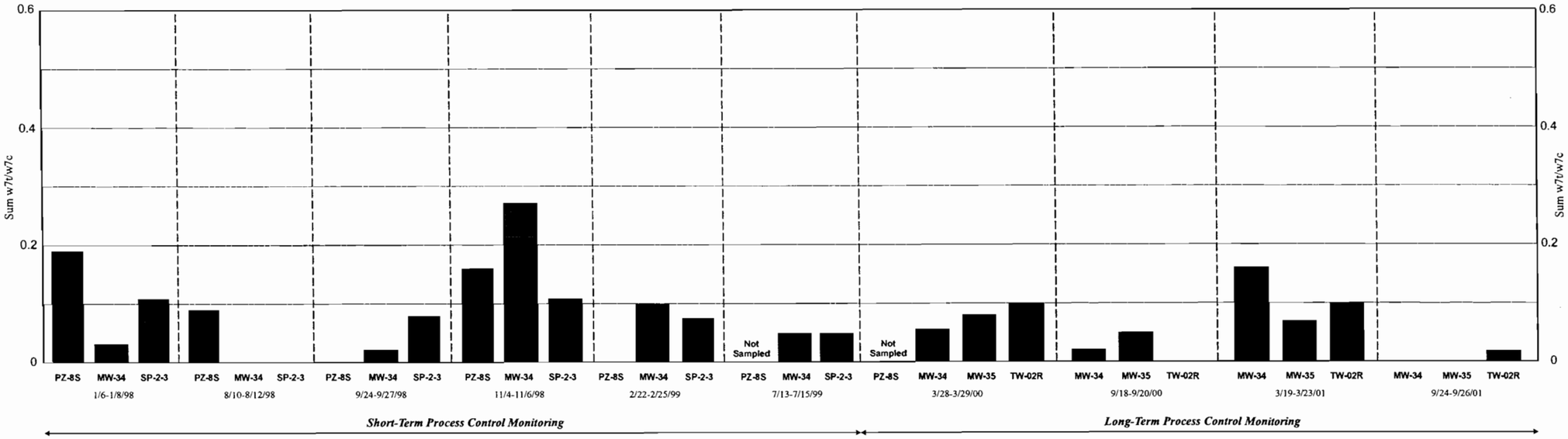
FIGURE 7



NOTES:

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

12/01 SYR-D64-DJH
26003190/26003e04.cdr

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AREA 2 - ENVIRONMENTAL STRESS

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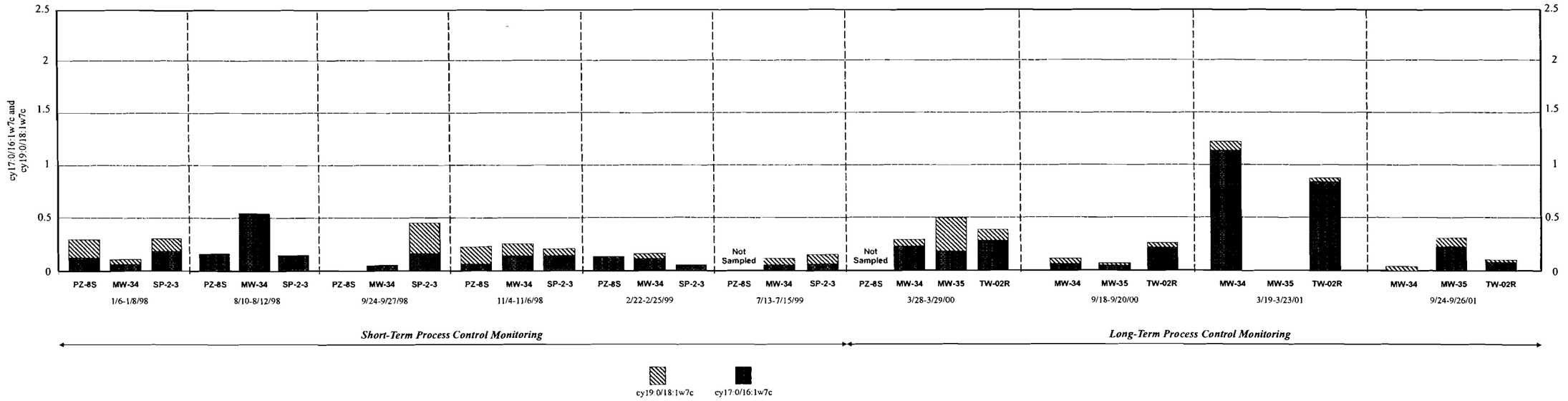
FIGURE 8



