NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

6 NYCRR PART 373
HAZARDOUS WASTE MANAGEMENT
PERMIT

FOR

CWM CHEMICAL SERVICES L.L.C
MODEL CITY FACILITY
NIAGARA COUNTY

DEC PERMIT No. 9-2934-00022/00097

EPA ID No. NYD049836679

VOLUME 2 OF 5

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Section D
Containers,
Surface Impoundments
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(The contents of Attachment D have been derived from the Permit application submitted by CWM Chemical Services, L.L.C.)

APPENDIX D-1

CONTAINERS

APPENDIX D-1
CONTAINERS

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CONTAINERS

This section contains a description of the container storage areas and operations utilized to store and process solid and liquid hazardous wastes received at the CWM Chemical Services, LLC. (CWM) Model City, New York Facility (site). In addition, CWM utilizes these areas to store and process non-hazardous waste.

A. CONTAINER STORAGE AREAS

The site currently maintains the following areas for the permanent storage and handling of containerized solid and liquid hazardous wastes.

LOCATION	WASTE TYPE	CONTAINER TYPE	STORAGE CAPACITY	AVAILABLE SECONDARY CONTAINMENT (gallons)	REQUIRED SECONDARY CONTAINMENT (gallons)
Drum Management Building					
Area I	Liquid/Solid	drums	688 55-gal drums	4,675	3,784
Area II	Liquid/Solid	drums	320 55-gal drums	1,989	1,760
Area III	Liquid/Solid	drums	36 55-gal drums	251	198
Area IV	Liquid/Solid	drums	36 55-gal drums	251	198
Area V (Floor Trench System)	Liquid	drums	117 55-gal drums	648	644
	Solid	drums	1,376 55-gal drums	NA	NA
Drum Building West Ramp	Liquid	tankers	2-5,500-gal tankers	22,118	10,104
	Solid	drums	160 55-gal drums	22,118	NA
Truck Loading/Unloading Area & Ramp	Solid	drums	1,040 55-gal drums	NA	NA
Area VI, Sections 1, 2 & 3	Solid	drums	956 55-gal drums	NA	NA
PCB Warehouse Building					
Area 1	Solid	drums	1,368 55-gal drums	NA	NA
Area 3/6	Liquid	drums	160 55-gal drums	409 (per pan)	220 (per pan)
	Solid	drums	1,358 55-gal drums	NA	NA
South Trailer Parking Area	Liquid/Solid	tankers/rolloffs	58 rolloffs or 5 tankers & 48 rolloffs	82,481	27,500
Stabilization Facility					
Trailer Parking Area I	Solid	rolloffs	6 rolloffs	NA	NA
Trailer Parking Area II	Solid	rolloffs	14 rolloffs	NA	NA
Trailer Parking Area III	Liquid/Solid	tankers/rolloffs	19 rolloffs or 5 tankers & 9 rolloffs	39,273	27,500
Trailer Parking Area IV	Solid	rolloffs	9 rolloffs	NA	NA
Waste Ash Tanker Unloading Area	Solid	Tanker(dry)/rolloff	1 tanker(dry)/rolloff	NA	NA
Special Client Treatment Room	Solid	rolloffs	4 rolloffs	NA	NA
Macro Room	Solid	rolloffs	18 rolloffs	NA	NA
Lower Drum Shedder Area	Liquid/Solid	rolloffs	2 rolloffs	3,019	NA
Upper Drum Shredder	Solid	drums	300 55-gal drums	NA	NA
North Expansion Building	Solid	rolloffs	15 rolloffs	NA	NA
Aqueous Treatment Building					
AT Drum Dock	Liquid	drums	128 55-gal drums	1,303	704
	Solid	Drums	128 55-gal drums	NA	NA
AT Tanker Unloading Area	Liquid/Solid	Tankers	2-6,000-gal tankers	14,851	9,916
AT Filter Press Room	Solid	Rolloffs	1 rolloff	NA	NA

LOCATION	WASTE TYPE	CONTAINER TYPE	STORAGE CAPACITY	AVAILABLE SECONDARY CONTAINMENT (gallons)	REQUIRED SECONDARY CONTAINMENT (gallons)
T. O. Building					
Transformer Containment Pan	Liquid/Solid	transformer/drums	11 pans	386 (per pan)	386 (per pan)
T.O. Building Loading Ramp	Liquid/Solid	Tanker	2-6,000-gal tankers	18,269	17,515
Truck Wash Facility	Solid	Rolloffs	3 rolloffs	NA	NA
T-130 Loading/Unloading Area	Liquid/Solid	tanker/rolloff	1-5,500-gal tanker, 1 rolloff	9,895	7,281
T-108 Loading/Unloading Area	Liquid/Solid	tanker/rolloff	1-5,500-gal tanker, 1 rolloff	20,481	7,309
T-109 Loading/Unloading Area	Liquid/Solid	tanker/rolloff	1-5,500-gal tanker, 1 rolloff	20,255	7,281
T-158 Loading/Unloading Area	Liquid/Solid	tanker/rolloff	1-5,500-gal tanker, 1 rolloff	29,422	7,281

Container types other than those listed above are also allowed, provided the secondary containment requirements are satisfied. For drum storage areas, 55 gallon drums and other liquid containers not exceeding 330 gallon capacity which meet the United States Department of Transportation (DOT) definitions of “non-bulk packaging” or “intermediate bulk containers (IBCs)” in 49CFR 171.8 are allowed. Also, containers of solid materials, such as 55 gallon drums and other solid containers not exceeding 330 gallon capacity which meet the DOT definitions of “non-bulk” or “IBCs” in 49CFR 171.8 may be stored in these areas. The number of containers allowed in each drum storage area is based on 55-gallon equivalents. For bulk container storage areas, rolloffs, tankers, flat beds and box vans and other containers which meet the DOT definition of “bulk packaging in 49CFR 171.8 are allowed. Flat beds and box vans are only used in conjunction with storage of non-bulk containers and IBCs, and not for direct storage of un-containerized bulk waste. Precautions are taken for containers that are subject to deterioration from weather (e.g., cubic yard boxes) and such containers are subject to the storage restrictions under Condition B.1.a.iii in Exhibit C of Schedule 1 of Module I of the Permit. The containment pans in the T.O. Building may be used to store transformers, drums and other electrical devices. Only DOT containers listed in the table under Section B.4.(a) or selected using the procedure in Section B.4.(a) of this appendix are allowed to be used for waste storage.

The above-referenced areas are permitted for container storage and management incidental to the operations conducted in that area. Satellite and 90 day accumulation practices are also permitted as per 6 NYCRR Part 372.

CWM manages all container storage areas in a manner to prevent the possibility of a leak or spill from the containers.

According to the National Fire Protection Association (NFPA) 30, 2003 edition, entitled Flammable and Combustible Liquids Code, Chapter 6.4.3, for flammable liquids (DOT Class IA, Class IB and Class IC) and combustible liquids (DOT Class II and Class III) solid pile (containers, rows or groupings of containers) and palletized storage (modules) in warehouses shall be arranged so that piles containing these materials are separated from each other by at least 4 ft. (1.2 m).

For all other New York State Department of Environmental Conservation (NYSDEC) regulated waste containers, 6NYCRR 373-2.3(f) maintains that the owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency unless it can be demonstrated to the commissioner that aisle space is not needed for any of these purposes.

For all container storage areas located on the site, maximum storage is based on the following:

- Drums will be staged two wide with at least a 2 foot aisle space (4 foot for flammables) between drum pairs and between drums and building walls;

- Drums will be stacked a maximum of two high (single stacked for flammables, except for small containers, less than or equal to 30 gallons, of flammables which may be stacked two high to a maximum height of 5 feet);

- Drums containing liquids will be managed with a minimum 2 foot distance to the edge of the containment system (i.e., curbing); and

- Bulk containers may be staged end-to-end (maximum of 2) with a separation of 2 feet between rows.

General container management procedures are presented below, followed by a detailed description of each container storage area. Secondary containment calculations and drawings for each container storage area, as indicated by the figure number referenced for each area, are included in figures and calculations.

B. <u>GENERAL CONTAINER MANAGEMENT PROCEDURES</u>

(1). Acceptance Limitations

CWM is permitted by the NYSDEC for the receipt, handling, treatment and disposal of solid and liquid hazardous waste with the following exceptions:

- Shock-Sensitive Waste (for landfill disposal);

- Radioactive waste (slightly above background is acceptable in accordance with the CWM Waste Analysis Plan);

- Explosives; and

- Pyrophoric Waste (for landfill disposal).

All waste received in containers at the facility is subject to the procedures outlined in the CWM Waste Analysis Plan.

(2). Waste Tracking

Containerized waste is received at the site through the continuously monitored (i.e., security guard) front gate and directed to the scale/receiving department. All waste is tracked from receipt to treatment, disposal and/or off-site shipment. All completed waste tracking information becomes part of the Daily Operating Record.

(3). Off-Specification Wastes

Off-Specification designation indicates that the waste does not fall within specified waste parameters. The waste may or may not be acceptable for handling at the site. Details concerning off-specification wastes are presented in CWM's Waste Analysis Plan.

A quality control check is performed on each waste shipment received at the site. If a waste is determined to be off-specification, the laboratory or other technical personnel documents this off-specification. The off-specification information is distributed as necessary. If the waste is not acceptable at the site, the generator is notified and arrangements are made to transport the material to an appropriate facility or back to the generator.

Information for off-specification wastes will include operations and laboratory steps necessary to manage the waste. Wastes received off-specification may result in a re-evaluation of the waste profile and/or management decision according to CWM's Waste Analysis Plan.

(4). General Container Storage Procedures

(a). Packaging Requirements

Under USDOT regulations, it is the shipper's responsibility to ensure that waste which is a DOT hazardous material conforms to the container packaging requirements. All waste stored in containers shall conform to these requirements as follows:

- 49 CFR Subpart B - Table of Hazardous Materials and Special Provisions; specifically Part 172.101(i) Packaging Authorizations;
- 49 CFR Part 173 - Shippers - General Requirements for Shipments and Packagings; and
- 49 CFR Part 178 - Specifications for Packagings.

The following table contains a list of the USDOT specification containers for hazardous material and wastes received, stored and shipped by CWM. This list is not comprehensive and other containers may be selected in accordance with the performance oriented packaging standards in 49 CFR 171-178. Under USDOT, the shipper is responsible for ensuring that the packages are compatible with the hazardous material; Under RCRA, the TSDF becomes the generator when materials are shipped off-site.

USDOT Class/Div.		**Waste Type Example**	**USDOT Packaging Specifications**
2.1	Flammable Gas	Aerosols	1A2 1H2 1G 4G
2.2	Non-Flammable Gas	Aerosols	1A2 1H2 1G 4G
3	Flammable liquids	solvents, paints	1A1 1A2 1H1 1H2 31H Cargo tank combination: outer 4G or 1G, inner metal or plastic
4.1	Flammable Solid	metal powders	1A2 1H2 1G 4G
4.2	Spontaneously Combustible	oily rags	1A2 1H2 1G 4G
4.3	Dangerous when wet	sodium cell sweepings	1A2 1H2 1G 4G 11G
5.1	Oxidizer	liquid - aqueous solution	1A1 1A2 1H1 1H2 31H Cargo tank
		solid - nitrating salts	1A2 1H2 1G 4G
5.2	Organic Peroxides	organic peroxide	1A1 1A2 1H1 1H2
6.1	Toxic	liquid - chlorinated solvent	1A1 1A2 1H1 1H2 31H Cargo Tank combination: outer 4G or 1G, inner metal or glass
		solid - pesticides/soil	1A2 1H2 1G 4G 6HG 11G 11H 11H2 Roll-off box
8	Corrosive	liquid - acid solution	1A1 1A2 1H1 1H2 31H Cargo tank
		solid - caustic solids	1A2 1H2 1G 4G 6HG 11G 11H 11H2 Roll-off box
9	Miscellaneous	liquid - hazardous waste	1A1 1A2 1H1 1H2 6HG 31H Cargo tank combination: outer 4G or 1G, inner metal or plastic
		solid - hazardous waste	1A2 1H2 1G 4G 5L 5M 6HG 11G 11H 11HZ BK3 13H 13L Roll-off box

When selecting a container not on this table, CWM will follow the procedure described below:

- Refer to the DOT section of the Waste Profile Sheet to identify the proper shipping name.

- Locate the proper shipping name in column 2 of the Hazardous Materials (HazMat) Table (49 CFR 172.101). and identify the associated hazard class/division, identification number and packing group. Note any special provisions in column 7.

- Using this information, identify permissible packings identified in column 8A (exceptions), 8B non-bulk packages (< or = 119 gallons) and 8C for bulk packages (> 119 gallons). The sections referenced in column 8 as Section 173*** refer to the sections of Part 173 where the permissible packagings are identified and described.

Containers of hazardous materials that arrive at the site which do not meet the USDOT specifications will not be shipped off the site unless the contents of the container are placed into a container which meets USDOT specifications. Containers that arrive at the site which appear to have obvious signs of structural damage or deterioration, or which are found to be leaking shall either be repaired so that the containers meet RCRA & USDOT container specifications, overpacked into containers meeting RCRA & USDOT container standards or will be emptied and their contents placed into containers meeting RCRA & USDOT container standards or processed immediately.

Per 49 CFR, all containers that contain hazardous materials and leave the site for transportation by public highway must meet USDOT standards.

(b). Containment

Secondary containment systems as described below are utilized by CWM to store containerized (i.e., drums, rolloffs, etc.) liquid hazardous waste throughout the site. In the areas that only store hazardous waste solids, secondary containment is not required, but outdoor areas will be designed and operated to remove liquid resulting from precipitation or containers will be elevated or otherwise protected from contact with accumulated liquids.

(1). Modular Units

Modular units are currently used by CWM to store drummed liquid hazardous waste within the Aqueous Treatment Building (AT Drum dock). The modular units are constructed of a rectangular steel frame with a corrosion resistant steel grating over the frame which is bonded to the concrete floor using a solid layer of sealant (i.e., urethane caulk). Containers are positioned on these gratings. Containers holding packaged laboratory chemicals may be stored on floors since the packaging requirements listed under 49 CFR provide adequate primary, secondary and tertiary containment.

(2). Concrete Curbing

Concrete curbing is currently being used as secondary containment by CWM to store containerized liquid hazardous waste throughout the site. In several of the areas, CWM currently utilizes a coating (e.g., epoxy) or sealant (e.g., CHEMTEC One manufactured by CHEMTEC INTL) to improve the impervious quality of the concrete. The existing coating and sealant systems are inspected at least weekly and maintained as needed. For all sealant areas, the sealant will be reapplied annually. The following table lists all container storage areas and use of coatings or sealants.

LOCATION	COATING/SEALANT
Drum Management Building	
Building Interior	Sealant
West Ramp	Sealant
Truck Loading/Unloading Area & Ramp	No coatings or sealants required
PCB Warehouse Building	
Area 3/6	No coatings or sealants required (use pans for liquid storage)
All other areas	No coatings or sealants required
South Trailer Parking Area	Sealant
Stabilization Facility	
Trailer Parking Area I & II	No coatings or sealants required
Trailer Parking Area III & IV	Sealant
Waste Ash Tanker Unloading Area	Coating
Special Client Treatment Room	No coatings or sealants required
Macro Room	No coatings or sealants required
Lower Drum Shedder Area	Coating
Upper Drum Shredder	No coatings or sealants required
North Expansion Building	No coatings or sealants required
Aqueous Treatment Building	
AT Drum Dock	Coating
AT Tanker Unloading Area	Sealant
AT Filter Press Room	Coating
T. O. Building	No coatings or sealants required (use pans for liquid storage)
T.O. Building Loading Ramp	Sealant
Truck Wash Facility	No coatings or sealants required
T-130 Loading/Unloading Area	Sealant
T-108 Loading/Unloading Area	Sealant
T-109 Loading/Unloading Area	Sealant
T-158 Loading/Unloading Area	Sealant

Secondary containment for all container storage areas is inspected weekly in accordance with the Facility Inspection Plan. If concrete cracks or gaps are found that exhibit separation or if a defect in the coating system exposes the underlying concrete, an Environmental Work Order (EWO) will be issued to schedule the repair unless it is completed by the end of the next business day. The time period for a repair will vary depending on the type, extent and location of the defect. All repairs will be documented. Hairline cracks will be closely monitored and repaired if separation occurs.

(c). Compatibility

Containers are sealed prior to storage and are normally placed in a double row side by side within the same waste category. Containers can be double stacked, except for drummed flammables. Adequate aisle space is maintained to allow daily inspection of the containers.

In the areas where modular units are used, the modular units are organized by grouping them in sections. Each section stores only compatible materials. Each section may contain both regulated and non-regulated material according to compatibility.

For all containers not being stored on modules (i.e., concrete curbing), the segregation philosophy of 49 CFR Part 177.848 will be followed to avoid co-mingling of incompatible wastes.

Procedures for verifying compatibility of wastes are presented in CWM's Waste Analysis Plan.

(d). Identification

All hazardous waste containers will be labeled with the following information:

1. Generator name
2. Waste profile/identity
3. DOT labels, where applicable
4. Date Received at CWM for Land Disposal Restricted waste

Additional labeling for PCB items, articles and containers will be required by 40CFR Part 761. In addition, every PCB item, article, and container, which is regulated as hazardous under 6NYCRR Part 371, will have the words "Hazardous Waste" affixed to it because PCBs are a New York State listed Hazardous Waste and must be labeled accordingly.

(5). General Methods of Container Processing

Containerized material at the site is processed by one or more of the following general methods:

(a). Liquid wastes may be transferred to or from the Front End Aqueous Treatment System.

Aqueous wastes are stored in areas designated in Section A and treated at the Aqueous Waste Treatment Facility or they may be staged incidental to final treatment at the Aqueous Waste Treatment Facility.

(b). Organic Liquids and other liquids may be consolidated for BIF fuels blending or incineration offsite.

Liquid containerized wastes may be consolidated for BIF fuels blending or incineration. Liquid bulk materials may be transferred to appropriate tanks for storage. Containers of liquid waste may be transshipped to another facility for treatment/disposal.

(c). Solid materials are disposed of in designated landfill areas if and only if land disposal restrictions are met and/or do not apply.

All containers that contain solid wastes are staged temporarily until quality control measures are performed. Prior to landfilling, drums stored in the Drum Management Building are typically loaded onto flatbed trailers staged at the loading dock entrance. Based on information provided by the laboratory, the solid drummed wastes are delivered to the landfill for disposal.

(d). Solid materials may be consolidated for disposal offsite.

Solid containerized wastes may be consolidated for offsite disposal in a landfill or incinerator. Containers of solid waste may also be transshipped to another facility for treatment or disposal.

(e). Other containerized wastes may be stabilized and landfilled and/or transported to an offsite permitted facility.

Incoming materials will be stabilized to meet land disposal restriction standards or to increase strength prior to landfilling, as necessary. Decharacterized waste may be disposed of in an offsite permitted landfill.

(f). Some types of waste can be Macroencapsulated and/or Microencapsulated using permitted debris technology.

CWM may implement debris immobilization techniques by stabilizing debris utilizing microencapsulation and/or macroencapsulation techniques.

Microencapsulation is a specified technology involving the immobilization of contaminants on the surface of debris by a process similar to stabilization.

Debris that may not be physically suitable for the stabilization equipment, or that contains contamination unsuitable for microencapsulation (e.g., a pump contaminated with oily leachate) may be managed by macroencapsulation.

CWM currently utilizes macroencapsulation containers (i.e., vaults) made of high density polyethylene (HDPE) and the minimum thickness of the containers' bottom, sides, and top is 300 mil. having a capacity of approximately 30 cubic yards. The container shall be the “SUPERLINER XL 0370 Black HDPE” brand or NYSDEC approved equivalent. After the void space is filled with stabilized waste or other approved filler material, the containers are sealed by applying glue to the lip of the container and the lid. The lid is placed on the container and screws are installed at approximately 4 inch to 6 inch intervals. A visual inspection is performed after the container is sealed. Other non-degradable containers, such as a polydrum or other approved encapsulation device, may also be used.

In order to help prevent damage to the macroencapsulation container during off-loading operations, the lip of each container shall be modified to reduce the stress on the container. This modification consists of removing as much of the lip as possible while still leaving sufficient width to secure the container lid. Alternatively, the design of the container may be modified by the manufacturer to reduce the stress produced by the lip. CWM will take all necessary precautions to prevent macroencapsulation container damage and monitor each container's integrity from filling through placement in the landfill. Any observed damage and the repairing of such damage, shall be recorded in the facility's operating record.

(g). Repacking and decanting wastes and other hazardous materials.

Container repackaging can occur in the Drum Management Building or the PCB Warehouse Building and, in certain instances, in the T.O. Building. USDOT packaging standards must be followed for hazardous materials that will be shipped offsite.

(h). Empty containers may also be accepted from offsite and landfilled or transported offsite for disposal or recycling.

Empty containers are accepted at the Drum Management Building for visual inspection to ensure that they are empty in accordance with 6NYCRR Part 371.1(h)(2). Drums determined to be empty may be sent off-site for recycling. Empty drums may be crushed in the landfill. They also may be crushed in the stabilization mixing pits and sent offsite to a permitted landfill.

Hazardous waste containers that, upon inspection, do not meet the definition of RCRA empty (as defined in 6NYCRR Part 371.1(h)(2)) after the liquid has been removed will be treated as hazardous waste. A management method for the waste will be selected as dictated by CWM's Waste Analysis Plan.

(i). Transship for recycling or other treatment processes.

Containers of batteries, light bulbs and other wastes may be transshipped for recycling or other applicable management process.

C. DRUM MANAGEMENT BUILDING

(1). History and Design

Construction of the existing Drum Management Building (DMB) commenced in 1981 and was completed in 1982. The building was opened for use in November, 1982 and includes a loading/unloading dock for the shipment and receiving of wastes. The DMB West Ramp was constructed in 1998 and encompasses 1,700 square feet.

(2). Operations

Based on the types/volumes of wastes received by the site, the DMB is the focal point for most incoming containers. Liquid waste containers were previously managed on modular containment units. In 2006, CWM replaced the existing modular units with a concrete curb secondary containment system. This system provides separation of incompatibles. Solid waste containers may be stored throughout the DMB. Figure D-1A presents the DMB layout and the maximum liquid and/or solid storage capacity for the building based on the previously presented spacing requirements (also see Section A). The arrangements of containers may change depending on storage needs, however, compatibility guidelines will be met. Secondary containment calculations accompany attached Figure D-1A. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to all concrete floor areas in this building which are permitted for liquid waste storage.

Loading/unloading areas at the DMB have ramps allowing equipment to move directly onto transport vehicles from the unloading docks. Containers are removed by use of forklifts that are equipped with drum handling attachments. The attachments generally employed are capable of lifting up to two (2) drums at a time. Other container moving practices may be utilized as technologies improve.

(a). Loading/Unloading Areas

The DMB Loading/Unloading Area & Ramp is permitted for solids container storage only. No secondary containment is required. Incoming and outgoing box trailers containing 55-gallon containers or equivalent of liquids and/or solids may be temporarily staged in this areas. Incoming trailers will be unloaded and a quality control check performed. The dock area is covered, providing protection for personnel during inclement weather.

After receipt, containers may be staged on a flatbed incidental to the transfer of these containers to other on-site operations, such as aqueous treatment, stabilization, or the landfill. Liquid and incompatible waste containers may be staged on flatbed trailers according to USDOT compatibility requirements in the dock area up until the end of the last DMB personnel work shift on the date placed in the dock area. Containers with solid wastes may be staged on the dock for longer if needed.

Co-mingling of incompatible wastes staged on the trailers in the dock area is prevented by separating these wastes with a buffer such as non-regulated packages or bags of "speedi-dry" or as required by NYSDOT.

The DMB West Ramp (fuel transfer area) is permitted for liquid storage. This ramp is used to transfer compatible liquids from drums inside the DMB to bulk tankers located on the ramp. It is sized to accommodate two tankers to also allow the transfer from tanker to tanker. CWM has applied an approved sealant (e.g., CHEMTEC One) to the entire ramp area.

(b). Container Waste Characterization

The waste characterization procedures described in CWM's Waste Analysis Plan are used to determine the compatibility grouping for a particular waste material.

In addition, each corrosive is specified as either an acid or base for further segregation. All acutely toxic materials (P codes which are not "derived from" treatment residues) will be handled as poisons if they are not specifically listed by USDOT for other hazardous properties. Any D, F, K or U codes for materials not specifically assigned a hazard class will be recognized as Class 9 for storage purposes. In the fuels storage area, flammables, combustible, Class 9 and non-regulated organic liquids will be staged for bulking into a fuel or incineration blend.

(3). Containment

The maximum 55-gallon equivalent containers (solids/liquids) allowed for this building is presented in Section A and on attached Figure D-1A.

(a). Base Construction

The DMB floor, loading/unloading ramp and West Ramp are constructed of concrete and inspected as defined within the Facility Inspection Plan. The base was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Containment of Leaking Drums

The DMB is inspected at least daily on operating days for leaks or spills. If spills are observed, they will be contained within the building. Spilled materials will generally be absorbed with absorbent and placed into drums for disposal. Upon receipt of a shipment of drums and after unloading, a visual inspection is made for leaking drums.

If a small leak should occur, the contents of a leaking drum are transferred to another appropriate container or the drum is placed in an overpack drum. In the event of major leaks or spills, liquids will be removed by vacuum trucks or absorbed with a compatible absorbent material and placed into containers for disposal.

Spilled material is cleaned up with absorbent materials. Spill control procedures are described in the CWM Contingency Plan.

(c). Control of Run-off and Run-on

Because all container management operations take place within the confines of the existing DMB, no run-off or run-on is expected. However, precipitation may collect in the covered truck unloading area or curbed fuels transfer area ramp. Precipitation may be treated in the Aqueous Treatment System without sampling. If the liquids will be discharged to the surface water drainage system, a water sample will be collected for appropriate characterization prior to the discharge.

(4). Fuels Drum Pumping Station

A separate pumping station is located in a partitioned room at the south end of the DMB. The purpose of this station is to transfer waste organic liquids, such as oils, solvents, lean waters, etc., from drums and oil filled equipment into bulk containers at the DMB West Ramp using a permanently installed pump. This operation provides fuels blending and consolidation for off-site shipments. Containment is provided by the DMB (i.e., concrete floor and trench).

D. PCB WAREHOUSE BUILDING

(1). History and Design

The PCB Warehouse Building was constructed in the 1940's and consists of a single story, brick and frame structure which is approximately 239 feet long by 106 feet wide. There are five major areas within the building which are separated by masonry walls.

The floor consists of a six-inch thick reinforced concrete slab poured on fill material. The floor is smooth and there are no floor drains or other floor openings. A perimeter concrete footing is about four feet above surrounding ground level.

The exterior walls consist of wood frame with aluminum siding on exterior and painted plywood on interior with a frame of 2 x 4's on 16-inch centers. Interior walls consist of brick and mortar construction. The roof is supported by 2" x 8" rafters on 20-inch centers. The rafters are supported by wooden beams on vertical wood columns in Areas 3, 4, and 5 and by longer span wood trusses in Area 1. The roof is covered with tar paper and sealed with roofing tar.

(2). Operations

The PCB Warehouse Building is used for the container storage of solid and liquid materials. Liquid drums must be stored within containment pans. A total of four pans, each 9 feet wide by 50 feet long by 2 inches high, capable of storing up to 40 drums (55 gallons or equivalent) each, are constructed of ¼" thick continuously welded ASTM Grade A36 carbon steel coated with vinyl ester. All containers stored within a pan in the PCB Warehouse pans are compatible with each other and with the pans, as established by the CWM Waste Analysis Plan. Attached Figure D-2 presents the PCB Warehouse Building layout and the maximum liquid and/or solid storage capacity for the building based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-2. No secondary containment will be provided or is required in the areas used for storage of solid waste. Coatings or sealants are not required in the PCB Warehouse Building. Storage of waste within the building will be as follows:

- Areas 1, 3 and 6 are primarily used for container storage of wastes that will be shipped offsite for recycling or disposal and other wastes for onsite management. Area 1 will be used for storage of solids only. Areas 3 and 6 will be used to store compatible liquid and solid waste materials.

- Area 5 will be used to store empty drums and supplies. Areas 2 and 4 will be used to store facility supplies and equipment, including clean overpack drums.

(3). Containment

As previously discussed, no secondary containment will be required in areas 1, 2, 4 and 5 based on only solid storage requirements. Containment within the liquid waste storage area (Areas 3 and 6) is provided by containment pans. In addition, storage areas 3 and 6 are provided with a one-foot high continuous perimeter curb and doors are equipped with elevated ramps to prevent liquids from exiting the building.

(a). Base Construction

The PCB Warehouse Building floor consists of a poured concrete slab and is inspected as defined within the Facility Inspection Plan. The base of the PCB Warehouse Building was designed to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment

The PCB Warehouse Building is inspected daily on operating days for leaks or spills. Spilled materials will generally be absorbed with absorbent and placed into drums for disposal. Upon receipt of a shipment of drums and after offloading, a visual inspection is made for leaking drums.

If a small leak should occur, the contents of a leaking drum are transferred to another appropriate container or the drum is placed in an overpack drum. In the event of major leaks or spills, liquids will be removed by vacuum trucks or absorbed with a compatible absorbent material and placed into containers for disposal.

Spilled material is cleaned up with absorbent materials. Spill control procedures are described in the CWM Contingency Plan.

(c). Control of Run-On and Run-Off

All container management operations will take place within the confines of the existing PCB Warehouse building. Therefore, no run-on and run-off is expected.

E. <u>SOUTH TRAILER PARKING AREA</u>

(1). History and Design

The South Trailer Parking Area encompasses 15,000 square feet, was constructed in 1986, and is used to store full trailers containing solid or liquid materials. The area is 299 feet long and is designed to store liquid and solid materials in containers prior to disposal. The area is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from any unit will be contained.

(2). Operation

The South Trailer Parking Area may be used for storage of liquid and/or solid hazardous and non-hazardous waste. Containers are typically placed in this area for the following reasons:

- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

The following units may be used to store materials in this area.

- Box trailers holding hazardous and non-hazardous waste in USDOT approved containers;
- Bulk tanker trailers, vacuum trailers or other bulk containers holding liquids;
- Covered roll-off trailers holding solid materials; and
- Flatbed or lowboy trailers holding hazardous and non-hazardous waste in containers or transformers. Cardboard, fiberboard, textile fabric or other non-metal or non-heavy plastic containers meeting USDOT specifications, may be stored on an uncovered flatbed or other open trailer for up to seven (7) days in accordance with Condition B.1.a.iii in Exhibit C of Schedule 1 of Module I in the Permit.

Attached Figure D-3 presents the South Trailer Parking Area layout and the maximum liquid and/or solid storage capacity for the area based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-3. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to the entire concrete slab.

(3). Containment

The South Trailer Parking Area is used for the liquid or solid storage of the RCRA regulated, TSCA regulated and non-hazardous full or partially full containers mentioned above.

(a). Base Construction

The South Trailer Parking Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Approximately one foot up slope from the rear curb is an 18” high containment wall that is designed to protect the rear containment curb. Precipitation will collect in the containment area until it is removed via vacuum truck. The South Trailer Parking Area consists of a poured concrete slab which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The South Trailer Parking Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment System, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards. It may also be collected and used in lieu of city water in the Stabilization process in accordance with SDP 2124, if analysis indicates compliance with 6 NYCRR Part 376.

F. STABILIZATION FACILITY

(1). History and Design

The Stabilization Facility (CHEM-MATRIX System), a mechanized stabilization process, began operations in 1991. In late 1992, the Main Stabilization Facility was augmented with the Northern and Southern Expansions. The Stabilization Facility also includes the Trailer Parking Area, Waste Ash Tanker Unloading Area, Special Client Treatment Room, Macro Room, Lower Drum Shredder Area and Upper Drum Shredder Area.

The mechanized facility was closed in 1996 and received NYSDEC approval of closure in January 1997. After removal of the CHEM-MATRIX system, the drum shredder was relocated from the Northern Expansion to the Main Stabilization Facility. The drum shredder was removed in May 2009 after receiving NYSDEC approval of the closure certification. The Southern Expansion, originally used as a powdery waste processing system, has not been used for that purpose since 1994 and is now used for reagent and water storage.

The Stabilization Facility is permitted to store solid and liquid containers incidental to the treatment operation. Operational flexibility may require storage or staging of different waste types and quantities. Attached Figure D-4 presents the maximum liquid and/or solid storage capacity for the areas based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-4. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied in the areas utilized for liquid storage.

The Stabilization Facility is designed to process hazardous wastes so that the stabilized wastes conform to NYSDEC and Federal Land Disposal Restrictions (LDRs) thereby making wastes amenable to landfill disposal. Hazardous and non-hazardous wastes may be stabilized in order to meet the compressive strength requirements of CWM's Waste Analysis Plan. In addition, equipment may be used to process hazardous and non-hazardous waste into a state acceptable at an on-site or off-site disposal facility. A detailed description of each area within the Stabilization Facility is presented below.

(a) <u>Trailer Parking Areas</u>

(1). History and Design

The Stabilization Trailer Parking Area encompasses four separate areas (Areas I – IV) and is used to store solid or liquid materials. The dimensions of the areas as well as intended storage are as follows:

- Area I (solid waste or compatible liquid/solid non-waste containers) – 70'x35'
- Area II (solid waste or compatible liquid/solid non-waste containers) – 150'x35'
- Area III (solid/liquid waste containers or compatible liquid/solid non-waste containers) – 200'x35'
- Area IV (solid/liquid waste containers or compatible liquid/solid non-waste containers) – 100'x35'

The areas are constructed of reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from an area will be contained.

(2). Operations

Area III and IV of the Stabilization Trailer Parking Area may be used for storage of liquid and/or solid hazardous and non-hazardous waste. Areas I, II & IV may only be used for storage of solid hazardous and non-hazardous waste and liquid non-waste containers. Containers are typically placed in this area for the following reasons:

- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

Units which may be stored or staged incidental to treatment in this area include:

- Box trailers holding hazardous and non-hazardous waste in USDOT approved containers (liquid waste containers in Areas III & IV only);

- Bulk tanker trailers, vacuum trailers or other bulk containers holding liquids (in Areas III & IV only);

- Covered roll-off trailers holding solid materials; and

- Flatbed or low boy trailers holding hazardous and non-hazardous waste in containers or transformers. Cardboard, fiberboard, textile fabric or other non-metal or non-heavy plastic containers meeting USDOT specifications, may be stored on an uncovered flatbed or other open trailer for up to seven (7) days in accordance with Condition B.1.a.iii in Exhibit C of Schedule 1 of Module I in the Permit.

