WORK PLAN
FOR INVESTIGATION OF THE
STORM-WATER COLLECTION SYSTEM

Buffalo Terminal
Location No. 31-010
Buffalo, New York

June 27, 2000

Prepared for:

Exxon Mobil Corporation
1001 Wampanoag Trail
Riverside, RI 02915

Prepared by:

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ROUX

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PLATES

1.0 INTRODUCTION

This Work Plan for investigation of the storm-water collection system at the Buffalo Terminal (Site) located at 625 Elk Street in Buffalo, New York (Figure 1) was developed for the Exxon Mobil Corporation (ExxonMobil). In order to facilitate better management and reporting of assessments and remedial activities, the Site has been subdivided into nine geographic areas, which are shown on Figure 2. The geographic areas were designated according to the primary operations that occurred in that portion of the Site, and are the following:

- Northeast Process and Storage Area (NPSA);
- Northern Tank Yard Area (NTYA);
- Former Refinery Area (FRA);
- Central Rail and Process Area (CRPA);
- Southern Tank Yard Area (STYA);
- Eastern Tank Yard Area (Former Disposal Area [ETYA]);
- Babcock Street Properties Area (BSPA);
- Administrative Offices and Operations Area (AOOA); and
- Elk Street Properties Area (ESPA).

The collection, treatment and discharge of storm water on the Site are currently accomplished by two distinct drainage systems. One system serves the lined active tank farm for the above ground product storage tanks in the ETYA and STYA and the second system serves the remainder of the Site, except the ESPA, which has no storm sewers connected to the Site's drainage system. The drainage systems are described in Section 2.

A limited investigation of the Site's storm sewers was conducted by Roux Associates and Groundwater & Environmental Services, Inc. (GES) in October 1999. The investigation included visual inspection of each easily accessible manhole to confirm the number and size of pipes, the configuration of the manhole/catch basin and the presence of separate-phase product, water and sediment. On the BSPA, high pressure jetting was performed on sewers to the north and east of the former Barrel House to identify sewer connections and condition of sewer pipes.

Some questions regarding the configuration of the sewer system still remain after this work was completed.

The scope of work presented in this Work Plan is intended to build upon the information gathered during the limited investigation conducted in 1999 and the information available from existing plans. The objectives of the Site storm sewer investigation are to:

- Confirm/determine the locations of storm sewer components that could not be identified previously, or that were questionable and complete the Site's basemap with these locations;
- Verify the structural integrity of the storm sewers;
- Locate areas of groundwater infiltration and assess infiltration rate and quality;
- Assess wet and dry-weather flow and quality;
- Identify areas contributing surface water to the collection system; and
- Identify/recommend improvements to the storm-water system.

The work will be implemented in a phased manner, with data evaluation and interpretation occurring after each phase is completed.

The remainder of this Work Plan is organized as follows:

- Section 2 presents an overview of the existing water collection, treatment and discharge systems;
- Section 3 identifies data collection requirements;
- Section 4 presents a scope of work for collecting the additional data;
- Section 5 discusses report preparation and project schedule; and
- Section 6 presents references.

2.0 DESCRIPTION OF STORM-WATER COLLECTION, TREATMENT AND DISCHARGE SYSTEMS

As mentioned in Section 1, currently the collection, treatment and discharge of storm-water on the Site is accomplished by two distinct drainage systems. One system serves the lined active tank farm for the active above ground product storage tanks in the ETYA and STYA and the second system serves the remainder of the Site, except the ESPA, which has no storm sewers connected to the Site's drainage system. The following is a description of the storm-water collection, treatment and discharge systems at the Site. The information regarding the history of the storm-water collection, treatment and discharge systems at the Site was obtained from the document entitled "History of Operations at the Buffalo Terminal" (Roux Associates, 2000).

2.1 Storm-Water Collection System

Historically, all storm water at the Site was collected by a network of catch basins/manholes and below grade piping. This storm water collection network has been in existence throughout the history of the Site, expanded and modified as necessary, to account for changes to the Site processes and layout over the years. In addition, process water and cooling water were also historically collected via underground piping, manholes and catch basins. Plate 1 shows the configuration of the sewer system based on historical drawings and the sewer inspections conducted in October 1999. There are still several areas of the sewer system that require confirmation.

Historical Site drawings indicate that several small in-ground oil/water separators were located within the collection system to treat flow streams from localized areas of the Site. The flow from small in-ground separators then discharged into the Site's collection system and ultimately to the Main In-ground Oil/Water Separator.