NOTES:

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

12/01 SYR-054-DJH
2600319/2600ta08.cdr

MCKESSON ENVIROSYSTEMS
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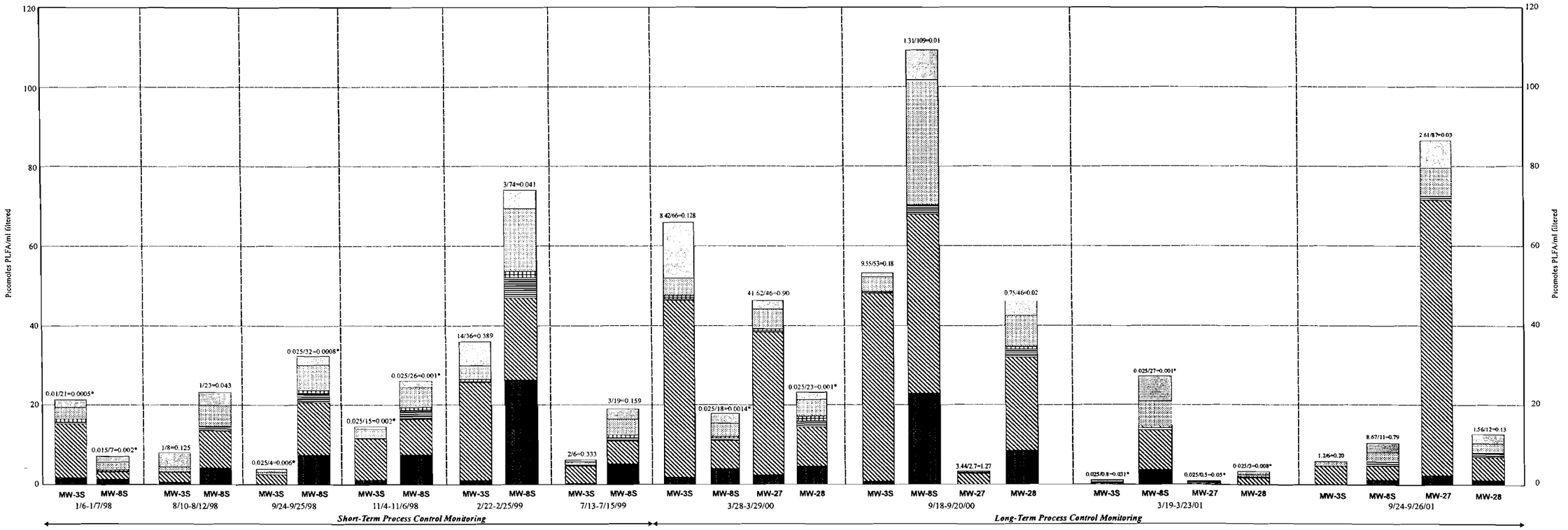
BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 2 - TURNOVER RATE

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

FIGURE 9



NOTES:

1. Ratio above stacked bar graph is PHA to PLFA. PLFA/PHA ratio above 0.2 suggests unbalanced growth of the microbial community.
2. * = Ratio is half the PHA detection limit to PLFA.
3. Start up operation began on June 10, 1998.
4. Initial discrete RAMM injections were conducted from August 5 to August 12, 1998.
5. Additional discrete RAMM injections were conducted on August 28 through August 30, 2000 and on August 27 through August 30, 2001.

