New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010

John P. Cahill
Commissioner

PACKAGE
ROD RECLASS ~~INFORMATION~~

MEMORANDUM

TO:
- T. Reamon — Investigation Section
- C. Branagh — Regional Hazardous Waste Remediation Engineer
- G. Rider, O&M Section (As Needed)
- A. Grant, DEE
- A. Carlson, DOH, Bureau of Environmental Exposure Investigation

FROM: Robert Marino, Site Control Section, Division of Environmental Remediation

SUBJECT: Review of Classification Package for Site # 734020

DATE: April 20, 2000 McKesson Enviro-systems 2 → 4

The attached "Registry Site Investigation Information Form" is included for your ~~information~~ signature.

If unacceptable, please return with an explanation of your position in a separate memo or letter as soon as possible.

Please keep the supporting documentation for your records.

NOTE: This site is being reclassed by two Record of Decision (ROD). The RODs were signed on March 18, 1994 and March 19, 1997.

Attachment(s)

Jerry: John Strang has copies of the two RODs

McKesson Envirosystems 7.34.020
- O&M Plan has been accepted.
- We have 1994 ROD and 1997 ROD.

Region 7 attended the tour of the site on SII
May 5, 2000.
The Sit is in O&M. Original delivered to Tom Lorch 11/21/00 JS.
Please sign the SII. Return to Jeanne.
Thanks John Strang 11/1/00.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

SITE INVESTIGATION INFORMATION

1. SITE NAME	2. SITE NUMBER	3. TOWN/CITY/VILLAGE	4. COUNTY
McKesson Envirosystems	734020	City of Syracuse	Onondaga

5. REGION	6. CLASSIFICATION
7	CURRENT 2 PROPOSED 4 MODIFY

7. LOCATION OF SITE (Attach U.S.G.S. Topographic Map showing site location)

a. Quadrangle Syracuse West

b. Site Latitude _43_° _06_' 09_" Site Longitude _77_° _42_' _28_"

c. Tax Map Numbers 115.-03-07.0 / 116.-01-09.0

d. Site Street Address 800 / 801 Van Rensselaer Street

8. BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

The site is located in the City of Syracuse to the south of Onondaga Lake, adjacent to the west bank of the New York State Barge Canal Terminal channel. The site was formerly used for bulk storage of petroleum products and in later years, as storage for a variety of chemical waste streams. The site is divided into two parcels by Van Rensselaer Street. The parcel north of Van Rensselaer Street is within 150 feet of the Barge Canal. The largest of the former aboveground storage tanks (Tank 7) was located on this portion of the site. The majority of previous material storage and handling took place in the area south of Van Rensselaer Street, where ten former aboveground storage tanks were located. The site is within one-quarter mile of Onondaga Lake, which is a major surface water body in the greater Syracuse area. Land use in the surrounding area is characterized as industrial/light industrial. The site has been divided into two Operable Units. Operable Unit No. 1 (OU-1) refers to the unsaturated soils and OU-2 refers to the saturated soils and groundwater. Remedial programs were initiated in the Spring of 1994 and Summer of 1997 for OU-1 and OU-2, respectively.

a. Area _8.62_ acres b. EPA ID Number _NYD075806836_

c. Completed ( )Phase I ( )Phase II ( ) PSA (X)RI/FS ( )PA/SI (X)Other - RCRA Tank Closure

9. Hazardous Waste Disposed (Include EPA Hazardous Waste Numbers)

The primary contaminants detected at this site are those associated with past storage activities. These include various volatile and semi-volatile compounds. The investigations have identified that the contaminants of concern at this site are: methylene chloride, trichloroethene, benzene, toluene, ethyl benzene, xylene, N,N-dimethylaniline, aniline, methanol and acetone. These contaminants were detected in both soil and groundwater.

10. ANALYTICAL DATA AVAILABLE

a. ( )Air (x)Groundwater (x)Surface Water ( )Sediment (x)Soil ( )Waste ( )Leachate (X) EPTox ( )TCLP

Confirmatory analysis of soil samples collected during the OU-1 remedial program demonstrated that the unsaturated soils achieved the ROD-specified cleanup objectives. The contaminants listed below were detected during the 1999 groundwater monitoring program. This contamination is being addressed by the ongoing OU-2 remedy.

b. Contravention of Standards or Guidance Values: Exceedence of Class GA Groundwater Standards

MEDIA	CLASS	CONTAMINANT	SCG (ppb)	CONCENTRATION RANGE (1999)
Groundweter	VOCs	Benzene	1	ND-37
		Toluene	5	ND-240(J)
		Ethylbenzene	5	ND-58(J)
		Xylene	5	ND-220(J)
		Trichloroethylene	5	ND-11,000(J)
		Methylene Chloride	5	ND-450,000(D)
		Methanol	NA	ND-17,000
		Acetone	50	ND-630
	SVOCs	Aniline	5	ND-100,000(D)
		N,N-dimethylaniline	5	ND-77,000

11. **CONCLUSION**

The site's two Operable Units have been subject to remedial programs. The OU-1 remedial program, in-situ aerobic bioremediation of unsaturated soils, was successfully completed in 1995 treating an estimated 20,000 cubic yards of contaminated soil. The remedial program for OU-2, in-situ anaerobic bioremediation of saturated soils and groundwater, was constructed in 1997-1998. The system has been operating since July of 1998. Data supports that conditions within the shallow hydrogeologic unit are conducive to microbial degradation of the COCs. To date, the concentrations of COCs in groundwater have shown limited improvement. Data supports the continued operation, maintenance and monitoring of the system. Final Remedial Reports for OU-1 and OU-2 have been submitted and approved (excerpts attached). A Site O&M Plan (OU-1 and OU-2) was approved in February 2000 and O&M is underway.

12. SITE IMPACT DATA

a. Nearest Surface Water: Distance __ 150 ft.__ Direction __Northeast__ Classification _D__

b. Nearest Groundwater: Depth __7 __ft. Flow Direction __Northeast__ ( )Sole Source ( )Primary ( )Principal

c. Nearest Water Supply: Distance __ 5 mi.__ Direction _Southeast__ Active (X)Yes ( )No

d. Nearest Building: Distance __ 0__ ft. Direction __Onsite__ Use __O&M_____

e. In State Economic Development Zone?	( )Y	(x)N	l. Controlled Site Access?	(X)Y	( )N
f. Crops or livestock on site?	( )Y	(x)N	j. Exposed hazardous waste?	( )Y	(X)N
g. Documented fish or wildlife mortality?	( )Y	(x)N	k. HRS Score __ __		
h. Impact on special status fish or wildlife resource?	( )Y	(x)N	l. For Class 2: Priority NA		

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
McKesson Corporation	One Post Street, San Francisco, CA 94104	415-983-8450

16. PREPARER	17. APPROVED
Michael J. Ryan 2/18/00	x Gerald Rider 11/17/00
Signature Date	Signature Date
Michael J. Ryan, EE2, DER / BWRA	GERALD I. Rider Jr. Chief Otm BHSC
Name, Title, Organization	Name, Title, Organization

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Environmental Remediation

Inactive Hazardous Waste Disposal Report

Site Name:	**McKesson Envirosystems (Inland Site)**			**Site Code:**	**734020**
Class Code:	2 4	Region: **7**	County: **Onondaga**	EPA Id:	**NYD075806836**
Address:	**400 Bear Street West**		City: **Syracuse**	Zip:	**13204**
Latitude:	**43 3' 40"**	Longitude: **76 10' 19"**			
Site Type:	**Structure**		Estimated Size: **8.62** Acres		

Site Owner / Operator Information:

Current Owner(s) Name:	**W.D. Gabbard , McKesson Co.**			
Current Owner(s) Address:	**127 West Berry St.**	**Fort Wayne**	**IN**	**46802**
Owner(s) during disposal:	**Multi-owner**			
Operator(s) during disposal:	**McKesson Envirosystems**			
Stated Operator(s) Address:	**127 W. Berry St.**	**Ft. Wayne**	**IN**	**46802**

Hazardous Waste Disposal Period: From **1973** To **1984**

Site Description:
This facility was used since the 1930s as a bulk petroleum distribution terminal for products such as gasoline, diesel fuel, heating oil, etc. In 1973, the facility was converted to a chemical distribution terminal. The storage tanks were used for temporary staging of spent solvents that were acquired for recycling, for recycled solvents that were returned by customers, and also for storing mixtures and by-products. The staging was associated with solvent recycling operations through-out the northeast. During the time the facility was in operation, liquids were spilled on the ground and the tanks leaked. Evidence of contaminated soil from spilled liquids was noted by DEC personnel during site inspections. Soil samples taken in September of 1984 revealed the presence of hazardous waste contaminants. Additional soil sampling done by the Company also revealed contamination. Groundwater contamination has also been documented, and contaminant levels are in excess of Part 703 standards. A Consent Order (CO) was negotiated with the Company by the DEC for the soil and groundwater remediation. The old storage tanks on the property have been cleaned and removed. The distribution lines were removed in 1988. A PRP Remedial Investigation/Feasibility Study (RI/FS) was completed in 1993. A successful field trial of bioremediation was conducted in 1993. A Record of Decision (ROD) was issued on March 18, 1994, and called for bioremediation of the unsaturated soils in the area referred to as Operable Unit-1 (OU-1). The bioremediation successfully treated an estimated 20,000 cubic yards of contaminated soil. The saturated soils and groundwater at the site have been designated as OU-2. A PRP funded Feasibility Study was completed in 1996. A Record of Decision (ROD) was signed on March 15, 1997. Design and construction of the anaerobic bioremediation system was completed in early 1998. This system ~~will be in operation for several years and is expected to aid in site remediation.~~ has been in operation since that time and is subject to routine monitoring of chemical and biological parameters. A long-term O&M Plan has been submitted and approved.

Confirmed Hazardous Waste Disposal:
Spent solvents (including BTX compounds)
Base/neutrals

Quantity:
20,000 cubic yards of contaminated soil

Analytical Data Available for:	**Groundwater Soil**		
Applicable Standards Exceeded in:	**Groundwater**		
Geotechnical Information:		Depth to Groundwater:	**Approximately 2 to 6 feet.**
Soil/Rock Type:	**Fill over sand and gravel**		

Legal Action: Type:	**State Consent Order -RI/FS**	Status:	**Order Signed**
Remedial Action:	**Complete**	Nature of action:	**Bioremediation**

Assessment of Environmental Problems:
Groundwater contamination and soil contamination have been confirmed.

Assessment of Health Problems:
The site is located in an industrial area. The area is served by public water. Surface soils were bioremediated in 1994 and covered with a minimum layer of one foot of clean soil.

Site Location Map

0 500 1000 1500 2000
FEET
Scale 1:24,000

734020 McKesson Envirosystems (Inland Site)

NYSDOT Planimetric Quadrangle(s):

REPORT

Remedial Design/Remedial Action Report Operable Unit No. 2 - Saturated Soils and Ground Water

Volume I of II

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

December 1999

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

1.2 Site Description

The McKesson Envirosystems Bear Street facility is currently listed as a Class 2 Inactive Hazardous Waste Disposal Site by the NYSDEC. Reclassification of the site to Class 4 is anticipated to be initiated by the NYSDEC upon the NYSDEC's approval of this RD/RA Report (NYSDEC's March 1997 ROD; letter from Michael J. Ryan, P.E. of the NYSDEC, to David J. Ulm of BBL, dated July 9, 1998). Class 4 is defined by the NYSDEC as a site that has been properly closed but that requires continued operation, maintenance, and/or monitoring (Title 6 of the New York Compilation of Codes, Rules, and Regulations [NYCRR], Part 375).

The site, approximately 8.8 acres in size, is located on the north side of Bear Street in Syracuse, New York and is transversed by Van Rensselaer Street. The site is fenced and access is restricted to authorized persons only. The property and surrounding land are zoned for industrial use. Figure 1 shows the location of the site.

1.3 Site History

BBL conducted a Remedial Investigation (RI) at the site between April 1988 and February 1989; the results were submitted to the NYSDEC in April 1990. Based on the results of the RI, the following COCs were identified in unsaturated soils and ground water at the site: benzene, toluene, ethylbenzene, and xylene (BTEX); trichloroethene (TCE); methylene chloride; aniline; N,N-dimethylaniline; acetone; and methanol.

A *Feasibility Study (FS) Report*, prepared to address elevated COCs in the unsaturated soils, was submitted to the NYSDEC in November 1993 (BBL, November 1993). The *FS Report* identified and screened various remedial alternatives capable of addressing the COCs present in unsaturated soils. The remedial alternative recommended to address the COCs present in the unsaturated soils at the site was in-situ bioremediation.

The NYSDEC divided the site into two operable units to facilitate remediation of the site. The NYSDEC defined OU No. 1 as the unsaturated soils that contain COCs at concentrations greater than or equal to 5 parts per million (ppm), and OU No. 2 as the saturated soils and ground water. A ROD for OU No. 1 was issued by the NYSDEC in March 1994, specifying in-situ bioremediation as the remedy for OU No. 1.

During the summer of 1994, the unsaturated soils remedy for OU No. 1, consisting of in-situ bioremediation, was implemented. Within seven months of implementation, COC concentrations in unsaturated soils were reduced below soil cleanup levels specified in the ROD. Later in 1994, the site was covered with clean soil and graded to allow for controlled storm-water drainage. In addition, as specified in the ROD for OU No. 1, a biannual ground-water sampling and analysis program was implemented to monitor the ground-water quality at the downgradient property boundary and to verify that the COCs in ground water have not migrated beyond this boundary [at concentrations in excess of NYSDEC Class GA Ground-Water Quality Standards (Ground-Water Quality Standards)]. The schedule for the biannual sampling and analysis program is detailed in Subsection 3.3.2.4 of this report.

The results of the biannual ground-water sampling and analysis program indicate that COCs at concentrations in excess of Ground-Water Quality Standards have not migrated beyond this boundary, with the exception of aniline and N,N-dimethylaniline that have been periodically detected in the ground-water samples collected from monitoring wells MW-23S and MW-25S at concentrations in excess of Ground-Water Quality Standards. However, the analytical results of the most recent biannual ground-water sampling event (July 1999) indicate that COCs were not detected at concentrations exceeding Ground-Water Quality Standards. A summary of ground-water analytical results from the biannual ground-water monitoring program are presented in Table 1, and further discussed in Subsection 3.3.2.4 of this report.

A *Remedial Design/Remedial Action (RD/RA) Report* for OU No. 1 - Unsaturated Soils, was prepared and submitted to the NYSDEC in September 1995. The *RD/RA Report* was reviewed and subsequently approved by the NYSDEC in a September 28, 1995 letter from Robert W. Schick, P.E. of the NYSDEC, to David J. Ulm of BBL. That letter also stated that the NYSDEC considered remediation of OU No. 1 complete.