(3). Containment

(a). Base Construction

All four areas are constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pads are sloped toward the rear wall and graded toward the center from both sides. Approximately one foot up slope from the rear curb is an 18-inch high barrier wall, which is designed to protect the rear curb from trailers backing into the rear containment curb. The base of the Trailer Parking Area was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The Stabilization Trailer Parking Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment System, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards. It may also be collected and used in lieu of city water in the Stabilization process in accordance with SDP 2124, if analysis indicates compliance with 6 NYCRR Part 376.

(b). North Expansion Building

(1). History and Design

The North Expansion Building was constructed in 1992 and is located adjacent to the north side of the Main Stabilization Building. The south wall of the facility is also the north wall of the Main Stabilization Building. The North Expansion Building has a control room and a mechanical room. The building contains two mixing pits (i.e., double walled subsurface tanks) on the west end and an overhead crane with a five ton hoist. An overturning frame is located on the west side by the overhead doors leading to the mixing pits to hinder trucks from tipping over while emptying their loads. There are three dust collection system baghouses, located east of the Main Stabilization Building. In addition, there is a make-up air unit on the roof to provide make-up air and heat to the buildings when the baghouses are operating.

(2). Operations

The primary purpose of the North Expansion Building is to stabilize waste material by mixing incoming waste streams with pozzolanic materials, other reagents and water. This will typically consist of waste being dumped into the pits, adding reagents and water, mixing with a backhoe and loading the stabilized material into dump trucks to haul to the site's landfill or to be transported off site. The pits may also be used to improve waste strength or prepare waste material for off site shipment.

The floor of the building is constructed with reinforced concrete. The concrete floor is placed over an HDPE liner to form an impervious barrier against waste migration. Except at the west side doorways, a perimeter curb is constructed around the entire building to further contain waste. The mixing pits are double walled steel tanks recessed into the floor of the North Expansion Building. The floor of the outer tank is sloped to a low point where a monitoring pipe installed within the secondary containment of the pit to provide identification of leaks into the leak detection annulus and to remove any liquids that collect between the tank walls.

Containerized solid wastes associated with the stabilization operations may be stored in the North Expansion Building.

(3). Containment

Other than the mixing pits, the North Expansion Building is only used for solid container storage and so no secondary containment is required.

(c). Main Building Stabilization Facility:

(1). History and Design

The Main Building Stabilization Facility consists of the Special Client Treatment Room, Macro Room, and the Upper/Lower Drum Shredder Areas.

(2). Operations

The Special Client Treatment Room (SCTR) is generally utilized for material storage, such as sandblast grit, road salt and stabilization reagents. It may also be used for storage of containers of solid hazardous and non-hazardous waste.

The Upper/Lower Drum Shredder Areas were previously used in conjunction with the drum shredder which has since been removed. After removal of the drum shredder, these areas continue to provide container storage. The Upper Drum Shredder Area is used for solid container storage only. The Lower Drum Shredder Area may be used for the storage of solid or liquid containers. Air emissions ductwork previously used for the Drum Shredder remains in place to provide general building ventilation, which is potentially part of the stabilization hazardous waste management.

The Macro Room is used for the storage of solid containers only. This area is used to store rolloffs containing HDPE boxes (minimum thickness of 300 mils) from the macroencapsulation process, prior to disposing in the landfill or shipping offsite. Macroencapsulation containers are processed in accordance with the procedures presented in Section B.5.f above. Lids for the boxes are typically installed in the Macro Room.

(3). Containment

No secondary containment is required in the SCTR, Macro Room or Upper Drum Shredder Area since these areas are used for solid storage only. The area utilized for liquid storage, i.e., Lower Drum Shredder Area, is constructed of a poured concrete slab and curbed sides which were designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations. The previously installed coating in this area will be maintained.

(d). Waste Ash Tanker Unloading Area:

(1). History and Design

The Waste Ash Tanker Unloading Area was constructed in 1992 with the Southern Expansion and is located south of the Main Stabilization Building. This area consists of a concrete ramp used for unloading waste ash tankers into the stabilization process. CWM will maintain the existing concrete coating system in this area.

(2). Operations

The Waste Ash Tanker Unloading Area is used to store both empty and full waste roll-offs and dry bulk trailers containing solid materials.

(3). Containment

The Waste Ash Unloading Area includes the ramp and sump area. The Waste Ash Unloading Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Approximately one foot up slope from the rear curb is a one-foot high barrier wall, which is designed to protect the rear curb from trailers backing into the rear containment curb. The base of the Waste Ash Unloading Area was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

G. AQUEOUS TREATMENT BUILDING

(1). History and Design

The Aqueous Treatment (AT) Building was designed and constructed in 1985. The AT Building also includes the AT Drum Dock, the AT Tanker Unloading Area, and the AT Filter Press Room.

(2). Operations

The AT Building is permitted for solid and liquid storage and is used in the treatment of leachate and aqueous waste at the site. Attached Figure D-5 presents the current typical storage arrangements for the Building and secondary containment storage volume calculations (also see Section A). Operational flexibility may require moving modular units and/or redesignating modular waste types and drum quantities. As previously stated, an approved sealant, (e.g., CHEMTEC One) or coating has been applied in the areas utilized for liquid storage.

(3). Containment

The AT Drum Dock is permitted for solid and liquid storage with containers stored on modular containment units. The units are designed to manage liquid waste drums. In the event that a drum of liquid should leak or rupture, the modular containment units would provide containment for such an occurrence. Drums are segregated according to compatibility. The beams under the grating are currently bolted to the floor and caulked to provide separation of incompatible spills. The floor and beams under the grating system have been coated with a coating system (i.e., Elasti-Liner). Segregated rows are identified for storage of acids, bases and neutrals. Acids and bases must be separated by a neutral row at least two drums wide.

The AT Filter Press Room is permitted for the storage of solid containers only. However, CWM will maintain the existing floor coating system in this area due to water cleaning of the filter presses and the presence of tanks T-1111 and T-1112.

The AT Tanker Unloading Area is permitted for the storage of solid and liquid containers. CWM will maintain the existing concrete secondary containment system and has applied an approved sealant (e.g., CHEMTEC One) to the entire ramp and sump area.

(a). Base Construction

The AT Building, including the AT Drum Dock, the Filter Press Room and the AT Tanker Unloading Area, floor base is constructed of concrete which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Containment of Leaking Drums

The AT Building is inspected at least daily on operating days for leaks or spills. If spills are observed, they will be contained within the building. Spilled materials will generally be absorbed with absorbent and placed into drums for disposal. Upon receipt of drums and after unloading, a visual inspection is made for leaking drums.

If a small leak should occur, the contents of a leaking drum are transferred to another appropriate container or the drum is placed in an overpack drum. In the event of major leaks or spills, liquids will be washed down and pumped into a treatment tank from the containment sump or absorbed with a compatible absorbent material and placed into containers for disposal.

Spilled material is cleaned up with absorbent materials. Spill control procedures are described in the CWM Contingency Plan. In the event of major leaks or spills, liquids from the AWT Drum Dock will be contained within the Modular

Containment Units and the AT Building. The liquid will be pumped out via vacuum truck or evacuated and placed directly into the AWT tanks.

(c). Control of Run-off and Run-on

Because all container management operations take place within the confines of the existing AT Building, no run-off or run-on is expected. However, precipitation may collect in the ramp and sumps of the AT Tanker Unloading Area. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the aqueous waste treatment system, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

H. TRANSFORMER DECOMMISSIONING BUILDING OR "T.O." BUILDING

(1). History and Design

The Transformer Decommissioning Building was in use for over forty years as part of the Lake Ontario Ordinance Works. In the 1970s, this building, which now houses the transformer decommissioning operations at CWM, was formerly used for thermal oxidation (T.O.) processes. The facility name for this building, "T.O. Building", is a result of this former use. The T.O. Building consists of a single-story concrete and sheet metal structure, which is approximately 50 feet long by 41 feet wide. The building has been in use for its present service since 1981. In 1981, the equipment from the defunct T.O. operations was removed and disposed. At that time, the building was cleaned and modified for the transformer decommissioning operation by repair of the roof, construction of concrete berms, addition of a door and sealing of floor joints. The south, east and west walls of the building are constructed of one-foot thick reinforced concrete. The north wall of the building consists of corrugated sheet metal with openings for two roll-up doors. The 13-foot high manual (pull-chain) roll-up was originally included in construction of the building. The second roll-up door (20-foot high) was installed during 1987 building modifications. Movement of the door is controlled by an electrical switch.

The roof of the T.O. Building is constructed of corrugated sheet metal. There is electrical service provided throughout the building. Overhead lights have been installed for lighting the building. Besides being permitted to store waste, the T.O. Building is also used to store equipment which is used for PCB waste management operations.

The T.O. Building Loading Ramp was constructed in 1998 and encompasses 2,100 square feet.

Attached Figure D-6 presents the T.O. Building layout and the maximum liquid storage capacity for the building based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-6.

(2). Operations

The T.O. Building and Loading Ramp are permitted for solid and liquid container storage. The facility receives PCB-contaminated transformers and other electrical equipment for decanting and decommissioning prior to disposal. This equipment is brought to the T.O. Building after completion of the receiving procedures. Regulated activities which may be performed in the T.O. Building include equipment decommissioning, storage, decanting, flushing and miscellaneous activities such as cutting contaminated cable.

Generally, transformers and other electrical devices containing liquids which are delivered to the site are transported in metal drip pans or drums on a flatbed trailer or box van. Pans and drums provide containment for spilled or leaked oil while in route to the site.

PCB contaminated oil and spent flushing solvent from decommissioned transformers, other electrical equipment or tank trucks is removed by vacuum tank truck and placed into tankers located at the T.O. Building Loading Ramp north of the building for bulk shipment and off-site treatment, i.e., incineration or other approved TSCA methods. PCB receiving procedures are outlined in CWM's Waste Analysis Plan. The T.O. Building Loading Ramp is also used as a station for fueling vehicles and unloading fuel oil.

(3). Containment

A concrete berm surrounds the inside of the building, providing containment for spilled or leaked material. However, secondary containment will be provided by the use of steel containment pans within the T.O. Building. All transformers, other electrical equipment and drums will be stored within the containment pans. The floor is a six-inch thick reinforced concrete slab poured on fill material. The floor is smooth, with no floor drains or any other floor openings. Coatings or sealants on the existing concrete floor are not required.

The Loading Ramp is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the middle. Precipitation will collect in the containment area until it is removed via vacuum truck. The Loading Ramp was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations. As previously stated, an approved sealant (e.g., CHEMTEC One) has been applied to the entire loading ramp.

(a). Control of Run-On and Run-Off

Since the decommissioning operations are conducted inside the T.O. Building, run-on and run-off is not expected. At the base of each of the two doorways is a ramp, preventing liquids from escaping and precipitation from entering.

The T.O. Building Loading Ramp, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment System, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

I. TRUCK WASH FACILITY

(1). History and Design

The truck wash facility is a heated, drive-through bay on the north end of the old transportation garage, which was renovated in 1994. Dimensions of the bay are 88 feet in length by 15 feet 9 inches wide by 16 feet high. Overhead doors are located at each end of the bay. Walls are constructed of corrugated metal.

(2). Operations

The Truck Wash Building is permitted to stage solid containers only and is used to wash the exterior of trucks which have not come into contact with hazardous waste or have been previously decontaminated at the RMU-1 truck wash station. It also may be used to temporarily store bulk solid hazardous waste containers, such as to provide heat for thawing frozen loads.

Trucks to be cleaned enter the truck wash facility through the east side and exit through the west. A high pressure water wash is used to clean the vehicles. The wash system has an auxiliary heater to raise the water temperature for winter use. Vehicle wash time varies depending upon its size and the amount of cleaning required.

Attached Figure D-7 presents the maximum solid storage capacity for the area based on the previously presented spacing requirements (also see Section A).

(3). Containment

Since the Truck Wash Building is permitted for the storage of solids only, no secondary containment is required.

J. T-130 LOADING/UNLOADING AREA

(1). History and Design

The T-130 Loading/Unloading Area was constructed in 1998 and encompasses 700 square feet. It is used to store full trailers containing liquid materials generated from the SLF 1-6 leachate lift station tank T-105 or surge tank T-130. The area is 56 feet long and 13 feet wide with a curb height at the deepest end of 3’-9”. The area is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from any unit will be contained.

(2). Operations

The T-130 Loading/Unloading Area may be used by CWM for storage of aqueous liquid which may contain small quantities of incinerable liquids and/or solid hazardous and non-hazardous waste. Containers are typically placed in this area for the following reasons:

- Transfer of leachate from tank T-105 or T-130;
- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

The following units may be used to store materials in this area.

- Box trailers holding hazardous and non-hazardous waste in USDOT approved containers;
- Bulk tanker trailers, vacuum trailers or other bulk containers holding aqueous liquids which may contain small quantities of incinerable liquids;
- Covered roll-off trailers holding solid materials; and
- Flatbed or low boy trailers holding hazardous and non-hazardous waste in containers or transformers. Cardboard, fiberboard, textile fabric and other non-metal or non-heavy plastic containers meeting USDOT specifications, may be stored on an uncovered

flatbed or other open trailer for up to seven (7) days in accordance with Condition B.1.a.iii in Exhibit C of Schedule 1 of Module I in the Permit.

Attached Figure D-25 presents the T-130 Loading/Unloading Area layout and the maximum liquid storage capacity for the area based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-25. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to the entire concrete slab.

(3). Containment

The T-130 Loading/Unloading Area is used for the aqueous liquid which may contain small quantities of incinerable liquids or solid storage of the RCRA regulated, TSCA regulated and non-hazardous full or partially full containers mentioned above.

(a). Base Construction

The T-130 Loading/Unloading Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Precipitation will collect in the containment area until it is removed via vacuum truck.

The T-130 Loading/Unloading Area consists of a poured concrete slab which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The T-130 Loading/Unloading Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

K. <u>T-108 LOADING/UNLOADING AREA</u>

(1). History and Design

The T-108 Loading/Unloading Area was constructed in 1998 and encompasses 700 square feet. It is used to store full trailers containing liquid materials generated from the SLF-7/11 leachate holding tank T-108 or SLF-7 leachate wet well tank T-107. The area is 55 feet long and 13 feet wide with a curb height at the deepest end of 1’-9”. The area is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from any unit will be contained.

(2). Operations

The T-108 Loading/Unloading Area may be used by CWM for storage of aqueous liquid and/or solid hazardous and non-hazardous waste. Containers are typically placed in this area for the following reasons:

- Transfer of leachate from tank T-108 or tank T-107;
- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

The following units may be used to store materials in this area.

- Box trailers holding hazardous and non-hazardous USDOT approved containers;
- Bulk tanker trailers, vacuum trailers or other bulk containers holding aqueous liquids;
- Covered roll-off trailers holding solid materials; and
- Flatbed or lowboy trailers holding hazardous and non-hazardous containers or transformers. Cardboard boxes and other fiberboard containers may not be stored on an uncovered flatbed or other open trailer.

Attached Figure D-13 presents the T-108 Loading/Unloading Area layout and the maximum liquid storage capacity for the area based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-13. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to the entire concrete slab.

(3). Containment

The T-108 Loading/Unloading Area is used for the aqueous liquid or solid storage of the RCRA regulated, TSCA regulated and non-hazardous full or partially full containers mentioned above.

(a). Base Construction

The T-108 Loading/Unloading Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Precipitation will collect in the containment area until it is removed via vacuum truck.

The T-108 Loading/Unloading Area consists of a poured concrete slab which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The T-108 Loading/Unloading Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

L. T-109 LOADING/UNLOADING AREA

(1). History and Design

The T-109 Loading/Unloading Area was constructed in 1998 and encompasses 700 square feet. It is used to store full trailers containing liquid materials generated from the SLF-10 leachate holding tank T-109. The area is 55 feet long and 13 feet wide with a curb height at the deepest end of 1’-9”. The area is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from any unit will be contained.

(2). Operations

The T-109 Loading/Unloading Area may be used by CWM for storage of liquid and/or solid hazardous and non-hazardous waste. Containers are typically placed in this area for the following reasons:

- Transfer of leachate from tank T-109;
- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

The following units may be used to store materials in this area.

- Box trailers holding hazardous and non-hazardous USDOT approved containers;
- Bulk tanker trailers, vacuum trailers or other bulk containers holding aqueous liquids;
- Covered roll-off trailers holding solid materials; and
- Flatbed or lowboy trailers holding hazardous and non-hazardous containers or transformers. Cardboard boxes and other fiberboard containers may not be stored on an uncovered flatbed or other open trailer.

Attached Figure D-12 presents the T-109 Loading/Unloading Area layout and the maximum liquid storage capacity for the area based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-12. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to the entire concrete slab.

(3). Containment

The T-109 Loading/Unloading Area is used for the aqueous liquid or solid storage of the RCRA regulated, TSCA regulated and non-hazardous full or partially full containers mentioned above.

(a). Base Construction

The T-109 Loading/Unloading Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Precipitation will collect in the containment area until it is removed via vacuum truck.

The T-109 Loading/Unloading Area consists of a poured concrete slab which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The T-109 Loading/Unloading Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

M. T-158 LOADING/UNLOADING AREA

(1). History and Design

The T-158 Loading/Unloading Area was constructed in 1998 and encompasses 700 square feet. It is generally used to store full trailers containing leachate from ~~the~~ SLFs 1-11, biphased gate receipts for transfer to the oil/water separator tank T-158 and organic materials transferred from tank T-158 to tankers. The area is 55 feet long and 13 feet wide with a curb height at the deepest end of 1’-8.5”. The area is constructed of a reinforced concrete pad, curbed on three sides and sloped so that all precipitation or potential leakage from any unit will be contained.

(2). Operations

The T-158 Loading/Unloading Area may be used by CWM for storage of liquid and/or solid hazardous and non-hazardous waste. Containers are typically placed in this area for the following reasons:

- Transfer of leachate to and from tank T-158, Frac Tank #3 and the tanks in the Leachate Tank Farm or organic materials from tank T-158 to tankers;
- Trailer is delivered to the site after normal operating hours;
- The materials delivered are found to be off-specification;
- Materials will be processed after the date of receipt;
- Corrective measures are being instituted due to a potential leaking vehicle; or
- General storage while awaiting disposal approval or off-site transportation.

The following units may be used to store materials in this area.

- Box trailers holding hazardous and non-hazardous waste in USDOT approved containers;
- Bulk tanker trailers, vacuum trailers or other bulk containers holding liquids;
- Covered roll-off trailers holding solid materials; and
- Flatbed or low boy trailers holding hazardous and non-hazardous waste in containers or transformers. Cardboard, fiberboard, textile fabric and other non-metal or non-heavy plastic containers meeting USDOT specifications, may be stored on an uncovered flatbed or other open trailer for up to seven (7) days in accordance with Condition B.1.a.iii in Exhibit C of Schedule 1 of Module I in the Permit.

Attached Figure D-14 presents the T-158 Loading/Unloading Area layout and the maximum liquid storage capacity for the area based on the previously presented spacing requirements (also see Section A). Secondary containment calculations accompany attached Figure D-14. As previously stated, an approved sealant, (e.g., CHEMTEC One) has been applied to the entire concrete slab.

(3). Containment

The T-158 Loading/Unloading Area is used for the liquid or solid storage of the RCRA regulated, TSCA regulated and non-hazardous full or partially full containers mentioned above.

(a). Base Construction

The T-158 Loading/Unloading Area is constructed of reinforced concrete with a compacted gravel base layer. The concrete containment pad is sloped toward the rear wall and graded toward the center from both sides. Precipitation will collect in the containment area until it is removed via vacuum truck.

The T-158 Loading/Unloading Area consists of a poured concrete slab which was designed by a certified professional engineer to support loads and structural stresses in excess of those provided by present operations.

(b). A Procedure for the Removal of Liquids from Secondary Containment and Precipitation Management

The T-158 Loading/Unloading Area, being outdoors, will collect precipitation. Precipitation will be collected and removed via vacuum truck or equivalent and treated in the Aqueous Waste Treatment, or if appropriate, characterized by sampling and discharged to the surface water drainage system if analysis indicates that it meets surface water standards.

N. AIR EMISSION STANDARDS

Air emission standards for containers are specified in 6NYCRR 373-2.29 and 40 CFR 264/265.1080-1091 (Subpart CC), which became effective on December 6, 1996. RCRA Subpart CC is applicable to owners and operators of a TSDF which treats, stores or disposes of hazardous waste containing greater than 500 ppmw volatile organics in tanks, surface impoundments and containers. If Subpart CC wastes are managed in containers, either Level 1, Level 2 or Level 3 controls must be implemented depending on the container size, organic content and activity performed.

Level 1 controls may be used for all containers less than 119 gallons and containers greater than 119 gallons which are not in light material service (i.e., total concentration of pure organic constituents having a vapor pressure greater than 0.3 kPa (0.04 psi) at 20^{o} C is equal to or greater than 20% by weight). Level 1 controls may be satisfied through use of a container that meets USDOT specifications; use of a cover, such as a tarp, with no visible cracks, holes, gaps or other spaces; or use of an organic vapor barrier, such as a foam or tight fitting tarp.

All drums and other containers less than 119 gallons at CWM drum storage locations which are subject to Subpart CC requirements will have level 1 controls. This requirement may be satisfied by use of a USDOT specification container or a container with no cracks, gaps or holes. Most bulk containers in CWM bulk container storage locations will not be in light material service and thus will only require level 1 controls. This requirement will be satisfied by use of a tarp or equivalent with no cracks, gaps or holes.

Level 2 controls are required for containers greater than 119 gallons in light material service. Level 2 controls may be satisfied through use of a container that meets USDOT specifications; use of a container that operates with no detectable emissions as tested using USEPA Method 21; or use of a container that is vapor tight as tested by USEPA Method 27. On-site tankers and vacuum trucks containing Subpart CC wastes are tested annually by USEPA Method 27 to satisfy the Level 2 requirements. If a rolloff containing Subpart CC waste in light material service is accepted, Level 2 controls will be satisfied by covering with a tarp and testing for no detectable emissions using USEPA Method 21 within 24 hours of receipt.

Level 3 controls are required to perform stabilization of Subpart CC wastes in containers. The container must be placed inside an enclosure and vented to a control device. This operation is not performed at CWM.

APPENDIX D-L SECTION O

PCB WAREHOUSE AREA 3

SECONDARY CONTAINMENT PAN DESIGN

Modified: Added 08/10

EnSol, Inc.
Environmental Solutions
Professional Engineering • Business Consulting

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Niagara Falls, NY 14301
Ph (716) 285-3920 • Fx (716) 285-3928

Transmitted Via Electronic Mail

June 26, 2008

Stephen Rydzyk
Engineer
CWM Chemical Services, LLC
1550 Balmer Rd. P.O. Box 200
Model City, NY 14107

Re: CWM Chemical Services, LLC
Model City Facility
PCB Warehouse Building Containment Pan Design
Response to NYSDEC Comments

Dear Mr. Rydzyk:

EnSol, Inc. (EnSol) is providing this letter to CWM Chemical Services, LLC (CWM) to present additional information on the design of the proposed steel secondary containment pans for the PCB Warehouse Building at your Model City, NY Facility. Additionally, this letter provides supporting information in response to NYSDEC comments provided to CWM under Item 2 of Enclosure No. 3 of CWM's Sitewide Permit Modification Application for PCB Warehouse CSA 3/6 Design Revisions (see attachment 1).

The design of the containment pans, in accordance with 6 NYCRR 373-2.9(f)(1), was presented on drawing Sheet 1 titled "Plans, Profiles, and Details – PCB Warehouse Building Containment Pan Design", dated February 2008, prepared by EnSol (see Attachment 2). We understand this drawing was not submitted by CWM to the NYSDEC with the subject Permit Modification Application. With reference to the NYSDEC comments and the attached design drawing, the following is provided:

- Details regarding the type and thickness of steel used to construct the pans are shown. The design of the steel pans was developed by EnSol to provide sufficient structural integrity to withstand the weight of the stored drums and to not be damaged by drum handling activities (e.g. placement or removal) or by drum handling equipment (e.g., forklifts). Note that the bottom and sides of the steel pans (consisting of continuous welded ¼-inch steel plate and continuous welded 2" x 2" x ¼" steel angles, respectively) are entirely supported by the building concrete floor. Access into and out of the pans by drum handling equipment is limited to the steel ramp located at the one end of the pans.

- Details regarding how bottom sections and/or bottom/sides of these pans will be joined to be free of gaps, so as to demonstrate compliance with 6 NYCRR 323-2.9(f)(1)(i) of the regulations is shown. The steel bottom plates and perimeter supporting angles and tube steel members are all to be constructed as one continuously welded system and will be free of gaps once assembled. Note 10 on Sheet 1 require the pans be capable of holding water for minimum 24-hour duration without leaks. This hydrostatic test will be conducted and documented prior to placing the pans into service.

- The pan bottoms are to be placed directly on the concrete floor of the PCB Warehouse Building which is relatively flat and level. The drums are then to be placed directly on the interior surface of the containment pans. In lieu of a sloped containment pan or elevating the drums above the pan, we understand CWM will inspect the pans on a daily basis for signs of any accumulated leaked or spilled liquid. CWM will promptly remove any leaked or spilled liquid within 24-hours of its identification. In addition, we understand that only drums whose contents are compatible with each other will be stored in the same pan. We concur with CWM that this method of operation demonstrates compliance with 6 NYCRR 373-2.9(f)(1)(ii) of the regulations.

- Regarding the chemical compatibility of the liquids to be stored in the drums as compared to the containment pan materials of construction, we have reviewed a proposed protective coating product that CWM intends to use for the interior surfaces of the pans. The product is known as Vinester® Series 120, 5001 – 5002, as manufactured by Tnemec Company, Inc (see Attachment 3). This coating system is a premium Novalac Vinyl Ester coating intended for use to protect against organic and inorganic acids and sour crude when stored at elevated temperature in insulated tanks. It is a sprayable lining for tanks and vessels which provides splash, spillage, and fume protection for structural surfaces and secondary containment. We have also reviewed the manufacturer's chemical resistance literature (see Attachment 3) and find this system offers a very high level of protection against chemical attack by many chemicals that could be expected to be placed within the containment pans. Note 12 has been added to design drawing Sheet 1 to specify this product be placed on all interior surfaces of the containment pans.

EnSol has reviewed the system materials of construction and considers them appropriate and adequate for the intended service and types of wastes expected to be handled. It is noted, as with all coating systems, that the system has certain limitations relative to service temperature, abrasion resistance, and chemical resistance. Other factors that may have an affect on the service life of the coating system include overall thickness, physical abuse, and combinations of wastes. It is recommended that CWM review the product literature included in Attachment 3, particularly the Chemical Resistance Guide by Tnemec Company, Inc. EnSol understands that CWM cannot provide an all-inclusive list of specific wastes to be handled, due to the expected variety of materials that may be stored. The above mentioned manufacturer literature should be referred to by CWM personnel, as needed, to make a determination as to if a particular waste is acceptable to place in the pans. CWM should consult the coating manufacturer for assistance when in doubt.

We trust this letter and attachments provide the information necessary to satisfy the NYSDEC comments. Please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,

ENSOL, INC.

Brian D. Shiah

Brian D. Shiah, P.E.
Vice President

Attachments

Modified: Added 06/10

PCB WAREHOUSE BUILDING CONTAINMENT PAN DESIGN

CWM Chemical Services, LLC
Model City, New York Facility

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Brian D. Shiah, P.E.
ENSOL, INC.

6/26/08
Date

Attachment 1

EnSol, Inc. *Environmental Solutions*

professional engineering – business consulting

NYSDEC Comments

ENCLOSURE NO. 3
Permit Modification Application - PCB Warehouse CSA 3/6 Design Revisions
NYSDEC Comments

1. Attachment A, Page 4 of 7 **Part A Application**
CWM is proposing to modify this page of the Part A Application (Attachment A of the Permit) to reflect the overall decrease in the Facility's container storage capacity that arises out of the proposed decrease in capacity of PCB Warehouse CSA 3/6. While this modification is appropriate, it should be accomplished through use of the updated/revised USEPA Part A Application Form described in Enclosure No.1 Comment 1, for similar reasons as expressed by this previous comment.

2. Att. D, App. D-1, Page 13, Section D.(2) **PCB WAREHOUSE BUILDING - Operation**
This modified Permit page states that liquid drums must be stored within containment pans. However, none of the submitted, modified Permit pages include any design details for these pans. The Permit modification application must include the following containment pan design details to demonstrate compliance with 6 NYCRR 373-2.9(f)(1) of the regulations:

- Details regarding the type and thickness of steel used to construct the pans and a demonstration that they have sufficient structural integrity to withstand the weight of the stored drums and will not be damaged by drum handling activities (e.g., placement or removal) or by drum handling equipment (e.g., forklifts).

- Details regarding how bottom sections and/or bottom/sides of these pans will be joined to be free of gaps, so as to demonstrate compliance with 6 NYCRR 373-2.9(f)(1)(i) of the regulations.

- Details regarding whether each pan bottom will be sloped or how drums will be elevated to prevent contact with any accumulated leaked or spilled liquid, so as to demonstrate compliance with 6 NYCRR 373-2.9(f)(1)(ii) of the regulations.

In addition, a brief summary of the containment pan design should be included on the modified Permit page.

It is also stated on this page that all containers stored in the PCB Warehouse are compatible. It is unclear whether this refers to both waste to waste compatibility and waste to containment pan compatibility. CWM needs to provide information which indicates how they will insure that containerized waste types within a pan will be compatible with one another and with the containment pan (e.g., waste types which are strongly acidic could react with the un-coated steel pan).

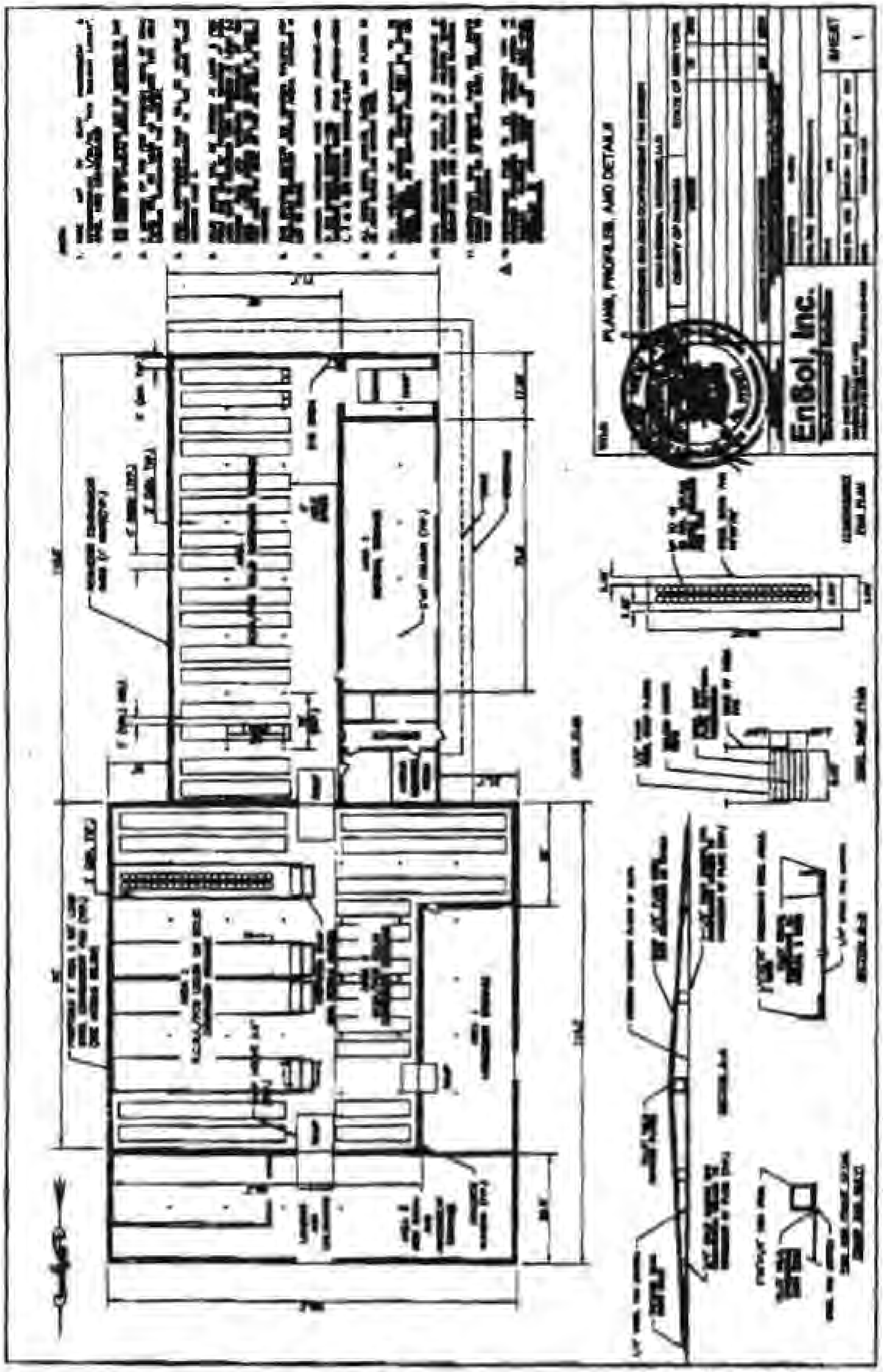
Modified Added 06/10

Attachment 2

Sadat, Inc. Environmental Solutions

professional engineering - business consulting

Containment Pan Design Drawing



Modified: Added 06/10

Attachment 3

EnSol, Inc. *Environmental Solutions*

professional engineering ~ business consulting

Tnemec Series 120 – 5001/5002 Coatings Product & Chemical Resistance Literature

Modified: Added 08/10

Vinester SERIES 120

PRODUCT PROFILE

GENERIC DESCRIPTION Novolac Vinyl Ester

COMMON USAGE Superior protection against organic and inorganic acids and sour crude when stored at elevated temperatures in insulated tanks. Sprayable lining for tanks and vessels. Provides splash, spillage and fume protection for structural surfaces and secondary containment. Frequently used as a topcoat for additional chemical resistance with various epoxy flooring and wall systems.
Note: Contact your Tnemec representative or Tnemec Technical Services with specific chemical exposures.

COLORS 5002 Beige (primer only) and 5001 Grey (finish coat only)
Color change will occur when Series 120 is exposed to sunlight; also, some batch-to-batch color variations can be expected.

FINISH Semi-gloss

PERFORMANCE CRITERIA Extensive test data available. Contact your Tnemec representative for specific test results.