Prior to 1993, all storm-water was handled by one interconnected network of drainage components. Between 1988 and 1992, as part of a product storage tank realignment project, the containment areas for the active storage tanks were lined and a dedicated storm-water drainage system for these areas was installed. The 1999 sewer inspections indicated that the catch basins and piping associated with the previous drainage system for these areas were abandoned or removed as shown in the engineering drawings for the tank farm liner placement project (Pratt

and Huth, 1990). Storm water from these areas is currently collected by a network of catch basins and below grade piping and directed to a dedicated lift station. The treatment and discharge system for the active lined tank farm for the above ground storage tanks is described in Section 2.2.

Since 1993, all storm water from sewers not associated with the lined active tank farm collection system, is discharged to a storm-water lift station located to the north of the Main In-ground Oil/Water Separator. Three separate pipes discharge into the lift station. A 42-inch pipe enters from the north, a 24-inch pipe enters from the east and a 10-inch pipe enters from the west. The 42-inch pipe has connections to sewers in the northeast portion of the Site. Available sewer plans indicate that the 24-inch pipe has/had connections to sewers on the BSPA, as well as the southeastern portion of the Site. The results of the 1999 sewer inspections indicate that the sewers in the BSPA are no longer connected to the Site's sewer system or that the connection is blocked. The origin of the 10-inch pipe could not be determined from available documentation or field inspections. From the lift station, the storm water is pumped to the Site's Water Treatment System described in Section 2.2.

2.2 Treatment and Discharge Systems

The water collected by the drainage network(s) has been handled by several different treatment systems throughout the years, as described below. From prior to 1924 through 1992, all storm water, cooling water and process water was handled by the Main In-ground Oil/Water Separator. This separator was installed prior to 1924 and was located in the southern portion of the FRA. The separator consisted of eight compartments. Process water, as well as groundwater extracted by the WPS between 1971 and 1993, entered the separator via the compartment located furthest to the north (compartment 1). The remaining seven compartments handled all storm water and cooling water, as well as overflow from the first compartment. Between 1973 and 1987/88, the effluent from the first compartment of the Main In-Ground Oil/Water Separator was treated by a Dissolved Air Flotation Unit located to the north of the separator and discharged to the Buffalo River until November 1979 and to the BSA sewer system thereafter.

In 1977, Mobil was issued a State Pollution Discharge Elimination System (SPDES) permit (No. NY-0000264) by the NYSDEC for discharge of the treated water to the Buffalo River

(NYSDEC 1995). In November 1979, the Site began discharging process water treated through the Main In-ground Oil/Water Separator and the Dissolved Air Flotation Unit to the Buffalo Sewer Authority (BSA) municipal sewer system, while storm water continued to be discharged from the Main In-ground Oil/Water Separator to the Buffalo River. In October 1984, the Site's SPDES permit was eliminated since all flows, including storm water, were directed to the BSA sewer system.

The Site's Water Treatment System was installed and operational by 1993. The Water Treatment System is located in the Remediation Building in the FRA. The treatment system handles all extracted groundwater, as well as storm water not associated with the lined active tank farm drainage system prior to discharge to the BSA sewer system. The Water Treatment System consists of oil/water separation to remove separate phase product, followed by air sparging to remove dissolved phase constituents from all groundwater sources described above, as well as dry-weather flow from the storm water lift station. Treatment for wet-weather flow consists of oil/water separation. The Site's Water Treatment System is currently discharging to the BSA under BPDES Permit No. 97-05-BU045.

Water collected from the active lined tank farm for the above ground storage tanks is pumped from the dedicated lift station to the Lined Tank Farm Above Ground Oil/Water Separator prior to discharge to the Buffalo River under SPDES permit No. NY-0204480, first issued in April 1992.

3.0 IDENTIFICATION OF DATA REQUIREMENTS

Additional data regarding the location of sewer connections and the condition of piping is required to complete the current understanding of the Site's sewer system. The data requirements for the storm sewer investigation are:

- Inspection/confirmation of storm-water collection system components: catch basins, manholes and piping;
- Identification of materials of construction for the above system components;
- Identification of condition of system components (i.e., damage, debris and sediment);
- Identification of condition of the surface area surrounding system components (i.e., paved, gravel, soil, grass, etc.)
- Survey of the horizontal and vertical coordinates of catch basins/manholes and vertical coordinates of piping inverts;
- Evaluation of flow conditions (i.e., rate, quality, separate-phase product, sediment movement, etc.) under wet and dry-weather conditions;
- Inspection of internal condition of selected sewer segments; and
- Determination of drainage areas contributing to the sewer system.