Subsequent to implementation of the remedial action for OU No. 1, the NYSDEC requested that an FS Report be prepared to address the COCs present in OU No. 2 - Saturated Soils and Ground Water (letter from Michael J. Ryan, P.E., of NYSDEC, to Robert D. Ritchie, P.E. of McKesson Corporation, dated November 15, 1994). To provide the additional data necessary for completion of the FS for OU No. 2, the Supplemental Saturated Soil and Ground-Water Sampling Investigation (Supplemental Investigation) and bench-scale biological treatability studies were performed. The results of the Supplemental Investigation for OU No. 2 were presented in the NYSDEC-approved *Supplemental Saturated Soil and Ground-Water Sampling Investigation Report* (BBL, revised September 1996) and pertinent characterization data/conclusions from that investigation are summarized below.

Physical Characterization Data

OU No. 2 was determined to be comprised of two hydrogeologic units: a shallow and a deep unit that are separated by a silt and clay lacustrine deposit. The shallow unit consists of a low-permeability silt and clay layer located beneath the fill that was graded over the site during the OU No. 1 remediation activities. This silt and clay layer ranges in depth from approximately 8 to 15 feet below ground surface (bgs) [approximately 366 to 359 feet above mean sea level (AMSL)], with an average thickness of 8 feet. The shallow hydrogeologic unit also consists of a low-permeability sand and silt unit located approximately 15 to 22 feet bgs (approximately 359 to 352 AMSL).

The deep hydrogeologic unit, which consists of a relatively high permeable sand and gravel, is located approximately 24 to 35 bgs (approximately 350 to 339 AMSL). The deep hydrogeologic unit is also characterized by the presence of a freshwater/saltwater interface at an elevation interpreted between 340 to 338 feet AMSL. Figure 4 presents a geologic cross-section of the site, depicting the shallow and deep hydrogeologic units, the silt and clay lacustrine deposit which separates these units, and the location of the freshwater/saltwater interface.

Chemical Characterization Data

The results of the Supplemental Investigation activities conducted at the site support that the highest concentrations and areal distribution of COCs in ground water are associated with three distinct on-site areas (see Figure 2) within the shallow hydrogeologic unit. Two of these "impacted areas" are located on the south parcel of the site, in the vicinity of monitoring wells TW-01 and TW-02 (Area 1 and Area 2, respectively). TW-02 was replaced with TW-02R during the OU No. 2 remedial activities. The third area is located on the north parcel of the site, in the vicinity of monitoring well MW-8S (Area 3). Furthermore, the data support that the concentrations of COCs in the deep hydrogeologic unit were relatively low, as there were no COCs detected, at concentrations in excess of Ground-Water Quality Standards, in the ground-water samples collected from the monitoring well points installed and sampled within the deep hydrogeologic unit.

Upon completion of the Supplemental Investigation, an *FS Report* (BBL, revised January 1997) was prepared which identified in-situ anaerobic bioremediation as the most effective remedial alternative capable of meeting the remedial action objectives for OU No. 2. Upon completion of the FS, the NYSDEC prepared a Proposed Remedial Action Plan, dated January 1997, and subsequently issued a ROD for OU No. 2, on March 19, 1997 (see Appendix A), specifying in-situ anaerobic bioremediation as the remedy for OU No. 2.

Pre-design activities were performed at the site from December 1996 to February 1997 to facilitate development and implementation of the NYSDEC-selected in-situ anaerobic bioremediation remedy. These activities further

characterized the concentration and distribution of COCs present within OU No. 2 and better defined the site hydrology to aid in design of the in-situ anaerobic bioremediation remedy. A description of these activities were presented in a NYSDEC-approved letter report (*Pre-Design Letter Report*) (letter to Michael J. Ryan, P.E. of the NYSDEC, from David J. Ulm of BBL, dated April 4, 1997).

As part of the OU No. 2 remedial design program, an *RD/RA Work Plan* was prepared and submitted to the NYSDEC in June 1997 and subsequently revised in August 1997. That work plan was approved by the NYSDEC in a September 3, 1997 letter from Michael J. Ryan, P.E. of the NYSDEC, to David J. Ulm of BBL.

The NYSDEC-selected remedy for OU No. 2, which consists of introducing nutrient-amended ground water into the shallow hydrogeologic unit to enhance naturally occurring anaerobic biodegradation of the COCs present in each of the three impacted areas identified on Figure 2 (Areas 1, 2, and 3), was constructed during 1997/1998. The components of the remedy implemented for OU No. 2 are identified below.

- An infiltration trench (see Figure 5) and a withdrawal trench (see Figure 6) were installed upgradient and downgradient, respectively, of Area 3 as a means to introduce Revised Anaerobic Mineral Media-(RAMM-) amended ground water into the shallow hydrogeologic unit while maintaining hydraulic control. RAMM consists of the specific chemicals and concentrations listed in Table 2. The introduction of RAMM supplies macronutrients and micronutrients to enhance naturally occurring anaerobic biodegradation of the COCs.

- Two additional infiltration trenches (see Figure 5) were installed within Area 3 to increase the distribution of RAMM-amended ground water within this impacted area and to act as overflow devices if the amended ground water in the aforementioned infiltration trench exceeds maximum capacity.

- Ground water from the withdrawal trench is being pumped, amended with RAMM, and distributed into the shallow hydrogeologic unit via the infiltration trenches described above.

- Two infiltration trenches (see Figure 7) were installed in both Areas 1 and 2. RAMM-amended ground water is periodically introduced into these trenches by manually filling standpipes screened within the filter pack of these trenches (i.e., within the shallow hydrogeologic unit). The ground water used is pumped from existing pumping well MW-26S, where COCs have not been detected in any of the ground-water samples collected from this well, the adjacent monitoring well MW-13S, or the previously existing adjacent monitoring well MW-14D that was abandoned during the OU No. 2 remediation activities in accordance with Subsection 3.4 of the *RD/RA Work Plan* for OU No. 2.

The locations of the withdrawal trench and the infiltration trenches are shown on Figure 2. In addition to these components, the remedy for OU No. 2 includes the following:

- Introducing RAMM into the shallow hydrogeologic unit within each of the three impacted areas, at discrete locations throughout each area, using a truck-mounted vertical injection mast; and

- Conducting a process control monitoring program to monitor the effectiveness of the in-situ anaerobic bioremediation treatment systems. The objectives of this program include:

  - Confirming that containment has been established in each of the three impacted areas;

  - Verifying that the ground-water withdrawal rates in Area 3 do not cause the freshwater/saltwater interface to upcone to the bottom of the withdrawal trench;

- Verifying that saturated soil/ground-water conditions within the shallow hydrogeologic unit are conducive to microbial degradation of the COCs by anaerobic microbial populations;

- Verifying that the concentration of COCs, RAMM constituents, and/or RAMM byproducts have not increased downgradient of each of the three impacted areas; and

- Verifying that the concentrations of COCs, RAMM constituents, and/or RAMM byproducts have not increased in the deep hydrogeologic unit.

At the request of the NYSDEC (letter to Jean A. Mescher of McKesson Corporation, from Michael J. Ryan, P.E. of the NYSDEC, dated November 5, 1998), a *Site Operation and Maintenance (O&M) Plan* (BBL, revised August 1999), was prepared for OU No. 1 and OU No. 2. The *O&M Plan* provides a description of the remedial actions, monitoring, O&M activities, and the O&M schedule for both operable units. That plan also provides a list of key project management personnel, the site-specific Health and Safety Plan (HASP), the Field Sampling Plan (FSP), the Quality Assurance Project Plan (QAPP), and specifications for the primary pieces of equipment comprising the Area 3 treatment system.