COATING SYSTEM

PRIMERS **Prepared Bare Concrete and Steel:** 120-5002
Thick-Film Floor and Wall Systems: Series 239, 275

CONCRETE FILLER & SURFACER See: 120-5003 Vinester F & S, 218, 219

SURFACE PREPARATION

STEEL SSPC-SP5/NACE 1 White Metal Blast with a minimum anchor pattern of 3.0 mils. Refer to Tnemec's Application Specification for Series 120 to Steel Substrates for specific requirements.

CONCRETE Allow to cure for 28 days. Abrasive blast referencing SSPC-SP13/NACE 6, ICRI CSP5 Surface Preparation of Concrete and Tnemec's Surface Preparation and Application Guide. Refer to Tnemec's Application Specification for Series 120 to Concrete Substrates for specific requirements.

ALL SURFACES Must be clean, dry and free of oil, grease, form release agents, curing compounds/membranes, sealers, hardeners and other contaminants.

TECHNICAL DATA

VOLUME SOLIDS Theoretical 69% (mixed). Series 120 Vinester system contains a reactive monomer and some loss will occur during application and cure. Actual solids by volume will vary depending upon temperature and air movement. See Practical Coverage Rates.

RECOMMENDED DFT 12.0 to 18.0 mils (305 to 455 microns) per coat (minimum of one coat 5002 primer and one coat 5001 finish coat).

CURING TIME

	Temperature	To Handle	To Recoat	Immersion
120-5001	75°F (24°C)	4 hours	6 hours min. 72 hours max.	72 hours min.
120-5002	75°F (24°C)	6 hours	6 hours min. 72 hours max.	72 hours min.

Note: Scarification required if maximum recoat time is exceeded.
Curing time varies with surface temperature, air movement, humidity and film thickness.

VOLATILE ORGANIC COMPOUNDS

Unthinned (theoretical)		Thinned 5% (theoretical)	
120-5001	120-5002	120-5001	120-5002
0.64 lbs/gallon (77 grams/litre)	0.59 lbs/gallon (71 grams/litre)	0.83 lbs/gallon (99 grams/litre)	0.78 lbs/gallon (93 grams/litre)

NUMBER OF COMPONENTS Two: Part A (base) and Part B (catalyst)

PACKAGING 1 gallon (3.79L) kits. 3 gallon (11.4L) kits are available upon special request.

NET WEIGHT PER GALLON Series 120-5001: 10.98 ± 0.25 lbs (4.98 ± .11 kg) (mixed)
Series 120-5002: 10.80 ± 0.25 lbs (4.90 ± .11 kg) (mixed)

STORAGE TEMPERATURE Minimum 35°F (2°C) Maximum 90°F (32°C)

TEMPERATURE RESISTANCE (Dry) Continuous 300°F (149°C) Intermittent 450°F (232°C)

SHELF LIFE Part A: 3 months at 35°F to 49°F (2°C to 9°C), 2 months at 50°F to 79°F (10°C to 26°C), 1 month at 80°F to 90°F (27°C to 32°C). Do not store at temperatures below 35°F (2°C) or above 90°F (32°C). DUE TO THE REACTIVE NATURE OF VINYL ESTER RESINS AND THE CORRESPONDING LIMITED SHELF LIFE, EXPEDITIOUS USE OF THIS PRODUCT IS SUGGESTED. SINCE JOBSITE STORAGE CONDITIONS ARE BEYOND TNEMEC'S CONTROL, THIS PRODUCT IS NON-RETURNABLE.

Modified: Added 06/10

SERIES 120 Vinester

TECHNICAL DATA (continued)

SHELF LIFE (continued) Part B: 12 months at recommended storage temperature.

FLASH POINT - SETA Part A: 90°F (32°C) Part B: 200°F (93°C)

HEALTH & SAFETY Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product. **Keep out of the reach of children.**

APPLICATION

PRACTICAL COVERAGE RATES

Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m^2/Gal)
12.0-18.0 (305-455)	20.0-25.0 (510-635)	60-80 (5.6-7.4)

Practical spreading rates are based on typical field applications. Actual spreading rates will vary with surface profile, amount of overspray and surface irregularities.

Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. THIS PRODUCT SHOULD NOT BE APPLIED BELOW 60°F (16°C) MATERIAL TEMPERATURE.

MIXING Power mix contents of Part A (base) thoroughly, making sure no pigment remains on the bottom of the can. Add the Part B (catalyst) slowly to the Part A while under agitation. Continue to agitate until thoroughly mixed. Care should be exercised so as not to entrap air in the mixed material. Do not use mixed material beyond pot life limits.

POT LIFE 3 to 4 hours at 60°F (16°C) 1½ to 2½ hours at 75°F (24°C)*

*At higher temperatures pot life will decrease (use caution in spray equipment). In hot weather material should be cooled to 60°F to 80°F (16°C to 27°C) prior to mixing and application to improve workability and avoid shortened pot life.

THINNING Use No. 19 Thinner. For air or airless spray, thin up to 3% per gallon if needed for good atomization.

SURFACE TEMPERATURE Minimum 60°F (16°C) Maximum 110°F (43°C)

The surface should be dry and at least 5°F (3°C) above the dew point. At surface temperatures below 60°F (16°C), Series 120 will not cure properly or obtain maximum chemical resistance. Following application, the surface temperature must be held at or above 60°F (16°C) until the coating surface is tack free (approximately 8 hours at 60°F (16°C) surface temperature, 6 hours at 70°F (21°C) surface temperature, 4 hours at 80°F (27°C) surface temperature) to avoid incomplete polymerization. At relative humidities above 75%, the cure of this coating may be retarded. It is also recommended that all precautions be taken to insure that adequate forced-air ventilation exists.

APPLICATION EQUIPMENT

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA	E	78	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	60-80 psi (4.2-5.5 bar)	10-20 psi (0.7-1.4 bar)

Low temperatures or longer hoses require higher pot pressure.

Airless Spray

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.015"-0.021" (380-535 microns)	2400-3000 psi (165-207 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

Brush: Recommended for small areas only. Use high quality natural or synthetic bristle brushes.

Note: Two or more coats may be required to obtain recommended film thicknesses.

CLEANUP Flush and clean all equipment immediately after use with the recommended thinner or MEK. If material begins to exotherm, flush equipment immediately.

Modified : Added 06/10

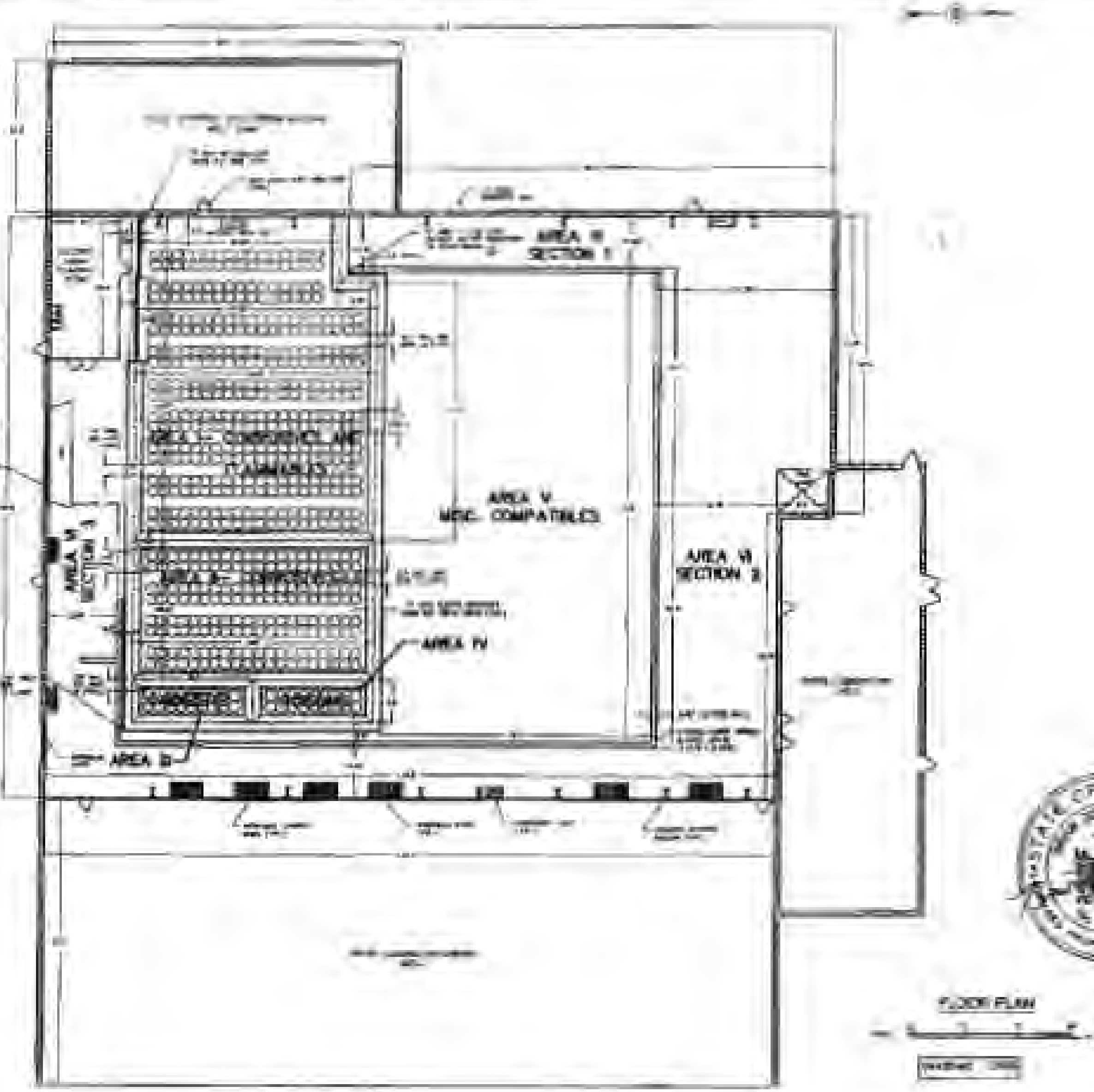
FIGURES
&
CAPACITY CALCULATIONS

FOR

CONTAINER STORAGE AREAS

FIGURE D-1A

DRUM HANDLING BUILDING LAYOUT



PROPOSED DRUM MANAGEMENT BUILDING LAYOUT

EnSol, Inc.
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FIGURE

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING

TASK:

Determine the number of drums that can be stored and calculate the total volume within the secondary containment areas as shown on Permit Drawing Fig. D-1A.

CALCULATIONS:

CORROSIVES AND FLAMMABLES STORAGE AREA: (AREA I)

Dimensions of Storage Area and Number of Drums:

$60' l x 45' w$ (with a portion 36.95' wide)

$60' - 4' = 56'$
$45' - 4' = 41'$
$36.95' - 4' = 32.95'$
The 4 feet is the 2-foot minimum required spacing from the centerline of containment curbing or wall.

$56' \div 6' = 9.33 Sections \cong 9.3 Sections$
The 6 feet incorporates 2 rows of drums, equaling 4 feet, and a 2-foot aisle space.

$41' \div 2' = 20 Drums$
$32.95' \div 2' = 16 Drums$
The 2 feet is a typical drum width

$$9.3 Sections * 2 \frac{Rows}{Section} = 18.6 Rows \cong 18 Rows$$

$$14 Rows * 20 \frac{Drums}{Row} + 4 Rows * 16 \frac{Drums}{Row} = 344 Drums(SingleStacked) * 2 = \underline{\underline{688 Drums}}(DoubleStacked)$$

$$688 Drums * 55 \frac{gallon}{Drum} = 37{,}840 gallons$$

Required Secondary Containment:

$$37{,}840 gallons * 10\% = 3{,}784 gallons \cong 506 ft^3$$

Dimensions of Storage:

$(45' x 60') - (7.30' * 12.35')$
Total Area – Area of Unused Section

Modified: 10/06

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING (continued)

Area of Storage:

$$(45' x 60') - (7.30' * 12.35') = 2{,}609\, ft^2$$

Minimum Curb Height Required:

$$506\, ft^3 \div 2{,}609\, ft^2 = 0.194\, ft \cong 2.32''(ASSUME : 3'')$$

Available Secondary Containment:

$$Volume of Curbing = \tfrac{1}{2} * (1.5') * (.25') * (146') = 27\, ft^3$$

$$2{,}609\, ft^2 * 0.25' = 652\, ft^3 - 27\, ft^3 \cong \underline{\underline{4{,}675 gallons}}$$

CONCLUSIONS:

This area has sufficient secondary containment for the storage capacity of 688 55-gallon liquid or solid drums.

Modified: 10/06

DRUM MANAGEMENT BUILDING

CORROSIVES STORAGE AREA: (AREA II)

Dimensions of Storage Area and Number of Drums:

$26'lx45'w$

$26'-4' = 22'$
$45 - 4' = 41'$
The 4 feet is the 2-foot minimum required spacing from the centerline of containment curbing.

$22'-6' = 16'$ (The 6' accounts for the 3 aisles times the 2' aisle spacing)

$16' \div 4' = 4 Sections$
The 4 feet incorporates 2 rows of drums, equaling 4 feet.
A typical drum width is equal to 2 feet.

$41' \div 2' = 20 Drums$
The 2 feet is the drum width.

$$4 Sections * 2\frac{Rows}{Section} = 8 Rows$$

$$8 Rows * 20\frac{Drums}{Row} = 160 Drums(SingleStacked) * 2 = \underline{\underline{320 Drums}}(DoubleStacked)$$

$$320 Drums * 55\frac{gallon}{Drum} = 17{,}600 gallons$$

Required Secondary Containment:

$17{,}600 gallons * 10\% = 1{,}760 gallons \cong 235 ft^3$

Dimensions of Storage:

$45' x 26'$

Area of Storage:

$45' * 26' = 1{,}170 ft^2$

Minimum Curb Height Required:

Modified: 10/06

$235 ft^3 \div 1{,}170 ft^2 = 0.2008 ft \cong 2.41"(ASSUME: 3")$

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PROJECT NO: 05-2007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: JDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment

$VolumeofCurbing = \frac{1}{2} * (1.5') * (.25') * (142') = 26.62\ ft^3$

$45*25*0.25 = 292.5\ ft^3 - 26.62\ ft^3 \cong \underline{1,989\ gallons}$

CONCLUSIONS:

This area has sufficient secondary containment for the storage capacity of 320 55-gallon liquid or solid drums.

Modified: 11/05

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

OXIDIZERS STORAGE AREA: (AREA III)

Dimensions of Storage Area and Number of Drums:

$8'L x 22.5'W$

$8' - 4' = 4'$
$22.5' - 4' = 18.5'$
The 4 feet incorporates the 2-foot containment spacing; therefore a 2-foot perimeter

$4' \div 2' = 2 Rows$
The 2 feet is equivalent to a typical drum width.

$18.5' \div 2' = 9 Drums$

$$2 Rows * 9 \frac{Drums}{Row} = 18 Drums(SingleStacked) * 2 = \underline{36 Drums}(DoubleStacked)$$

$$36 Drums * 55 \frac{gallons}{Drum} = 1980 gallons$$

Required Secondary Containment:

$$1980 gallons * 10\% = \underline{198 gallons \cong 26.46 ft^3}$$

Dimensions of Storage Area:

$22.5' x 8'$

Area of Storage:

$22.5' * 8' = 180 ft^2$

Minimum Curb Height Required:

$$26.46 ft^3 \div 180 ft^2 = 0.147' \cong 1.76" \cong 2" (ASSUME\ \ 3")$$

Modified: 11/05

EnSol, Inc.
Environmental Solutions

PROJECT NO. 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment:

$$VolumeofCurbing = \tfrac{1}{2} * (1.5') * (.25') * (61') = 11.44\,ft^3$$

$$22.5' * 8' * 0.25' = 45\,ft^3 - 11.44\,ft^3 \cong \underline{251 gallons}$$

CONCLUSIONS:

This area has sufficient secondary containment for storage capacity of 36 55-gallon liquid or solid drums.

Modified: 11/05

EnSol, Inc.
Environmental Solutions

PROJECT NO. 05-7001

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

POISONS STORAGE AREA: (AREA IV)

Dimensions of Storage Area and Number of Drums:

8'lx22.5'w

$8' - 4' = 4'$
$22.5' - 4' = 18.5'$
The 4 feet incorporates the 2-foot containment spacing; therefore a 2-foot perimeter.

$4' \div 2' = 2\,Rows$
The 2 feet is equivalent to a typical drum width.

$18.5' \div 2' = 9\,Drums$

$$2\,Rows * 9\frac{Drums}{Row} = 18\,Drums(SingleStacked) * 2 = \underline{36\,Drums}(DoubleStacked)$$

$$36\,Drums * 55\frac{gallons}{Drum} = 1980\,gallons$$

Required Secondary Containment:

$$1980\,gallons * 10\% = \underline{\underline{198\,gallons \cong 26.46\,ft^3}}$$

Dimensions of Storage Area:

22.5'x8'

Area of Storage:

$22.5' * 8' = 180\,ft^2$

Minimum Curb Height Required:

$$26.46\,ft^3 \div 180\,ft^2 = 0.147' \cong 1.76" \cong 2"(ASSUME\ 3")$$

Modified: 11/05

DRUM MANAGEMENT BUILDING (continued)

Available Secondary Containment:

$$VolumeofCurbing = \frac{1}{2} * (1.5') * (.25') * (61') = 11.44 ft^3$$

$$22.5' * 8' * 0.25' = 45 ft^3 - 11.44 ft^3 \cong \underline{\underline{251 gallons}}$$

CONCLUSIONS:

This area has sufficient secondary containment for storage capacity of 36 55-gallon liquid or solid drums.

Modified: 11/05

DRUM MANAGEMENT BUILDING

MISC. COMPATIBLES STORAGE AREA: (AREA V – Within Trench Area)

Dimension of Solid Storage Area:

$87.2'l \times 49.7'w$

Drum Capacity Determination:

$49.7' \div 6' = 8 Sections$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space

$$8 Sections * 2 \frac{Rows}{Section} = 16 Rows$$

$87.2' \div 2' = 43 Drums$

The 2 feet is equivalent to a typical drum width.

$$16 Rows * 43 \frac{Drums}{Row} = 688 Drums(SingleStacked) * 2 = \underline{1,376 Drums}(DoubleStacked)$$

CONCLUSIONS:

This area has a solids storage capacity of 1,376 55-gallon drums. Secondary containment is not required for solids storage.

Modified: 11/05

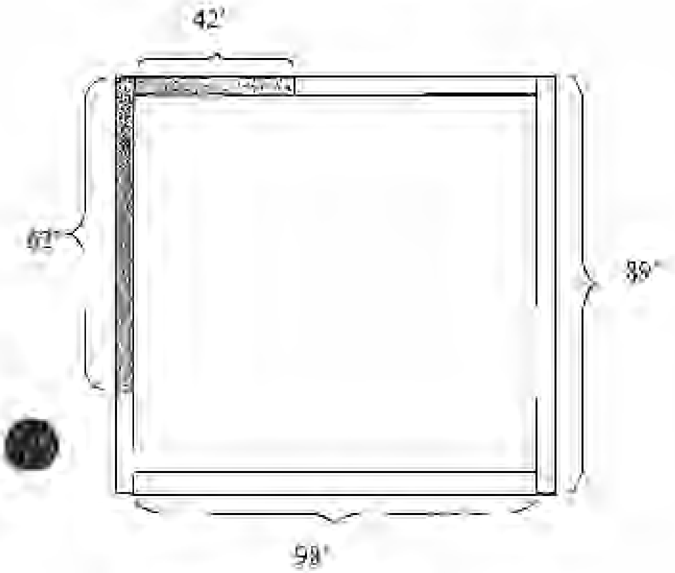
CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 3/15/2006
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/15/2006

DRUM MANAGEMENT BUILDING (continued)

MISC. COMPATIBLES STORAGE AREA, (AREA V) – LIQUID STORAGE CAPACITY

Dimensions: (Floor Trench System Volume)

$100' x 89' x 0.75'(wide) x 0.428'(deep)$



* Shaded area is closed.

Floor Trench Volume:

$89'-62' = 27'$
$98'-42' = 56'$

$(27'+56'+89'+98')*0.75'*0.428 = 86.67\,ft^3 \cong 648.34\,gallons$

AREA V:

Maximum Liquid Drum Storage Capacity:

$648.34\,gallons \div 10\% = 6,483\,gallons \div 55\frac{gallons}{Drum} = \underline{\underline{117\,Drums}}$

CONCLUSIONS:

The Drum Handling Building Floor (Trench) Sump System allows for a liquid storage capacity of 117 55-gallon drums in Area V.

Modified: 10/06

EnSol, Inc.
Environmental Solutions

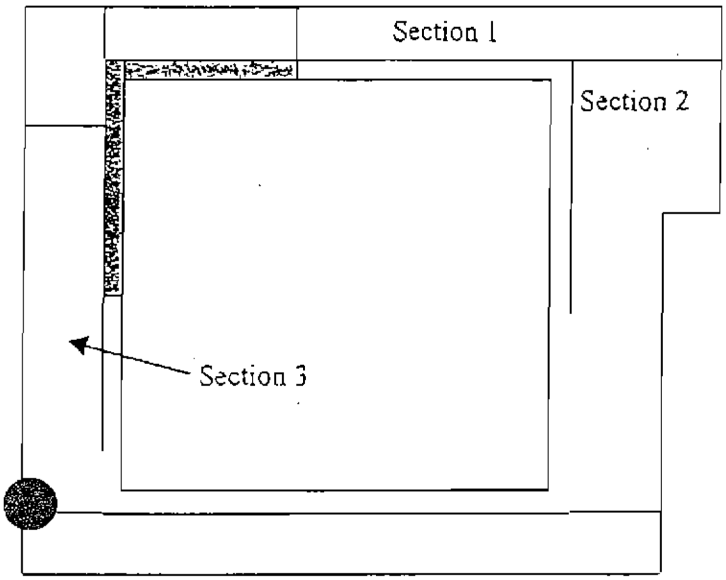
PROJECT NO.: 05-7007

CLIENT: CWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

DRUM MANAGEMENT BUILDING

SOLID STORAGE AREA: AREA VI (Outside Trench Area)

Area VI is the area within the Drum Management Building outside Areas I – V



Dimension of Solid Storage Area: (Section 1)

$89.3' l x 10.35' w$

Drum Capacity Determination:

$(10.35') \div 6' = 1 Section$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$$1 Section * 2 \frac{Rows}{Section} = 2 Rows$$

$(89.3' - 4') \div 2' = 42 Drums$

The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$2 Rows * 42 \frac{Drums}{Row} = 84 Drums(SingleStacked) * 2 = \underline{\underline{168 Drums}}(DoubleStacked)$$

Modified: 11/05

Dimension of Solid Storage Area: (Section 2)

$32.55' l x 37.1' w$
$22.85' l x 52' w$

Drum Capacity Determination:

$37.1' \div 6' = 6 Sections$
The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$52' - 16' = 36'$ (The 16' accounts for the 8 aisles times the 2' aisle spacing)
$36' \div 4' = 9 Sections$
The 4 feet incorporates 2 rows of drums

$$6 Sections * 2 \frac{Rows}{Section} = 12 Rows$$
$$9 Sections * 2 \frac{Rows}{Section} = 18 Rows$$

$(32.55' - 4') \div 2' = 14 Drums$
$(22.85' - 4') \div 2' = 9 Drums$
The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$12 Rows * 14 \frac{Drums}{Row} + 18 Rows * 9 \frac{Drums}{Row} = 330 Drums(Single Stacked) * 2 = \underline{\underline{660 Drums}}(Double Stacked)$$

Dimension of Solid Storage Area: (Section 3)

$68' l x 9.0' w$ (Approximate minimum available area between ramps)

Drum Capacity Determination:

$(9.0) \div 6' = 1 Section$

The 6 feet incorporates 2 rows of drums equaling 4 feet and a 2-foot minimum required aisle space.

$$1 Section * 2 \frac{Rows}{Section} = 2 Rows$$

$(68.0' - 4') \div 2' = 32 Drums$
The 4 feet incorporates 2 feet minimum required isle space at end of each row.
The 2 feet is equivalent to a typical drum width.

$$2 Rows * 32 \frac{Drums}{Row} = 64 Drums(Single Stacked) * 2 = \underline{\underline{128 Drums}}(Double Stacked)$$

Modified: 11/05

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 05-7007

CLIENT: GWM Chem. Svcs. PROJECT: DMB Secondary Containment Upgrades Prepared By: AJZ Date: 10/3/2005
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 10/3/2005

CONCLUSIONS:

This area has a solids storage capacity of at least 956 55-gallon drums. Actual arrangement and layout within area varies provided that the minimum requirement of 2-foot isle spacing and 2-drum maximum rows and maximum double stacking height is satisfied. Secondary containment is not required for solids storage.

Modified: 11/05

FUELING TRANSFER AREA/DRUM BUILDING WEST RAMP:

Dimensions:

$28' x 66' x 3.2' (DeepEnd)$

Available Secondary Containment:

$0.50 * (28' * 66' * 3.2') = 2{,}956.8 ft^3 \cong 22{,}118.4 gallons$

Required Secondary Containment:

2 tankers, 5,500-gallon each.
Largest single container equals 5,500 gallon.

25 Year, 24 Hour Precipitation Event:

$28' * 66' * 0.333' = 615.40 ft^3 \cong 4{,}603.5 gallons$
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$5{,}500 gallons + 4{,}603.5 gallons = 10{,}103.5 gallons$

CONCLUSIONS:

The Fueling Transfer Area/Drum Building West Ramp has sufficient secondary containment capacity for 2 5,500-gallon tankers.

TRUCK LOADING/UNLOADING AREA & RAMP:

Dimensions:

$50' x 134.4'$

Solids Storage Capacity Determination:

$$134.4' \div 10' = 13.4 Trucks \cong 13 Trucks$$

The 10 feet is equivalent to a typical truck width of 8 feet and the 2-foot required aisle spacing.

$$13 Trucks * 80 \frac{Drums}{Truck} = 1{,}040\, Drums$$

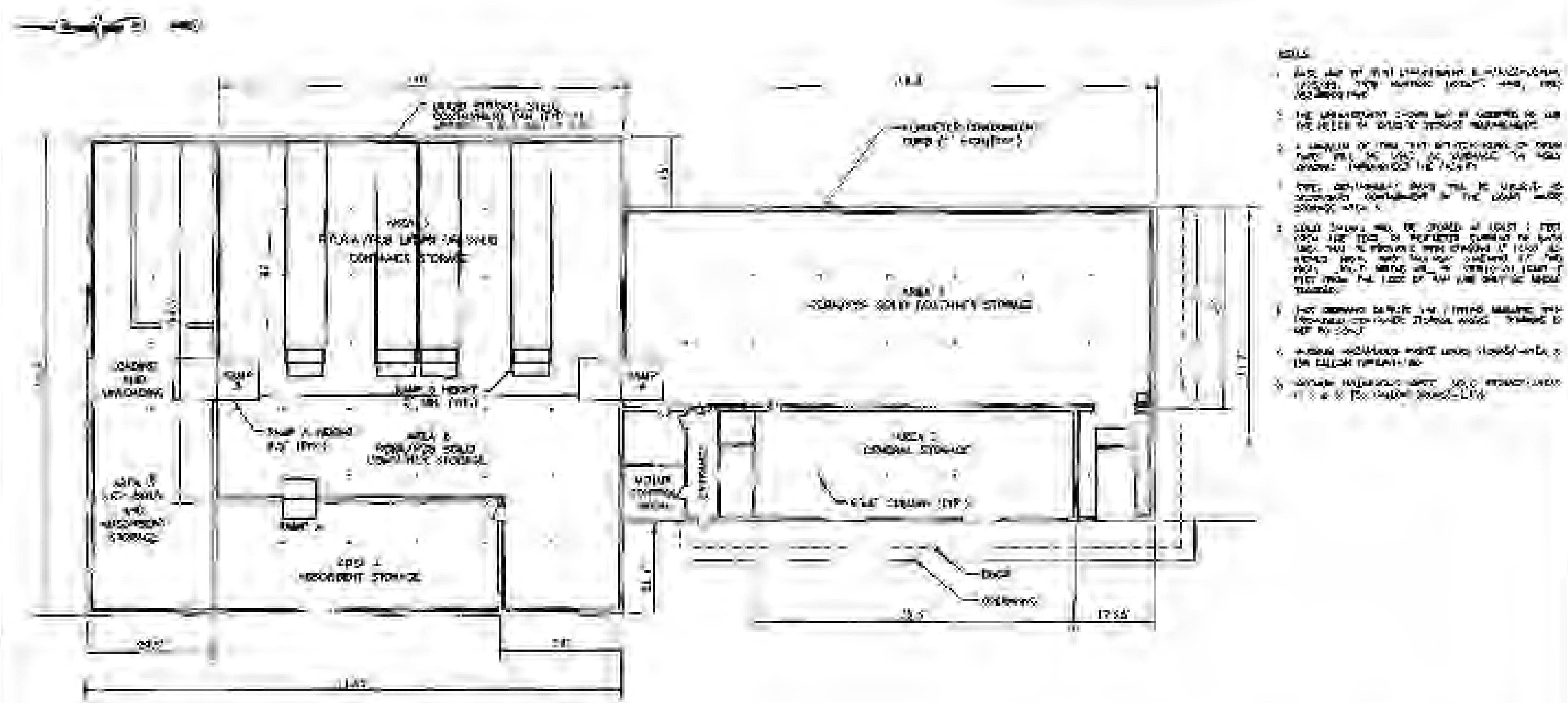
The 80 drums per truck is provided by CWM.

CONCLUSION:

The Truck Loading/Unloading Area & Ramp has a solids storage capacity of 1,040 55-gallon drums.

FIGURE D-2

PCB WAREHOUSE LAYOUT



CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
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PCB WAREHOUSE BUILDING LAYOUT

EnSol, Inc.
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FIGURE
D-2

Modified 08/10

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PROJECT NO.: 08-7005

CLIENT: CWM Chem. Svcs. PROJECT: PCB Secondary Containment Upgrades Prepared By: MJM Date: 3/4/2008
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/13/2008

PCB WAREHOUSE BUILDING

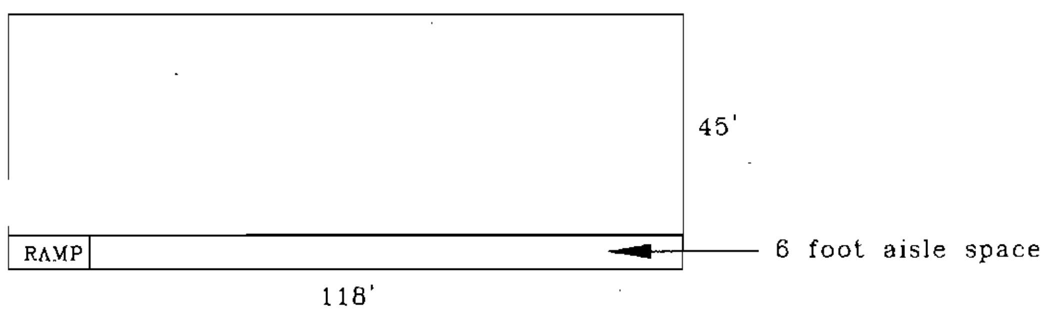
TASK:

Calculate the total volume within the secondary containment areas.

CALCULATIONS:

AREA 1 - SOLID STORAGE AREA:

Dimensions:
118' x 45'



118' - 4' = 114'
45' - 2' = 43'
The 4-Foot perimeter is the required 2-foot spacing from the end walls.
The 2-foot is the required 2-foot spacing from the side wall.

114' ÷ 6' =19 *Sections*
A section is defined as 2 drums side by side (4 feet total) and the 2-foot required aisle space.
Therefore, a section is 2 rows of drums.

43' – 6' *Aisle Space* = 37' ÷ 2' = 18.5 *Drums* ≈ 18 *Drums*
The 2 feet is equivalent to a typical drum diameter.

19 *Sections* * 2 *Rows/Section* = 38 *Rows* * 18 *Drums/Row* = 684 *Drums* (Single Stacked)* 2 =1,368 *Drums* (Double Stacked)

CONCLUSIONS:

Area 1 – Solid Storage Area has a solids storage capacity of 1,368 55-gallon drums.

EnSol, Inc.
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PROJECT NO 108-2005

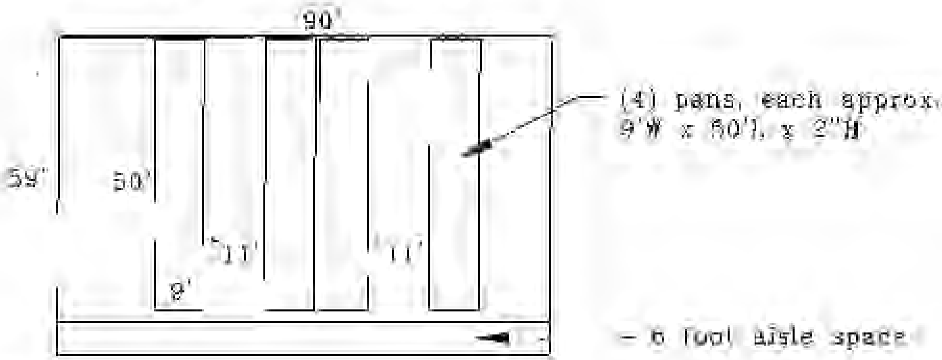
CLIENT: CWM Chem. Svcs. PROJECT: PCB Secondary Containment Upgrades Prepared By MJM Date: 3/4/2008
SUBJECT: Secondary Containment Calculations Reviewed By BDS Date: 3/13/2008

PCB WAREHOUSE BUILDING (continued)

AREA 3 - LIQUID STORAGE AREA:

Dimensions:

A *section* = 50'L x 9'W x 0.167'D = 75.15 ft³



There are 4 *sections*.
A *section* is defined as a pan containing 2 *drums* side by side w/6" between *drums* (4.5 feet total) and the 2.25-foot aisle space on either side of *drums*, 2-foot from wall; 20 *drums* each row x 2 rows of *drums* (40 *drums total*, Single-Stacked).

4 *sections* x 40 *drums/section* = 160 *drums*

The 2-foot spacing from the wall is required.

Typical drum diameter is 2 feet.