4.0 SCOPE OF WORK

The following is the scope of work developed to address the data requirements outlined in Section 3. The scope of work will be implemented in a phased approach with data evaluation occurring following the completion of each phase. The scope of work includes the following tasks:

Phase 1: Field Verification of System Components

- Visually inspect and document storm-water collection system components;
- Identify and document materials of construction for the above system components;
- Identify and document the condition of system components (i.e., intact, damaged, debris and/or sediment present, etc.);
- Identify and document the condition of the surface area surrounding system components (i.e., paved, gravel, soil, grass, etc.)
- Survey the horizontal and vertical coordinates of catch basins/manholes and vertical coordinates of piping inverts; and
- Evaluate data and refine the scope of work for the next phase.

Phase 2: Evaluation of Flow Conditions

- Conduct flow measurement and water quality sampling from selected system components under dry and wet-weather conditions;
- Visually inspect for and document separate-phase product; and
- Evaluate data and refine the scope of work for the next phase.

Phase 3: Internal Inspections

- Inspect the internal condition of selected sewer segments through the use of one or more line tracing methods (i.e., excavation, dye testing, jetting/video logging, geophysical techniques, etc.).

Phase 4: Determination of Drainage Areas

- Evaluate data from the previous three phases of work to determine the drainage areas contributing to the sewer system.

The data gathered upon the completion of these four phases of work will be used to identify recommendations for improving the Site's storm-water collection system.

Details regarding each task are presented below.

4.1 Phase 1: Field Verification of System Components

Field verification tasks will include the following.

4.1.1 Visual Inspection of System Components and Surrounding Area

Each system component that can be accessed will be visually inspected to confirm the configuration of the sewer system shown on existing maps. This inspection will also include identification of the condition of the area surrounding the system component. Plate 1 will be used as the basis for the location of system components and will be marked up in the field to reflect conditions observed. Visual inspections will include the following components:

- Each system component that does not currently have a number assigned will be given a number. For manholes, the number will begin with MH- and for catch basins the number will begin with CB-. The number will be spray painted on or near the MH/CB.

- Each MH/CB will be tested for the presence of separate-phase product using an interface probe. The results will be recorded in the logbook with the MH/CB number listed and the corresponding product level, if any.

- A sketch will be made and information will be recorded for each system component in a log book, including: the diameter/dimensions of the MH/CB; the orientation of the MH/CB relative to north; orientation of all pipes that can be seen entering/exiting each MH/CB; the materials of construction of the MH/CB and piping; the condition of the MH/CB and piping; and the presence/thickness of sediment/debris.

- The depth to the bottom of the MH/CB from the rim will be measured and recorded. The location from which the measurement was taken will be marked to be surveyed later.

- The conditions of the area surrounding the MH/CB will be documented (i.e., paved, gravel, soil, grass, etc.).

4.1.2 Surveying

Surveying of the Site's storm sewer system will be performed by a surveyor licensed in the State of New York as part of this task. The horizontal and vertical coordinates of manholes and catch basins will be surveyed in order to plot them on the surveyed basemap of the Site and complete

the current depiction of the Site's sewer system. The invert elevations of storm sewer piping will be surveyed in order to confirm the direction of flow in the system, evaluate the relationship of the elevation of the groundwater table to the sewer system and identify potential areas of groundwater infiltration.

In addition, the location of any other structures, including oil/water separators and associated piping, that are present within the storm sewer system, but not part of the existing surveyed basemap, will be surveyed.

4.2 Phase 2: Evaluation of Flow Conditions

This task involves evaluating the dry and wet-weather flow rates and water quality in selected system components. This will enable identification of areas that are subject to groundwater infiltration and areas of the sewer system that handle minimal storm water flow.

Flow measurements will be made using one or more of the following methods:

- Lowering a container of known volume into the flow stream and recording the time it takes to fill the container;
- Portable flow meters; or
- Automatic samplers.

Flow measurements and water quality samples from selected locations will be collected during base flow and storm events. The frequency of flow monitoring will be selected based on the conditions encountered.

During storm events, water quality samples will be collected at the following intervals, where conditions permit:

- when the flow has doubled from the base flow condition;
- when the flow has doubled again from the previous sample; and
- when the flow decreases and the flow rate approaches the base flow condition at the start of the storm event.

Samples will be analyzed for oil and grease by USEPA method 413.1, benzene, toluene, ethylbenzene and xylenes (BTEX) by USEPA method 602, total suspended solids (TSS) and iron and manganese by SW846 6010B.

Precipitation will be recorded daily during the monitoring period from an on-site rain gauge.

4.3 Phase 3: Internal Inspections

Selected internal inspections may be made using one or more of the following methods.