1.4 Project Objective

The project objective, as described in the NYSDEC-approved *RD/RA Work Plan,* is to implement in-situ anaerobic bioremediation in each of the three impacted areas shown on Figure 2 to address the COCs present in the shallow hydrogeologic unit. As described in the previous subsection, the in-situ anaerobic bioremediation remedy being implemented in Area 3 consists of introducing RAMM-amended ground water into the shallow hydrogeologic unit while maintaining hydraulic control between the withdrawal trench and infiltration trenches. The in-situ anaerobic bioremediation remedy in Areas 1 and 2 consists of using infiltration trenches to distribute RAMM-amended ground water into the shallow hydrogeologic unit of these areas. The in-situ anaerobic bioremediation remedy for each area also included a discrete RAMM injection event to distribute RAMM-amended ground water into the shallow hydrogeologic unit throughout each of these areas. Additional discrete RAMM injection events may be conducted (if necessary), based on the results of the ongoing process control monitoring program described in Section 3.

A process control monitoring program is being implemented to achieve the following for each of the three impacted areas:

- Document ground-water quality;

- Monitor biological activity;

- Confirm that containment is established; and

- Confirm that migration of COCs, RAMM constituents and/or RAMM byproducts is not occurring downgradient of each area or into the deep hydrogeologic unit.

In addition, the biannual ground-water monitoring program is being continued to monitor ground-water quality at the downgradient property boundary.

The in-situ anaerobic bioremediation remedy is being implemented to meet the following remedial goals for OU No. 2, as presented in the NYSDEC ROD:

- Reduce, control, or eliminate the concentrations of COCs within OU No. 2;

- Mitigate the potential for migration beyond the site boundary of ground water that contains concentrations of COCs in excess of their respective Ground-Water Quality Standard; and

- Attain Ground-Water Quality Standards, to the extent practicable, for the COCs present in the on-site ground water.

The following sections of this report have been developed to provide a description of the remedial activities and process control monitoring activities that have been conducted during the first year of in-situ anaerobic bioremediation treatment.

3.4 Conclusions and Recommendations

3.4.1 Conclusions

The process control monitoring data presented in this report provides information that has been and will continue to be used to monitor the effectiveness of the in-situ anaerobic bioremediation treatment systems. The following conclusions and recommendations are based on the process control monitoring data which have been obtained during the first year of treating the three areas.

- Containment was established in each of the three impacted areas during the first year of in-situ anaerobic bioremediation treatment, including maintaining a closed-loop hydraulic cell in Area 3. This closed loop cell has effectively increased the rate at which RAMM-amended ground water moves through the area of relatively higher concentrations of COCs within Area 3, while inducing a hydraulic gradient from downgradient perimeter well MW-23S toward the withdrawal trench and hydraulically influencing monitoring well MW-25S.

- Operating the Area 3 system has not affected the hydraulic head in the deep hydrogeologic unit beneath Area 3 and the freshwater/saltwater interface has not upconed to the base of the withdrawal trench. In addition, no discernable hydraulic effects were identified as a result of completing the initial discrete RAMM injection event.

- At each impacted area, the biological indicators indicate that the saturated soil/ground-water conditions within the shallow hydrogeologic unit are conducive to microbial degradation of the COCs by anaerobic microbial populations. The PLFA, PHA, and DMA data show a shift in the microbial community from aerobic bacteria to anaerobic bacteria. At monitoring locations where COCs are present at relatively higher concentrations (MW-8S and TW-02R), the influence of RAMM addition on the microbial community is greatest, as indicated by the increased anaerobic biomass growth at these locations since baseline sampling in January 1998. The biological data also indicate that the microbial community in each area is undergoing limited stress and continues to have high turnover rates. Furthermore, these data indicate that essential nutrients are present within the shallow hydrogeologic unit for maintaining or growing anaerobic biomass.

- The concentrations of COCs detected in ground water within the shallow hydrogeologic unit of each impacted area were similar to or less than the concentrations of COCs detected in monitoring locations during past investigative activities, prior to the implementation of the in-situ anaerobic bioremediation remedy. In some cases, the concentrations of some COCs have decreased significantly since implementation of the in-situ anaerobic bioremediation remedy (e.g., monitoring well MW-8S in Area 3).

- The data indicate that the concentrations of COCs, RAMM, and/or RAMM byproducts have not increased downgradient of each area or within the deep hydrogeologic unit. The concentrations of aniline have decreased to non-detectable in downgradient perimeter monitoring well MW-23S since implementation of the in-situ anaerobic bioremediation remedy. Although aniline was detected in the February 1999 and June 1999 ground-water samples collected from monitoring well MW-25S, the July 1999 data indicate a significant decrease in the aniline concentration at this location and that COCs were not detected in excess of Ground-Water Quality Standards.

3.4.2 Recommendations

Based on the data presented herein and the corresponding conclusions summarized above, the in-situ anaerobic bioremediation treatment process is meeting the remedial goals for OU No. 2 presented in the ROD and Subsection 1.4 of this report. Accordingly, the in-situ anaerobic bioremediation treatment activities will continue consistent with the operational procedures followed since mid-December 1998, as summarized below:

- Pumping ground water from the Area 3 extraction trench at an average rate of approximately 2 gpm, and distributing approximately 75% of the flow into secondary infiltration trench "B" and the remaining 25% into secondary infiltration trench "A"; and

- Introducing approximately 100 gallons of RAMM into the shallow hydrogeologic unit of each of the three areas once per month.

In addition to the above operational procedures, completion of an additional discrete RAMM injection event(s) in Area 1 and Area 2 is recommended to further stimulate the biodegradation rate within these areas.

The progress of the in-situ anaerobic bioremediation treatment activities will continue to be monitored and the results evaluated to determine if modifications are necessary to meet the objectives of the ROD. As detailed in the *RD/RA Work Plan,* the results of the short-term monitoring program have been used (in part) to determine the scope of the long-term process control monitoring program. A description of the long-term process control monitoring program has been submitted under separate cover to the NYSDEC for approval. Once approved by the NYSDEC, the long-term monitoring program will become an addendum to the *O&M Plan.*

Upon the NYSDEC's approval of this RD/RA Report, reclassification of the site from a Class 2 to a Class 4 Inactive Hazardous Waste Disposal Site is anticipated to be initiated by the NYSDEC (NYSDEC's March 1997 ROD; letter from Michael J. Ryan, P.E. of the NYSDEC, to David J. Ulm of BBL, dated July 9, 1998). Class 4 is defined by the NYSDEC as a site that has been properly closed but that requires continued operation, maintenance, and monitoring (6 NYCRR Part 375).

5. Engineering Certification

ENGINEER'S CERTIFICATION

McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK
SITE NO. 7-34-020

OPERABLE UNIT NO. 2 - SATURATED SOILS AND GROUND WATER

I, Robert K. Goldman, P.E., hereby certify, as a Professional Engineer registered in the State of New York, that based on Blasland, Bouck & Lee, Inc.'s (BBL's) observation of the remedial activities conducted by McKesson Corporation's remedial contractor and the remedial activities conducted by BBL Environmental Services, Inc., as detailed in Section 2 of this Remedial Design/Remedial Action (RD/RA) Report, the remedial activities were completed in conformance with the procedures and criteria presented in the following documents and/or approved field changes detailed in this RD/RA Report:

- "Record of Decision, McKesson Envirosystems Site, Syracuse (C), Onondaga County, New York, Site Number 7-34-020, Operable Unit No. 2", (NYSDEC, March 1997); and
- "Remedial Design/Remedial Action Work Plan, Operable Unit No. 2 - Saturated Soils and Ground Water", (BBL, revised August 1997).