<u>Required Secondary Containment per *Section*:</u>

40 *Drums* * 55 *gallons/Drum* = 2,200 *gallons* * 10% = 220 *gallons*

<u>Available Secondary Containment per *Section*:</u>

Gross Dimensions and Volume:

50' x 9' x 0.167' (2-inches)

50' * 9' * 0.167' = 75.2 *ft³*

7.48 *gallons / ft³*

7.48 *gallons/ft³* * 75.2 *ft³* = 562.5 *gallons*

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PROJECT NO.: 08-7006

CLIENT: CWM Chem. Svcs. PROJECT: PCB Secondary Containment Upgrades Prepared By: MJM Date: 3/4/2008
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/13/2008

PCB WAREHOUSE BUILDING (continued)

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

39 drums * [3.14 * (2')^2/4 * 0.167'] = 20.5 *ft*^{3}

7.48 *gallons / ft*^{3}

7.48 *gallons/ft*^{3} * 20.5 *ft*^{3} = 153.3 *gallons*

Net Available Secondary Containment Volume:

562.5 *gallons* – 153.3 *gallons* = 409 *gallons*

Total Required Secondary Containment-all *Sections:*

4 *Sections* * 40 *Drums/Section* * 55 *gallons/Drum* = 8,800 *gallons* * 10% = 880 *gallons*

Available Secondary Containment - All *Sections:*

1 *Section* = {50' * 9' * 0.167'} – {39 drums * [3.14 * (2')^2/4 * 0.167']} = 75.2 *ft*^{3} – 20.5 *ft*^{3} = 54.7 *ft*^{3}

4 *Sections* * 54.7 *ft*^{3} = 218.8 *ft*^{3}

7.48 *gallons / ft*^{3}

7.48 *gallons/ft*^{3} * 218.8 *ft*^{3} = 1636 *gallons*

CONCLUSIONS:

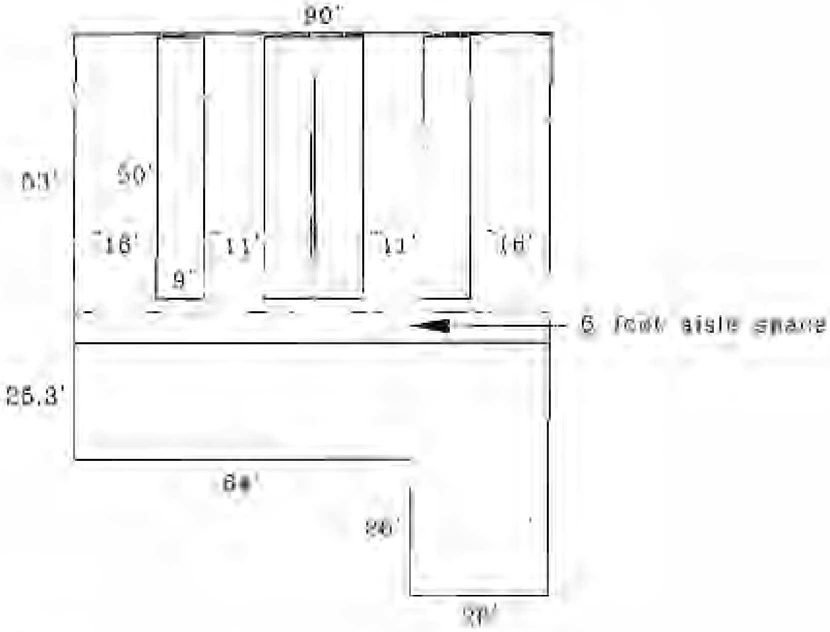
Area 3 has sufficient secondary containment for the liquid storage capacity of 160 55-gallon drums.

PCB WAREHOUSE BUILDING (continued)

AREA 3/6 - SOLID STORAGE AREA:

Dimensions:

60' = Required Space for Liquid Storage Pans in Area 3
90' – 60' = 30' (Remaining space available in Area 3)



16' - 4' = 12'
53- 2' = 51'
16' - 4' = 12'
53- 2' = 51'
25.3' – 2' = 23.3'
64' - 2' = 62'
26' - 4' = 22'
51.3 - 2' = 49.3'

The 4 foot perimeter is the required 2-foot spacing from the wall.

12' ÷ 6' = 2.0 *Sections*

12' ÷ 6' = 2.0 *Sections*

62' ÷ 6' = 10.3 *Sections*

22' ÷ 6' = 3.7 *Sections*

A *section* is defined as 2 *drums* side by side (4 feet total) and the 2-foot required aisle space.

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PROJECT NO.: 08-7005

CLIENT: CWM Chem. Svcs. PROJECT: PCB Secondary Containment Upgrades Prepared By: MJM Date: 3/4/2008
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/13/2008

PCB WAREHOUSE BUILDING (continued)

$51' \div 2' = 25.5 Drums \approx 25\ Drums$
$23.3' \div 2' = 11.7 Drums \approx 11\ Drums$
$49.3' \div 2' = 24.7 Drums \approx 24\ Drums$

The 2 feet is equivalent to a typical drum diameter.

$2.0\ Sections * 2\ Rows/Section = 4.0\ Rows$

$2.0\ Sections * 2\ Rows/Section = 4.0\ Rows$

4 *Rows* * 25 *Drums/Row* = 100 *Drums* (Single Stacked) * 2 = 200 *Drums* (Double Stacked)

4 *Rows* * 25 *Drums/Row* = 100 *Drums* (Single Stacked) * 2 = 200 *Drums* (Double Stacked)

$10.3\ Sections * 2\ Rows/Section = 20.6\ Rows \approx 21\ Rows$

21 *Rows* * 11 *Drums/Row* = 231 *Drums* (Single Stacked) * 2 = 462 *Drums* (Double Stacked)

$3.7\ Sections * 2\ Rows/Section = 7.4\ Rows \approx 7\ Rows$

7 *Rows* * 24 *Drums/Row* = 168 *Drums* (Single Stacked) * 2 = 336 *Drums* (Double Stacked)

The 2 feet is equivalent to a typical drum diameter.

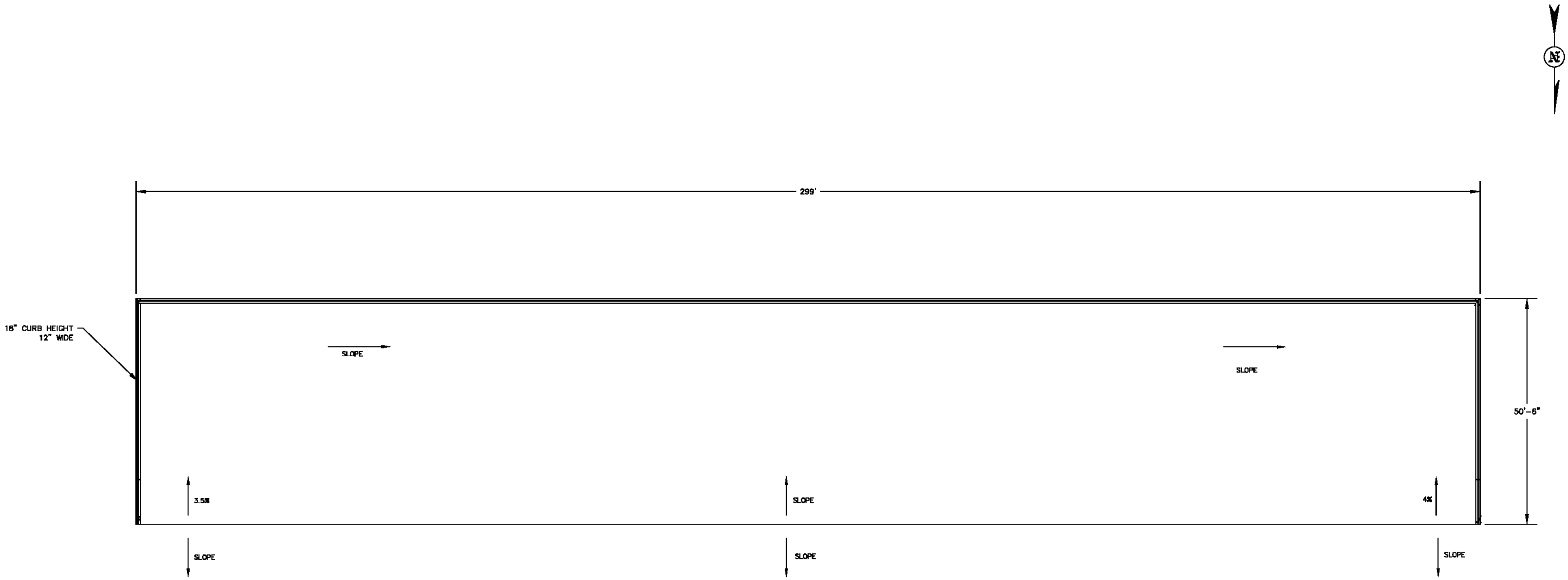
Total Drum Storage Capacity (Double Stacked):
$200\ Drums + 200\ Drums + 462\ Drums + 336\ Drums = 1{,}198\ Drums\ Total$

CONCLUSIONS:

Area 3/6 has a solids storage capacity of 1,198 55-gallon drums.
Plus 160 drums that could be stored in the Area 3 liquid storage pans. Therefore,
Total available storage = 1,358 55-gallon drums

FIGURE D-3

SOUTH TRAILER PARKING AREA



PLAN VIEW

NOTES:

1. BASE MAP BY RUST ENVIRONMENT & INFRASTRUCTURE, 1/25/95.
2. DRAWING IS NOT TO SCALE.
3. A MINIMUM OF 2 FEET WILL BE USED AS GUIDANCE FOR AISLE SPACING BETWEEN CONTAINERS AND FROM CONTAINER TO PERIMETER THROUGHOUT THE FACILITY.
4. THIS AREA HAS A MAXIMUM LIMIT OF 58 ROLLOFFS STAGED END TO END, WITH AN AVERAGE DIMENSION OF 8'W X 22'L.
5. THIS AREA HAS A MAXIMUM LIMIT OF 29 TRAILERS, WITH A MAXIMUM STORAGE CAPACITY OF 5,500 GALLONS.
6. THIS AREA MAY ALSO BE USED TO STORE LIQUID CONTAINERS. THE AREA HAS A MAXIMUM CONTAINMENT VOLUME OF 45,660 GALLONS. (SEE ATTACHED CALCULATION)

CWM CHEMICAL SERVICES, LLC
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SOUTH TRAILER PARKING AREA

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FIGURE D-3

CALCULATION SHEET

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 11-7015

CLIENT: CWM Chem. Svcs. **PROJECT: Permit Renewal** **Prepared By: JCD** **Date: 7/1/2011**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 7/1/2011**

SOUTH TRAILER PARKING AREA

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Dimensions:

$$49.5' x 297' x 1.5'$$

Available Secondary Containment:

$$(0.50) * 1.5' * 49.5' * 297' = 11{,}026.13 ft^3 \cong 82{,}481.2 gallons$$

Required Secondary Containment:

Largest single liquid container is expected to be 5,500 gallons.

25 Year, 24 Hour Precipitation Event:

$$297' * 49.5' * 0.333' = 4{,}895.6 ft^3 \cong 36{,}621.6 gallons$$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$$5{,}500 gallons + 36{,}621.6 gallons = 42{,}121.6 gallons$$

CONCLUSIONS:

The South Trailer Parking Area has secondary containment capacity of 82,481 gallons.
The maximum number of liquid containers is limited only by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. Secondary containment is sufficient for liquid containers equal to or less than a total of 45,860 gallons.

EnSol, Inc.
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PROJECT NO.: 11-7015

CLIENT: CWM Chem. Svcs. **PROJECT: Permit Renewal** **Prepared By: JCD** **Date: 7/1/2011**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 7/1/2011**

SOUTH TRAILER PARKING AREA (continued)

CALCULATIONS:

Available Secondary Containment (Based on a maximum of 29 Tankers):

82,481.2 *gallons* (From Page 1)

Required Secondary Containment:

$$29\ Tankers * 5{,}500\frac{gallons}{Tanker} = 159{,}500\ gallons * 10\% = 15{,}950\ gallons$$

25 Year, 24 Hour Precipitation Event:

36,621.6 *gallons* (From Page 1)

Required Secondary Containment Including Precipitation Event:

$$15{,}950\ gallons + 36{,}621.6\ gallons = 52{,}571.6\ gallons$$

CONCLUSIONS:

The above calculation confirms that the South Trailer Parking Area’s secondary containment capacity of 82,481 gallons is adequate to contain 10% of the total liquid stored including precipitation.

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 11-7015

CLIENT: CWM Chem. Svcs. PROJECT: Permit Renewal Prepared By: JCD Date: 7/1/2011
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 7/1/2011

SOUTH TRAILER PARKING AREA (continued)

Number of Rolloffs:

2 foot perimeter: $297' - 4' = 293'$

2 foot perimeter: $49.5' - 4' = 45.5'$

$$293' \div 10' = 29.3 Rolloffs \cong 29 Rolloffs$$

The 10 feet incorporates the 8-foot width of the rolloff and the 2-foot aisle space.
The rolloffs will be place end-to-end with 2-foot aisle spacing.

$$45.5' \div 22' = 2.07 Row \cong 2 Rows$$

The 22 feet is equivalent to a typical rolloff length.

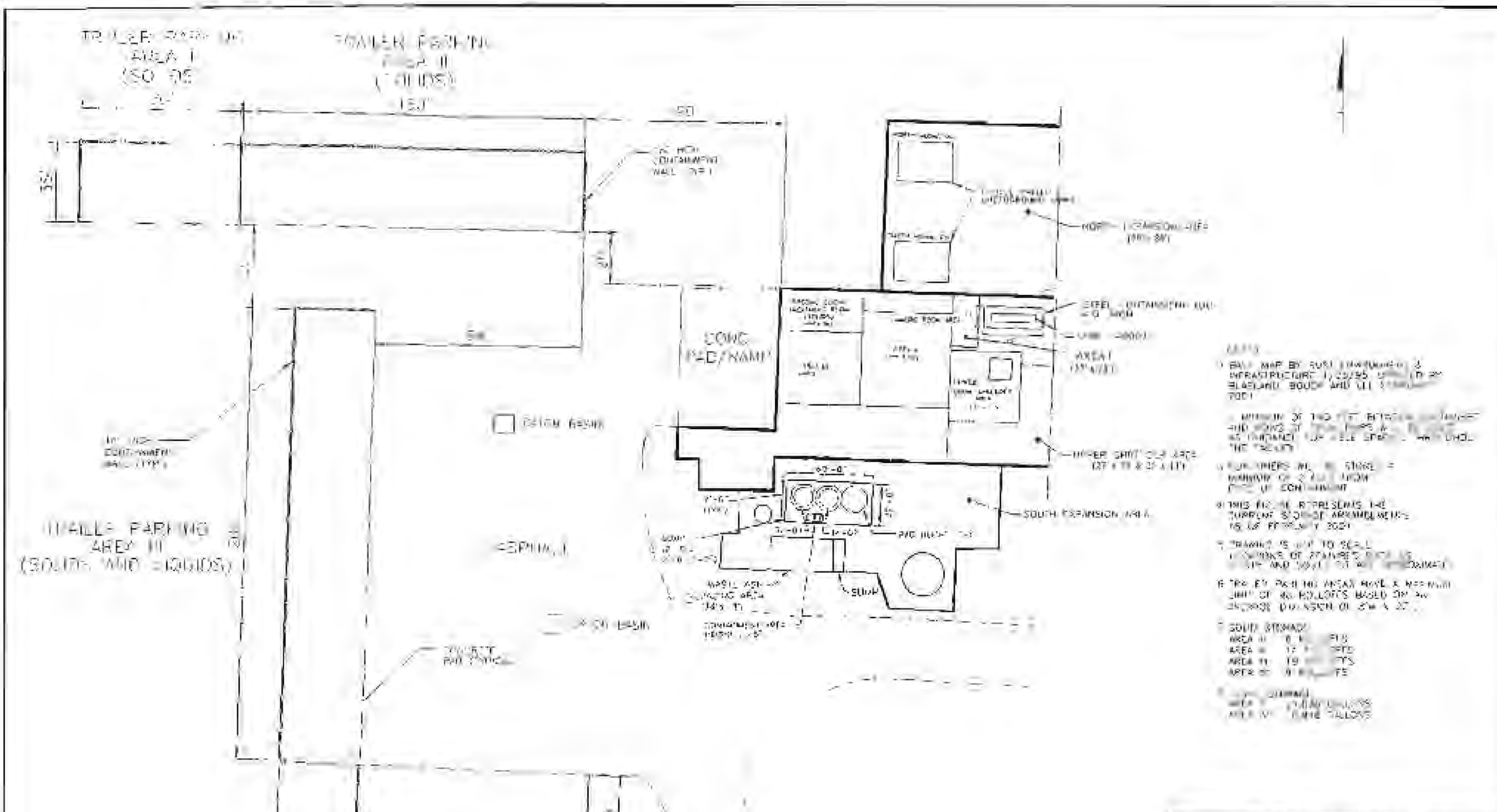
$$2 Rows * 29 \frac{Rolloffs}{Row} = 58 Rolloffs$$

CONCLUSIONS:

The South Trailer Parking Area can store up to 58 rolloffs.
The rolloffs will be stored end-to-end in 2 rows and will be stored with the required 2-foot perimeter, and the 2-foot aisle space.

FIGURE D-4

STABILIZATION FACILITY



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STABILIZATION FACILITY

BBL

FIGURE D-4

JAN 3 1 2007

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001

SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY

TASK

Calculate the total volume within the secondary containment area

CALCULATIONS:

TRAILER PARKING AREA I

Number of Rolloffs:

2 foot perimeter: $35' - 4' = 31'$

2 foot perimeter: $70' - 4' = 66'$

$66' \div 10' = 6.6\,Rolloffs \cong 6\,Rolloffs$

The 10 feet incorporates the 8-foot width of the rolloff and the 2 foot aisle space

$31' \div 22' = 1.4\,Rows \cong 1\,Row$

The 22 feet is equivalent to a typical rolloff length

$$1\,Row * 6\frac{Rolloffs}{Row} = 6\,Rolloffs$$

CONCLUSIONS:

Trailer Parking Area I is permitted for solid container storage only, therefore secondary containment is not required. Trailer Parking Area I has the storage capacity for 6 rolloffs.

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA II:

Number of Rolloffs

2 foot perimeter: $35' - 4' = 31'$
2 foot perimeter: $150' - 4' = 146'$

$146' \div 10' = 14.6 Rolloffs \cong 14 Rolloffs$

The 10 feet incorporates the 8-foot width of the rolloff and the 2-foot aisle space.

$31' \div 22' = 1.4 Rows \cong 1 Row$

The 22 feet is equivalent to a typical rolloff length.

$$1 Row * 14 \frac{Rolloffs}{Row} = 14 Rolloffs$$

CLUSIONS:

1. ...er Parking Area II is permitted for solid container storage only, therefore, secondary containment is not required. Trailer Parking Area II has the storage capacity 14 rolloffs.

BBL

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA III:

Available Secondary Containment:

$35' * 200' * 1.5' * (0.50) = 5{,}250\,ft^3 \cong 39{,}272.73\,gallons$

Required Secondary Containment:

Largest single liquid container is expected to be 5,500 gallons.

25 Year, 24 Hour Precipitation Event:

$35' * 200' * 0.333' = 2{,}331\,ft^3 \cong 17{,}437.10\,gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$5{,}500\,gallons + 17{,}437.10\,gallons = 22{,}937.1\,gallons$

CONCLUSIONS:

Trailer Parking Area III has secondary containment capacity of 39,273 gallons. The maximum number of liquid containers is limited by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. Secondary containment is sufficient for liquid containers equal to or less than 21,836 gallons.

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA III (continued):

Available Secondary Containment:

39,272.7 *gallons*
(From Page 3)

Required Secondary Containment:

$$19\ Tankers * 5{,}500\ \frac{gallons}{Tanker} = 104{,}500\ gallons * 10\% = 10{,}450\ gallons$$

25 Year, 24 Hour Precipitation Event:

17,437.1 *gallons*
(From Page 3)

Required Secondary Containment Including Precipitation Event:

$$10{,}450\ gallons + 17{,}437.1\ gallons = 27{,}887.1\ gallons$$

CONCLUSIONS:

The above calculations confirm that the Trailer Parking Area III's secondary containment capacity of 39,272.7 gallons is adequate to contain 10% of the liquid stored including precipitation.

JAN 3 1 2002

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA III

Number of Rolloffs:

2 foot perimeter: $35' - 4' = 31'$
2 foot perimeter: $200' - 4' = 196'$

$196' \div 10' = 19.6\,Rolloffs \cong 19\,Rolloffs$

The 10 feet incorporates the 8-foot width of the rolloff and the 2-foot aisle space.

$31' \div 22' = 1.4\,Rows \cong 1\,Row$

The 22 feet is equivalent to a typical rolloff length.

$$1Row * 19\frac{Rolloffs}{Row} = 19\,Rolloffs$$

CONCLUSIONS:

Trailer Parking Area III has the storage capacity of 19 rolloffs.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA IV:

Available Secondary Containment:

$$35' * 100' * 1.5' * (0.50) = 2{,}625\,ft^3 \cong 19{,}636.4\,gallons$$

Required Secondary Containment:

Largest single liquid container is expected to be 5,500 gallons.

25 Year, 24 Hour Precipitation Event:

$$35' * 100' * 0.333' = 1165.5\,ft^3 \cong 8{,}718.6\,gallons$$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

$$5{,}500\,gallons + 8{,}718.6\,gallons = 14{,}218.6\,gallons$$

CONCLUSIONS:

Trailer Parking Area IV has secondary containment capacity of 19,636 gallons. The maximum number of liquid containers is limited only by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. Secondary containment is sufficient for liquid containers equal to or less than 10,918 gallons.

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA IV (continued):

Available Secondary Containment:

19,636.4 *gallons*
(From Page 5)

Required Secondary Containment:

$$9\ Tankers * 5{,}500\ \frac{gallons}{Tanker} = 49{,}500\ gallons * 10\% = 4950\ gallons$$

25 Year, 24 Hour Precipitation Event:

8718.6 *gallons*
(From Page 5)

Required Secondary Containment Including Precipitation Event:

$$4950\ gallons + 8718.6\ gallons = 13{,}668.6\ gallons$$

CONCLUSIONS:

The above calculations confirm that the Trailer Parking Area IV's secondary containment capacity of 19,636.4 gallons is adequate to contain 10% of the liquid stored including precipitation.

JAN 3 1 2002

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

TRAILER PARKING AREA IV:

Number of Rolloffs:

2 foot perimeter: $35' - 4' = 31'$
2 foot perimeter: $100' - 4' = 96'$

$96' \div 10' = 9.6\, Rolloffs \cong 9\, Rolloffs$
The 10 feet incorporates the 8-foot width of the rolloff and the 2-foot aisle space.

$31' \div 22' = 1.4\, Rows \cong 1\, Row$
The 22 feet is equivalent to a typical rolloff length.

$$1\, Row * 9 \frac{Rolloffs}{Row} = 9\, Rolloffs$$

CONCLUSIONS:

Trailer Parking Area IV has the storage capacity of 9 rolloffs.

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CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 12/31/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 12/31/2001

STABILIZATION FACILITY (continued)

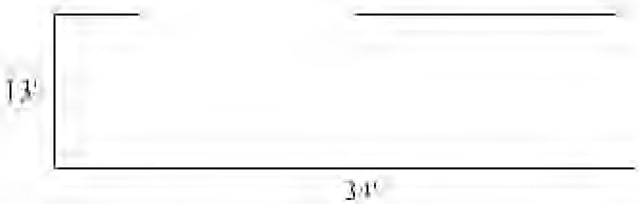
STABILIZATION WASTE ASH UNLOADING AREA:

Available Secondary Containment:

Dimensions:

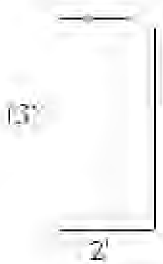
Ramp Area:

13'x34'x1'



Ramp Area:

$34' * 13' * 1' * 0.5 = 221\,ft^3 \cong 1,653.08\,gallons$



Sump Area:

$2' * 13' * 2' = 52\,ft^3 \cong 388.99\,gallons$

Total Available Secondary Containment:

$1,653.08\,gallons + 388.99\,gallons = 2,042.07\,gallons$

STABILIZATION FACILITY (continued)

25 Year, 24 Hour Precipitation Event:

$34' * 13' * 0.333' = 147.19\,ft^3 \cong 1{,}101.06\,gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Largest Allowable Liquid Container:

$2{,}042.07 - 1{,}101.06 = 941.01\,gallons$

CONCLUSIONS:

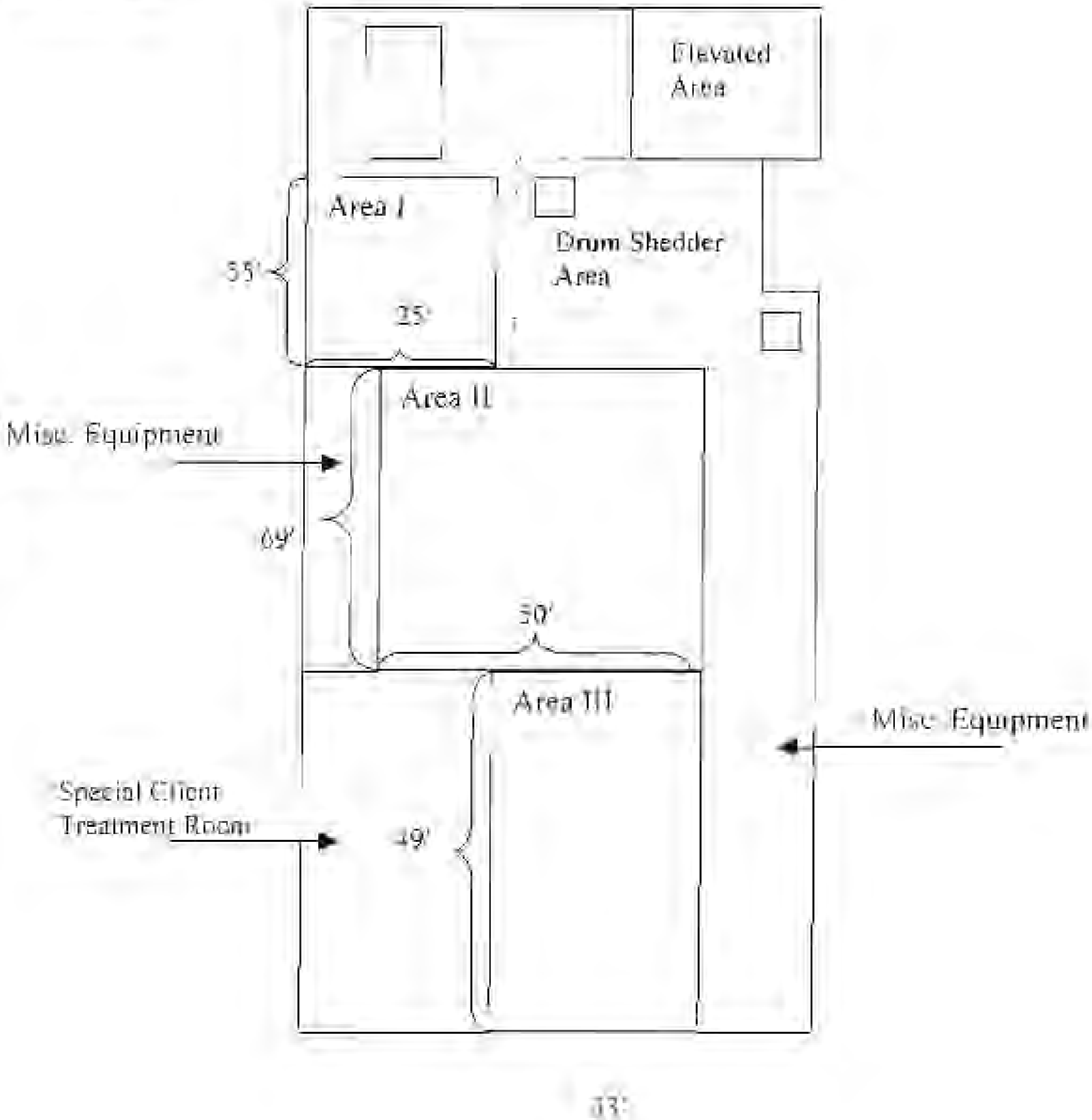
The Stabilization Waste Ash Unloading Area has secondary containment capacity of 2,042 gallons. The maximum number of liquid containers is limited only by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. The Stabilization Waste Ash Unloading Area has the storage capacity for one truck or pneumatic tanker containing solid waste.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZTION FACILITY (continued)

STABILIZATION FACILITY MACRO ROOM:

Dimensions:



Area I

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

Dimensions:

$22.5' x 55'$

$22.5' - 4' = 18.5'$
The 4 feet incorporates the required 2-foot perimeter.

$55' - 4' = 51'$
The 4 feet incorporates the required 2-foot perimeter.

$18.5' \div 10' = 1.85 Rows \cong 2 Rows$
The 10 feet is equivalent to a typical rolloff width of 8 feet and the required 2-foot aisle space.

$51' \div 22' = 2.3 Rolloffs \cong 2 Rolloffs$
The 22 feet is equivalent to a typical rolloff length.

$$2 Rows * 2 \frac{Rolloffs}{Row} = 4 Rolloffs$$

II.

Dimensions:

$50' x 69'$

$50' - 4' = 46'$
The 4 feet incorporates the required 2-foot perimeter.

$69' - 4' = 65'$
The 4 feet incorporates the required 2-foot perimeter.

$46' \div 10' = 4.6 Rows \cong 4 Rows$
The 10 feet is equivalent to a typical rolloff width of 8 feet and the required 2-foot aisle space.

$65' \div 22' = 2.9 Rolloffs \cong 2 Rolloffs$
The 22 feet is equivalent to a typical rolloff length.

$$4 Rowss * 2 \frac{Rolloffs}{Row} = 8 Rolloffs$$

Area III:

Dimensions:

$33' x 49'$

$33' - 4' = 31'$

STABILIZATION FACILITY (continued)

The 4 feet incorporates the required 2-foot perimeter.

$$49' - 4' = 45'$$

The 4 feet incorporates the required 2-foot perimeter.

$$33' \div 10' = 3.3 Rows \cong 3 Rows$$

The 10 feet is equivalent to a typical rolloff width of 8 feet and the required 2-foot aisle space.

$$45' \div 22' = 2.0 Rolloffs$$

The 22 feet is equivalent to a typical rolloff length.

$$3 Rows * 2 \frac{Rolloffs}{Row} = 6 Rolloffs$$

CONCLUSIONS:

Stabilization Facility Macro Room has a storage capacity of 18 rolloffs.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

STABILIZATION FACILITY SPECIAL CLIENT ROOM

Dimensions:

$26' x 49'$

49'

26'

$49' - 4' = 45'$
The 4 feet is the required 2-foot perimeter spacing.

$26' - 4' = 22'$
The 4 feet is the required 2-foot perimeter spacing.

$45' \div 22' = 2.04\,Rolloffs \cong 2\,Rolloffs$
The 22 feet is equivalent to a typical rolloff length.

$22' \div 10' = 2.2\,Rows \cong 2\,Rows$
The 10 feet is equivalent to a typical rolloff width of 8 feet and the required 2-foot aisle space.

$$2\,Rows * 2\frac{Rolloffs}{Row} = 4\,Rolloffs$$

CONCLUSIONS:

The Stabilization Facility Special Client Room has the storage capacity of 4 rolloffs, which are stored in 2 rows end-to-end with the required aisle spacing.

STABILIZATION FACILITY (continued)

STABILIZATION FACILITY NORTH EXPANSION AREA:

Dimensions:

$59' x 80'$

Number of Rolloffs:

2 foot perimeter: $59' - 4' = 55'$
2 foot perimeter: $80' - 4' = 76'$

$59' \div 10' = 5.9\,Rows \cong 5\,Rows$
The 10 feet incorporates the 8-foot width of the rolloff and the required 2-foot aisle space

$76' \div 22' = 3.45\,Rolloffs \cong 3\,Rolloffs$

$$5\,Rows * 3\,\frac{Rolloffs}{Row} = 15\,Rolloffs$$

CONCLUSIONS:

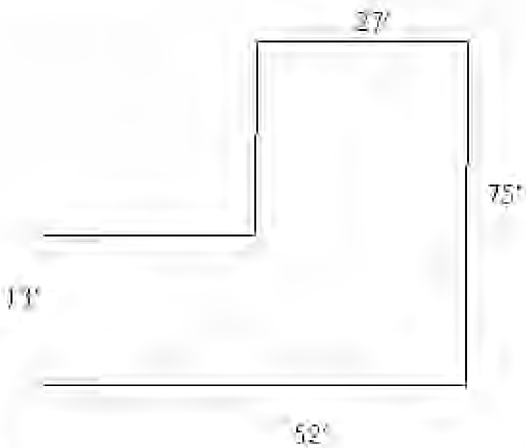
The Stabilization Facility North Expansion Area has a storage capacity of 15 rolloffs.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

STABILIZATION FACILITY DRUM SHREDDER AREA (UPPER)

Dimensions:



Dimensions:

27'x75'
13'x25'

2 foot perimeter: 27' – 4' = 23'
2 foot perimeter: 75' – 4' = 71'
The 2-foot perimeter is the required wall spacing.

$$5 Sections * 2 \frac{Rows}{Section} = 10 Rows$$

$$31' \div 2' = 15.5\, Drums \cong 15\, Drums$$

The 2 feet is equivalent to a typical drum diameter.

$$10 Rows * 15 \frac{Drums}{Row} = 150\, Drums(SingleStackedd) * 2 = 300\, Drums(DoubleStacked)$$

CONCLUSIONS:

Stabilization Facility Upper Drum Shredder Area has a solids storage capacity of 300 55-gallon drums. It is permitted for solid container storage only; therefore, secondary containment is not required.

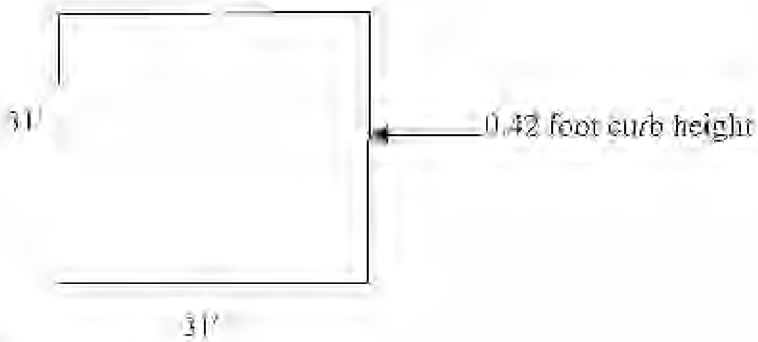
CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

STABILIZATION FACILITY DRUM SHREDDER AREA (LOWER)

Dimensions:

$31' x 31'$



Number of Rolloffs:

$31' - 4' = 27'$
$31' - 4' = 27'$
The 4 feet incorporates the required 2-foot perimeter.

$27' \div 22' \approx 1.22 Rows \cong 1 Row$
The 22 feet is equivalent to the typical length of a rolloff.