12/01 SYR-D54-DJH
26003190/26003n09.cdr

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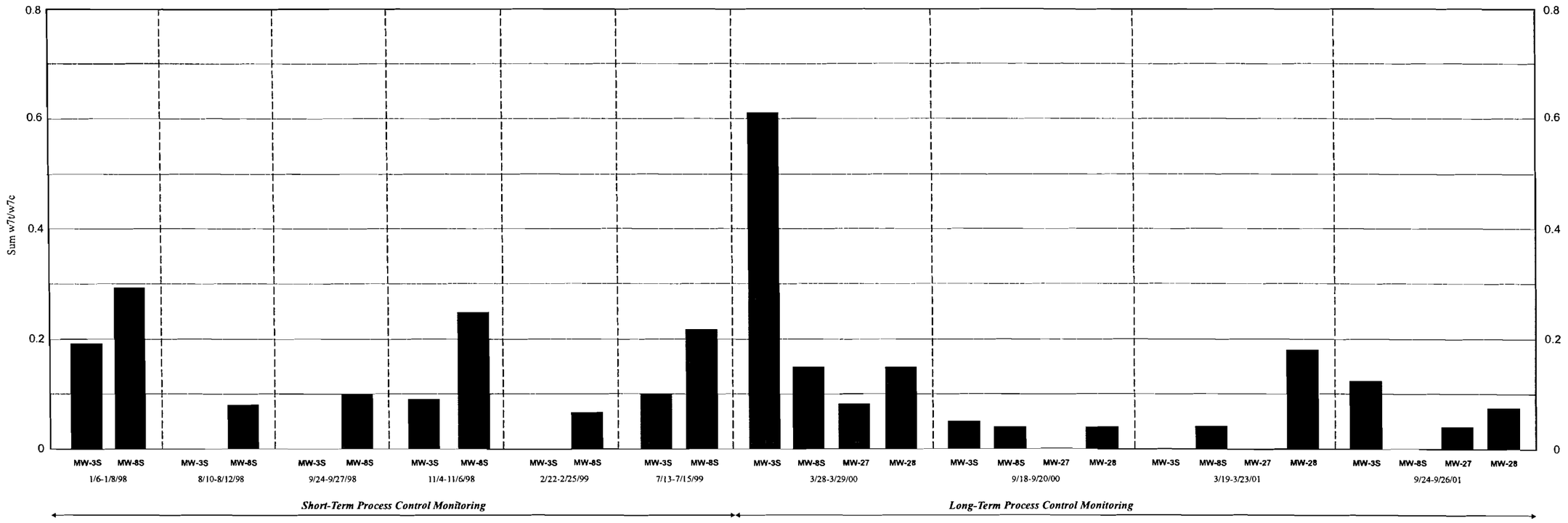
AREA 3 - BIOMASS PLFA DISTRIBUTION

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

FIGURE 10



NOTES:

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

12/01 SYR-D54-D.IH
28003190/28003n08.cdr

MCKESSON ENVIROSYSTEMS
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BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 3 - ENVIRONMENTAL STRESS

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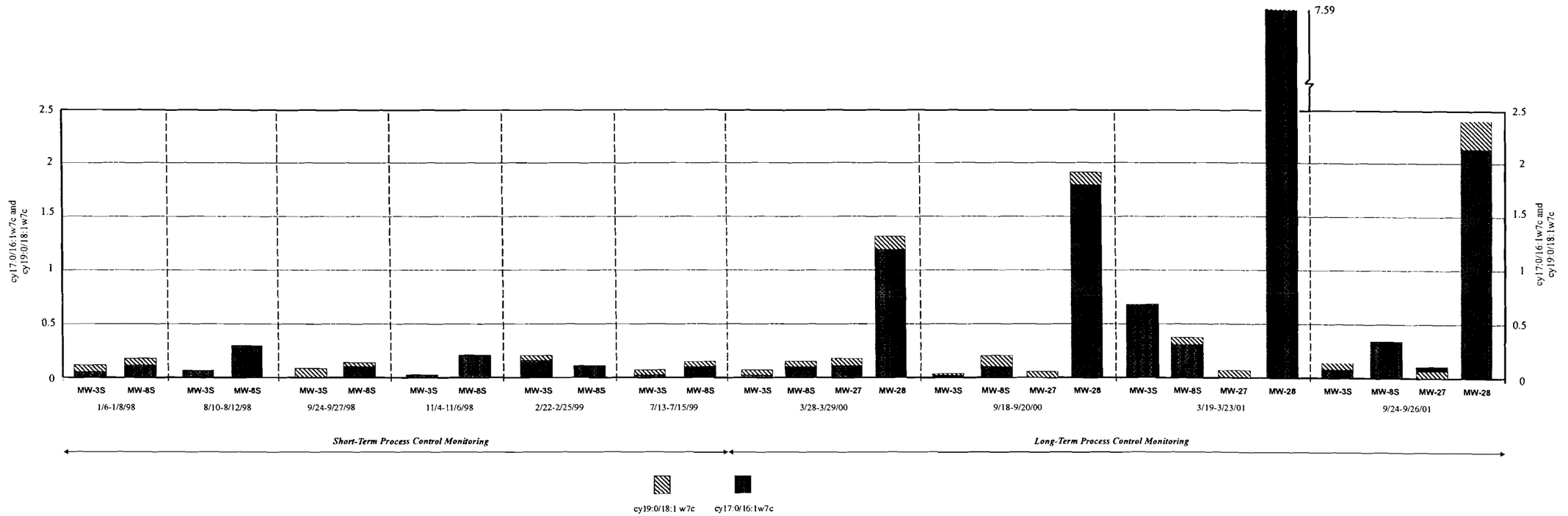
FIGURE 11