By: _____ Date: 12/2/99

Robert K. Goldman, P.E.
President
Blasland, Bouck & Lee, Inc.
6723 Towpath Road
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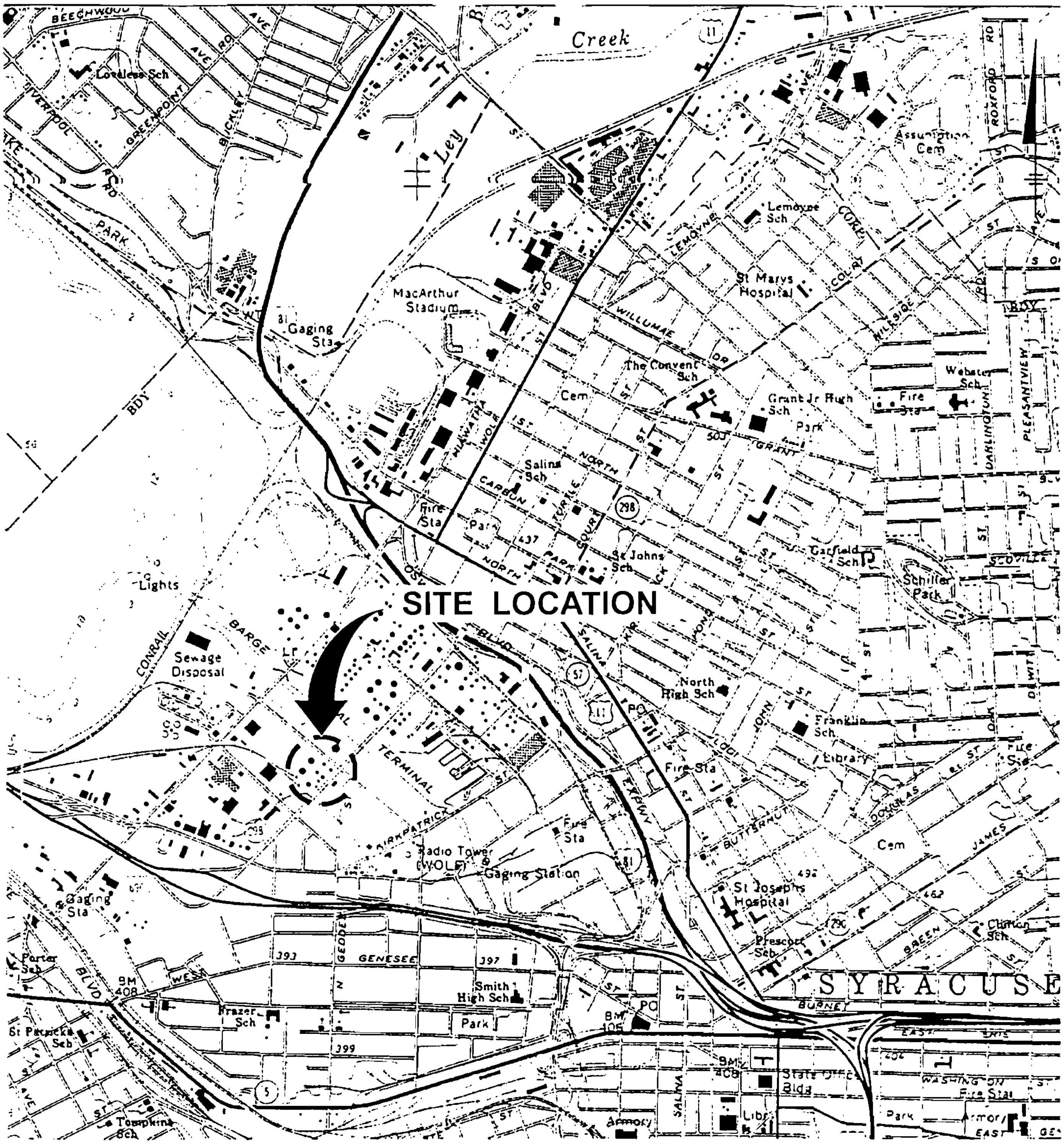

REFERENCE: SYRACUSE WEST, NY USGS QUAD.1973 PR 1978

2000' 0 2000'

APPROX. SCALE: 1" = 2000'