4.3.1 Dye Testing

Dye testing of selected segments of the sewer system may be performed to confirm connections. The non-toxic dye to be used for the testing is "Bright Dyes, Fluorescent Yellow/Green", as manufactured by Kingscote Chemicals/Formulabs, Inc, 9676 North Looney Road, Piqua, Ohio, 45356. A copy of the Material Safety Data Sheet for this dye is included as Appendix A. The dye will be used according to the manufacturer's directions. The anticipated procedures involved in dye testing are as follows:

- Open all manholes and/or catch basins located along the sewer segment in question;
- Introduce the dye and water into the selected manhole as recommended by the manufacturer;
- Visually inspect the manholes along the segment being tested for the presence of the dye and record the results; and
- Once the testing on one segment is competed, repeat the procedure for the other location(s).

4.3.2 High Pressure Jetting and Video Logging

Video logging may be employed in selected areas of the Site in order to assess the condition of the interior of the storm sewers, confirm connections and identify areas of groundwater infiltration into the sewer system. This task will also indicate areas of the sewer system that are in need of repair.

Jetting of the storm sewer system is required prior to conducting the video logging and consists of injecting potable water at high pressure to clear sediment and debris from the path of the video camera recording equipment. Sediment and debris will be handled as required.

4.3.3 Geophysical Methods

One or more non-intrusive geophysical methods (i.e., electromagnetic line tracing) may be used on selected system components to confirm pipe connections. The selection of an appropriate technique, if any, will be made based upon the documentation of the materials of construction for system components completed during Phase 1 of the investigation.

4.3.4 Excavation to Inspect and Locate Storm Sewers

Excavations to inspect and locate storm sewers may be conducted in areas where other line tracing methods are impractical or unsuccessful. The excavations will be used to confirm connections, assess the condition of existing piping and identify potential sources of groundwater infiltration or separate-phase impact to the system.

In addition, excavation may be employed in an attempt to locate an in-ground oil/water separator that had existed between former Tanks 21 and 22. It is unclear from available documentation if and how this separator was decommissioned or removed.

4.4 Phase 4: Determination of Drainage Areas

This task involves compiling and evaluating the data collected during the previous three phases of work and evaluating Site topography to determine the drainage areas contributing to the sewer system. This evaluation may identify areas of the Site that no longer require an active drainage system since no terminal operations are conducted in them. It may also identify components of the sewer system that handle minimal storm water flow and that may be removed without impacting ability of the collection system to adequately drain storm water from the Site.

5.0 REPORT PREPARATION AND PROJECT SCHEDULE

Following completion of the fieldwork outlined in this Work Plan, a final report will be prepared summarizing the findings and conclusions of the investigation. The report will include an updated basemap of the Site showing the sewer system. It will also present recommendations for improving the Site's storm-water collection system.

The fieldwork is scheduled to occur during July, August and September 2000. Report preparation will follow and is expected to be completed by November 2000. This schedule may require revisions if the field tasks are delayed by inclement weather or by the need for additional field data. In addition, if a task is completed ahead of schedule, subsequent tasks will be initiated ahead of schedule.

Respectfully submitted,

ROUX ASSOCIATES, INC.