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

12/01 SYR-054-DJH
26003190/26003n07.cdr

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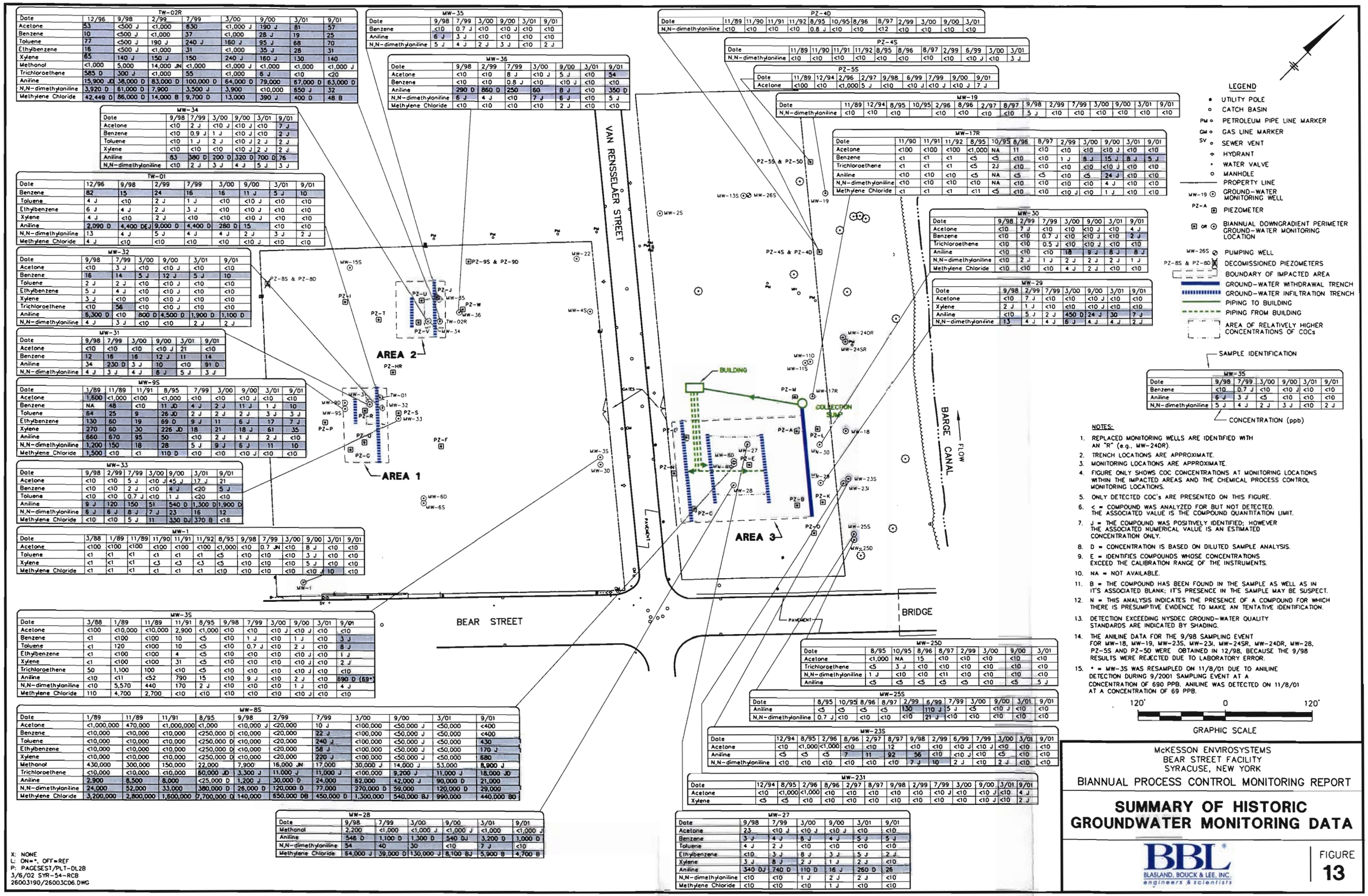
BIANNUAL PROCESS CONTROL MONITORING REPORT