$27' \div 10' = 2.7 Rolloffs \cong 2 Rolloffs$
The 10 feet is equivalent to the typical rolloff width of 8 feet and the required 2-foot aisle spacing.

$$1 Row * 2 \frac{Rolloffs}{Row} = 2 Rolloffs$$

Liquid Storage Capacity:

Dimensions:

$31' x 31' x 0.42'$

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001

SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

STABILIZATION FACILITY (continued)

Available Liquid Storage Capacity:

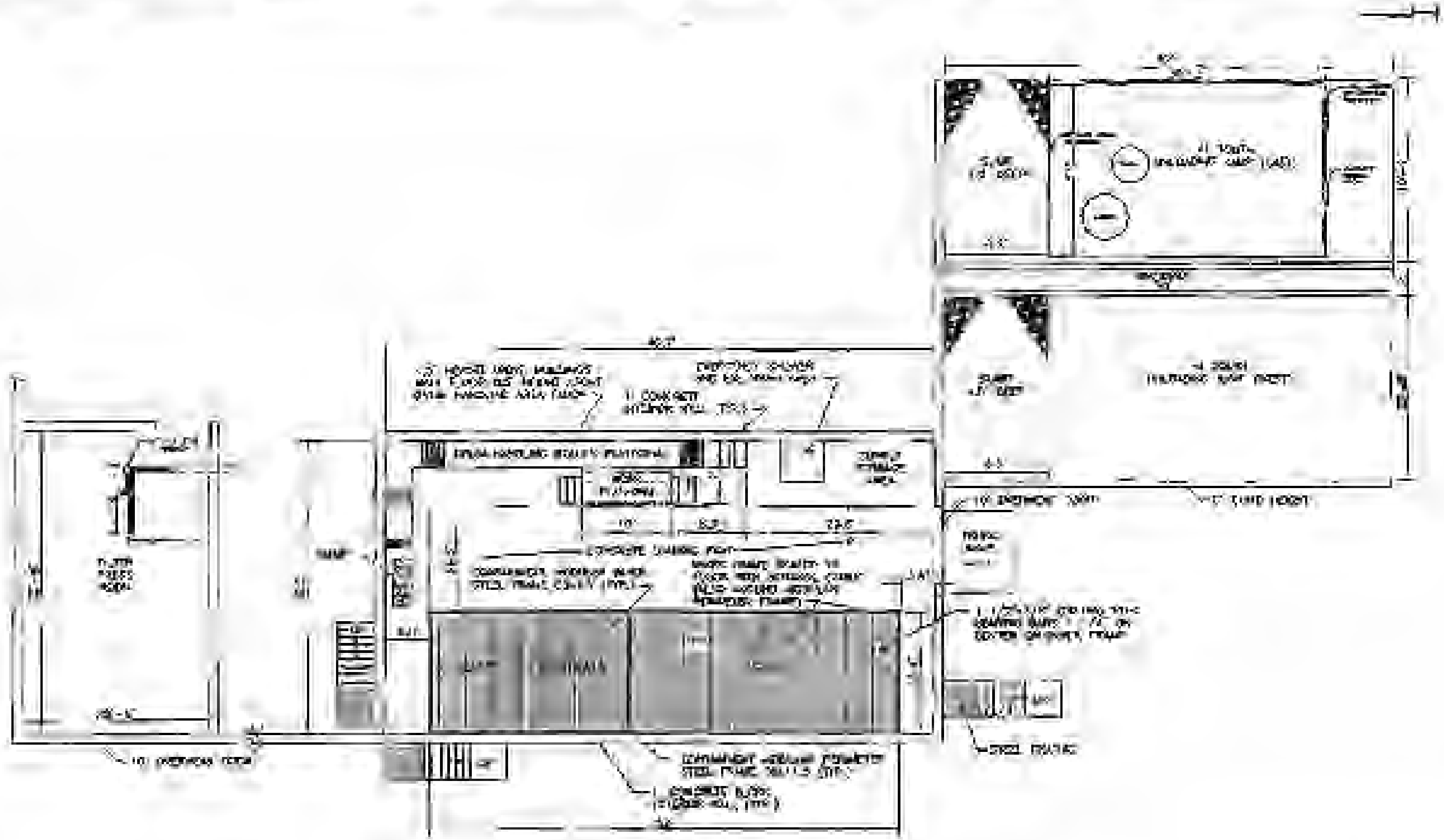
$$31' * 31' * 0.42' = 403.6\,ft^3 \cong 3{,}019.3\,gallons$$

CONCLUSIONS:

The Stabilization Facility Drum Shredder Area (Lower) has the storage capacity for 2 rolloffs and has a liquid secondary containment capacity of 3,019 gallons.

FIGURE D-5

AQUEOUS TREATMENT BUILDING CONTAINER STORAGE AREAS



NOTES:

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

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MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

AQUEOUS TREATMENT BUILDING CONTAINER STORAGE AREAS

BBL

FIGURE D-5

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

AQUEOUS TREATMENT BUILDING

TASK:

Calculate the total volume within the secondary containment of the drum storage area.

CALCULATIONS:

ACIDS/BASES/NEUTRALS STORAGE AREA - LIQUIDS:

Available Secondary Containment:

$$13.4' * 52' * 0.25' = 174.2\ ft^3 \cong 1{,}303.11\ gallons$$

Drum Storage Capacity:

$$128\ Drums * 55\ \frac{gal}{drum} = 7{,}040\ gallons$$

Required Secondary Containment:

$$10\% * 7{,}040\ gallons = 704\ gallons$$

CONCLUSIONS:

The Aqueous Treatment Building Acids/Bases/Neutrals storage area has sufficient secondary containment for the storage capacity of 128 55-gallon drums.

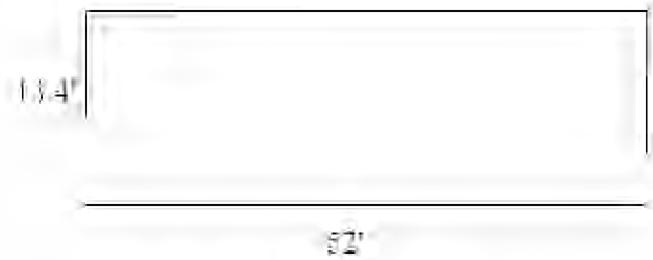
CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 02/09/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

AQUEOUS TREATMENT BUILDING (continued)

ACIDS/BASES/NEUTRALS STORAGE AREA - SOLIDS.

Dimensions:

13.4'x52'



$$13.4' - 4' = 9.4'$$
$$52' - 4' = 48'$$

$$9.4' \div 2' = 4.7\,Drums \cong 4\,Drums$$

The 2 feet is equivalent to a typical drum diameter.

$$48' \div 6' = 8\,Sections$$

A section is defined as 2 drums side by side (4 feet total) and the required 2-foot aisle space. Therefore, a section is 2 rows of drums.

$$8\,Sections * 2\,\frac{Rows}{Section} = 16\,Rows$$

$$16\,Rows * 4\,\frac{Drums}{Row} = 64\,Drums(SingleStacked) * 2 = 128\,Drums(DoubleStacked)$$

CONCLUSIONS:

The Aqueous Treatment Building Acids/Neutrals/Bases solids storage area has the capacity of 128 55-gallon drums.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBI Date: 02/09/2001

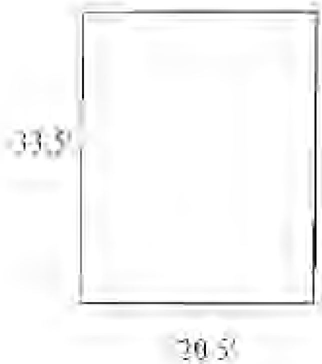
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 02/21/2001

AQUEOUS TREATMENT BUILDING (continued)

FILTER PRESS ROOM:

Dimensions:

20.5'x33.5'



$33.5' \div 22' \cong 1.5\,Rolloffs \cong 1\,Rolloff$

A typical rolloff is 22 feet in length and 8 feet in width.

CONCLUSIONS:

The Aqueous Treatment Building Filter Press Room has the solids storage capacity of 1 rolloff.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 12/21/2001

SUBJECT: Secondary Containment Calculations Reviewed By: AGT Date: 12/28/2001

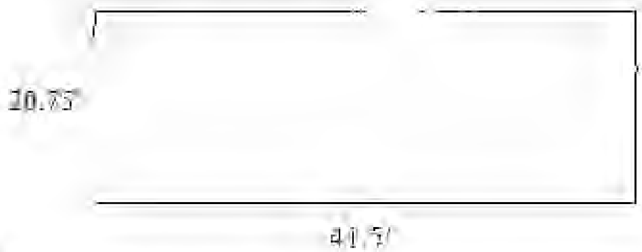
AQUEOUS TREATMENT BUILDING (continued)

AT SOUTH UNLOADING RAMP AREAS (EAST & WEST):

Dimensions (Individually):

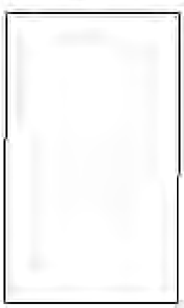
Ramp (East & West):

$20.75' x 41.5' x 0.667'$



Sump (East & West):

$8.5' x 20.75' x 4'$



Available Secondary Containment (East & West-Total):

Ramp Area (East & West-Total):

$$41.5' * 20.75 * 0.667' * (0.50) = 287.2\,ft^3 \cong 2,148.1\,gallons * 2 = 4,296.3\,gallons$$

Sump Area (East & West-Total):

$$8.5' * 20.75' * 4' = 705.5\,ft^3 \cong 5,277.14\,gallons * 2 = 10,554.3\,gallons$$

AQUEOUS TREATMENT BUILDING (continued)

Total Available Secondary Containment (East & West-Total):

$4{,}296.3 gallons + 10{,}554.3 gallons = 14{,}850.6 gallons$

Required Secondary Containment (East & West-Total):

Tankers, a total of 2, with a maximum capacity of 6,000 gallons each may be located in the unloading area.

25 Year, 24 Hour Precipitation Event:

East & West Ramp (minus clarifier building):

$41.5' * 20.75' * 0.333' * 2 - (16.58' * 30.33' * 0.333') = 406.1 ft^3 \cong 3{,}037.3 gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Sumps (East & West- Total):

$8.5' * 20.75' * 0.333' = 58.7 ft^3 * 2 = 117.5 ft^3 \cong 878.6 gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Total Precipitation:

$3{,}037.3 gallons + 878.6 gallons = 3{,}915.9 gallons$

Required Secondary Containment Including Precipitation Event (East & West-Total):

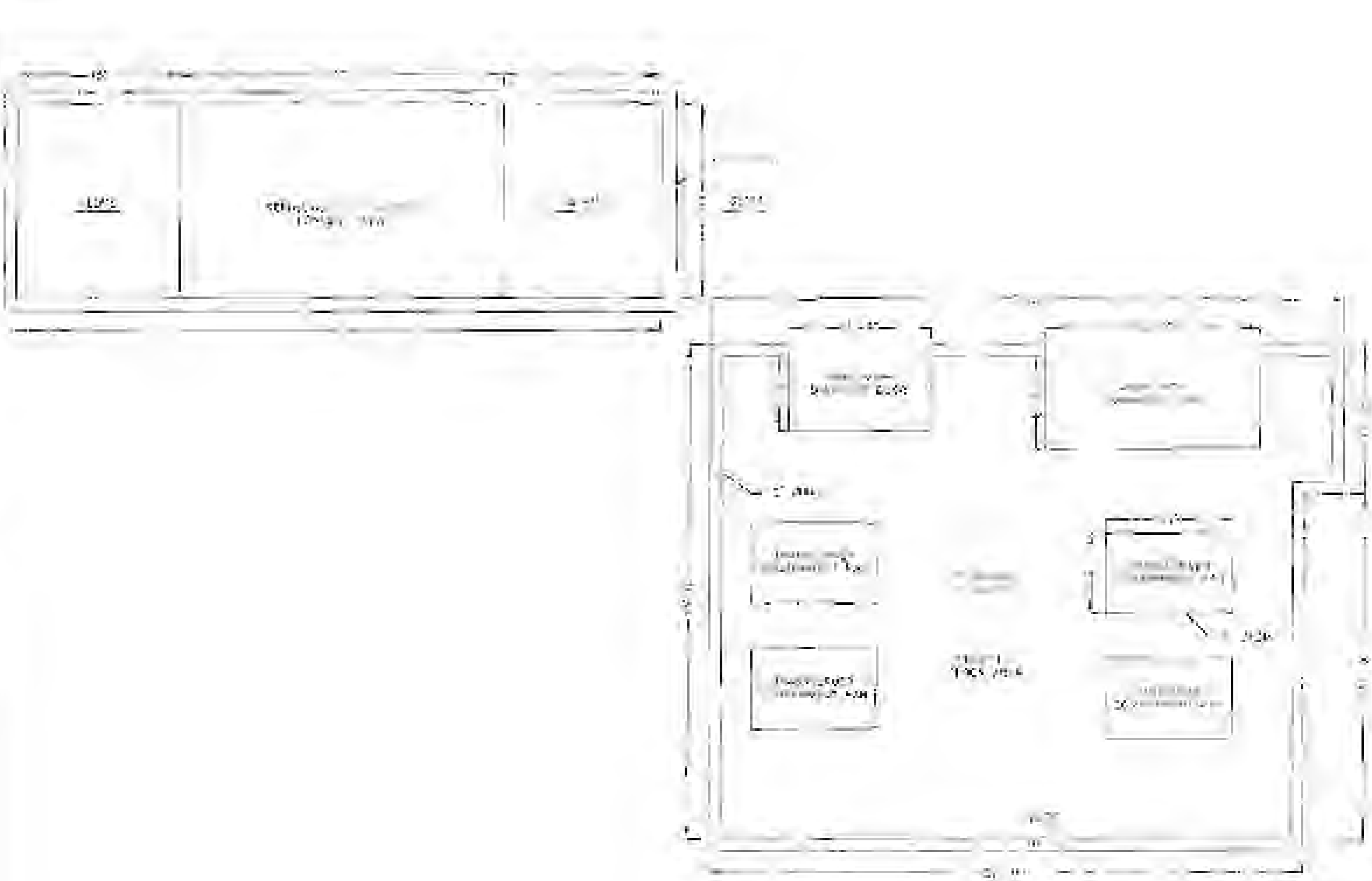
$6{,}000 gallons + 3{,}915.9 gallons = 9{,}915.9 gallons$

CONCLUSIONS:

The AT South Unloading Ramp Areas (East & West) has a secondary containment capacity of 14,850.6 gallons. The maximum number of liquid containers is limited only by the available physical space, and the ability to contain the volume of the largest container or 10% of the total liquid stored including precipitation. The AT South Unloading Ramp Areas (East & West) has the storage capacity for liquid containers equal to or less than 10,935 gallons.

FIGURE D-6

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING



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TRANSFORMER DECOMMISSIONING (T.D.) BUILDING

BBL

FIGURE D-6

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/03/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/03/2001

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

TRANSFORMER CONTAINMENT PAN: (Determined on an individual basis.)

Dimensions:

$11' x 7' x 0.667'$

Available Secondary Containment:

$11'*7'*0.67' = 51.59 ft^3 \cong 385.92 gallons$

CONCLUSIONS:

The individual transformer containment pans have secondary containment capacity of 385.92 gallons. The total number of containment pans may vary to a maximum of 11 pans.

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING (continued)

Dimensions:

50' x 31'

Number of Pans:

2 foot perimeter: 50' - 4' = 46'
2 foot perimeter: 31' - 2' = 29'

$29' \div 9' = 3.22 Rows = 3 Rows$
The 9 feet incorporates the 7 foot width of the pan and the required 2-foot aisle space.

$46' \div 11' = 4.18 Pans = 4 Pans$

$3\ Rows * 4\ \frac{Pans}{Row} = 12 Pans$

CONCLUSIONS:

The Transformer Decommissioning (T.O.) Building can accommodate the storage of up to 11 pans, with the largest transformer in each pan having a liquid capacity of no greater than 385 gallons.

CLIENT: CWM PROJECT: Permit Renewal Prepared By: CBT Date: 04/03/2001
SUBJECT: Secondary Containment Calculations Reviewed By: AGL Date: 04/03/2001

TRANSFORMER DECOMMISSIONING (T.O.) BUILDING (continued)

TRANSFORMER DECOMMISSIONING (T.O.) LOADING RAMP

Dimensions:

$82' x 27' x 1.35'$

Available Secondary Containment

$(0.50)*15'*27'*1.35'*2 = 546.8\,ft^3 \cong 4{,}090.3\,gallons$

$52'*27'*1.35' = 1{,}895.4\,ft^3 \cong 14{,}178.6\,gallons$

$4{,}090.3\,gallons + 14{,}178.6\,gallons = 18{,}268.9\,gallons$

Required Secondary Containment:

Two tankers with a total capacity of 12,000 gallons will be located in the unloading area.

25 Year, 24 Hour Precipitation Event:

$82'*27'*0.333' = 737.26\,ft^3 \cong 5{,}515.10\,gallons$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment:

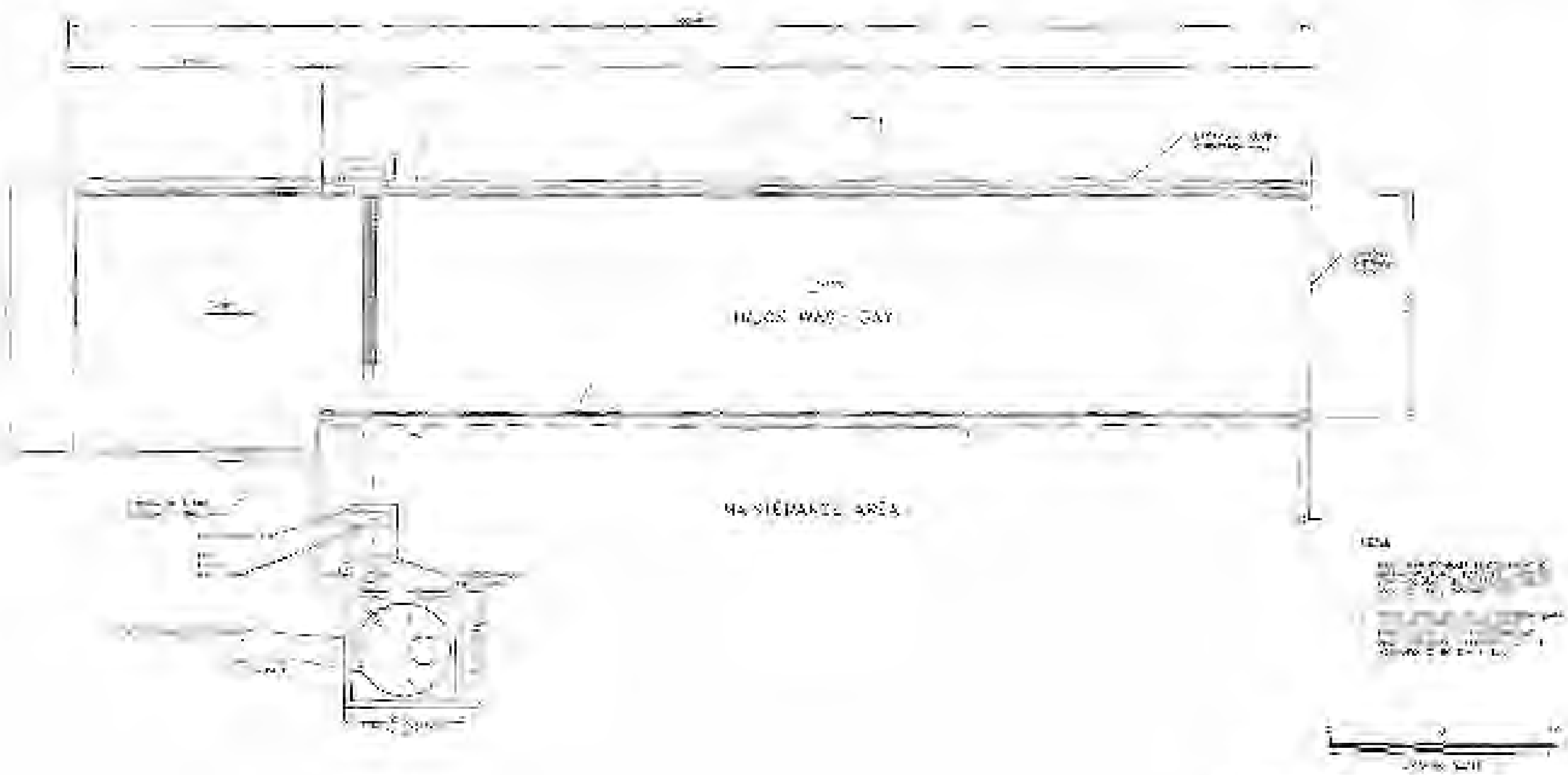
$12{,}000\,gallons + 5{,}515.10\,gallons = 17{,}515.1\,gallons$

CONCLUSIONS:

The Transformer Decommission Loading Ramp has secondary containment capacity of 18,269 gallons. Secondary containment is sufficient for liquid containers equal to or less than 12,754 gallons.

FIGURE D-7

TRUCK WASH BUILDING



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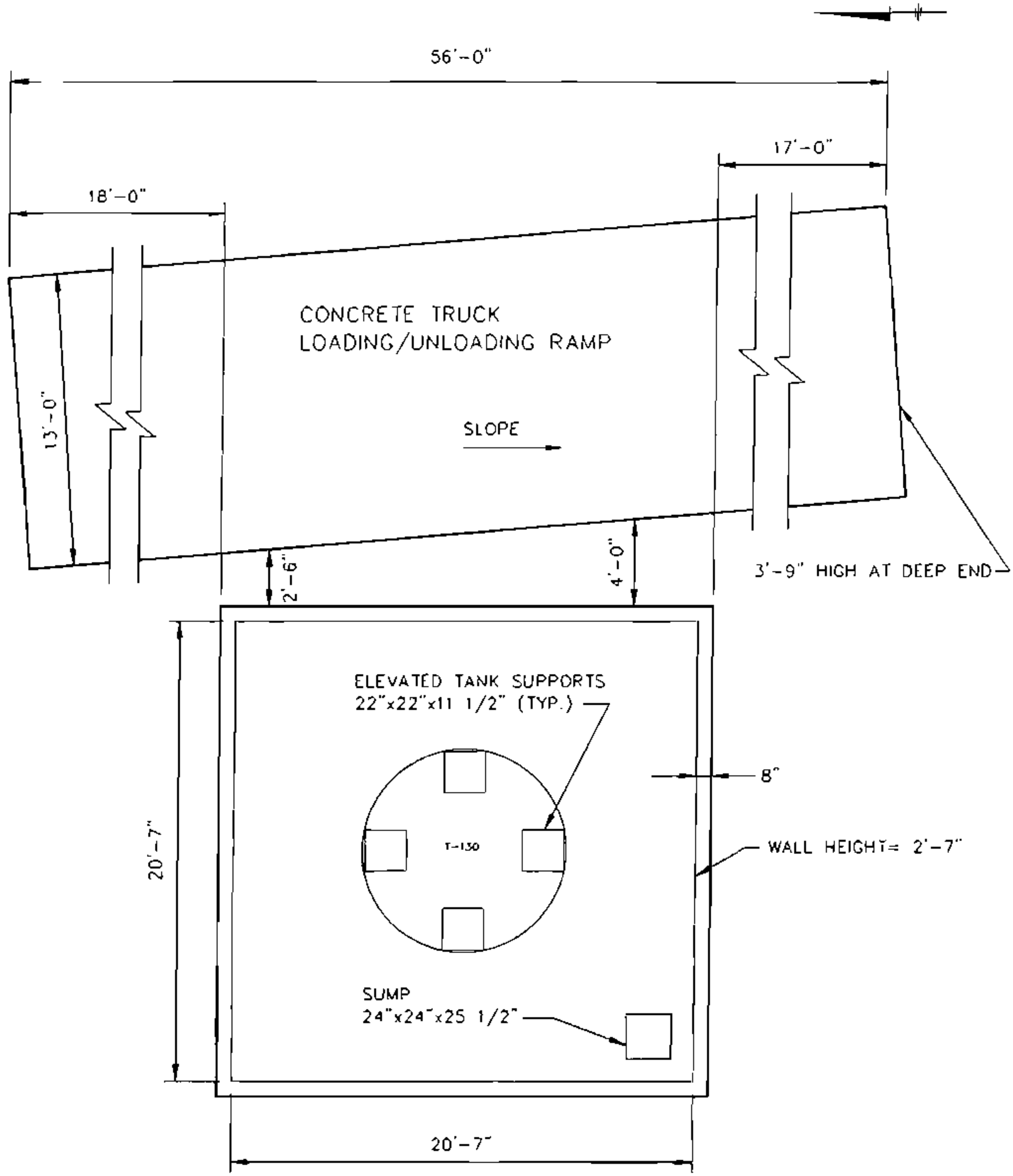
TRUCK WASH BUILDING

BBL

D-7

FIGURE D-25

TANK T-130 LOADING/UNLOADING RAMP



PLAN

NOT TO SCALE

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TANK T-130

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

FIGURE **D-25**

X: 05052X00
L: ON=* OFF=*REF*
P: STD-PCP/AP
4/2/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052C05.DWG

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001

SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-105 & T-130 LOADING/UNLOADING RAMP

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(0.50(55.0' x 3.7' x 13.0')) = 1,322.8 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(1,322.8 CF x 7.48 gal/CF) = 9,894.5 gallons

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0' x 13.0' x 0.33') = 238.1 CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Volume

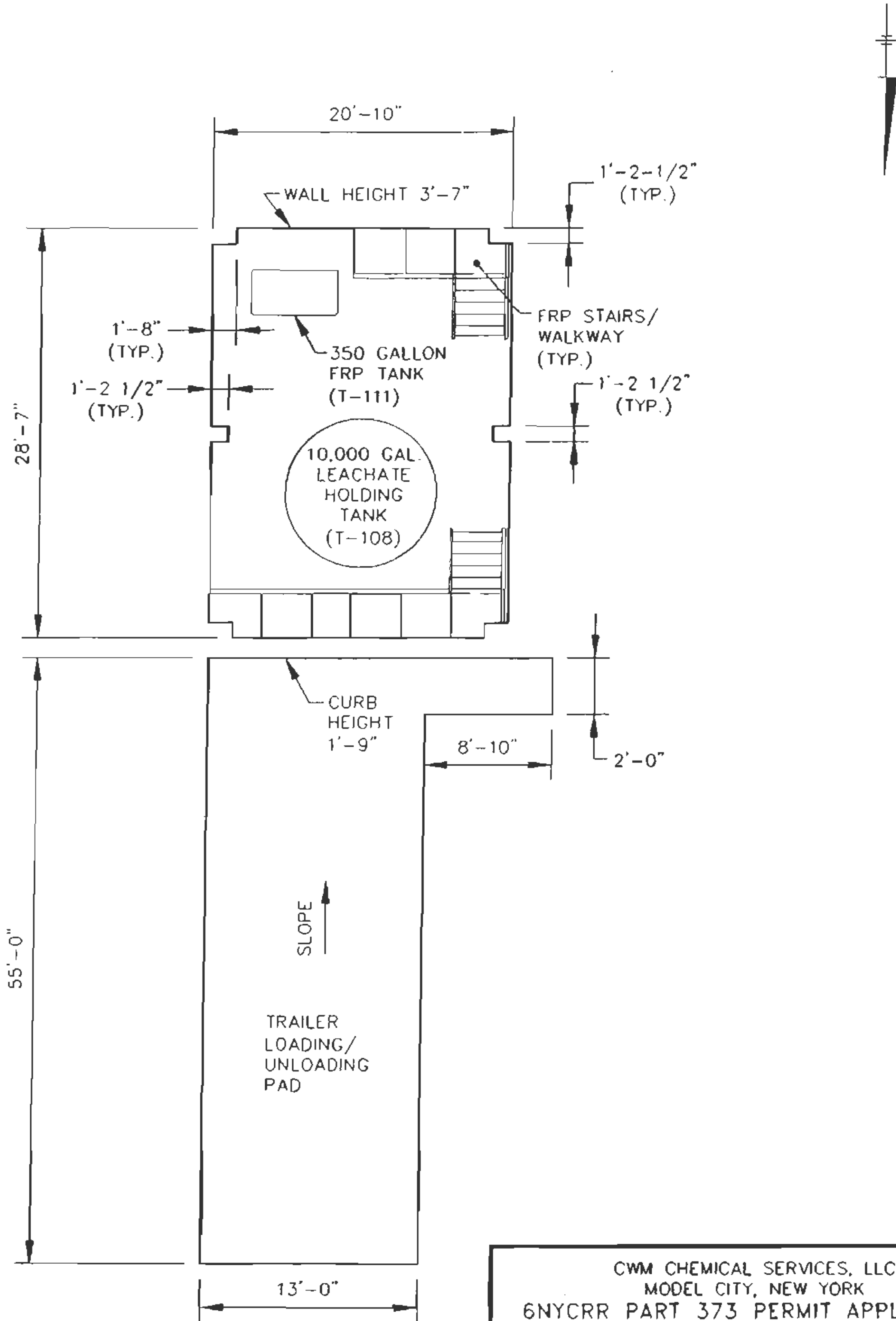
5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

Conclusions:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-13

TANK T-108 (SLF 7/11)
LEACHATE LOADING/UNLOADING PAD



PLAN

NOT TO SCALE

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
D5052080/D5052G22.DWG

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TANKS T-108 AND T-111

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

FIG. D-13

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

SLF 7/11 LEACHATE LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(0.50(55.0′ x 1.7′ x 13.0′)) + (8.9′ x 2.0′ x 1.7′) = 638.0 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

(638.0 CF x 7.48 gal/CF) = 4,772.2 gallons + 15,708.7 gallons = 20,480.9 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 15,708.7 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0′ x 13.0′ x 0.33′) + (8.9′ x 2.0′ x 0.33′) = 241.8 CF = 241.8 CF x 7.48 gal/CF = 1,808.7 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain)
This assumes that the rain gutters for tanks fail.

Required Volume:

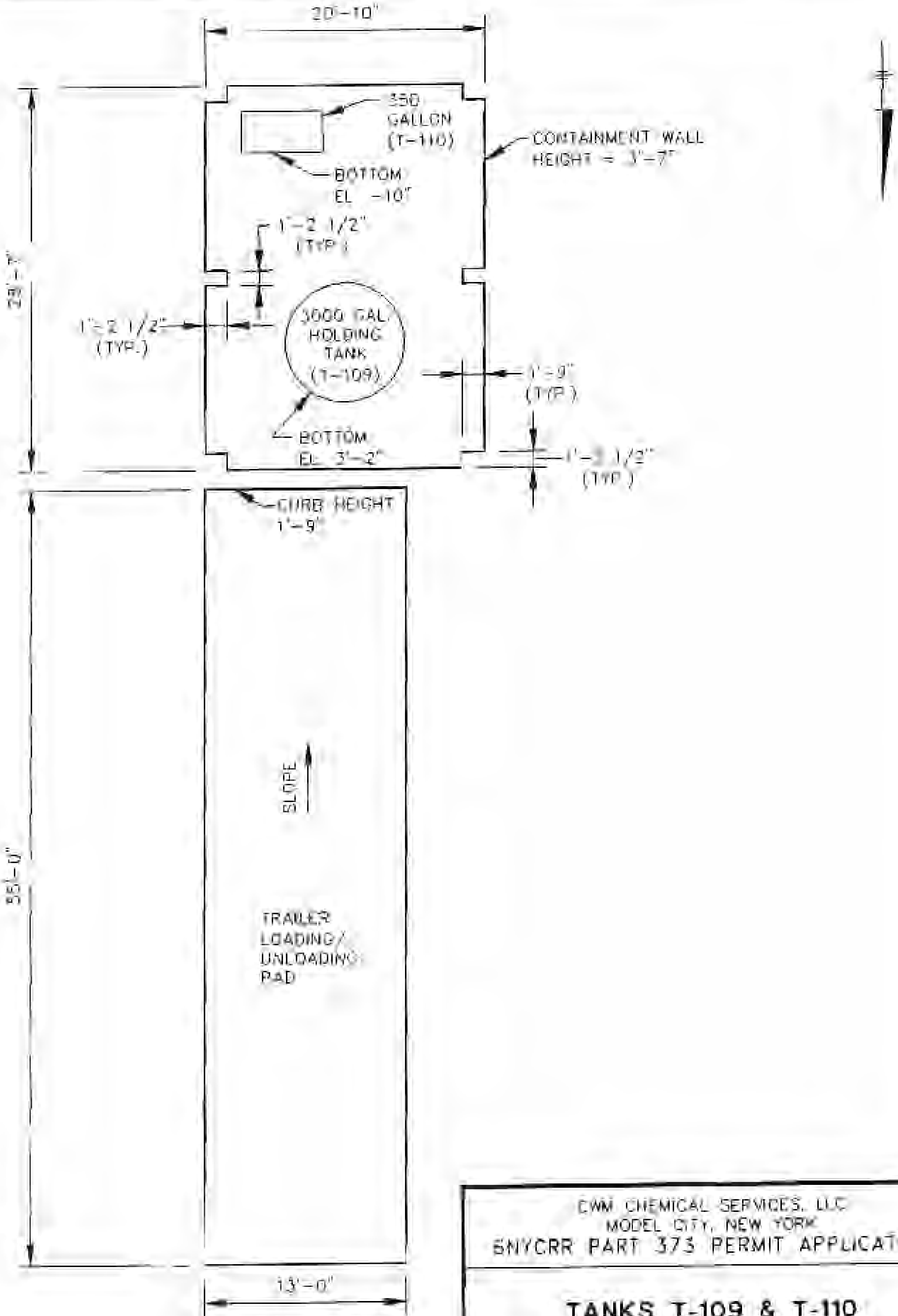
5,500 gallons + 1,808.7 gallons = 7,308.7 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-12

TANK T-109 (SLF 10)
LEACHATE LOADING/UNLOADING PAD



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANKS T-109 & T-110

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

FIGURE **D-12**

CALCULATION SHEET

BBL

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

SLF 10 LEACHATE LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

($\frac{1}{2}$(55.0' x 1.7' x 13.0')) = 607.8 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

8 CF x 7.48 gal/CF) = 4,546.3 gallons + 15,708.7 gallons − 20,255 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 15,708.7 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

(55.0' x 13.0' x 0.33') = 238.1 CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Volume:

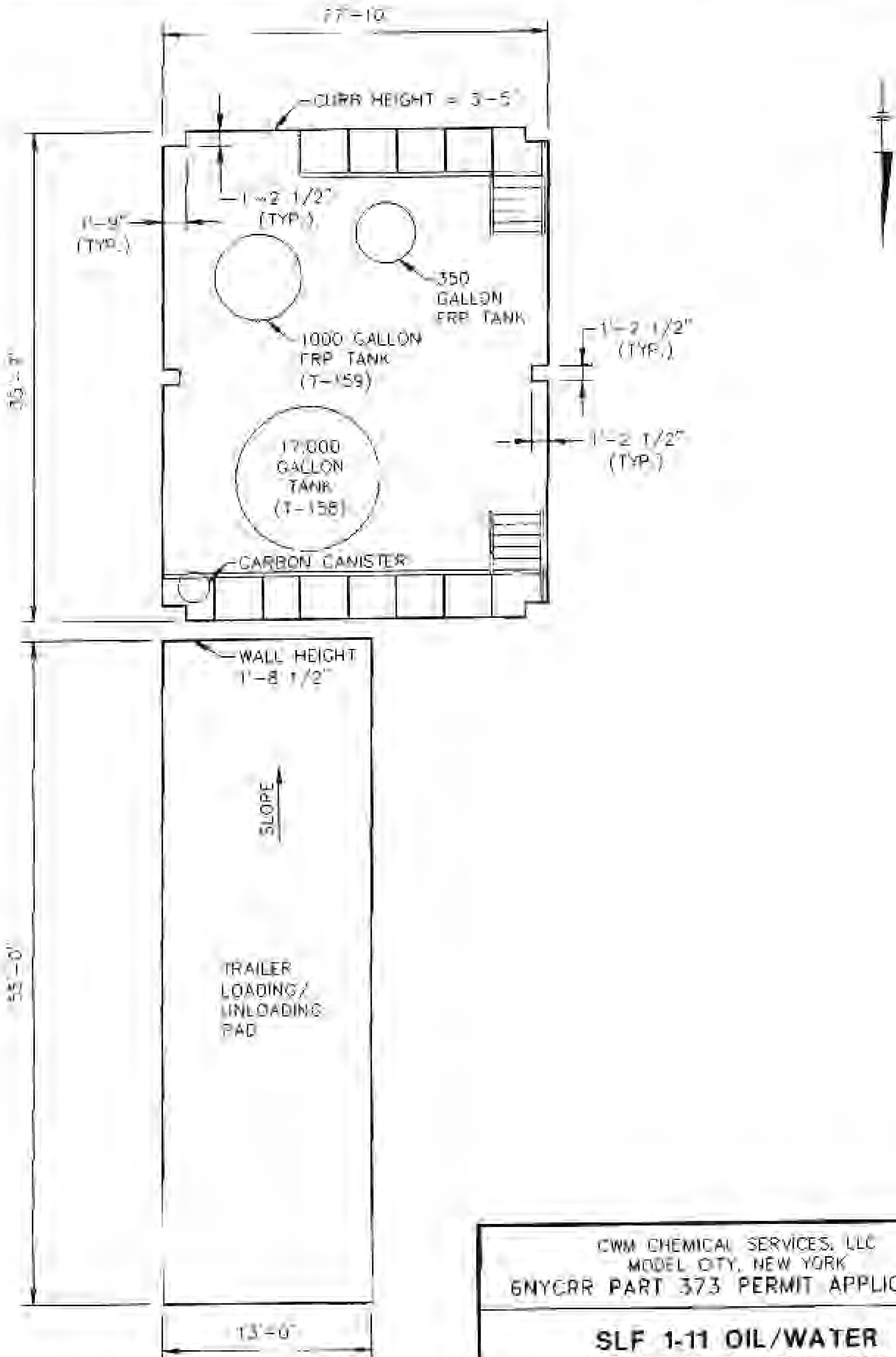
5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-14

TANK T-158 (SLF 1-11 OWS)
BUILDING LOADING/UNLOADING PAD



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

SLF 1-11 OIL/WATER SEPARATOR BUILDING

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

FIGURE **D-14**

CALCULATION SHEET

BBL

PROJECT NO.: 18052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

SLF 1-11 OWS BUILDING LOADING/UNLOADING PAD

TASK:

Calculate the total volume within the secondary containment area

CALCULATIONS:

Available Volume:

Containment Area:

(1) (155.0' x 1.7' x 13.0')) = 607.8 CF

Subtractions:

Note:
Additional volume displacements such as truck stops will only account for a very small volume and will not be included in the net containment volume

Total Available Volume:

(607.8 CF x 7.48 gal/CF) = 4,546.3 gallons + 24,876.2 = 29,422.5 gallons

The Truck Ramp is connected to the Leachate Collection Building by a 3" pipe. A valve in the pipe is opened whenever transferring liquids to a tanker located in the Truck Ramp. Therefore, an additional 24,876.2 gallons of secondary containment is available within the building.