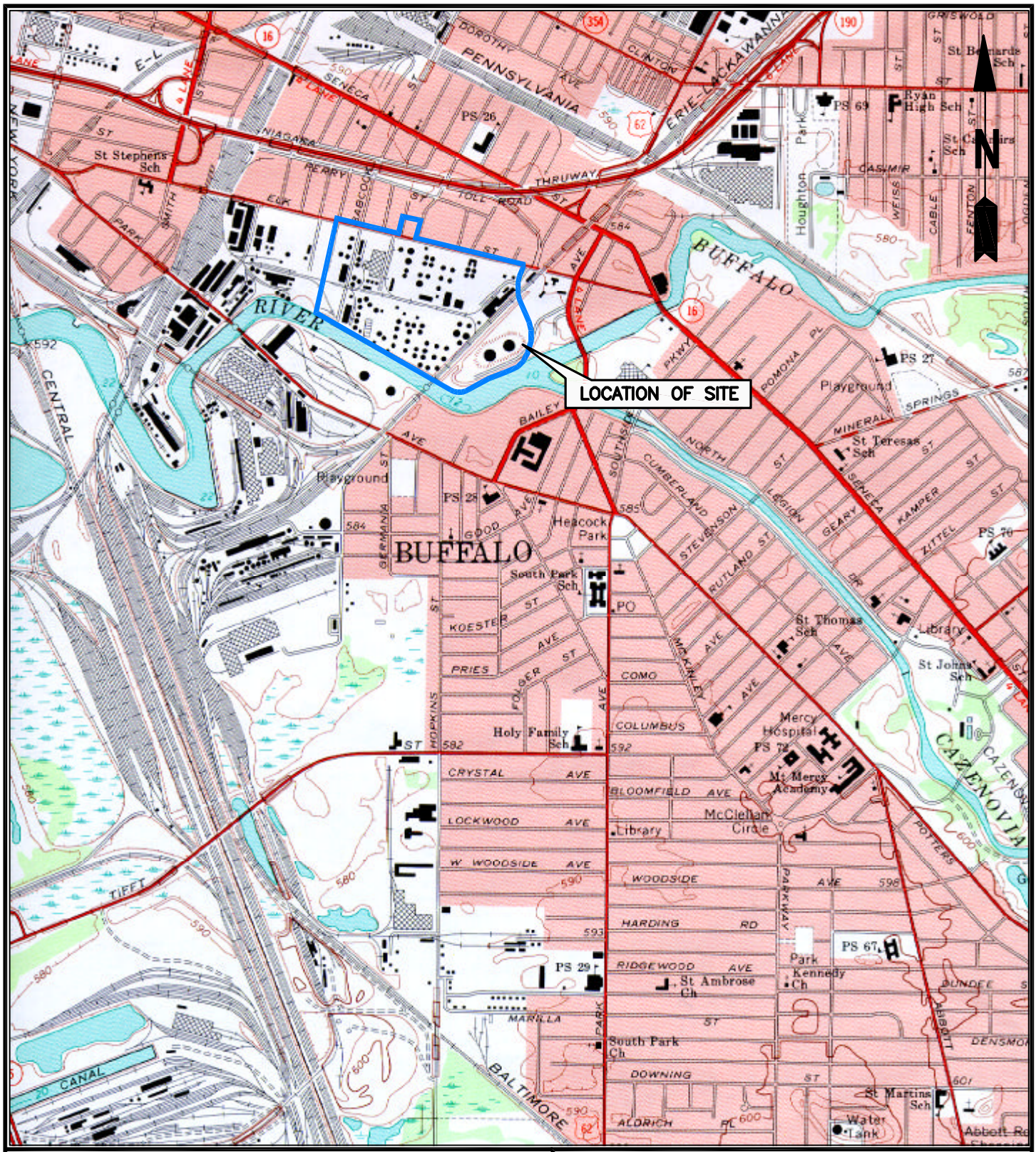
Noelle Clarke, P.E.
Senior Engineer/
Project Manager

Andrew J. Baris
Principal Hydrogeologist/
Office Manager

6.0 REFERENCES

Pratt and Huth Associates, 1990. Tank Farm Drainage and Liner Placement, Sheets 1, 2, 3 4, 5, 6, 7, 8 and E-1, March 1990.

Roux Associates, Inc., 2000. History of Operations at Buffalo Terminal, April 26, 2000.



SOURCE:

USGS; 1965. BUFFALO SE, NEW YORK
7.5 MINUTE TOPOGRAPHIC QUADRANGLE

Title:

SITE LOCATION MAP

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.S.	Date: 4/00	FIGURE
Prepared by: R.K.	Scale: 1"=2,000'	1
Project Mgr: M.S.	Office: NY	
File No: M5213001	Project: 17252Y02	

N:\PROJECTS\MC172Y\MC52Y\130\MC5213001.DWG

ELK STREET PROPERTIES AREA

BABCOCK STREET

GORHAM STREET

WINONA STREET

BRADFORD STREET

PARCEL #4

PARCEL #5

ELK STREET

BABCOCK STREET

LEASED TO CUSTOM TOP SOIL

FORMER REFINERY AREA

NORTHERN TANK YARD AREA

NORTHEAST PROCESS AND STORAGE AREA

ADMINISTRATIVE OFFICES AND OPERATIONS AREA

PIPING PIT

CENTRAL RAIL AND PROCESS AREA

ADDITIVE TANKS

VAPOR RECOVERY SYSTEM

75

90

175

176

BABCOCK STREET PROPERTIES AREA

STORMWATER LIFT STATION

BSA OUTFALL LOCATION

MAIN INGROUND OIL/WATER SEPARATOR

25 26

99 38 97

171

87 104 105

SOUTHERN TANK YARD AREA

EASTERN TANK YARD AREA (FORMER DISPOSAL AREA)

LINED TANK FARM ABOVE GROUND OIL/WATER SEPARATOR

BUFFALO RIVER

BUFFALO RIVER

N

LEGEND

- EXISTING TANK
- EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES

250' 0 250'

Title:

GEOGRAPHIC AREAS OF THE BUFFALO TERMINAL

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 4/00	FIGURE
Prepared by: G.M.	Scale: AS SHOWN	2
Project Mgr: N.C.	Office: NY	
File No: MC5213002	Project: 17252Y03	