AREA 3 - TURNOVER RATE

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

FIGURE 12



TW-02R

Date	12/96	9/98	2/99	7/99	3/00	9/00	3/01	9/01
Acetone	53	<500 J	<1,000	630	<1,000 J	190 J	81	57
Benzene	10	<500 J	<1,000	37	<1,000	28 J	19	25
Toluene	77	<500 J	190 J	240 J	160 J	95 J	68	70
Ethylbenzene	16	<500 J	<1,000	31	<1,000	35 J	28	31
Xylene	85	140 J	150 J	150	240 J	160 J	130	140
Methanol	<1,000	5,000	14,000 JN	<1,000	<1,000 J	<1,000	<1,000	<1,000 J
Trichloroethene	585 D	300 J	<1,000	55	<1,000	6 J	<10	<20
Aniline	15,900 JD	38,000 D	83,000 D	100,000 D	64,000 D	79,000	67,000 D	63,000 D
N,N-dimethylaniline	3,920 D	61,000 D	7,900	3,500 J	3,900	<10,000	650 J	32
Methylene Chloride	42,449 D	86,000 D	14,000 B	9,700 D	13,000	390 J	400 D	48 B

MW-35

Date	9/98	7/99	3/00	9/00	3/01	9/01
Benzene	<10	0.7 J	<10	<10 J	<10	<10
Aniline	6 J	3 J	<10	<10	<10	<10
N,N-dimethylaniline	5 J	4 J	2 J	3 J	<10	2 J

MW-36

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

PZ-4D

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

PZ-4S

Date	11/89	11/90	11/91	11/92	8/95	8/96	8/97	2/99	6/99	3/00	3/01
N,N-dimethylaniline	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	3 J

PZ-5S

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

MW-19

Date	11/89	12/94	8/95	10/95	2/96	8/96	2/97	8/97	9/98	2/99	7/99	3/00	9/00	3/01	9/01
N,N-dimethylaniline	<10	<10	<10		<10	<10	<10	<10	5 J	<10	<10	<10	<10	<10	<10

MW-17R

Date	11/90	11/91	11/92	8/95	10/95	8/96	8/97	2/99	3/00	9/00	3/01	9/01
Acetone	<100	<100	<100	<1,000	NA	11	<10	<10	<10	<10 J	<10	<10
Benzene	<1	<1	<1	<5	<5	<10	<10	1 J	8 J	15 J	8 J	5 J
Trichloroethene	<1	<1	<1	<5	23	<10	<10	<10	<10	<10 J	<10	<10
Aniline	<10	<10	<10	<5	NA	<5	<5	<10	<5	24 J	<10	<10
N,N-dimethylaniline	<10	<10	<10	<10	NA	<10	<10	<10	<10	4 J	<10	<10
Methylene Chloride	<1	<1	<1	<11	<5	<10	<10	<10 J	<10	1 J	<10	<10

MW-30

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01
Acetone	<10	7 J	<10	<10	<10 J	<10	4 J
Benzene	<10	<10	0.7 J	<10	<10 J	<10	2 J
Trichloroethene	<10	<10	0.5 J	<10	<10 J	<10	<10
Aniline	<10	<10	<10	18	9 J	8 J	8 J
N,N-dimethylaniline	<10	2 J	1 J	2 J	2 J	2 J	1 J
Methylene Chloride	<10	<10	<10	4 J	2 J	<10	<10

MW-29

Date	9/98	2/99	7/99	3/00	9/00	3/01	9/01
Acetone	<10	7 J	<10	<10	<10 J	<10	<10
Xylene	2 J	1 J	<10	<10	<10 J	<10	<10
Aniline	<10	5 J	2 J	450 D	24 J	30	7 J
N,N-dimethylaniline	13	4 J	4 J	6 J	4 J	4 J	2 J