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY - SYRACUSE, NEW YORK
REMEDIAL DESIGN/REMEDIAL ACTION REPORT

SITE LOCATION MAP

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

FIGURE 1

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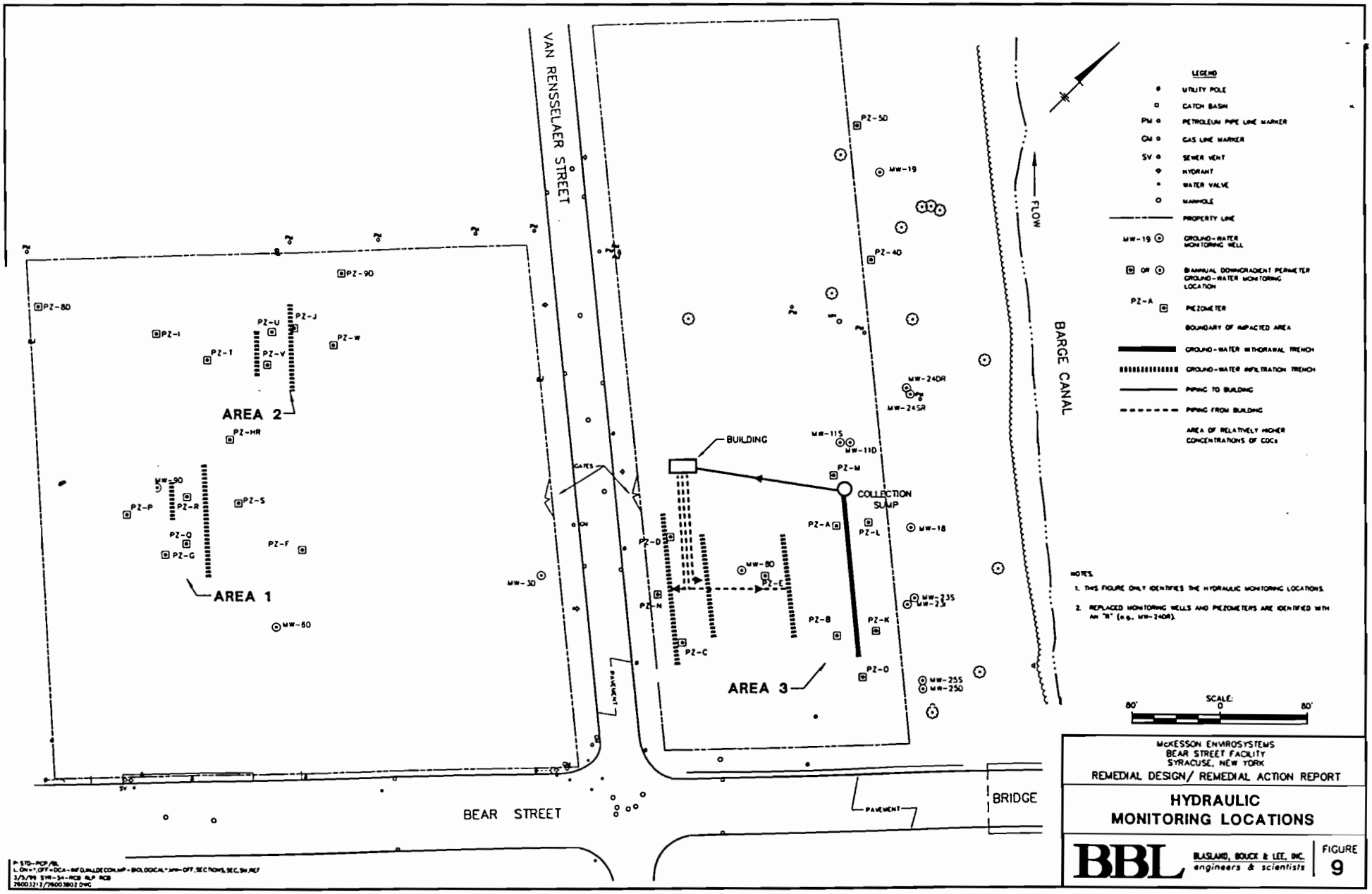
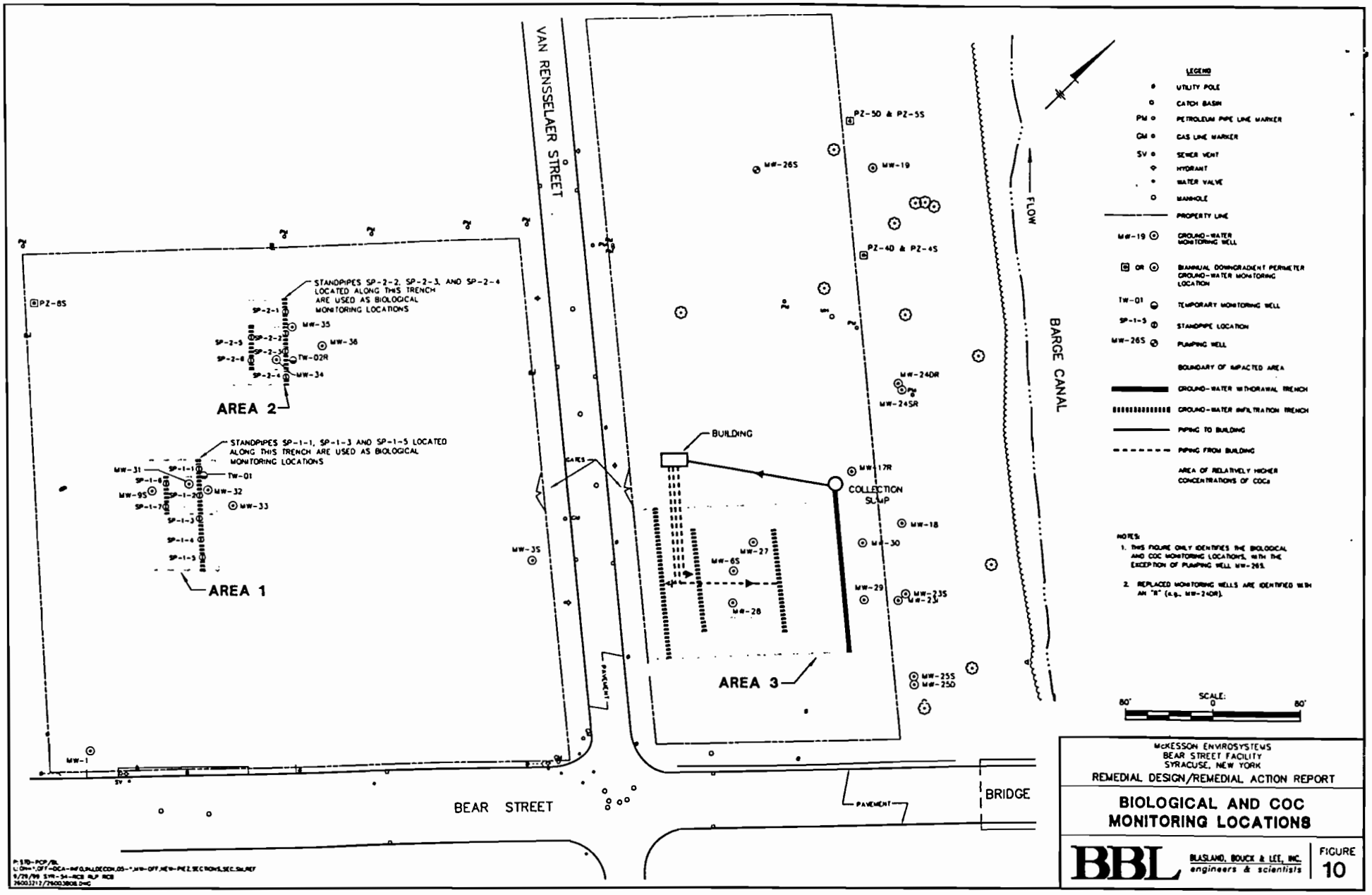


McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK
REMEDIAL DESIGN/ REMEDIAL ACTION REPORT

HYDRAULIC MONITORING LOCATIONS

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

FIGURE 9



McKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK
REMEDIAL DESIGN/REMEDIAL ACTION REPORT

BIOLOGICAL AND COC MONITORING LOCATIONS

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

FIGURE 10

REPORT

REMEDIAL DESIGN/ REMEDIAL ACTION REPORT OPERABLE UNIT NO. 1 - UNSATURATED SOILS

McKesson Envirosystems
Bear Street Facility
Syracuse, New York

September 1995

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

1.0 - Introduction

1.1 General

This Remedial Design/Remedial Action (RD/RA) Report presents the results of the remedy (biological treatment using in-situ soil blending) for Operable Unit No. 1 - Unsaturated Site Soils at the McKesson Envirosystems, Bear Street facility (the site), located at 400 Bear Street in Syracuse, New York (see Figure 1). The RA conducted at this site conforms with the New York State Department of Environmental Conservation- (NYSDEC-) approved RD/RA Work Plan dated May 1994, and subsequently modified by the NYSDEC. The RD/RA report presents the following:

- A general description and schedule of the activities conducted during implementation of the in-situ bioremediation remedy;
- A summary of the bioremediation performance standards and process control monitoring data;
- A summary of the analytical results obtained during the soil verification sampling program;
- A summary of the analytical data generated as a result of the evaluation of the downgradient perimeter monitoring wells and piezometers;
- Boring logs and monitoring well construction details for the additional monitoring wells (MW-11S, MW-11D, MW-23S, MW-23I, MW-24S, MW-24D, MW-25S, and MW-25D) which were installed along the downgradient perimeter of the site; and
- A summary of the analytical results for the first round of ground-water samples collected as part of the semi-annual downgradient perimeter ground-water monitoring program.

Relevant background information and project objectives are summarized in Subsections 1.2 and 1.3, respectively.

1.2 Background Information

The remedy for the unsaturated soil at the site, Biological Treatment Using In-Situ Soil Blending, was selected by the NYSDEC based on the results of the Remedial Investigation/Feasibility Study (RI/FS) and using criteria that were identified for the evaluation of the proposed remedial alternatives. The selected remedy was presented in the NYSDEC's Record of Decision (ROD) for the McKesson (Safety-Kleen) Envirosystems Inactive Hazardous Waste Disposal Site, Operable Unit No. 1, dated March 14, 1994 (see Appendix A). The components of the selected remedy, as presented in the ROD, are as follows:

- Develop a remedial design program to verify the components of the conceptual design and provide details necessary for the construction, operation and maintenance, and monitoring of the remedial action;

- Conduct in-situ bioremediation of all areas of the site where the chemicals of concern (COCs) were detected at concentrations greater than 5 parts per million (ppm);

- Attain technology-based cleanup levels and performance of bioremediation as measured by a performance standard to be developed under the remedial design program;

- Install a minimum of 12 inches of clean soil over the remediated areas, graded and seeded to promote surface water runoff and limit infiltration of rain and surface water into the remediated areas;

- Install additional monitoring wells to supplement the existing site perimeter ground-water monitoring network; and

- Conduct a ground-water sampling and analysis program to verify that chemicals of interest have not migrated off-site.

As part of the remedial design program, the RD/RA Work Plan was prepared and submitted to the NYSDEC on May 16, 1994. This work plan was subsequently approved by the NYSDEC on May 20, 1994. Following approval of the RD/RA Work Plan, treatment of the unsaturated soil at the site using the selected remedy, in-situ bioremediation, was initiated on May 26, 1994.