N:\PROJECTS\MC172Y\MC52Y\130\MC5213002.DWG

APPENDIX A

MSDS for Non-Toxic Dye

MATERIAL SAFETY DATA SHEET
YELLOW/GREEN DYE TABLET

MSDS PREPARATION INFORMATION

PREPARED BY: D. C. POTTER
(513) 773-0600
DATE PREPARED: 3/15/95

PRODUCT INFORMATION

MANUFACTURED BY: FORMULABS, INC.
9676 NORTH LOONEY ROAD
PIQUA, OHIO 45356
(513) 773-0600 BUSINESS
(800) 424-9300 CHEMTREC 24-HR EMERGENCY CONTACT

CHEMICAL NAME . . . . . MIXTURE
CHEMICAL FORMULA . . . . . NOT APPLICABLE
CHEMICAL FAMILY . . . . . WATER SOLUBLE XANTHENE DYE FORM

HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENT	%	T.L.V.	C.A.S. #
NONE PER 29 CFR 1910.1200			

PHYSICAL DATA

PHYSICAL STATE . . . . . DRY TABLET
ODOR AND APPEARANCE . . . . . ORANGE COLOR WITH NO APPARENT ODOR
SPECIFIC GRAVITY . . . . . > 1
VAPOR PRESSURE (mm Hg @ 25 deg. C) . . . NOT APPLICABLE
VAPOR DENSITY (AIR = 1) . . . . . NOT APPLICABLE
EVAPORATION RATE (Butyl Acetate = 1) . . NOT APPLICABLE
BOILING POINT . . . . . NOT APPLICABLE
FREEZING POINT . . . . . NOT APPLICABLE
pH . . . . . NOT APPLICABLE
SOLUBILITY IN WATER . . . . . HIGHLY SOLUBLE WITH A SMALL AMOUNT OF INSOLUBLE MATERIAL

MATERIAL SAFETY DATA SHEET
YELLOW/GREEN DYE TABLET

3/15/95

INGESTION	URINE MAY HAVE A YELLOW/GREEN COLOR UNTIL THE DYE HAS BEEN WASHED THROUGH THE SYSTEM.
EFFECTS OF ACUTE EXPOSURE	DIRECT CONTACT MAY CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY TRACT.
EFFECTS OF CHRONIC EXPOSURE	NONE KNOWN
THRESHOLD LIMIT VALUE	NOT APPLICABLE
CARCINOGENICITY	NOT LISTED AS A KNOWN OR SUSPECTED CARCINOGEN BY IARC, NTP, OR OSHA.
TERATOGENICITY	NONE KNOWN
MUTAGENICITY	NONE KNOWN
TOXICOLOGICALLY SYNERGISTIC PRODUCTS	NONE KNOWN

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT:	
GLOVES	RUBBER
RESPIRATORY	USE A NISOH APPROVED DUST MASK IF DUSTY CONDITIONS EXIST.
CLOTHING	PROTECTIVE CLOTHING SHOULD BE WORN WHERE CONTACT IS UNAVOIDABLE.
OTHER	HAVE ACCESS TO AN EMERGENCY EYEWASH.
ENGINEERING CONTROLS	NOT NECESSARY UNDER NORMAL CONDITIONS. USE LOCAL VENTILATION IF DUSTY CONDITIONS EXIST.
SPILL OR LEAK RESPONSE	SWEEP UP SPILLS AND PLACE IN WASTE DISPOSAL CONTAINER. FLUSH AFFECTED AREA WITH WATER.
WASTE DISPOSAL	INCINERATE OR REMOVE TO A SUITABLE SOLID WASTE DISPOSAL SITE. DISPOSE OF ALL WASTES IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
HANDLING PROCEDURES AND EQUIPMENT	NO SPECIAL REQUIREMENTS.
STORAGE REQUIREMENTS	STORE IN A COOL, DRY PLACE AWAY FROM EXCESSIVE HEAT OR FLAME.
SHIPPING INFORMATION	NO SPECIAL REQUIREMENTS.