TW-01

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

MW-32

Date	9/98	7/99	3/00	9/00	3/01	9/01
Acetone	<10	3 J	<10	<10 J	<10	<10
Benzene	16	14	5 J	12 J	5 J	10
Toluene	2 J	2 J	<10	<10 J	<10	<10
Ethylbenzene	5 J	4 J	<10	<10 J	<10	<10
Xylene	3 J	<10	<10	<10 J	<10	<10
Trichloroethene	<10	56	<10	<10 J	<10	<10
Aniline	6,300 D	<10	800 D	4,500 D	1,900 D	1,100 D
N,N-dimethylaniline	4 J	3 J	<10	<10	2 J	2 J

MW-31

Date	9/98	7/99	3/00	9/00	3/01	9/01
Acetone	<10	<10	<10	<10 J	21	<10
Benzene	12	16	16	12 J	11	14
Aniline	34	230 D	3 J	10	<10	91 D
N,N-dimethylaniline	4 J	3 J	4 J	6 J	5 J	3 J

MW-9S

Date	1/89	11/89	11/91	8/95	7/99	3/00	9/00	3/01	9/01
Acetone	1,600	<1,000	<100	<1,000	<10	<10	<10 J	<10	<10
Benzene	NA	48	<10	11 JD	4 J	2 J	11 J	1 J	10
Toluene	64	25	9	26 JD	2 J	2 J	2 J	3 J	3 J
Ethylbenzene	130	60	19	69 D	9 J	11	6 J	17	7 J
Xylene	270	80	30	226 JD	18	21	18 J	61	35
Aniline	660	670	95	50	<10	2 J	1 J	2 J	<10
N,N-dimethylaniline	1,200	150	18	28	5 J	9 J	6 J	11	10
Methylene Chloride	1,500	<10	<1	110 D	<10	<10	<10 J	<10	<10

MW-33

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

MW-34

Date	9/98	7/99	3/00	9/00	3/01	9/01
Acetone	<10	2 J	<10 J	<10 J	<10	7 J
Benzene	<10	0.9 J	1 J	<10 J	<10	2 J
Toluene	<10	1 J	2 J	<10 J	2 J	2 J
Xylene	<10	<10	<10	<10 J	2 J	2 J
Aniline	83	380 D	200 D	320 D	700 D	76
N,N-dimethylaniline	<10	2 J	3 J	4 J	5 J	3 J

MW-1

Date	3/88	1/89	11/89	11/90	11/91	11/92	8/95	9/98	7/99	3/00	9/00	3/01	9/01
Acetone	<100	<100	<100	<100	<100	<100	<1,000	<10	0.7 JN	<10	8 J	<10	<10
Toluene	<1	<1	<1	<1	<1	<1	<5	<10	<10	<10	3 J	<10	<10
Xylene	<1	<1	<1	<3	<3	<3	<5	<10	<10	<10	5 J	<10	<10
Methylene Chloride	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10	<10 J	10	<10

MW-3S

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

MW-8S

Date	1/89	11/89	11/91	8/95	9/98	2/99	7/99	3/00	9/00	3/01	9/01
Acetone	<1,000,000	470,000	<1,000,000	<1,000	<10,000 J	<20,000	10 J	<100,000	<50,000 J	<50,000	<400
Benzene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000	22 J	<100,000	<50,000 J	<50,000	<400
Toluene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000	240 J	<100,000	<50,000 J	<50,000	430
Ethylbenzene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000	58 J	<100,000	<50,000 J	<50,000	170 J
Xylene	<10,000	<10,000	<10,000	<250,000 D	<10,000	<20,000	220 J	<100,000	<50,000 J	<50,000	680
Methanol	430,000	300,000	150,000	22,000	7,900	16,000 JN	17,000	30,000 J	14,000 J	53,000	8,900 J
Trichloroethene	<10,000	<10,000	<10,000	80,000 JD	3,300 J	11,000 J	11,000 J	<100,000	9,200 J	11,000 J	18,000 JD
Aniline	2,900	8,500	8,000	<25,000 D	1,200 J	30,000 D	24,000	82,000	42,000 J	90,000 D	21,000
N,N-dimethylaniline	24,000	52,000	33,000	380,000 D	26,000 D	120,000 D	77,000	270,000 D	59,000	120,000 D	29,000
Methylene Chloride	3,200,000	2,800,000	1,600,000	7,700,000 D	140,000	650,000 DB	450,000 D	1,300,000	540,000 BJ	990,000	440,000 BD