1.3 Project Objective

The project objective was to implement in-situ bioremediation using soil blending techniques in Treatment Areas 1, 2, 3, and 4 as shown on Figure 2. The treatment areas delineated on Figure 2 represent unsaturated soils that contained COCs at concentrations greater than or equal to 5 ppm. The in-situ bioremediation process was used to reduce the concentrations of these COCs to less than the following NYSDEC-approved cleanup levels:

COCs	Cleanup Levels (ppm)	Concentration Range for the Verification Sample Results
Methylene Chloride	10	ND
Trichloroethene	10	ND
Benzene	10	ND
Toluene	10	ND - 0.21 J
Ethylbenzene	10	ND - 0.325
Xylene	10	ND - 0.95
N,N-dimethylaniline	10	ND - 8.6 D
Aniline	10	ND - 8.6 D
Methanol	10	ND
Acetone	10	ND

Notes:
1. ND = Not detected above laboratory detection limit.
2. D = Concentration based on diluted sample analysis.
3. J = estimated value, detected but below the practical quantitation limit.

4.0 - Summary

The results of the soil verification sampling indicated that the unsaturated soils which comprise OU1 were successfully treated using the in-situ bioremediation remedy. The data presented in Table 3 indicates that the residual concentrations of COCs present in the unsaturated soils following treatment were significantly less than the NYSDEC-approved cleanup levels.

The data presented in Table 1 - Process Control Monitoring Data, indicated that the unsaturated soils were maintained at conditions that would promote microbiological activity throughout the treatment process. Maintaining the optimum soil conditions manifested itself in increased microbiological activity that was maintained throughout the in-situ bioremediation process. This increased and sustained microbiological activity is indicated by the results of the soil gas analyses (see Table 2 - Soil-Gas Data) as well as the heterotrophic and hydrocarbon degrading bacterial growth curves that were presented in Figures 4 through 11. In particular, the sustained increase in hydrocarbon degrading bacteria and the increases in the percentage of carbon dioxide following a soil mixing event indicate that microbial respiration was occurring and that the carbon sources in the unsaturated soil were being oxidized. This indicates that the increased microbiological activity was the primary mechanism for reducing the concentration of the COCs in the unsaturated soils.

Detectable concentrations of the COCs were detected in ground-water samples collected from monitoring wells MW-11D and MW-11S (which were installed to replace piezometers PZ11D and PZ11S). These monitoring wells are located approximately 30 feet within the property boundary. Monitoring wells MW-24D and MW-24S, which are located off-property, approximately 60 feet downgradient of MW-11D and MW-11S, and are screened in the same general hydrogeologic interval as MW-11D and MW-11S, did not contain any detectable concentrations of the COCs. No other ground-water samples collected during the December 1994 ground-water sampling event contained detectable concentrations of the COCs. Therefore, based on the review of the analytical data for the first round of semi-annual ground-water sampling and

analysis program the COCs detected in on-site ground water have not migrated beyond the downgradient property boundary.

5.0 - Engineering Certification

ENGINEER'S CERTIFICATION

MCKESSON ENVIROSYSTEMS
BEAR STREET FACILITY
SYRACUSE, NEW YORK

OPERABLE UNIT NO. 1 - UNSATURATED SOILS

I hereby certify, as a Professional Engineer registered in the State of New York, that based on our observation of site activities and an assessment of the post-remediation data, that the remediation activities conducted at the McKesson Envirosystems, Bear Street Facility for Operable Unit No. 1 - Unsaturated Site Soils, have been completed in accordance with the procedures and criteria presented in the following documents, with the exceptions noted herein:

- "Record of Decision, McKesson Envirosystems, Inactive Hazardous Waste Site, Operable Unit No. 1, Syracuse, Onondaga County, New York, Site No. 07-34-020," dated March 1994; and
- "Remedial Design/Remedial Action Work Plan, Operable Unit No. 1, Unsaturated Site Soils," dated May 1994 and subsequently modified by the NYSDEC (approved by the NYSDEC on May 20, 1994).

I also certify that I, or a person under my direct supervision, observed the performance of the remediation activities and that the contents of the "Remedial Design/Remedial Action Report, Operable Unit No. 1, Unsaturated Site Soils, McKesson Envirosystems, Bear Street Facility, Syracuse, New York," dated July 1995, accurately represents the remediation activities that were conducted.

By: Edward R. Lynch Date: 9/22/95

Edward R. Lynch, P.E.
Executive Vice President

Registration Number: 057526

SS7 Crample

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

McKesson Envirosystems Site
Syracuse (C), Onondaga County
Site Number 7-34-020
Operable Unit No. 2

March 1997

New York State Department of Environmental Conservation

GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Acting Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

McKesson Envirosystems Inactive Hazardous Waste Site
Operable Unit No. 2 - Saturated Soils and Groundwater
Syracuse (C), Onondaga County, New York
Site No. 7-34-020

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the McKesson Envirosystems inactive hazardous waste disposal site, Operable Unit No. 2, which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the McKesson Envirosystems Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the McKesson Envirosystems Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected In-Situ Anaerobic Bioremediation.

The remedy involves installation of an infiltration trench and a withdrawal trench upgradient and downgradient, respectively, of the portions of the site identified as Areas 1, 2 and 3 on Figure 3 (see page 12). Groundwater from the withdrawal trenches will be amended, as necessary, with nutrients prior to discharge to the upgradient infiltration trench. The infiltration trench will facilitate distribution of the amended groundwater to enhance the naturally occurring anaerobic biodegradation of the contaminants of concern (COCs). Shallow well points will also be installed

within each of the impacted areas for the purpose of distributing small quantities of amended groundwater, thus augmenting the system. As a component of the site operation and maintenance (O&M) program, a process control monitoring program will be instituted which will allow the effectiveness of the selected remedy to be monitored. Upon discontinuation of system operations, estimated to be about five years subsequent to system initiation, a post-remedial monitoring program will be established.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/19/97
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

RECORD OF DECISION

McKesson Envirosystems
Operable Unit No. 2 - Saturated Soils and Groundwater
Syracuse (C), Onondaga County, New York
Site No. 7-34-020
March 1997

SECTION 1: SITE LOCATION AND DESCRIPTION

The McKesson Envirosystems Site is located in the City of Syracuse to the south of Onondaga Lake, adjacent to the west bank of the New York State Barge Canal Terminal channel. The site was formerly used for bulk storage of petroleum products and in later years, as storage for a variety of chemical waste streams. The site is approximately 8.8 acres in size and is separated by Van Rensselaer Street into two parcels (Figure 1). The parcel north of Van Rensselaer Street is within 150 feet of the Barge Canal. The largest of the former aboveground storage tanks (Tank 7) was located on this portion of the site. The majority of previous material storage and handling took place in the area south of Van Rensselaer Street, where ten former aboveground storage tanks were located.

The site is within one-quarter mile of Onondaga Lake, which is a major surface water body in the greater Syracuse area. Land use in the surrounding area is characterized as industrial/light industrial, being on the edge of the "Oil City" area of Syracuse, although there are current plans for significant non-industrial development in this area. Like the surrounding land, the McKesson property is zoned for industrial use.

The site is generally flat with a grass cover. It is fenced and access is restricted to authorized persons only.

Investigations have revealed that past site operations resulted in significant soil and groundwater contamination. Operable Unit No. 2, which is the subject of this PRAP, consists of the saturated soils (soils located below the groundwater table) and the groundwater beneath areas of the site. An Operable Unit represents a portion of the site remedy which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. Another operable unit, Operable Unit No. 1 (OU-1) - the Unsaturated Soils, was the subject of a 1994 Record of Decision. The remedial work for OU-1 was completed in 1995 (ref. Section 2.2).