FIRST AID MEASURES

FIRST AID EMERGENCY PROCEDURES:	
EYE CONTACT	FLUSH EYES WITH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

MATERIAL SAFETY DATA SHEET
YELLOW/GREEN DYE TABLET

3/15/95

FIRE OR EXPLOSION HAZARD

CONDITION OF FLAMMABILITY	NON-FLAMMABLE
MEANS OF EXTINCTION	WATER FOG, CARBON DIOXIDE, OR DRY CHEMICAL
FLASH POINT AND METHOD	NOT APPLICABLE
UPPER FLAMMABLE LIMIT	NOT APPLICABLE
LOWER FLAMMABLE LIMIT	NOT APPLICABLE
AUTO-IGNITION TEMPERATURE	NOT APPLICABLE
HAZARDOUS COMBUSTION PRODUCTS	BURNING MAY PRODUCE OXIDES OF CARBON NITROGEN.
UNUSUAL FIRE HAZARD	REMOTE POSSIBILITY OF A DUST EXPLOSION. IF MIXED WITH AIR IN THE PROPER PROPORTIONS, IT CAN BE EXPLOSIVE (SIMILAR TO FLOUR OR STARCH).
EXPLOSION DATA	
SENSITIVITY TO STATIC DISCHARGE	REMOTE POSSIBILITY OF A DUST EXPLOSION. IF MIXED WITH AIR IN THE PROPER PROPORTIONS, IT CAN BE EXPLOSIVE (SIMILAR TO FLOUR OR STARCH).
SENSITIVITY TO MECHANICAL IMPACT	NOT APPLICABLE

REACTIVITY DATA

PRODUCT STABILITY	STABLE
PRODUCT INCOMPATIBILITY	AVOID BROMINE TRIFLUORDE, LITHIUM, STRONG ACIDS, BASES, AND OXIDIZERS.
CONDITIONS OF REACTIVITY	NONE KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS	SEE HAZARDOUS COMBUSTION PRODUCTS.

TOXICOLOGICAL PROPERTIES

SYMPTOMS OF OVEREXPOSURE FOR EACH POTENTIAL ROUTE OF ENTRY:

INHALATION, ACUTE	MAY CAUSE IRRITATION IF DUST IS INHALED.
INHALATION, CHRONIC	NONE KNOWN
SKIN CONTACT	MAY BE IRRITATING TO THE SKIN. WILL CAUSE STAINING OF THE SKIN ON CONTACT.
SKIN ABSORPTION	NOT APPLICABLE
EYE CONTACT	MAY CAUSE IRRITATION.

MATERIAL SAFETY DATA SHEET
YELLOW/GREEN DYE TABLET

3/15/95

SKIN CONTACT	WASH SKIN THOROUGHLY WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION DEVELOPS.
INHALATION	IF DUST IS INHALED, MOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE OXYGEN AND GET IMMEDIATE MEDICAL ATTENTION.
INGESTION	DRINK PLENTY OF WATER AND INDUCE VOMITING. GET MEDICAL ATTENTION IF LARGE QUANTITIES WERE INGESTED OR IF NAUSEA OCCURS. NEVER GIVE FLUIDS OR INDUCE VOMITING IF THE PERSON IS UNCONSCIOUS OR HAS CONVULSIONS.

SPECIAL NOTICE

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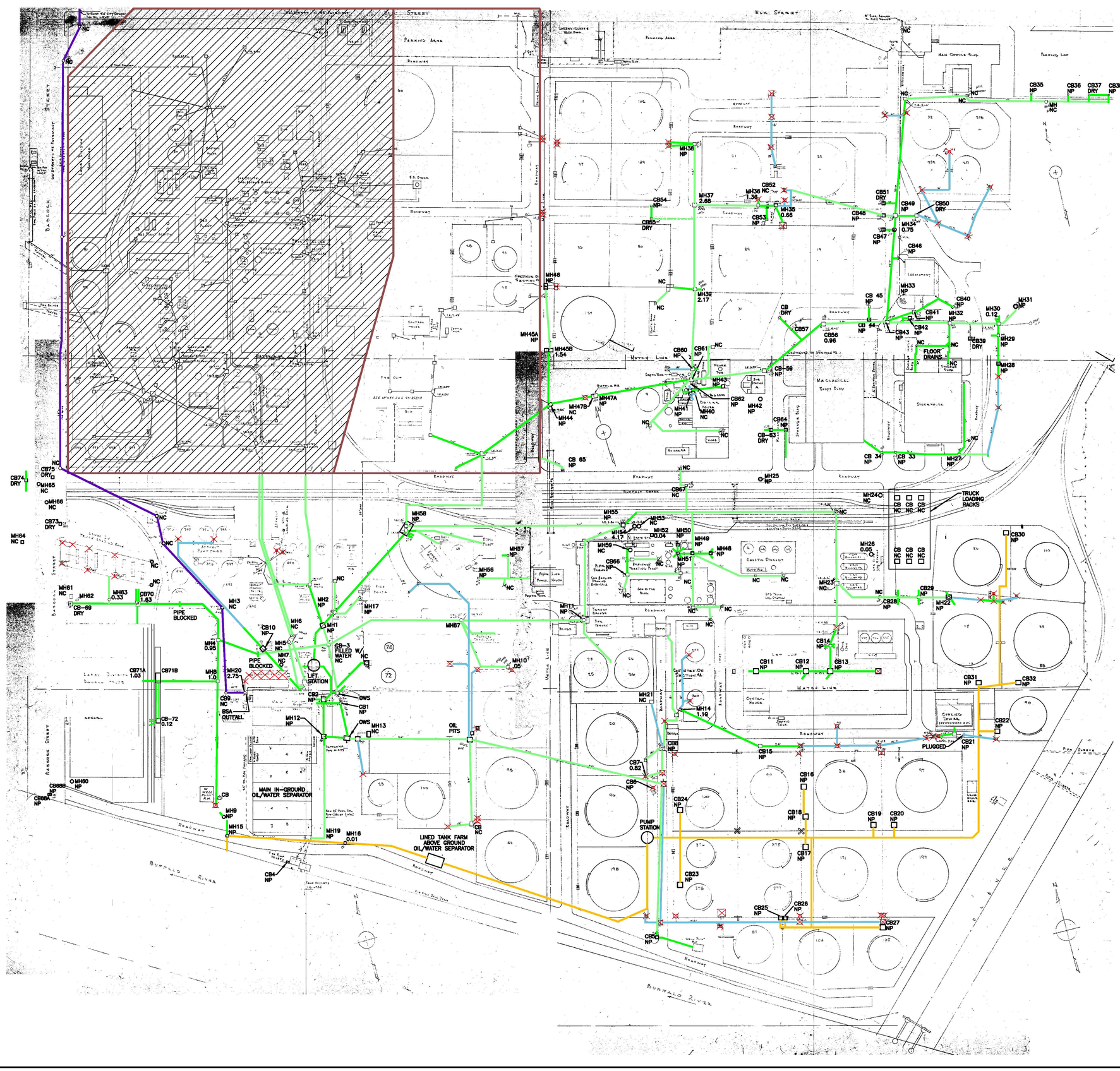
END OF MATERIAL SAFETY DATA SHEET