Required Volume:

One tanker truck with a maximum capacity of 5,500 gallons could be located in Truck Ramp.

25 Year, 24 Hour Precipitation Event:

155.0' x 13.0' x 0.333 = 238.1 CF = 238.1 CF x 7.48 gal/CF = 1,781.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain)
This assumes that the rain gutters for tanks fail

Required Volume:

5,500 gallons + 1,781.0 gallons = 7,281.0 gallons

CONCLUSIONS:

Available volume exceeds required volume, therefore, containment volume is acceptable.

APPENDIX D-2

SURFACE IMPOUNDMENTS

APPENDIX D-2
SURFACE IMPOUNDMENTS

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SURFACE IMPOUNDMENTS

I. Introduction

The active surface impoundments, i.e., facultative ponds (FAC Ponds), are comprised of FAC Ponds 1, 2, 3 and 8. These surface impoundments are utilized for biological treatment using aeration and storage of treated wastewater prior to discharge into the Niagara River in accordance with the Model City Facility SPDES Permit.

The FAC ponds receive treated effluent from the Aqueous Wastewater Treatment System only. There are no other inputs to these impoundments with the exception of direct precipitation into the impoundments. Precipitation that accumulates in FAC Pond 8 may be transferred to FAC Pond 1 / 2.

II. Background

The RCRA Hazardous and Solid Waste Amendments of 1984 (HSWA) specify that surface impoundments which treat or store hazardous waste must have two or more liners, a leachate collection system between these liners, and appropriate groundwater monitoring.

Owners and operators of facilities with interim status surface impoundments were given four years to retrofit impoundments to meet these minimum technology requirements (November 8, 1988). Chemical Waste Management, Inc. applied to the USEPA Region II for a variance to the HSWA double liner requirements for Facultative Ponds No. 1, 2, 3, 8, 9, Fire Pond and the Aggressive Biological Treatment Unit (ABTU) No. 58. On February 17, 1989 CWM was notified by the USEPA of the approval of its request for a variance. In the approval, the USEPA stated that CWM still qualifies for the exemption should the composition of waste streams handled by CWM change or in the event that a new SPDES Permit was issued.

Moreover, during August of 1993, CWM requested verification from the NYSDEC that its exemption was still valid even though the AWTS had been upgraded and CWM's SPDES Permit had been renewed. In its 1993 request for verification, CWM demonstrated that the conditions upon which the exemption was based had not changed. In December of 1993, the NYSDEC informed CWM that its exemption from minimum technology requirements for the facultative pond system was still valid.[1]

[1]Paul R. Counterman, P.E. to Ms. Jill Knickerbocker, "Aggressive Biological Treatment Exemption", New York State Department of Environmental Conservation letter dated December 21, 1993.

Consequently, the active surface impoundments described herein (FAC Ponds 1, 2, 3 and 8) do not meet the minimum technology requirements and are not double lined impoundments.

The Fire Pond was removed from service, clean closed and certified on March 1, 1990. Fac Pond 9 was removed from service, clean closed and certified on August 7, 1992. These two Fac Ponds no longer exist. ABTU 58 was converted to a RCRA tank in 1993.

III. Description of Active Facultative Ponds 1, 2, 3 and 8

Active Fac Ponds 1, 2, 3 and 8 are clay lined surface impoundments of the following approximate sizes:

Fac Pond	Capacity (gallons)	Area in Acres
1 and 2	22,880,700	7.1
3	51,355,300	13.2
8	43,413,500	6.6

Fac Ponds 1 and 2 were originally two separate adjacent ponds separated by a berm. In recent years, however, the internal berm was encroached. Now Fac Pond 1 and 2 are considered a single surface impoundment with common exterior berms.

The historical purpose of the Fac Ponds was to provide the final step for treated wastewater prior to discharge. This was accomplished by mechanical aeration allowing the continued reduction in TOC, BOD and COD, plus an increase in dissolved oxygen content. Since the inception of Land Disposal Regulations (LDRs), however, the levels of organic and other contaminants in the treated wastewater entering the Fac Ponds are greatly reduced. Aeration is currently used mainly for odor control.

IV. Land Disposal Regulations

LDRs have established treatment standards for wastewater discharged to surface impoundments. In November 1998, NYSDEC updated the 6NYCRR Part 376 regulations to adopt recently promulgated USEPA LDRs. The CWM Waste Analysis Plan describes the test procedures and frequency employed to assure that the treated effluent meets established LDRs under the multi-source leachate Waste Code F039.

V. Operation

After treatment in the carbon absorption system of the AWTS, the wastewater effluent is discharged into an effluent holding tank. Following qualification, the effluent is transferred to FAC Pond 1 and 2.

Periodically, this volume of treated effluent is pumped from Fac Pond 1 and 2 into Fac Pond 3 to accumulate sufficient quantities for discharge. The final step of the qualification process occurs in Fac Pond 3 where samples are collected and analyzed for comparison to the SPDES Permit limits. Once the effluent qualifies under the SPDES Permit, the wastewater is discharged via the facility's pipeline to the Niagara River. Generally, one batch is qualified and discharged per year. A typical volume is 15-25 million gallons per year.

Fac Ponds 1, 2 and 3 are equipped with mechanical aerators whose main purpose is to minimize odorous emissions from the pond by maintaining a high dissolved oxygen content. Aerators are operated on an as needed basis. The liquid level in each Fac Pond is visually inspected to maintain a freeboard of at least two feet.

Fac Pond 8 was taken out of service in 2004 and emptied in anticipation of closure. Prior to that time, Fac Pond 8 was used as the final qualification pond. Closure of Fac Pond 8 is currently in progress.

VI. Maintenance

Erosion protection is predominately provided for the exterior surfaces of all above grade impoundments in the form of a vegetative growth. Inspections of all active surface impoundment embankments are performed at least once each operating day.

A. Control of Overtopping and Maintenance of Dikes

1. Inspections

Specific inspection criteria are described in the facility's Inspection Plan for the following criteria:

1) measurement devices;
2) liquid level in the impoundment (indication whether two feet of freeboard is present);
3) no sudden drop in level of contents not associated with pumping;
4) no signs of severe erosion, deterioration, or instability of dikes;
5) aerators are operable when in use.

The inspections are designed to detect any evidence of deterioration, malfunction or improper operation which would compromise the efficiency of the overtopping control. Level control is accomplished by visual inspections of the measuring device affixed near each impoundment. This will assure that sudden changes in liquid level will be quickly detected.

Liquid losses, due to berm failure, from the FAC Ponds would be contained in the facility surface water drainage collection system until contingency measures were implemented.

Moreover, most of the Fac Ponds are below ground level making losses very minimal in the event of berm failure.

2. Erosion Protection

The exterior of the containment berms for the surface impoundments are vegetated to reduce the potential for erosion due to precipitation and runoff.

Inspections which indicate a problem with erosion will be handled by initiating the Environmental Work Order System. Restorative construction will consist of removal or reshaping the eroded soils, reseeding and adding additional material with compaction. The area will be monitored during subsequent inspections to ensure its viability.

VII. Air Emission Standards

Air emission standards for surface impoundments are specified in 6NYCRR 373-2.29 and 40 CFR 264/265.1080-1091 (Subpart CC), which became effective on December 6, 1996. RCRA Subpart CC is applicable to owners and operators of a TSDF which treats, stores or disposes of hazardous waste containing greater than 500 ppmw volatile organics in tanks, surface impoundments and containers. If Subpart CC wastes are managed in a surface impoundment, a floating membrane continuous barrier or a cover vented through a closed vent system to a control device must be installed, unless specified exemptions apply. All surface impoundments at the CWM Model City Facility are exempt from these requirements as described below.

Fac Ponds 1, 2, 3 and 8 are exempt since the treated wastewater placed in these impoundments meets the applicable numerical organic limits for F039, as specified by the LDR regulations. In addition, all wastewaters are exempt after being treated at the AWTS, and so the effluent from AWTS is exempt.

APPENDIX D-3

TANKS

APPENDIX D-3
TANKS

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TANKS

I. INTRODUCTION

The CWM Model City Facility utilizes tanks for storing, treating and transferring many different materials including leachate, PCB liquids, organic liquids, products, aqueous waste, acids, caustics, sludges, recycle water, ground water, waste solids and lab waste.

All of the permitted tanks at the Model City Facility are listed in this Appendix.

II. TANKS AND THEIR SECONDARY CONTAINMENT SYSTEMS

The Permittee has constructed tankage specified in this Appendix with the required secondary containment and leak detection systems as specified in 6 NYCRR Part 373-2.10, except for Tank T-58 which was granted a variance from secondary containment requirements in CWM's 2005 Part 373 Permit No. 9-2934-00022/00097. Drawings and secondary containment volume calculations for each tank area are provided in the attached System schematics. Process and Instrumentation Drawings (P&IDs) are also provided.

The secondary containment for tanks located inside buildings is provided by the building itself and designed to contain, at a minimum, 100% of the volume of the largest tank. Tanks located outside of buildings are provided with secondary containment designed to contain a minimum of 100% of the largest tank plus a 25 year, 24 hour storm event.

Precipitation that falls into outdoor secondary containment areas is typically collected and removed via pump, vacuum truck or equivalent and treated in the Aqueous Waste Treatment System, or if appropriate, tested and discharged to the surface water drainage system if analysis indicates that it meets surface water standards. Under normal circumstances, the secondary containment will be pumped free of liquid no later than the end of the next business day after the end of a rainfall event or thaw.

All ancillary equipment for the permitted tank systems is provided with secondary containment, except for that ancillary equipment meeting the exemption specified in 6NYCRR 373-2.10(d)(6). All exempted ancillary equipment, e.g., welded piping, which is located outside of secondary containment, is visually inspected on a daily basis (except for groundwater extraction systems during the winter shut down period).

All hazardous waste tank systems have been evaluated to determine if any such systems meet the definition of being interconnected, in accordance with 6NYCRR 370.2(b)(105). Criteria has been used to identify all areas where equipment failure at any point in the tank system or operator error could result in the release from more than one tank for tank systems interconnected in the same, or separate, secondary containments. As specified by 6NYCRR 373-2.10(d)(5)(i)(a), secondary containment systems must be designed or operated to contain 100% of the largest tank or the volume of all interconnected tanks, whichever is greater.

CWM has installed valving and electronic safeguards for all interconnected tanks at the Model City Facility whose combined volume exceeds the volume of secondary containment provided for these tanks to prevent potential secondary containment volume exceedences which could be caused by operator error.

III. GENERAL PROCESS SYSTEMS

A. The Aqueous Waste Treatment Facility

CWM has engineered and constructed an Aqueous Wastewater Treatment System (AWTS) designed to treat on-site waters, landfill leachate and gate receipts from customers. The system occupies an area of approximately two acres, and is located at the western edge of the existing operating facility. The facility features enclosed tanks for receipt of waste materials, reaction vessels, filter presses for the removal of solids, biotowers for the removal of biodegradable organics (alcohols and ketones), carbon adsorbers for the capture of residual organics, cartridge filter units for removal of residual solids, adsorption media for removal of arsenic and storage tanks for the treated waste. The alkalization/precipitation, lime slurry, filter press and gate receipts receiving operations are housed in the 10,000 square foot Aqueous Treatment (A/T) Building along with the control room, laboratory and offices. The 1,500 square foot Water Treatment (W/T) Building houses the filtration, arsenic adsorption and carbon adsorption processes.

The system features a Programmable Logic Controller (PLC) to monitor operations and transfers of materials within the facility. The PLC is also used to insure system safety by interlocking with various control equipment.

The Aqueous Treatment and Water Treatment Buildings were designed to provide an environmentally safe water treatment operation. Environmental control was one of the primary objectives in the design and operation of the facility. The system features concrete containment surrounding all tanks, reaction vessels, and other process equipment. In addition, where needed, process piping is lined with special corrosion resistant plastic (polypropylene) or is constructed of High Density Polyethylene (HDPE) in order to prevent corrosion on the interior surface of the piping and prolong the process life of the piping. Finally, process tanks within the A/T Building are tied into a vent collection system. This system controls acid vapors associated with receipt and treatment of the waste materials. In addition, carbon canisters are installed on the process tanks which contain Subpart CC wastes to control organic emissions.

The system is designed to be flexible in the treatment of waste streams. Flexibility is provided by the capability to by-pass or recirculate the process flow through major components of the treatment system. This allows for enhanced treatment and additional process capacity.

Modified: Nov. 2013

The incoming leachate, which is pretreated by oil/water separation when necessary, is pumped into the reaction/blending tanks where sulfuric acid and ferrous sulfate are added to lower the pH prior to metals precipitation, as needed and directed by the laboratory. Aqueous gate receipts can be mixed in the special treatment tanks and then transferred to the reaction/blending tanks. Each batch of blended waste is carefully prepared and analyzed by facility chemists.

The aqueous wastes then go through an alkalization step and filtration unit to remove metal contaminants. The filter cake from the process is incinerated or transported to the site's secure landfill depending on the F039 analysis and achievement of land ban treatment standards. The treated effluent is then pumped into the biological treatment system (biotowers), where the wastewater undergoes biodegradation to remove organics. Flow is then processed through the cartridge filter and arsenic adsorption units (for aqueous wastes requiring arsenic removal) and carbon adsorption unit and on to the effluent holding tanks for testing prior to discharge to the facultative ponds. The biotowers can also be bypassed if organic constituent concentrations are low and the carbon treatment system can handle the organic load. The final treated effluent undergoes extensive laboratory testing and is discharged to the lower Niagara River under a state SPDES permit.

While some AWTS tanks are used for storage only, various treatment options may be used in other tanks to facilitate the most efficient overall treatment, as listed in the following tank tables. For example, anti-foaming agents, nutrients and inoculum are typically added to lift station tanks T-3011 and T-3012 or tank T-3002 to improve organic reduction efficiency in the biotowers. Various agents may be added to filtrate storage tank T-100 and leachate tank farm tanks T-101, T-102 and T-103 to reduce the concentration of organics. Air sparging may be performed and various agents may be added to final effluent tanks T-58 and T-125 to reduce the concentration of organics. Hexametaphosphate is typically added to carbon adsorber feed tank T-3003 to prevent bridging of the carbon adsorbers. An oxidizer may be added to RMU-1 lift station tank T-160 to control the generation of hydrogen sulfide gas. A wide variety of other chemicals may also be used in any treatment tank depending on the type of treatment needed.

Aqueous Wastewater Treatment Building Tanks.

TANK #	OVERFILL CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-710 SPECIAL TREATMENT TANK	level indicator with high and high/high level alarms (PLC controlled)	FRP	8,000 storage/ treatment	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-810 SPECIAL TREATMENT TANK	level indicator with high and high/high level alarms (PLC controlled)	FRP	8,000 storage/ treatment	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-820 SPECIAL TREATMENT TANK	level indicator with high and high/high level alarms (PLC controlled)	FRP	8,000 storage/ treatment	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-850 SOLIDS DISSOLVING TANK	visual observation with inspection hatch	FRP	846 treatment	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-1010 METALS PRECIPITATION TANK	level indicator with high and high/high level alarms (PLC controlled)	Carbon steel	10,000 treatment	lime slurry/ aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-1020 METALS PRECIPITATION TANK	level indicator with high and high/high level alarms (PLC controlled)	Carbon steel	8,000 treatment	lime slurry/ aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-1111 FILTRATE TANK	level indicator with high and high/high level alarms (PLC controlled)	Polyethylene	300 storage	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-1112 FILTRATE TANK	overflow pipe and level indicator with high and high/high level alarms (PLC controlled)	FRP	450 storage	aqueous waste	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual
T-1310 CAUSTIC SCRUBBER	level indicator with high level alarm (PLC controlled)	FRP	580 treatment	caustic solution / aqueous wastewater	AWTS Building	above ground	24,440 gallons	10,000 gallons	visual

Solids Separation Building Tanks.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-3011 LIFT TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	375 storage/ treatment	aqueous waste	Solids Separator Building (South of AWTS Building)	above ground	14,851 gallons	4,291 gallons	visual
T-3012 LIFT TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	375 storage/ treatment	aqueous waste	Solids Separator Building (South of AWTS Building)	above ground	14,851 gallons	4,291 gallons	visual

Tanks North of AWTS Building.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-100 FILTRATE STORAGE	level indicator with high and high/high level alarms (PLC controlled)	carbon steel	160,545 storage/ treatment	aqueous waste	North of AWTS Building	above ground	571,328 gallons	424,410 gallons	visual/leak detection valve
T-125 EFFLUENT STORAGE	overflow pipe and level indicator with high level alarm (PLC controlled)	carbon steel	394,271 storage/ treatment	aqueous waste	North of AWTS Building	above ground	571,328 gallons	424,410 gallons	visual/leak detection valve

Tanks West of AWTS Building.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-58 EFFLUENT STORAGE	level indicator with high level alarm (PLC controlled)	Glass fused carbon steel	488,529 storage/ treatment	aqueous waste	East of AWTS Building	above ground	see note	see note	leak detection pipe and valve

Note: A request for variance from secondary containment for Tank T-58 has been approved by NYSDEC.

Tanks East of AWTS Building.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-210 REACTION BLEND TANK	level indicator with high and high/high level alarms (PLC controlled)	carbon steel	30,000 treatment	aqueous waste	Tank farm east of AWTS Building	above ground	44,350 gallons	36,903 gallons	visual
T-220 REACTION BLEND TANK	level indicator with high and high/high level alarms (PLC controlled)	FRP	30,000 treatment	aqueous waste	Tank farm east of AWTS Building	above ground	44,350gallons	36,903 gallons	visual
T-230 REACTION BLEND TANK	level indicator with high and high/high level alarms (PLC controlled)	carbon steel	30,000 treatment	aqueous waste	Tank farm east of AWTS Building	above ground	44,350gallons	36,903 gallons	visual
T-310 BIOTOWER	automatic shut off and overflow pipe to clarifier tanks, equipped with pressure relief vent	FRP	30,457 treatment	aqueous waste	Tank farm east of AWTS Building	above ground	44,350gallons	36,903 gallons	visual
T-320 BIOTOWER	automatic shut off and overflow pipe to clarifier tanks, equipped with pressure relief vent	FRP	30,457 treatment	aqueous waste	Tank farm east of AWTS Building	above ground	44,350gallons	36,903 gallons	visual

Waste Water Treatment Building Tanks.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-3007 CARBON ADSORBER	flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	7,600 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual
T-3008 CARBON ADSORBER	flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	7,600 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual
T-3010A ARSENIC ADSORBER	Flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	470 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual

Modified: Nov. 2013

T-3010B ARSENIC ADSORBER	Flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	470 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual
T-3010C ARSENIC ADSORBER	Flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	470 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual
T-3010D ARSENIC ADSORBER	Flow rate monitored at control panel and automatic feed pump shutoff	carbon steel	470 treatment	aqueous waste	WWT Building	above ground	15,317 gallons	15,200 gallons	visual

Tanks South of Waste Water Treatment Building.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-52 CARBON TRANSFER TANK	overflow pipe to carbon adsorbers, equipped with pressure rupture disk	carbon steel	7,600 storage	aqueous waste	South of WWT Building	above ground	9,546 gallons	8,400 gallons	Visual

Tanks East of Waste Water Treatment Building.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-3002 BIOTOWER FEED TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	900 treatment	aqueous waste	Tank farm east of WWT Building	above ground	1,872 gallons	1,549 gallons	Visual
T-3003 ADSORBER FEED TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	1,210 storage/ treatment	aqueous waste	Tank farm east of WWT Building	above ground	1,667 gallons	1,491 gallons	Visual
T-3009 BACKWASH TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	carbon steel	6,000 storage	aqueous waste	East of WWT Building	above ground	Double walled tank	N/A	visual/leak detection valve

Modified: Oct. 2015

B. SLF 1-6 Leachate System

Oily leachate from SLF 1-6 can be pumped or transferred from the SLF 1-6 landfill leachate pumps into the SLF 1-6 lift station (T-105). The leachate received by the lift station is transferred by a pump into a surge tank (T-130). Oil and aqueous phases can be decanted and separately removed from T-130. Otherwise, mixed leachate is transferred to the SLF 1-11 Oil/Water Separator (T-158) by vacuum truck.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-105 LIFT STATION	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	carbon steel	3,000 storage	Leachate	SLF 1-6	above ground	4,143 gallons	3,000 gallons	visual
T-130 SURGE TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	stainless steel	5,732 storage	Leachate	SLF 1-6	above ground	8,228 gallons	6,819 gallons	visual

C. SLF 7, 10 and 11 Leachate Systems

Leachate generated by SLF 7, 10 and 11 is pumped from the SLF 7, 10 and 11 landfill leachate pumps into the associated lift station tank (T-107, T-110 and T-111). The leachate received by the lift station is pumped to holding tanks (T-108 and T-109) from which it is removed by vacuum truck and transferred to the T-200 series tanks or the SLF 1-11 Oil/Water Separator (T-158), which may also be used for various offsite commercial and onsite generated aqueous wastes. Oil from T-158 is transferred to vacuum trucks for offsite disposal. The aqueous phase from T-158 is transferred to tank T-159 and pumped to the Leachate Tank Farm. SLF 7 leachate may also be removed from T-107 by vacuum truck and transferred to AWT for treatment and/or transferred to an outbound tanker for treatment or disposal.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-107 SLF 7 WET WELL TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	350 storage	leachate	SLF 7	aboveground	2,765 gallons	350 gallons	visual
T-110 SLF 10 WET WELL TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	350 storage	leachate	SLF 10	aboveground	15,709 gallons	3,000 gallons	visual
T-111 SLF 11 WET WELL TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	350 storage	leachate	SLF 11	aboveground	15,709 gallons	10,000 gallons	visual
T-108 SLF 7/11 HOLD TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	10,000 storage	leachate	SLF 11	aboveground	15,709 gallons	10,000 gallons	visual
T-109 SLF 10 HOLD TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	3,000 storage	leachate	SLF 10	aboveground	15,709 gallons	3,000 gallons	visual

SLF 1-11 Oil/Water Separator Building

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-158 OIL/WATER SEPARATOR TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	steel	17,000 treatment	leachate, offsite and onsite aqueous wastes	East of Leachate Tank Farm	aboveground	24,876 gallons	17,000 gallons	visual
T-159 AQUEOUS TANK	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	FRP	1,000 storage	leachate, aqueous wastes	East of Leachate Tank Farm	aboveground	24,876 gallons	17,000 gallons	visual

D. SLF 12 Leachate System

Leachate generated by SLF 12 is pumped from the SLF 12 landfill leachate pumps into the SLF 12 lift station tank (T-150). Nonhazardous onsite generated aqueous wastes (i.e., site waters) may also be added to tank T-150. The aqueous wastes received by the lift station are transferred by a pump to the Leachate Tank Farm through above ground piping.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-150 LIFT STATION	control level indicator and controller	carbon steel	8,000 storage /treatment	leachate, onsite generated aqueous wastes	SLF 12 Lift Station	above ground	18,388 gallons	8,000 gallons	visual

E. RMU - 1 Leachate System

Leachate generated by RMU-1 is pumped from the RMU-1 landfill leachate pumps and tank T-165 into the RMU-1 lift station tank (T-160). The leachate received by the lift station is transferred by pump through double walled underground piping and aboveground piping, then to the Leachate Tank Farm through aboveground piping.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-160 LIFT STATION	automatic shut off and level indicator with high and high/high level alarms (PLC controlled)	carbon steel	3,000 storage/ treatment	leachate	RMU-1 Landfill	above ground	7,563 gallons	3,000 gallons	visual
T-165	automatic shut off and level indicator with high and high/high level alarms	Glass fused carbon steel	876,769 storage	leachate	RMU-1 Landfill	above ground	913,155 gallons	889,529 gallons	visual

F. Leachate Storage Tanks T-101, T-102, T-103 and Frac Tank #3

The Leachate Tank Farm contains three (3) leachate storage tanks which are used to collect the aqueous phase leachate from active and closed landfills as well as other site waters. The leachate is held in the tanks and transferred to the AWTS on a demand basis. Also, located within this secondary containment area is Frac Tank # 3 which is used for storage of aqueous waste prior to treatment at the AWTS or SLF 7 leachate prior to offsite shipment for treatment or incineration.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-101 STORAGE (southern)	level indicator and controller and overflow pipe to sump	carbon steel	350,000 storage/ treatment	aqueous waste	East of North Salts	above ground	500,959 gallons	392,765 gallons	visual
T-102 STORAGE (middle)	level indicator and controller and overflow pipe to sump	carbon steel	350,000 storage/ treatment	aqueous waste	East of North Salts	above ground	500,959 gallons	392,765 gallons	visual
T-103 STORAGE (northern)	level indicator and controller and overflow pipe to sump	carbon steel	350,000 storage/ treatment	aqueous waste	East of North Salts	above ground	500,959 gallons	392,765 gallons	visual
FRAC TANK #3	level indicator with high and high/high level alarms (PLC controlled)	carbon steel	21,000 storage	aqueous waste	East of North Salts	above ground	500,959 gallons	392,765 gallons	visual

G. Waste Stabilization Facility

Stabilization is a process that results in the reduction in the mobility (or leachability) of hazardous components within a hazardous waste matrix. This stabilization is accomplished by inducing a chemical reaction between the hazardous components and one or more reagents, such as cement, cement kiln dust, lime, flyash or other pozzolanic materials.

Typical materials to be stabilized are inorganic waste water treatment sludges, media with metals, contaminated soils, sand blast grit, incinerator ash, incinerator slag, emissions control dust and debris. These waste streams are chemically compatible and have no reactive properties, therefore, compatibility concerns are minimal.

Waste Profiles are carefully reviewed for EPA codes, components, types of metals present and stabilization recipe (type and quantity of reagents). Generally, bulk loads are processed as individual batches. Drum or other small quantities of waste and bulk loads that have similar characteristics, non-conflicting EPA waste codes and the same stabilization recipe may be combined to increase the batch size for processing.

Waste water from equipment wash down or compatible hazardous and non-hazardous gate receipts may be used as the water source in the recipe. The EPA codes will be tracked through the process tankage and the impact on the treatment standards will be assessed for each batch prior to processing. Alternatively, city water or non-hazardous site waters may be used to avoid code conflict.

The bulk waste material to be stabilized arrives at the site in dump trailers, rolloff boxes, drums, pneumatic trailers, and other types of containers. The waste can be wet, sticky, cohesive, dusty and contain rock, pipe sections, metal, concrete, rags, wire and other debris.

The majority of the waste that requires stabilization is deposited in a mixing basin. Reagents are metered into the basin in accordance with a predetermined recipe. Water is added to the mixture, and the waste with reagent and water is mixed to a homogeneous mixture. The stabilized waste mixture is then removed from the pit with a backhoe, loaded into a dump truck or container, and transported to the landfill or an off-site disposal facility. Waste in drums can be emptied into the pit using a forklift and drum handler or placed full into the pit and broken apart with the mixing backhoe.

Microencapsulation is a specified technology involving the immobilization of contaminants on debris by stabilization. Stabilization treatment is performed in the mixing basin (pit) system. As it is not possible to develop a waste stream specific recipe, the requirement is to utilize sufficient stabilization media to treat all surfaces. For material or debris that is not easily manageable in the mixing pits, a slurry of stabilization media can be mixed in the pit and transferred into the waste container where the material will be encapsulated.

Debris that may not be physically suitable for the stabilization equipment, or that contains organic contamination (e.g. pump contaminated with leachate) may be managed by macroencapsulation. This type of debris is placed in a non-degradable container such as a poly drum or HDPE box. The void space is then eliminated by the addition of stabilization material that does not need to be held and tested or other non-degradable absorbent/space filler. The container is then permanently sealed and disposed of in the landfill.

Stabilization-Northern Expansion Tanks

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
MIXING PIT 1	visual observation during operation	carbon steel	20,354 treatment	RCRA/TSCA wastes	Stab. Northern Expansion	underground	Double walled underground tank	Double walled underground tank	sensor probe
MIXING PIT 2	visual observation during operation	carbon steel	20,354 treatment	RCRA/TSCA wastes	Stab. Northern Expansion	underground	Double walled underground tank	Double walled underground tank	sensor probe

Stabilization-Southern Expansion Tanks

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
TA-1 PROCESS WATER	high level indicator	rubber lined carbon steel	20,000 storage	aqueous waste, miscellaneous site waters	Stab. Southern Expansion	above ground	28,174 gallons	24,739 gallons	visual
TA-2 PROCESS WATER	high level indicator	rubber lined carbon steel	20,000 storage	aqueous waste, miscellaneous site waters	Stab. Southern Expansion	above ground	28,174 gallons	24,739 gallons	visual

H. Truck Wash Facility

The Truck Wash Facility is comprised of the Truck Wash Building and the Truck Wash Bay. A collection tank (T-120) is contained in the Truck Wash Building for holding wash water accumulated as a result of washings from the Truck Wash Bay. Tank T-120 is permitted for hazardous waste in case collected wash waters are determined to be hazardous.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-120 WASH WATER STORAGE	electronic level control	FRP	1,650 storage	wash water	Truck Wash Building	aboveground	1,659 gallons	1,650 gallons	visual

I. Groundwater Pumping Systems

The groundwater pumping system tanks were constructed as part of the Corrective Measures Program at Model City. Originally installed as Interim Corrective Measures to check the spread of groundwater contamination and, ultimately, to improve groundwater quality in the affected areas, these systems were determined to be capable of achieving the goals of the Corrective Action Program and were made Final Corrective Measures by the NYSDEC on February 13, 2001.