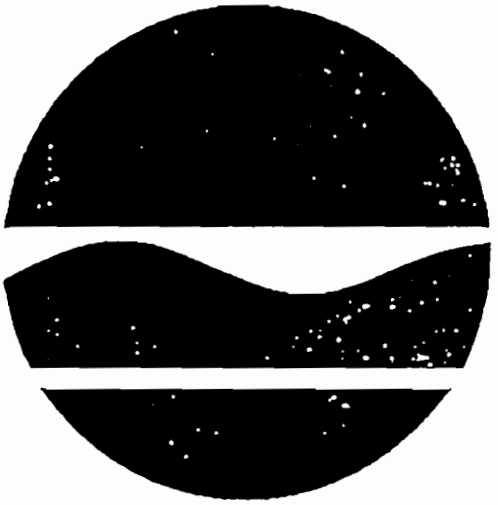
TABLE OF CONTENTS

McKESSON ENVIROSYSTEMS
Inactive Hazardous Waste Site
Operable Unit No. 1

Syracuse (C), Onondaga County, New York
Site No. 07-34-020

RECORD OF DECISION

March 1994



Prepared by:

New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation

DECLARATION STATEMENT - RECORD OF DECISION

McKesson Envirosystems Inactive Hazardous Waste Site
Operable Unit No. 1 - Unsaturated Soils
Syracuse, Onondaga County, New York
Site No. 7-34-020

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the McKesson Envirosystems Inactive Hazardous Waste Disposal Site, Operable Unit No. 1, which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the McKesson Envirosystems Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the McKesson Envirosystems site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Biological Treatment Using In-Situ Soil Blending as the remedy for Operable Unit No. 1, the Unsaturated Soils. The components of the remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS would be resolved.

- In-situ bioremediation of all areas of the site where the contaminants of concern are greater than 5 ppm.

- o Attainment of technology-based cleanup levels and performance of bioremediation for a minimum 60 days as measured by a performance standard to be developed during the design phase of remediation and accepted by the Department. Should technology-based levels not be achieved in 60 days bioremediation would continue to a minimum 90 days duration and continue thereafter until the cleanup levels are achieved.

- o Final contouring with a minimum of 12 inches of clean soil, grading and seeding of the site to promote surface water runoff and limit the infiltration of rain and surface water into the remediated areas.

- o Installation of additional monitoring well(s) to supplement the existing site perimeter groundwater monitoring network.

- o Conducting a program of groundwater sampling and analysis to verify that contamination has not migrated off the site.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this Operable Unit as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 18, 1994
Date

Ann Hill DeBarbieri
Deputy Commissioner

TABLE OF CONTENTS

SECTION 1: SITE LOCATION AND DESCRIPTION

The McKesson Envirosystems (Inland Site) is located in the city of Syracuse to the south of Onondaga Lake. The site is approximately 8.2 acres in size and is separated by Van Rensselaer Street into two parcels (Figure 1). The parcel north of Van Rensselaer Street is within 150 feet of the New York State Barge Canal Terminal channel, most of which is well-vegetated with grasses, shrubs, and some trees. The largest of the former aboveground storage tanks (Tank 7) was located on this portion of the site.

The bulk of previous material storage and handling took place in the area south of Van Rensselaer Street, where ten former aboveground storage tanks were located. A paved parking area and buildings account for approximately ten percent of this southern parcel. The remainder supports vegetation consisting of weeds, grasses and the primary vegetation on the south parcel, wetland-associated species. The wetland plants are confined to areas near the locations of the former aboveground storage areas. Berms surround the site as well as the former tank areas, resulting in standing water which is present within the berms for significant periods of time. However, no NYSDEC-designated wetlands are located on site. These berms preclude surface water runoff to the Barge Canal, as evidenced by the standing water within the berms. The site is also within one-quarter mile of Onondaga Lake, which is a major surface water body in the greater Syracuse area.

Land use in the surrounding area may be characterized as industrial/light industrial, being on the edge of the "Oil City" area of Syracuse, although there are current plans for significant non-industrial development in this area. The McKesson property also has an industrial zoning classification.
The former storage areas of the site are secured against trespass with chain link fence and barbed wire. A soil berm is also present along most of the site perimeter, and berms surround the former tank areas.

Operable Unit No. 1, which is the subject of this Record of Decision (ROD), consists of the unsaturated soils at the site.

An Operable Unit represents a discrete portion of the remedy for a site which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the contamination present at a site. The remaining operable unit for this site will address the saturated soils and the groundwater, which will be the second operable unit at this site. Any remediation necessary to address this remaining contamination will be the subject of a future ROD.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

1920's: Occupied by various salt companies.

1928-1969: Petroleum Storage Facility (ARCO), Tanks 1-6 (South Parcel)

1951: Tank 7 installed (North Parcel)

1969- 1973: Petroleum Storage Facility BP Oil Company (BP)

1973: Inland Chemical Corporation (ICC) purchases site from BP Oil Company for storage of waste streams including: methanol, methylene chloride and other solvents destined for recycling at other ICC facilities..

1982: ICC operations discontinued.

2.2: Remedial History

1980: ICC filed a Part A Permit Application for Interim status as a hazardous waste storage facility under the Resource Conservation Recovery Act (RCRA).

1987: Revised part A application for closure submitted to NYSDEC. Remediation Consent Order signed 6/10/87.

1988: McKesson Corporation submitted a RCRA closure plan entitled "Verification of Aboveground Storage Tank Decontamination Protocol" to NYSDEC.

1989: RCRA Closure certification submitted to NYSDEC Aboveground tanks removed from the site.

1990: Notification from NYSDEC that facility was officially closed and that corrective actions would proceed under the Remediation Consent Order which was amended to include both McKesson Corporation and Safety-Kleen Environsystems Company as Respondents.

The Final Remedial Investigation Report was issued in April 1990. A PAH Distribution Report was issued at the same time.

1992: A residential Risk Assessment and FS Screening of Alternatives were completed.

1993: A Soil Bioremediation Pilot study was conducted at the site using both in-situ and ex-situ techniques. A Feasibility Study and results of the Pilot Study were completed.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and/or the environment, the McKesson Corporation has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted in 1988 and 1989. A report entitled *Final Remedial Investigation Report, April 1990,* has been prepared describing the field activities and findings of the RI in detail. A summary of the RI follows:

The RI activities consisted of the following:

- Installation of 136 soil borings
- 13 piezometer clusters
- 22 monitoring wells and related groundwater sampling
- 159 soil samples

The analytical data obtained from the RI was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the McKesson Corporation site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. Soil and sediment analytical results where evaluated against NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were evaluated in order to develop remediation goals for soil.

Soil cleanup values were obtained by evaluating the technology based limits of bioremediation and evaluating these limits during an on-site treatability study. The site specific conditions were taken into account during this evaluation, in particular the nature of the groundwater.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These findings are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are given for each medium.

Soils

The unsaturated soils to be addressed by this operable unit at this site are those approximately four feet in depth which lie above the groundwater elevation, which corresponds to an elevation of 365 feet. Unsaturated soils above 365 feet will be addressed by the remedy, unless field conditions support that a greater depth (i.e. lower elevation) would be appropriate. These soils have been contaminated with materials previously stored in tanks at the site. The following 14 chemicals have been observed at the site during the RI: benzene, toluene, ethylbenzene, xylenes, tetrachloroethene, trichloroethene, trans-1,2-dichloroethene, methylene chloride, vinyl chloride, aniline, N,N-dimethylaniline, acetone, methanol, and chlorobenzene and represent the Chemicals of Concern (COCs). For evaluation purposes, the Chemicals of Concern were grouped into four classes based on similar chemical characteristics and are identified