MW-28

Date	9/98	7/99	3/00	9/00	3/01	9/01
Methanol	2,200	<1,000	<1,000 J	<1,000 J	<1,000	<1,000 J
Aniline	546 D	1,100 D	1,300 D	540 DJ	3,200 D	1,000 D
N,N-dimethylaniline	54	40	30	<10	7 J	<10
Methylene Chloride	54,000 J	39,000 D	130,000 J	8,100 BJ	5,900 B	4,700 B

MW-25D

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

MW-25S

Date	8/95	10/95	8/96	8/97	2/99	6/99	7/99	3/00	9/00	3/01	9/01
Aniline	<5	<5	<5	<5	130	110 J	5 J	<5	<10 J	<10	<10
N,N-dimethylaniline	0.7 J	<10	<10	<10	<10	21 J	<10	<10	<10	<10	<10

MW-23S

Date	12/94	8/95	2/96	8/96	2/97	8/97	9/98	2/99	6/99	7/99	3/00	3/01	9/01
Acetone	<10	<1,000	<1,000	<10	<10	12	<10	<10	<10 J	<10 J	<10	<10	<10
Aniline	<5	<5	<5	7	11	92	56	<10	<10 J	<10	<5	<10	<10
N,N-dimethylaniline	<10	<10	<10	<10	<10	<10	7 J	10	2 J	<10	2 J	<10	<10

MW-23I

Date	12/94	8/95	2/96	8/96	2/97	8/97	9/98	2/99	6/99	7/99	3/00	9/00	3/01	9/01
Acetone	<10	<1,000	<1,000	<10	<10	<10	<10	<10	<10 J	<10 J	<10	<10 J	<10	4 J
Xylene	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 J	<10	2 J

MW-27

Date	9/98	7/99	3/00	9/00	3/01	9/01
Acetone	23	<10 J	<10 J	<10 J	<10	<10
Benzene	3 J	4 J	8 J	4 J	5 J	5 J
Toluene	4 J	2 J	<10	<10	<10	<10
Ethylbenzene	<10	3 J	8 J	3 J	5 J	2 J
Xylene	3 J	8 J	2 J	1 J	2 J	<10
Aniline	340 DJ	740 D	110 D	16 J	260 D	26
N,N-dimethylaniline	<10	<10	1 J	2 J	2 J	<10
Methylene Chloride	<10	<10	<10	1 J	<10	<10

X: NONE
L: ON=*, OFF=REF
P: PAGESEST/PLT-DL2B
3/6/02 SYR-54-RCB
26003190/26003C06.DWG

LEGEND

- UTILITY POLE
- CATCH BASIN
- PM PETROLEUM PIPE LINE MARKER
- GM GAS LINE MARKER
- SV SEWER VENT
- HYDRANT
- WATER VALVE
- MANHOLE
- PROPERTY LINE
- MW-19 GROUND-WATER MONITORING WELL
- PZ-A PIEZOMETER
- PZ OR MW BIANNUAL DOWNGRADIENT PERIMETER GROUND-WATER MONITORING LOCATION
- MW-26S PUMPING WELL
- PZ-8S & PZ-8D DECOMMISSIONED PIEZOMETERS
- BOUNDARY OF IMPACTED AREA
- GROUND-WATER WITHDRAWAL TRENCH
- GROUND-WATER INFILTRATION TRENCH
- PIPING TO BUILDING
- PIPING FROM BUILDING
- AREA OF RELATIVELY HIGHER CONCENTRATIONS OF COCs

SAMPLE IDENTIFICATION

MW-35

Date	9/98	7/99	3/00	9/00	3/01	9/01
Benzene	<10	0.7 J	<10	<10 J	<10	<10
Aniline	6 J	3 J	<5	<10	<10	<10
N,N-dimethylaniline	5 J	4 J	2 J	3 J	<10	2 J

CONCENTRATION (ppb)

NOTES:

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

120' 0 120'

GRAPHIC SCALE

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

BIANNUAL PROCESS CONTROL MONITORING REPORT

SUMMARY OF HISTORIC GROUNDWATER MONITORING DATA

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

FIGURE 13