LEGEND

- LIMITS OF CUSTOM TOP SOIL
- SEWERS, CATCH BASINS AND MANHOLES WERE REPORTEDLY ABANDONED IN PLACE WITH CONCRETE GROUT IN 1993
- NOT CONFIRMED THROUGH VISUAL OBSERVATIONS
- CONFIRMED THROUGH VISUAL OBSERVATIONS
- NOT POSSIBLE TO CONFIRM, REPORTEDLY ABANDONED
- ACTIVE LINED TANK FARM STORM-WATER DRAINAGE SYSTEM (TANK 175 AND 176 BERMS ARE NOT SHOWN BUT DRAIN TO THIS SYSTEM.)
- DISCHARGE LINE TO THE BSA SEWER SYSTEM
- CATCH BASINS, MANHOLES OR STRUCTURES ABANDONED OR REMOVED
- MH-1 DESIGNATION OF MANHOLE
- CB-72 0.12 DESIGNATION OF CATCH BASIN; PRODUCT THICKNESS IN FEET; NP INDICATES NO PRODUCT DETECTED

NOTES:

1. MANHOLES ASSOCIATED WITH BSA DISCHARGE LINE WERE NOT INVESTIGATED.
2. NONE OF THE MANHOLES OR CATCH BASINS ON CUSTOM TOP SOIL WERE CHECKED BECAUSE OF LIMITED ACCESS TO THE AREA DUE TO THEIR OPERATION.
3. IN MANY CASES, THE EXACT PIPING CONFIGURATION COULD NOT BE DETERMINED DUE TO THE PRESENCE OF WATER/PRODUCT. IN THESE CASES, PIPING WAS IDENTIFIED ON THIS MAP AS "NOT CONFIRMED" AND ADDITIONAL WORK MAY BE CONDUCTED IN LATER PHASES OF THE PROJECT TO CONFIRM UNKNOWN SEGMEN IF DEEMED NECESSARY.
4. SANITARY SEWERS WERE NOT INVESTIGATED.
5. BASEMAP IS FROM 1981 AND HAS NOT BEEN FULLY UPDATED TO REFLECT CURRENT SITE CONDITIONS RELATIVE TO EXISTING STRUCTURES.
6. LOCATIONS OF STORM SEWER MANHOLES AND CATCH BASINS ARE APPROXIMATE.
7. STORM-WATER COLLECTION SYSTEM INVESTIGATION WORK PERFORMED IN OCTOBER 1999 INCLUDED VISUAL INSPECTIONS OF MANHOLES/CATCH BASINS, PRODUCT THICKNESS MEASUREMENTS, DYE TESTING AND HIGH PRESSURE JETTING (JETTING WAS LIMITED TO SEWERS ON THE BSPA).

80' 0 80'

Title:

STORM-WATER COLLECTION SYSTEM

BUFFALO TERMINAL
BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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