TANK #	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	TANK CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
T-8001	level indicator with high and high/high level alarms (PLC controlled)	carbon steel	5,000 storage	groundwater	West Drum Area	above ground	6,445 gallons	5,000 gallons	visual
T-8002	level indicator with high and high/high level alarms (PLC controlled)	FRP	550 storage	groundwater	West Drum Area	above ground	6,445 gallons	5,000 gallons	visual
T-8004	level indicator (PLC controlled)	FRP	550 storage	groundwater	South of SLF 3	above ground	892 gallons	550 gallons	visual
T-8005	automatic shut off and high level alarm	carbon steel	300 storage	groundwater	South of SLF 10	above ground	356 gallons	300 gallons	visual
T-8006	automatic shut off and high level alarm	carbon steel	300 storage	groundwater	East of SLF 12	above ground	356 gallons	300 gallons	visual
T-8007	automatic shut off and high level alarm	FRP	500 storage	groundwater	South of PCB Warehouse	above ground	539 gallons	500 gallons	visual
T-8008	automatic shut off and high level alarm	FRP	500 storage	DNAPL	Tank T-125/T-100 Area	above ground	571,328 gallons	424,410 gallons	visual
T-8009	automatic shut off and high level alarm	HDLPE	525 storage	groundwater	Inside T.O. Building CSA	above ground	853 gallons	525 gallons	visual
T-8010	automatic shut off and high level alarm	HDPE	1,000 storage	groundwater	South of South Trailer Parking CSA	above ground	1,300 gallons	1,000 gallons	visual

J. Process and Secondary Containment Sump Systems

SUMP	OVERFLOW CONTROL	MATERIAL OF CONSTRUCTION	CAPACITY IN GALLONS AND USAGE	CONTENTS	GENERAL LOCATION	VERTICAL LOCATION	SECONDARY CONTAINMENT VOLUME	REQUIRED CONTAINMENT VOLUME	LEAK DETECTION
FILTER PRESS SUMP SYSTEM	daily visual inspection and pumped as needed	concrete with FRP insert	175 storage	aqueous waste/floor washdowns	Filter Press Room AWTS Building	underground	Sump provided with FRP box insert and leak detection.	N/A- double walled sump	leak detection view pipe
AWTS BLDG. UNLOADING PAD SYSTEM	daily visual inspection and pumped as needed	concrete	14,851	aqueous waste/floor washdowns	South side of AWTS Building	underground	N/A - part of containment for unloading pad	N/A - part of containment for unloading pad	not required
AWTS BLDG. FLOOR SUMP SYSTEM	daily visual inspection and pumped as needed	concrete	230	aqueous waste/floor washdowns	Floor in AWTS Building	underground	N/A - part of containment for building	N/A - part of containment for building	not required

K. Fuels Tanks

The fuels tanks in the Process Area were previously used for bulking, storage and transfer of fuel and incinerable wastes such as PCB liquids, sludges and organic wastes. These tanks provided for the separation of solvent, oil and incinerable material, disposal of wastewater and sludge, and the blending and storage of fuels and incinerables for off-site shipment. All fuels tanks have been emptied, cleaned, removed and certified closed. Final closure of the secondary containment and underlying soils for all fuels tank areas is being addressed as part of the facility Corrective Measures.

IV. PROCEDURES TO PREVENT HAZARDS

A. Inspections

Tanks will be inspected and evaluated according to the procedures and schedules provided in the CWM Inspection Plan.

B. Tank Inspection Criteria

Environmental Compliance Tank Inspection Criteria will generally include inspection items such as:

- above ground tank exterior free of signs of leakage, including discoloration that may be a residue of a prior release.

- above ground tank exterior free of signs of deterioration that could lead to potential leakage, including cracks, corrosion, defects, and obvious deformation.

- above ground tank ancillary equipment free of signs of leakage

- secondary containment shows no visible evidence of spills

- secondary containment intact and free of cracks which exhibit separation and coating is free of chips which expose the underlying concrete

- secondary containment not holding liquids for more than is allowable under the Inspection Plan

- overfill controls (where present) do not indicate overflow condition; overfill controls (where present) are operable

- liquids (not including condensate) not present in leak detection systems (visual or electronic indication); electronic leak detection systems (where present) are operable

C. Tank Assessments

All permitted hazardous waste tank systems must undergo a periodic assessment performed by an independent professional engineer who must certify that the tank is fit for continued use. Generally, all above ground tanks with secondary containment and leak detection are assessed once every five years. For certain tanks, an internal inspection is also required. The double walled, underground stabilization mixing pits and the AWTS floor sump are subjected to an annual, internal assessment. The assessment frequency and whether the tank will be internally inspected are specified in the attached Tank Assessment Schedule. In addition, all secondary containments and sumps associated with permitted tank systems are inspected by a qualified inspector every year. Tank assessment and secondary containment inspection reports are submitted to the NYSDEC each year.

Tanks T-3010A, T-3010B, T-3010C, and T-3010D are part of the arsenic treatment system and the arsenic adsorption media will be periodically changed out or the tanks themselves will be periodically changed out as part of normal operations. During arsenic adsorption media or tank change out installations, CWM personnel will inspect the system components prior to start up to insure they are installed properly. In addition, the tanks, along with the associated flexible hoses and their connections, involved in the change out will be re-tested for tightness in accordance with the procedure specified in Section 3.2 of the "Tank System Design and Assessment Report for AWTS Arsenic Removal Tanks T-3010A/B/C/D". Also, prior to start up, CWM will comply with the requirements in Condition C.1.i.ii."a" or "b" of Exhibit D in Schedule 1 of Module I of the Permit, as appropriate. During start up after tank change out, CWM will visually inspect the system components to insure they are free of leaks and that any deficiencies are addressed immediately. Documentation of each tank change out, and associated tightness testing and installation inspections will be maintained on-site for Department review.

D. Overflow Protection

Generally, most tanks within the AWT system are connected to a programmable logic controller (PLC). This unit is programmed to continuously monitor tank level, pump status and valve positions for the process vessels. The logic in the PLC is arranged so that pumps are shut down should levels become too low or reach a pre-determined high or high-high level.

Tanks that are not equipped with mechanical or electronic overflow protection generally contain an overflow pipe which is directed into the tank's secondary containment. As part of normal operations, the process operators and department supervisors make visual checks of the status of the operation. Overflow conditions would be identified at that time. In addition, the Site Inspector inspects each permitted tank on a daily basis.

E. Repairs

When a system deficiency is identified by any of the above inspection programs, it will generally be repaired immediately, if possible. Otherwise, action will be initiated with an environmental or maintenance work order by the end of the next business day. The time period to complete a repair varies depending on the type and extent of the deficit. Some repairs, such as outdoor concrete work or coating applications cannot be efficiently completed during winter conditions. Major defects affecting human health or the environment such as a tank leak, require immediate action by taking the unit out of service. After repairs have been completed, the area will be re-inspected and the repairs will be documented on the work order or by a subsequent tank assessment or secondary containment inspection report.

V. REQUIREMENTS FOR IGNITABLE, REACTIVE AND INCOMPATIBLE WASTE STREAMS

The facility Waste Analysis Plan addresses the special hazards and compatibility concerns for tank storage. Ignitable or reactive wastes will only be placed in tanks which are designed for storage of ignitable or reactive wastes unless the tank is used for an emergency. The aqueous waste treatment system is equipped with treatment tanks designed to react and mix wastewaters requiring special treatment or handling techniques. These tanks are closed top tanks meeting the buffer zone requirements of NFPA Combustible Liquids Code (1984). All tanks must be at least 50 feet internal to property lines or public roadways. NFPA 30 sets minimum buffer distances required for Class I, II and IIIB materials at 5 feet from a building. The distance increases depending on capacity.

Process wastewater, other site water or city water may be added prior to the addition of concentrated incoming wastewaters to control the generation of significant heat during mixing. All reaction vessels and tanks which could be subject to significant chemical reactions are equipped with the appropriate level, pH and/or temperature monitoring devices.

Mixing of incompatible wastes, which could produce an uncontrolled reaction is avoided by adhering to a prescribed process for purging and flushing of all process lines and tanks following transfer operations.

Incompatible wastes which could produce an uncontrolled reaction will not be mixed in storage tanks. Control of waste mixtures in storage tanks will be accomplished by actual laboratory bench tests if the material to be stored in a tank is different than the existing stored material.

Procedures to prevent incompatible mixtures in tanks are detailed in the Waste Analysis Plan. Materials that indicate signs of reaction which may exceed the design specifications of the vessel will not be stored in the same tank. Hazardous wastes will not be placed into an unwashed tank which previously held an incompatible waste or material.

VI. AIR EMISSION STANDARDS

Air emission standards for tanks are specified in 6NYCRR 373-2.29 and 40CFR 264/265.1080-1091 (Subpart CC), which became effective on December 6, 1996. RCRA Subpart CC is applicable to owners and operators of a TSDF which treats, stores or disposes of hazardous waste containing greater than 500 ppmw volatile organics in tanks, surface impoundments and containers. If Subpart CC wastes are managed in tanks, either Level 1 or Level 2 controls must be implemented.

Level 1 controls are based on the size of the tank, vapor pressure of the waste contained in the tank and the use of the tank. As long as the tank and its contents meet the specifications below, Level 1 controls consisting of a fixed roof with no cracks, gaps or leaks (conservation vents and relief devices are allowed) are sufficient. All closure devices must be maintained in the closed position except when necessary to access the waste or equipment under the cover.

Tank size (gallons)	Maximum vapor pressure
≥ 40,000	< 5.2 kPa (< 0.75 psi)
≥ 20,000 but < 40,000	< 27.6 kPa (< 4.5 psi)
< 20,000	< 76.6 kPa (< 11.1 psi)

Level 2 controls are required for tanks that do not meet the Level 1 criteria and for tanks in which stabilization of wastes with greater than 500 ppmw volatile organics is performed. Level 2 tanks must be vented to a control device. Stabilization (any physical or chemical process used to reduce the mobility of hazardous constituents or eliminate free liquids, except for the addition of absorbent to the surface of a waste without mixing) must be performed in an enclosure vented to a control device.

Based on volatile organic content of the leachate from SLF 1-6, SLF 7, SLF 10 and SLF 11, the lift stations and collection tanks associated with these landfills, as well as the SLF 1-11 oil/water separator system and the leachate storage tanks in the Leachate Tank Farm, are subject to Subpart CC requirements. Based on vapor pressure, Level 1 controls are sufficient for these tanks. Tanks associated with SLF 12 and RMU-1 contain leachate with less than 500 ppmw volatile organics at the point of origin and are exempt from Subpart CC requirements.

AWTS tanks associated with the treatment of leachate from SLF 1-6, SLF 7, SLF 10 and SLF 11 are also subject to Subject CC requirements. These tanks must also meet Level 1 controls based on the vapor pressure of the waste. All AWTS tanks downstream of the carbon adsorbers contain treated wastewater meeting the exit concentration and are exempt from Subpart CC requirements. Other AWTS tanks, e.g., the special treatment tanks, may be used for wastes containing greater than 500 ppmw volatile organics and would then be subject to Subpart CC requirements.

CWM limits the types of waste processed through the stabilization facility to those containing less than 500 ppmw volatile organics. Therefore, the stabilization mixing pits are exempt from Subpart CC requirements. Liquids contained in tanks TA-1 and TA-2 contain less than 500 ppmw volatile organics and are exempt from Subpart CC requirements.

Tanks associated with the groundwater pumping systems are part of the facility corrective measures and are exempt from Subpart CC requirements.

APPENDIX D-3, SECTION VII

TANK ANCILLARY EQUIPMENT TIGHTNESS TESTING PROCEDURES FOR UNDERGROUND HAZARDOUS WASTE TRANSFER LINES

VII. Procedures for Pressure Testing of Underground Hazardous Waste Transfer Lines

The procedures in this section are not required for leachate piping under waste within the boundaries of a landfill liner and piping associated with the river discharge of treated wastewater.

1. **Procedures for Hydrostatic Testing the Inner Carrier Pipe of Double-Walled Underground Transfer Lines:**

   The Permittee shall perform either of the two (2) hydrostatic test procedures specified below, as derived from the "Plastic Pipe Institute=s (PPI=s) Technical Report 31 (TR-31)". The Permittee, at its discretion, may use a "tracer" (e.g., dye, etc.) in the water used in these tests to differentiate it from other liquids that may be present. The pressure measurement device used in either of these procedures must be incremented at, and sensitive to pressure fluctuations of 1 psi or less. Also, regardless of which test is used, the Permittee shall, throughout the test=s duration, periodically inspect the down-gradient end of the outer containment pipe associated with the section of inner carrier pipe being tested, for signs of liquid discharge. If liquid discharge is observed, or if a tracer is used and it is detected in the liquid, it shall be assumed to be leakage.

   a. Pressure Drop Procedure -

      1. Pipe to be tested shall be filled with fresh water or Department approved alternate, and have all air bled off from its highest point.
      2. Pipe shall be pressurized to not less than 1.5 times the system operating pressure with a minimum of 11 psi.
      3. Maintain this test pressure for four (4) hours by adding sufficient liquid at hourly intervals as necessary, to each time re-establish the test pressure.
      4. Drop the pressure by 10 psi, and measure and record the pressure one (1) hour thereafter. If the final pressure is within 5% of this reduced pressure, the pipe has passed the test.

      If any pipe fails to pas the above test, prior to initiating any leak location and repair activities, the Permittee, at its discretion, may perform the Volume Loss Procedure specified in Sub-section Ab@ below to verify that the pressure loss is not due to pipe expansion.

   b. Volume Loss Procedure -

      1. Pipe to be tested shall be filled with fresh water or Department approved alternate, and have all air bled off from its highest point.

2. Pipe shall be pressurized to not less than 1.5 times the system operating pressure with a minimum of 11 psi.
3. Maintain this test pressure to compensate for pipe expansion for four (4) hours by adding sufficient liquid at hourly intervals as necessary, to each time re-establish the test pressure.
4. After the four (4) hour expansion period, the test period shall begin lasting a maximum of three (3) hours. At hourly intervals, liquid shall be added as necessary, to each time re-establish the test pressure. The amount of liquid which is added, if any, shall be measured and recorded each hour.
5. The amount of liquid added after the first hour of the test period and, if necessary, the cumulative amounts added after hours two (2) and three (3), shall be compared to the Expansion Allowance Criteria presented in Table VIII-1 at the end of this Section.
6. If the cumulative quantity of liquid added each hour is equal to, or less than the applicable quantity presented in Table VIII-1, the pipe has passed the test.

2. **Procedure for Testing the Outer Containment Pipe of Double-Walled Underground Transfer Lines:**

The test procedure which follows must be performed prior to burying or otherwise obscuring from view, the installed, or repaired/altered section of the outer containment pipe.

a. Air Pressure Procedure -

1. Pipe to be tested shall be pressurized with air at ambient temperature to not less than 1.5 times the system operating pressure with a minimum of 10 psi.
2. After a minimum of one (1) hour of stabilization, the pipe shall be re-pressurized, if necessary, to re-establish the test pressure.
3. At one-quarter (1/4) hour intervals (i.e., every 15 minutes) after the end of the stabilization period, the pressure will be measured using a pressure measure device which is incremented at, and sensitive to pressure fluctuations of 1 psi or less. These pressure measurements shall be recorded. Also, each time a pressure measurement is taken, at a minimum, the entire length of the newly installed pipe, or the length of the repaired/altered section, shall be inspected for any visible or audible signs of escaping air.

4. The test period shall be a minimum of one (1) hour and shall terminate with a final check of the pressure and inspection of the pipe. The test shall be considered passed if there are no visible or audible signs of escaping air along the pipe and there is no detectable pressure drop.

Table VII 1
Allowances for Plastic Pipe Expansion Under Test Pressure
(Gallons per 100 feet of pipe)

Nominal Pipe Size (inches)	**1-Hour Test Duration (gals. / 1 hr.)**	**2-Hour Test Duration (gals. / 2 hrs.)**	**3-Hour Test Duration (gals. / 3 hrs.)**
3	0.10	0.15	0.25
4	0.13	0.25	0.40
6	0.30	0.60	0.90
8	0.50	1.0	1.5
10	0.75	1.3	2.1
11	1.0	2.0	3.0
12	1.1	2.3	3.4

APPENDIX D-3, SECTION VIII

TANK SYSTEM ASSESSMENT TABLE

Tank ID	Tank Assessment Base Year	Internal Tank Inspection Required (yes/no)	Tank ID	Tank Assessment Base Year	Internal Tank Inspection Required (yes/no)
T-710	2002	no	T-810	2002	no
T-820	2002	no	T-850	1997	yes
T-1010	1999	yes	T-1020	1999	yes
T-1111	2003	no	T-1112	1999	no
T-1310	2003	no	T-3011	2003	no
T-3012	2002	no	T-100	1999	yes
T-125	1999	no	T-8008	2002	no
T-58	2003	yes	T-210	2001	yes
T-220	2010[3]	no	T-230	2003	yes
T-310	2001	no	T-320	2001	no
T-3010A	2016[5]	no	T-3010B	2016[5]	no
T-3010C	2016[5]	no	T-3010D	2016[5]	no
T-3007	1999	yes	T-3008	1999	yes
T-52	2003	no			
T-3002	1999	no	T-3003	1999	no
T-3009	2000	yes	T-105	2003	yes
T-130	1999	yes	T-107	2001	no
T-108	2001	no	T-109	2001	no
T-110	2001	no	T-111	2001	no
T-158	2001	no	T-159	2001	no
T-150	2003	yes	T-160	2002	no
T-165	2010[3]	yes	T-101	1999	yes
T-102	1999	yes	T-103	1999	yes
Frac Tank 3	1999	no	Mix Pit Tank 1	2003[1]	yes
Mix Pit Tank 2	2003[1]	yes	TA-1	2003	no

Modified: Aug. 2016

Tank ID	Tank Assessment Base Year	Internal Tank Inspection Required (yes/no)	Tank ID	Tank Assessment Base Year	Internal Tank Inspection Required (yes/no)
TA-2	2003	no	T-120	1999	no
T-8001	1999	no	T-8002	1999	no
T-8004	1999	no	T-8005	1999	no
T-8006	1999	no	T-8007	2001	no
T-8009	2012[4]	no	T-8010	2012[4]	no
Filter Press Sump Tank	2003[2]	yes			

FOOTNOTES:

1. Mix Pit Tanks 1 & 2 shall be assessed annually instead of every five years in accordance with Condition B.1.c.i in Exhibit D of Schedule 1 of Module I of the Permit.
2. The Filter Press Tank Sump shall be assessed annually instead of every five years since it is part of the AWT secondary containment system, in accordance with Condition B.1.c.i in Exhibit D of Schedule 1 of Module I of the Permit.
3. Year of Tank T-165 & T-220 installation assessment.
4. Year of Tank T-8009 & T-8010 installation assessment.
5. Year of Tank T-3010A, T-3010B, T-3010C & T-3010D most recent assessment. These tanks shall be re-assessed upon each operational change out of these tanks in accordance with Condition C.1.i.ii."b" of Exhibit D in Schedule 1 of Module I of the Permit or once every five years if tanks are not changed out.

Modified: Aug. 2016

FIGURES
&
CAPACITY CALCULATIONS

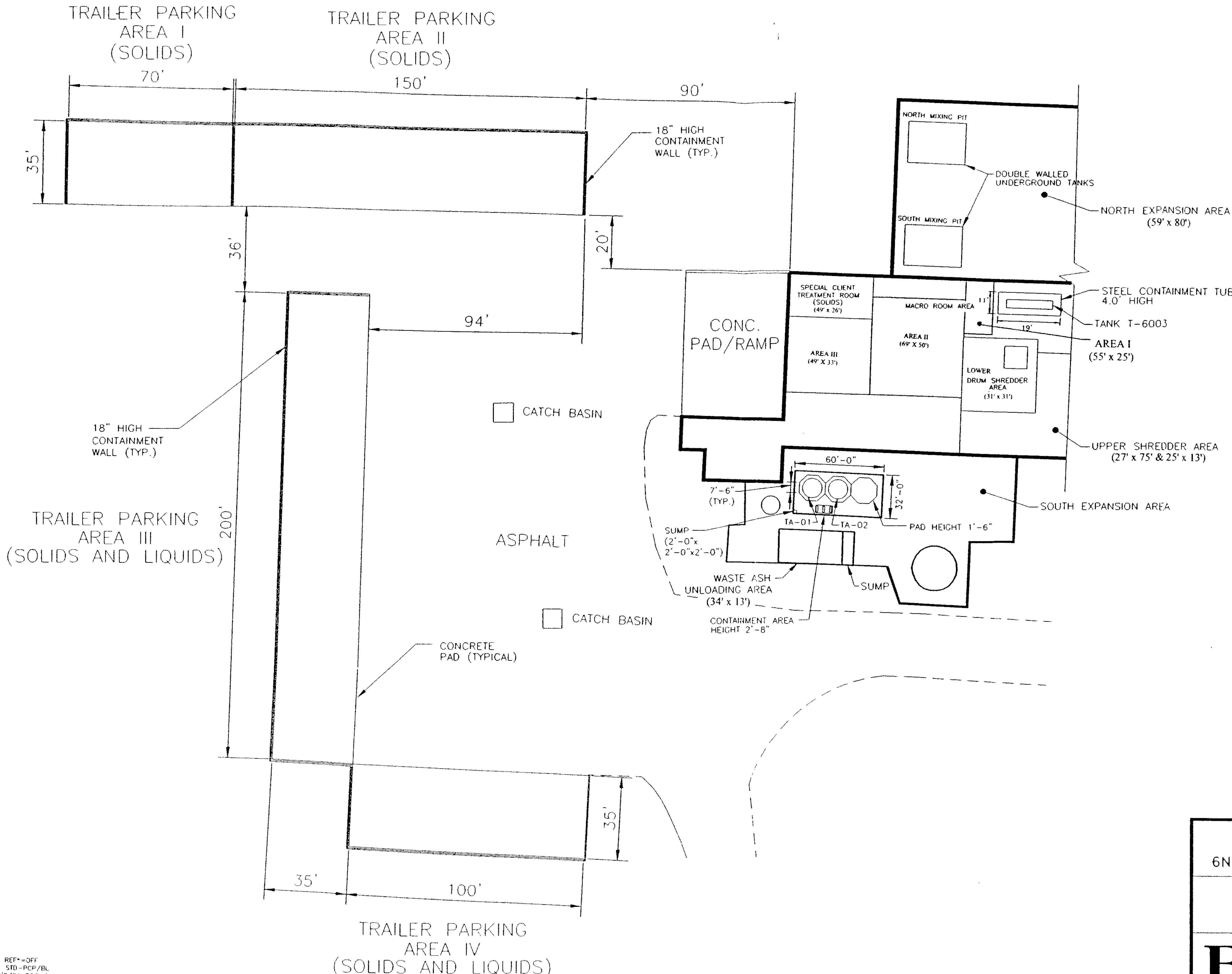
FOR

TANK SYSTEMS'
SECONDARY CONTAINMENT AREAS

FIGURE D-4

STABILIZATION FACILITY
SOUTH EXPANSION

TANKS TA-1 AND TA-2



NOTES:

1. BASE MAP BY RUST ENVIRONMENT & INFRASTRUCTURE 1/25/95. UPDATED BY BLASLAND, BOUCK AND LEE FEBRUARY 2001.
2. A MINIMUM OF TWO FEET BETWEEN CONTAINERS AND ROWS OF DRUM PAIRS WILL BE USED AS GUIDANCE FOR AISLE SPACING THROUGHOUT THE FACILITY.
3. CONTAINERS WILL BE STORED A MINIMUM OF 2 FEET FROM EDGE OF CONTAINMENT.
4. THIS FIGURE REPRESENTS THE CURRENT STORAGE ARRANGEMENTS AS OF FEBRUARY 2001.
5. DRAWING IS NOT TO SCALE. LOCATIONS OF FEATURES SUCH AS NORTH AND SOUTH PIT ARE APPROXIMATE.
6. TRAILER PARKING AREAS HAVE A MAXIMUM LIMIT OF 48 ROLLOFFS BASED ON AN AVERAGE DIMENSION OF 8'W X 22'L.
7. SOLID STORAGE:
   AREA I: 6 ROLLOFFS
   AREA II: 14 ROLLOFFS
   AREA III: 19 ROLLOFFS
   AREA IV: 9 ROLLOFFS
8. LIQUID STORAGE:
   AREA III: 21,836 GALLONS
   AREA IV: 10,918 GALLONS

L: REF*=OFF
P: STD-PCP/BL
4/2/01 ROC-54-SLM
05052030/05052C13.DWG

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STABILIZATION FACIILITY

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FIGURE D-4

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engineers & scientists

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM **PROJECT:** Permit Renewal **Prepared By:** PJC **Date:** 02/15/2001
SUBJECT: Secondary Containment Calculations **Reviewed By:** CBT **Date:** 02/19/2001

TANKS TA-01 AND TA-02

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

60.0′ x 32.0′ x 2.67′ = 5,126.4 CF

Sump:

2.0′ x 2.0′ x 2.0′ = 8.0 CF

Subtractions:

Note:
Additional volume displacements such as tank legs, FRP stairway and carbon will only account for a very small volume and will not be included in the net containment volume.

Pump Pad:

12.0′ x 5.83′ x 1.5′ = 104.94 CF

Tank pads (3):

$3(\frac{1}{2}(8 \times 9.0' \times 7.5' \times 1.5')) = 1{,}215.0$ CF

Pads:

3.25′ x 0.67′ x 1.0′ = 2.18 CF

Pads:

4.0′ x 2.75′ x 1.42′ = 15.62 CF

Pads:

$(\frac{1}{2}(3.0' \times 2.75' \times 1.42')) = 5.86$ CF

Pads (2):

2(2.0′ x 2.0′ x 1.17′) = 9.36 CF

TANKS TA-01 AND TA-02 (continued)

Pads:

4.0′ x 2.0′ x 1.42′ = 11.36 CF

Pads (6):

6(0.67′ x 0.67′ x 1.3′) = 3.5 CF

Total Available Volume:

5,126.4 + 8.0- 104.94 - 1,215.0 - 2.18 - 15.62 - 5.86 - 9.36 - 11.36 - 3.5 = 3,766.58 CF
= 3,766.58 CF x 7.48 gal/CF = 28,174.0 gallons

Required Volume:

Volume of Largest Tank:

Tank TA-01 = 20,000 gallons

2⁻ ''ear, 24 Hour Precipitation Event:

. ′ x 32.0′ x 0.33′ = 633.6 CF = 633.6 CF x 7.48 gal/CF = 4,739.3 gal
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

20,000 gallons + 4,739.3 gallons = 24,739.3 gallons

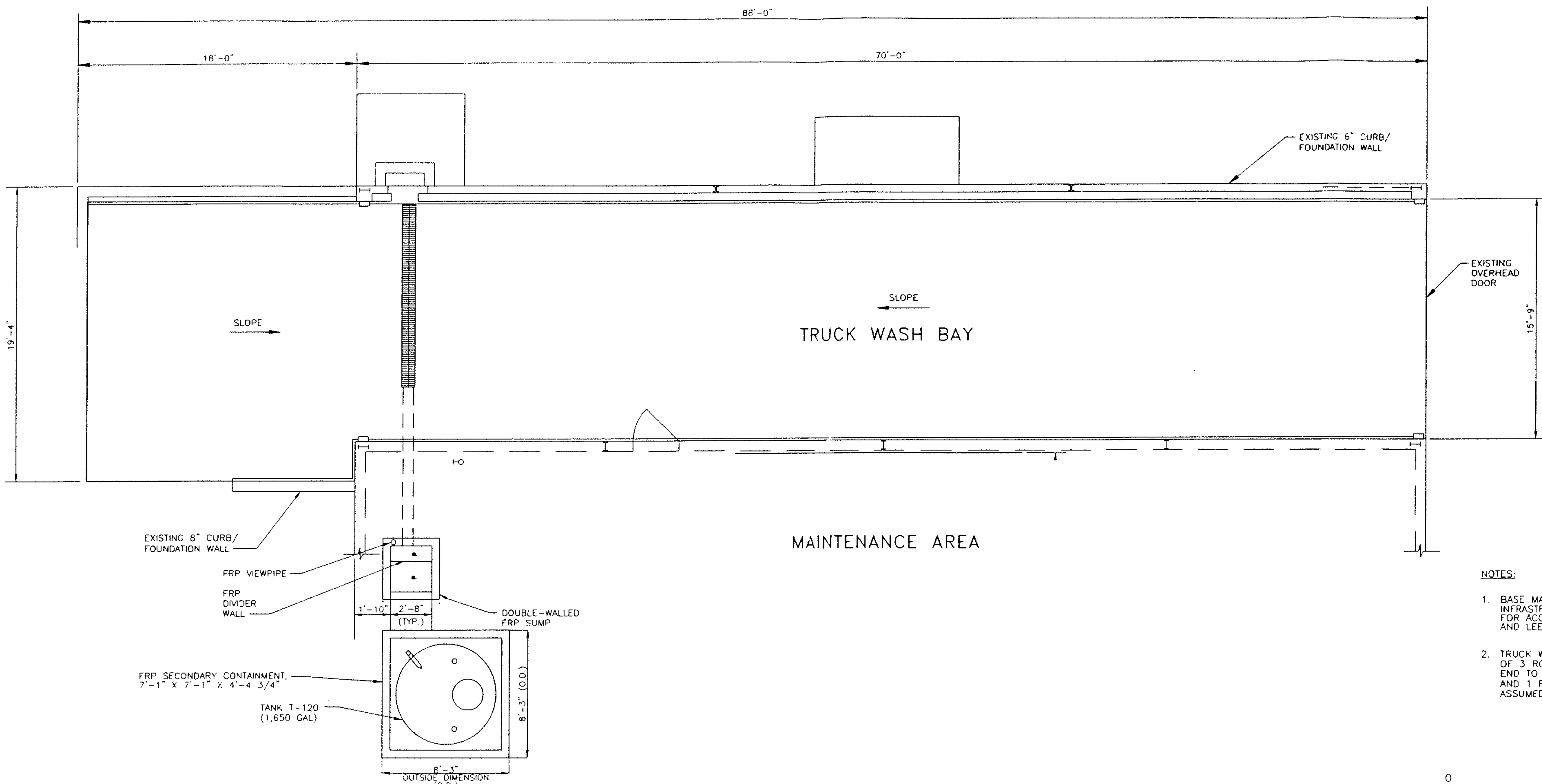
CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank interconnections.

FIGURE D-7

TRUCK WASH BUILDING

TANK T-120



NOTES:

1. BASE MAP BY RUST ENVIRONMENT & INFRASTRUCTURE, 1/25/95. UPDATED FOR ACCURACY BY BLASLAND, BOUCK AND LEE, INC., JANUARY 2001.
2. TRUCK WASH BAY HAS A MAXIMUM LIMIT OF 3 ROLLOFFS: 2 ROLLOFFS END TO END, A 2' AISLE SPACING, AND 1 ROLLOFF. EACH ROLLOFF IS ASSUMED TO BE 8'W X 22'L.

GRAPHIC SCALE

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TRUCK WASH BUILDING

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FIGURE D-7

L: REF*=OFF
P: STD-PCP/BL
3/13/01 ROC-54-SLM
05052030/05052G18.DWG

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CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-120

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

7.1′ x 7.1′ x 4.4′ = 221.8 CF

Total Available Volume:

221.8 CF x 7.48 gal/CF = 1,659.1 gallons

Required Volume:

Volume of Largest Tank:

Tank T-120 = 2,118 gal

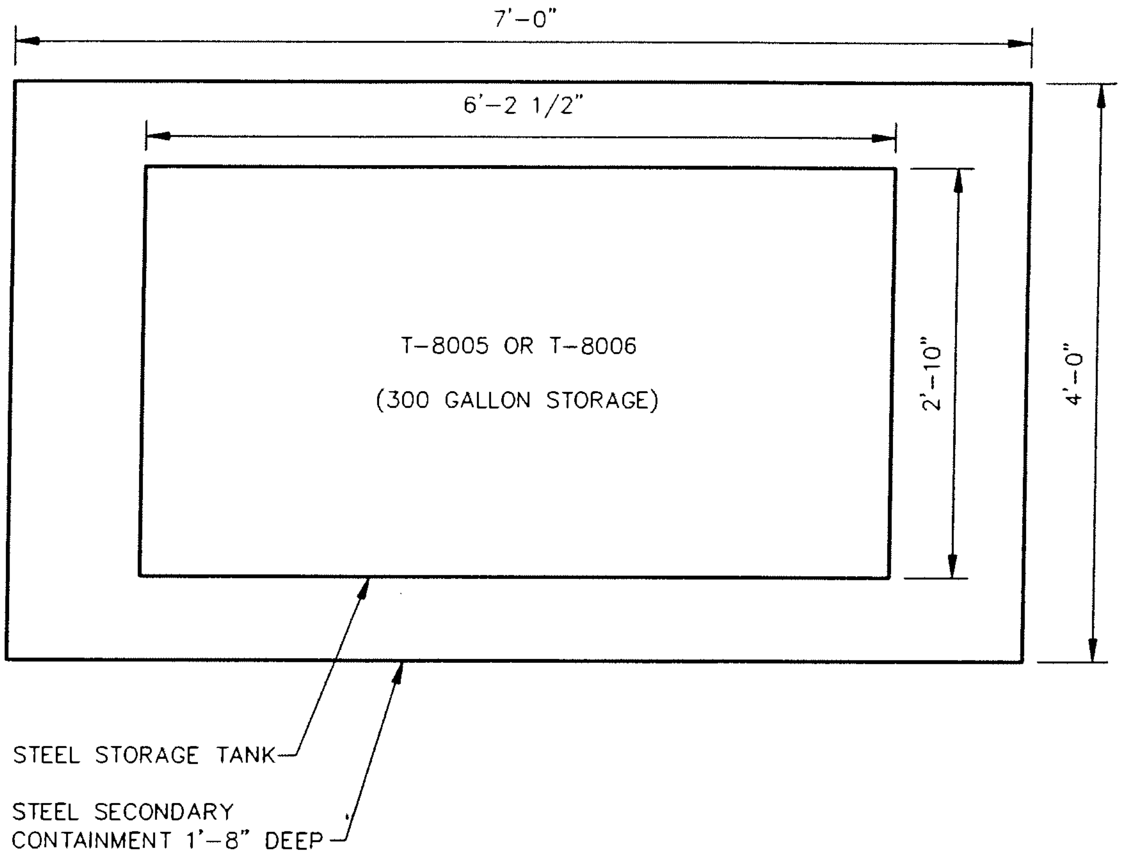
The maximum operating capacity of T-120 is 1,650 gal as determined by a side overflow.

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-9

TANKS T-8005 AND T-8006



PLAN

NOT TO SCALE

NOTE:

TANKS T-8005 AND T-8006 ARE IDENTICAL AS SHOWN.

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TANKS T-8005 OR T-8006

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FIGURE **D-9**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/12/01 SYR-54-HSB DJP SDL
05052080/05052G19.DWG

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CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
ECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-8005

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

4.0′ x 7.0′ x 1.7′ = 47.6 CF

Subtractions:

Note:
Additional volume displacements such as tank supports will only account for a very small volume and will not be included in the net containment volume.

l Available Volume:

.7.6 CF x 7.48 gal/CF = 356.0 gallons

Required Volume:

Volume of Largest Tank:

Tank T-8005 = 300 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

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CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM **PROJECT: Permit Renewal** **Prepared By: PJC** **Date: 02/15/2001**
SUBJECT: Secondary Containment Calculations **Reviewed By: CBT** **Date: 02/19/2001**

TANK T-8006

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

4.0′ x 7.0′ x 1.7′ = 47.6 CF

Subtractions:

Note:
Additional volume displacements such as tank supports will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

47.6 CF x 7.48 gal/CF = 356.0 gallons

Required Volume:

Volume of Largest Tank:

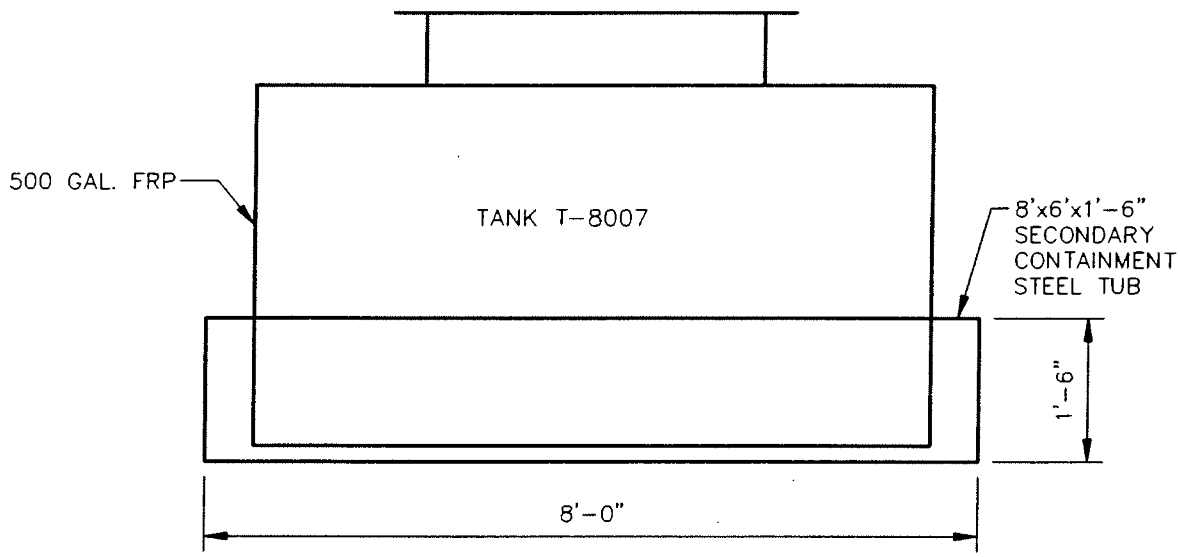
Tank T-8006 = 300 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-10

TANK T-8007



ELEVATION

NOT TO SCALE

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TANK T-8007

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FIGURE
D-10

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
2/28/01 SYR-54-HSB DJP
05052080/05052G10.DWG

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CALCULATION SHEET

PROJECT NO.: 05052.030

CL[illegible]T: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
S[illegible]T: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-8007

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

8.0′ x 6.0′ x 1.5′ = 72.0 CF

Subtractions:

Note:
Additional volume displacements such as tank supports will only account for a very small volume and will not be included in the net containment volume.

[illegible] Available Volume:

72.0 CF x 7.48 gal/CF = 538.6 gallons

Required Volume:

Volume of Largest Tank:

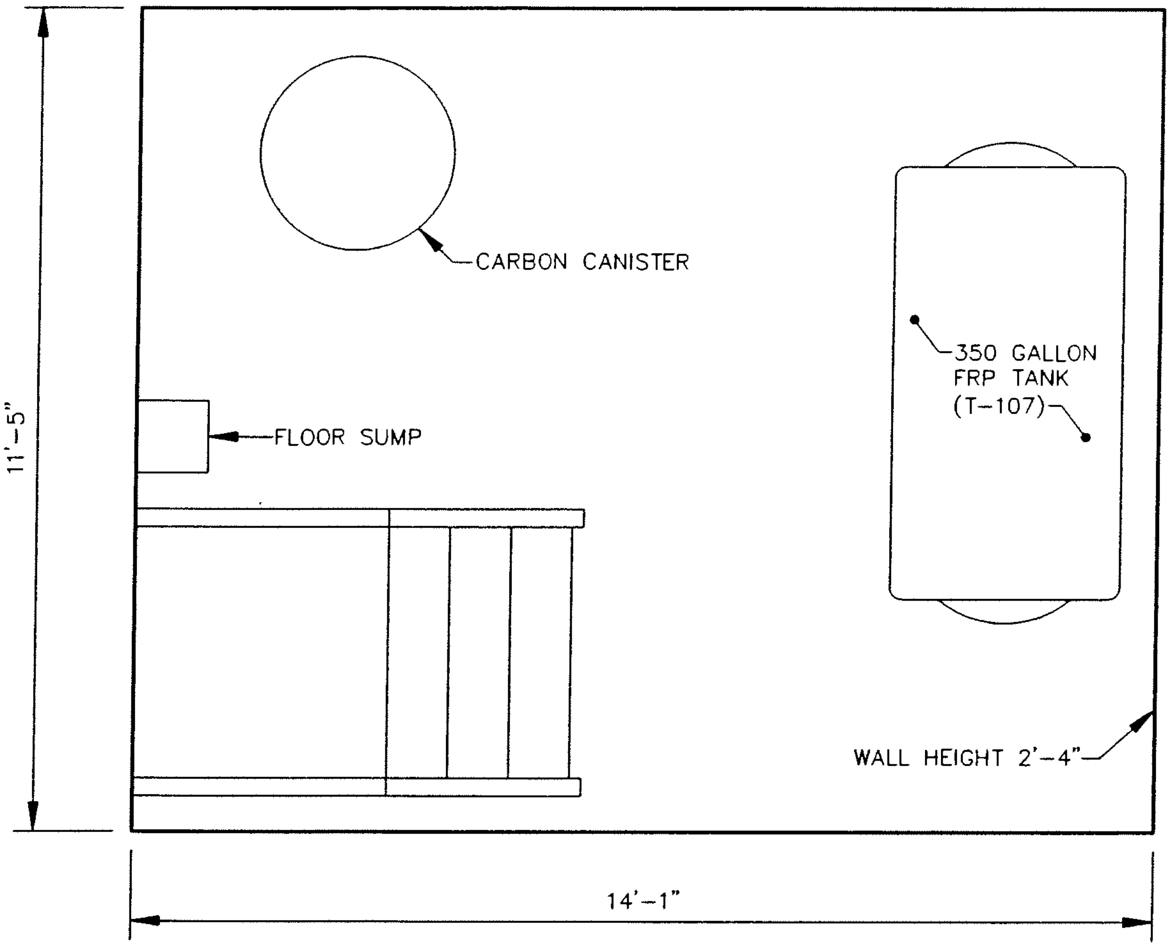
Tank T-8007 = 500 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-11

TANK T-107



PLAN

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TANK T-107

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FIGURE D-11

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-DJP SDL ROC-54-SLM
05052080/05052G24.DWG

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-107

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

14.1′ x 11.4′ x 2.3′ = 369.7 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as steel saddles, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

369.7 CF x 7.48 gal/CF = 2,765.4 gallons

Required Volume:

Volume of Largest Tank:

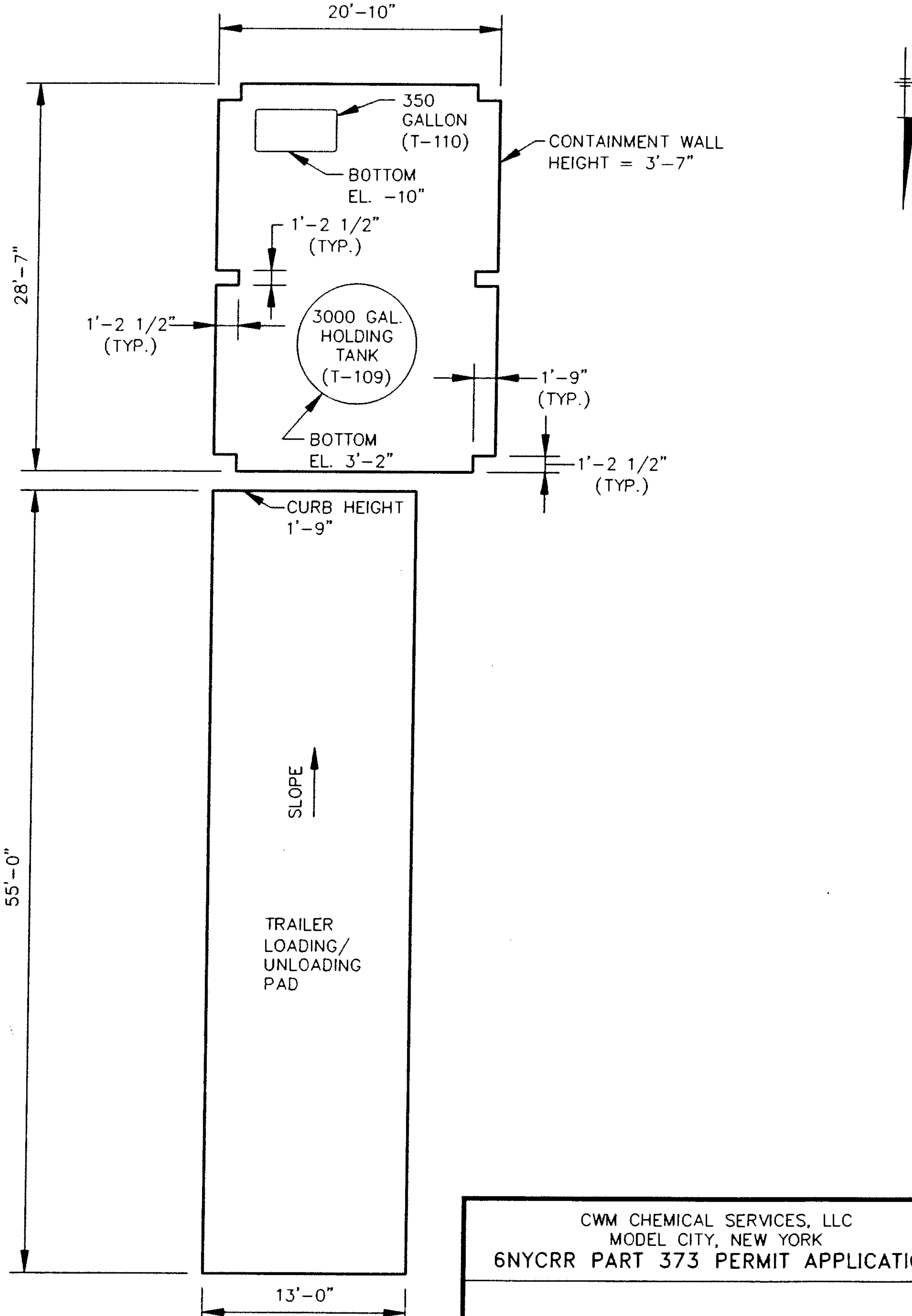
Tank T-107 = 350 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-12

TANKS T-109 AND T-110



PLAN

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TANKS T-109 & T-110

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FIGURE
D-12

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052080/05052G25.DWG

CALCULATION SHEET

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PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANKS T-109 AND T-110

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

28.6′ x 20.8′ x 3.6′ = 2,141.6 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as tank legs, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.6′) = 31.1 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.6′) = 10.4 CF

Total Available Volume:

2,141.6 CF - 31.1 CF - 10.4 CF = 2,100.1 CF = 2,100.1 CF x 7.48 gal/CF = 15,708.7 gallons

Required Volume:

Volume of Largest Tank:

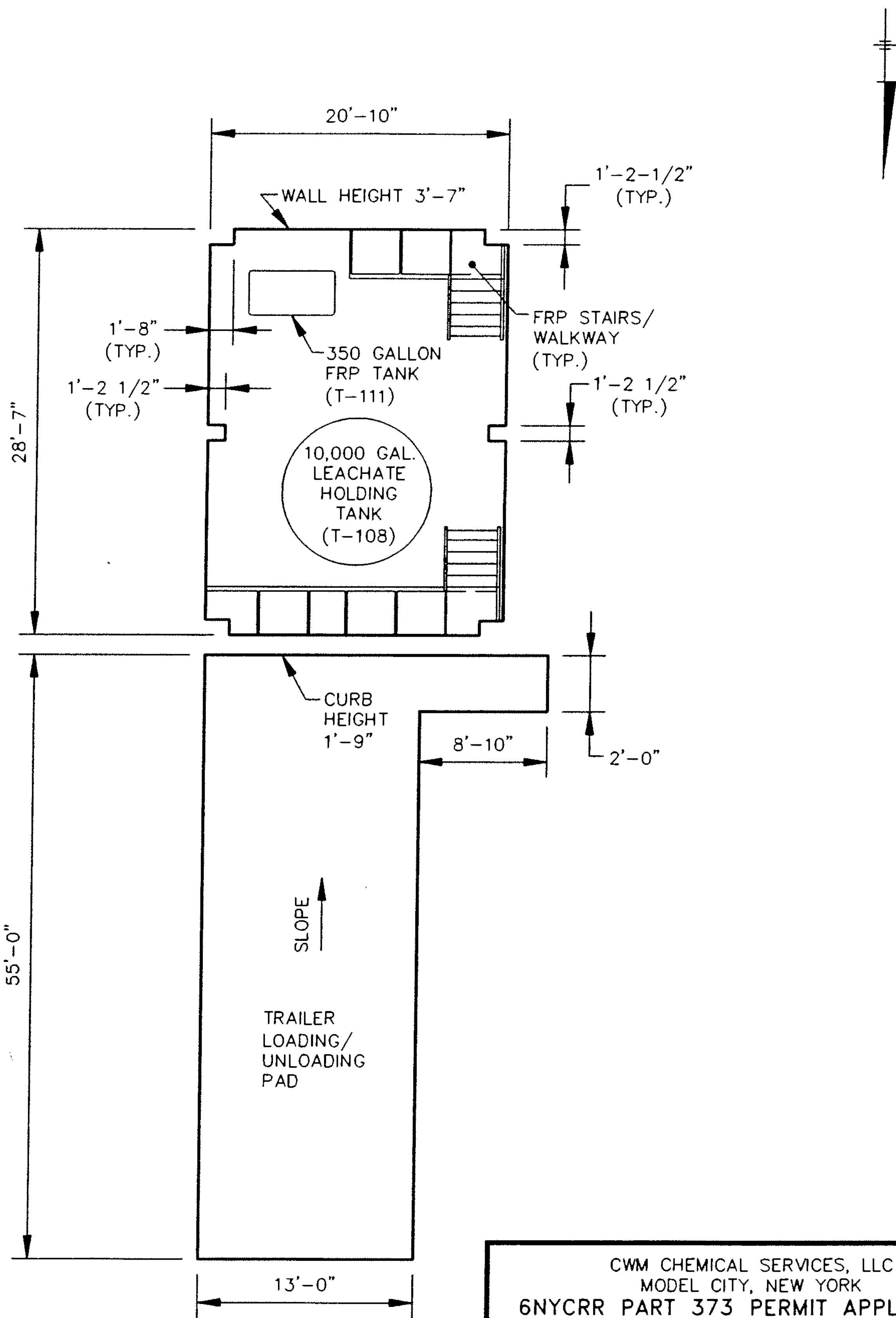
Tank T-109 = 3,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-13

TANKS T-108 AND T-111



PLAN

NOT TO SCALE

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052080/05052G22.DWG

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TANKS T-108 AND T-111

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FIGURE D-13

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
S ECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANKS T-108 AND T-111

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

28.6′ x 20.8′ x 3.6′ = 2,141.6 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as tank legs, FRP stairway and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.6′) = 31.1 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.6′) = 10.4 CF

Total Available Volume:

2,141.6 CF - 31.1 CF - 10.4 CF = 2,100.1CF = 2,100.1CF x 7.48 gal/CF = 15,708.7 gallons

Required Volume:

Volume of Largest Tank:

Tank T-108 = 10,000 gallons

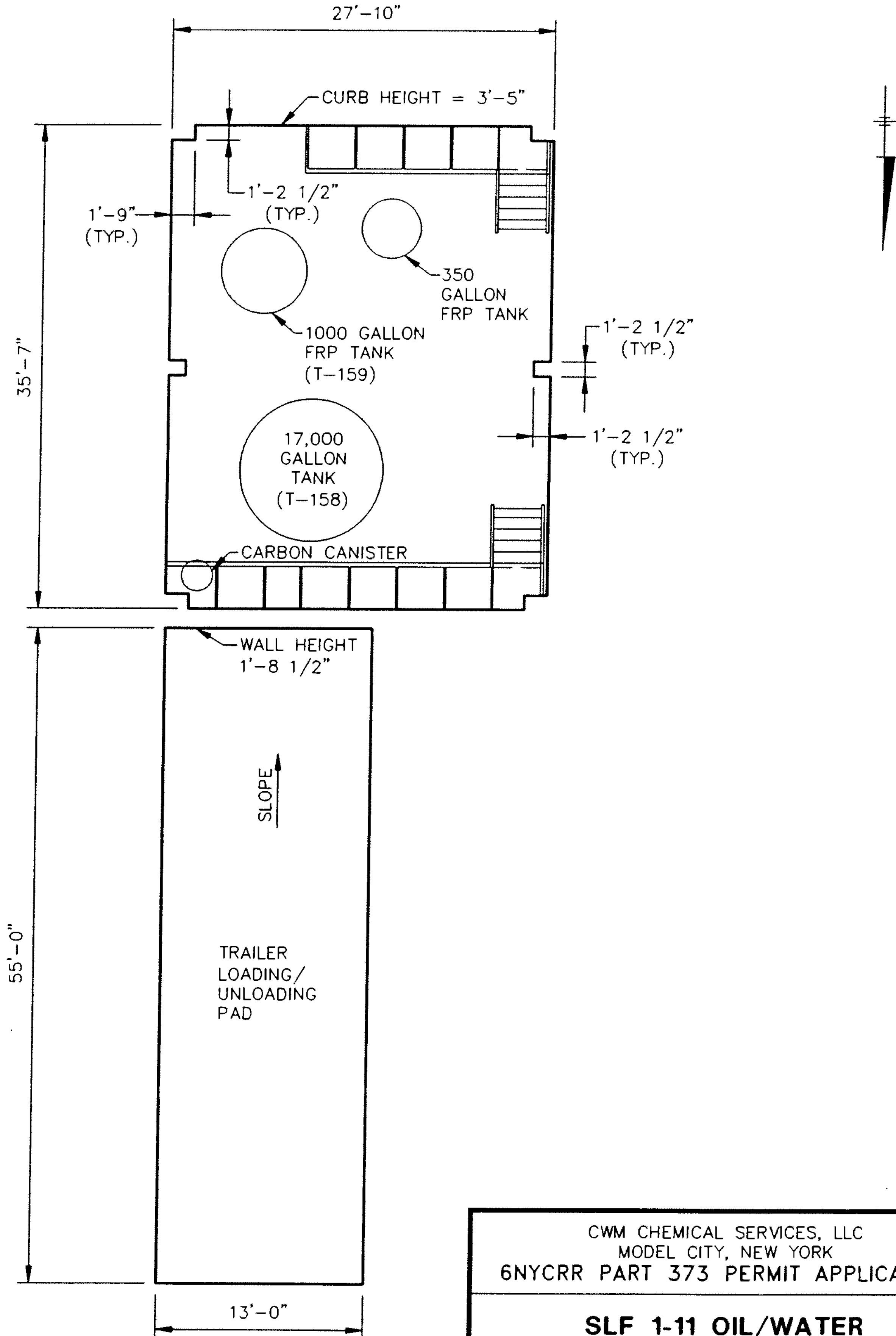
CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-14

SLF 1-11 OIL/WATER SEPARATOR BUILDING

TANKS T-158 AND T-159



PLAN

NOT TO SCALE

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052080/05052G23.DWG

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SLF 1-11 OIL/WATER SEPARATOR BUILDING

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FIGURE D-14

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CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM	PROJECT: Permit Renewal	Prepared By: PJC	Date: 02/15/2001
SUBJECT: Secondary Containment Calculations		Reviewed By: CBT	Date: 02/19/2001

TANKS T-158 AND T-159

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

35.6′ x 27.8′ x 3.4′ = 3,364.9 CF

Subtractions:

Note:
Additional volume of floor sump and displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Corner Piers:

4 (1.2′ x 1.8′ x 3.4′) = 29.4 CF

Side Piers:

2 (1.2′ x 1.2′ x 3.4′) = 9.8 CF

Total Available Volume:

3,364.9 CF - 29.4 CF - 9.8 CF = 3,325.7 CF = 3,325.7 CF x 7.48 gal/CF = 24,876.2 gallons

Required Volume:

Volume of largest tank:

Tank T-158 = 17,000 gal

CONCLUSIONS:

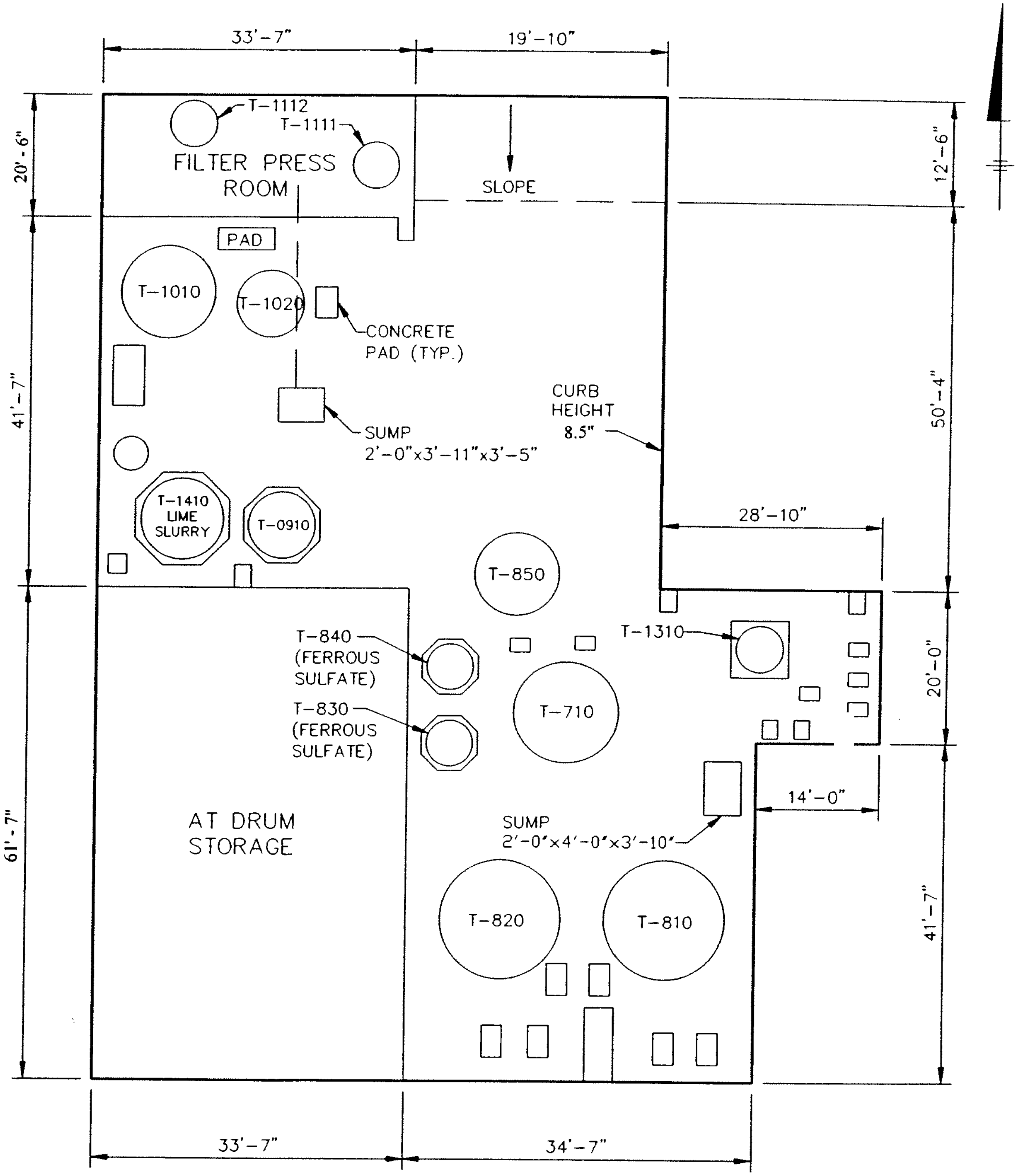
Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-15

AWTS BUILDING

TANKS

T-710	T-810
T-820	T-850
T-910	T-1010
T-1020	T-1111
T-1112	T-1310



PLAN
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AWTS BUILDING

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FIGURE
D-15

X: 05052X00.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052G80/05052G09.DWG

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CALCULATION SHEET

AWTS BUILDING

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(33.6' x 41.6') + (50.3' x 19.8') + (20.0' x 19.8') + (20.0' x 28.8') + (31.6' x 41.6') + (20.5' x 33.6')=

(5369.1ft^2 x 0.7') + 0.5(12.5' x 0.7' x 19.8') = 3845.0 CF

Sumps & Trenches:

(2.0' x 3.9' x 3.4') + (2.0' x 4.0' x 3.8') + (0.3' x 0.7' x 15') = 60.1 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, piping, and pumps will only account for a very small volume and will not be included in the net containment volume.

Stairways (3):

3(3.2' x 2.2' x 0.7') = 14.8 CF

Pump Pad:

4.1' x 2.0' x 0.7' = 5.7 CF

Pump Pad:

2.0' x 5.0' x 0.6' = 6.0 CF

Stairway:

3.9' x 3.9' x 0.7' = 10.6 CF

Tank T-1310 Pad:

6.0' x 6.0' x 0.6' = 21.6 CF

Pump Pad:

2.2' x 5.0' x 0.7' = 7.7 CF

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CALCULATION SHEET

AWTS BUILDING (continued)

Pump Pads (5):

5(2.0' x 5.0' x 0.5') = 25.0 CF

Pump Pads (2):

2(1.5' x 3.7' x 0.5') = 5.6 CF

Pump Pad:

3.6' x 1.5' x 0.4' = 2.2 CF

Former Tank T-610 Pad:

6.5' x 6.5' x 0.5' = 21.1 CF

Walkway:

3.0' x 13.5' x 0.7' = 28.4'

Pump Pads (5):

5(2.0' x 5.0' x 0.5') = 25.0 CF

Pump Pad:

2.7' x 5.6' x 0.5' = 7.6 CF

Tank T-850:

π x 3.1'^{2} x 0.7' = 21.1 CF

Tank T-830 Pad:

(0.5 x 8 x 2.9' x 3.5') x 0.7' = 28.4 CF

Tank T-840 Pad:

(0.5 x 8 x 2.9' x 3.5') x 0.7' = 28.4 CF

Tank T-1410 Pad:

(0.5 x 8 x 5.2' x 6.2') x 0.7' = 90.3 CF

Tank T-910 Pad:

(0.5 x 8 x 5.2' x 6.3') x 0.7' = 91.7 CF

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AWTS BUILDING (continued)

Tank T-1111:

$\pi \times 1.4'^2 \times 0.7' = 4.3$ CF

Tank T-1112:

$\pi \times 1.9'^2 \times 0.7' = 8.0$ CF

Tanks T-710, T-810 & T-820 Support Pedestals:

12(1.0' x 1.0') x 0.7' = 8.4 CF

Filter Press Room Roll-off:

8.0' x 22.0' x 0.7' = 123.2 CF

Filter Press Room Ramp:

2.0' x 10.2' x 0.7' = 14.3 CF

Filter Press Room Walkover:

4.0' x 8.0' x 0.3' = 10.0 CF

Filter Press Room Wall/Curb:

(33.6' + 20.5') x 0.75' x 0.7' = 28.4 CF

Total Available Volume:

3,845.0 CF + 60.1 CF - 637.8 CF = 3,267.3 CF = (3,267.3 CF x 7.48 gal/CF) = 24,440.0 gallons

Required Volume:

Volume of Largest Tank (Interconnected):

Tank T-710 + Tank T-810 + T-820 = 24,000 gallons

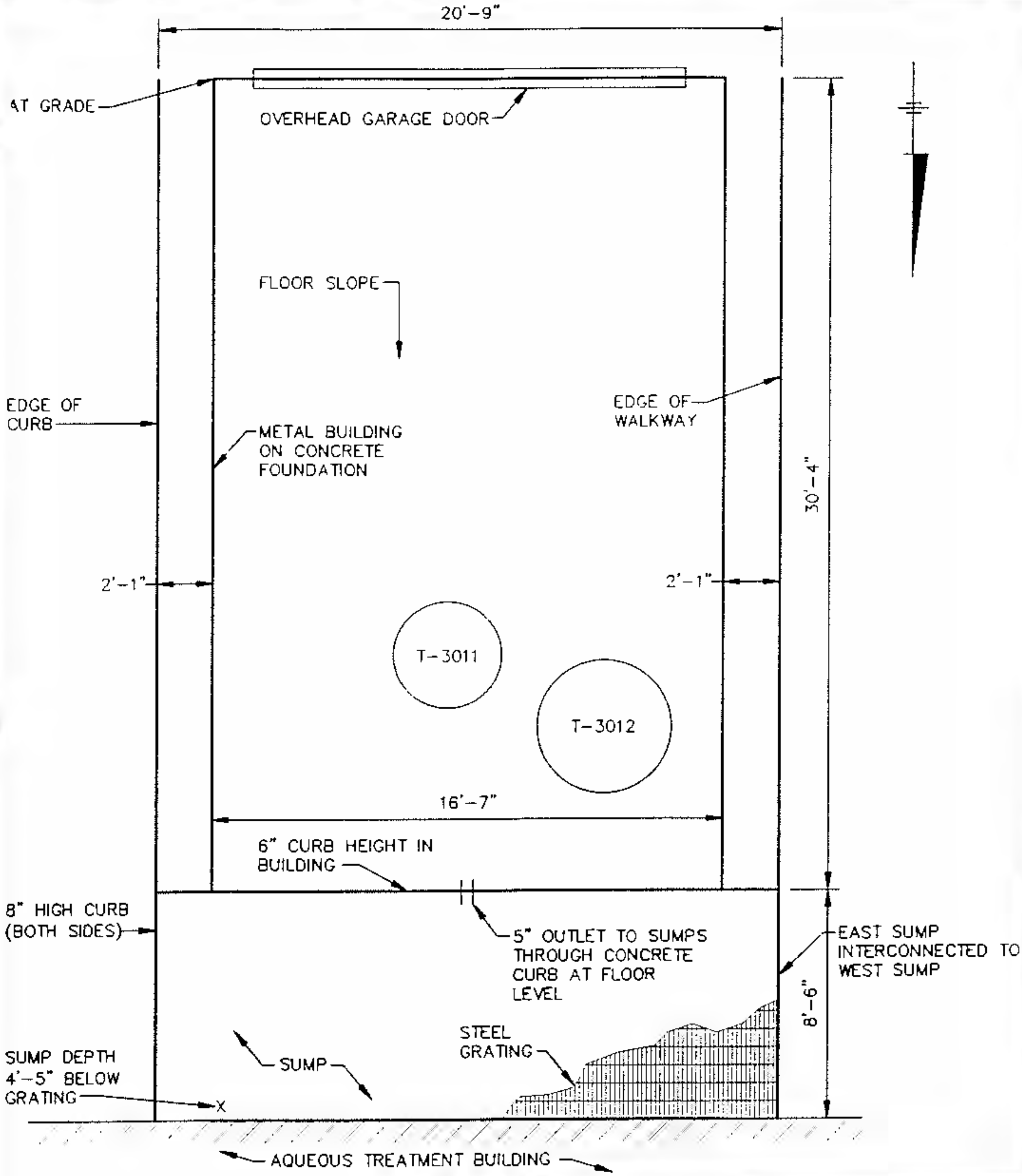
CONCLUSIONS:

Available volume exceeds required volume; therefore containment volume is acceptable.

JAN 3 1 2002

FIGURE D-16

TANKS T-3011 AND T-3012



PLAN

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TANKS T-3011 & T-3012

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FIGURE
D-16

X: 05052X01.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/AP
12/28/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052090/05052B02.DWG

TANKS T-3011 AND T-3012

TASK:

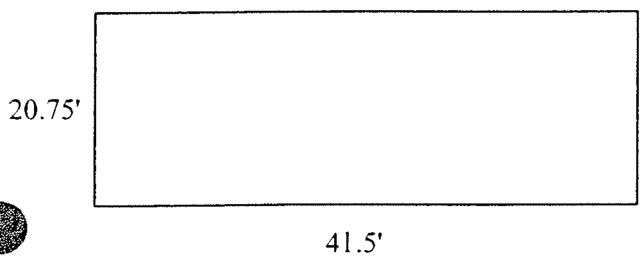
Calculate the total volume within the secondary containment area.

CALCULATIONS:

Dimensions (Individually):

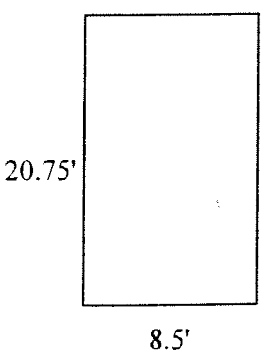
Ramp (East & West & Clarifier Building):

$20.75' x 41.5' x 0.667'$



Sump (East & West):

$8.5' x 20.75' x 4'$



Available Secondary Containment (East & West-Total):

Ramp Area (East & West-Total):

$$41.5' * 20.75' * 0.667' * (0.50) = 287.2 ft^3 \cong 2{,}148.1 gallons * 2 = 4{,}296.3 gallons$$

Sump Area (East & West-Total):

$$8.5' * 20.75' * 4' = 705.5 ft^3 \cong 5{,}277.14 gallons * 2 = 10{,}554.3 gallons$$

TANKS T-3011 AND T-3012(continued)

Total Available Secondary Containment (East & West-Total):

$$4{,}296.3\,gallons + 10{,}554.3\,gallons = 14{,}850.6\,gallons$$

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping, and pumps will only account for a very small volume and will not be included in the net containment volume.

25 Year, 24 Hour Precipitation Event:

East & West Ramp (minus clarifier building):

$$41.5' * 20.75' * 0.333' * 2 - (16.58' * 30.33' * 0.333') = 406.1\,ft^3 \cong 3{,}037.3\,gallons$$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Sumps (East & West- Total):

$$8.5' * 20.75 * 0.333' = 58.7\,ft^3 * 2 = 117.5\,ft^3 \cong 878.6\,gallons$$

0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Total Precipitation:

$$3{,}037.3\,gallons + 878.6\,gallons = 3{,}915.9\,gallons$$

Required Volume:

Largest Tank Volume: 375 gallons

Required Secondary Containment Including Precipitation Event (East/West & Clarifier Building-Total):

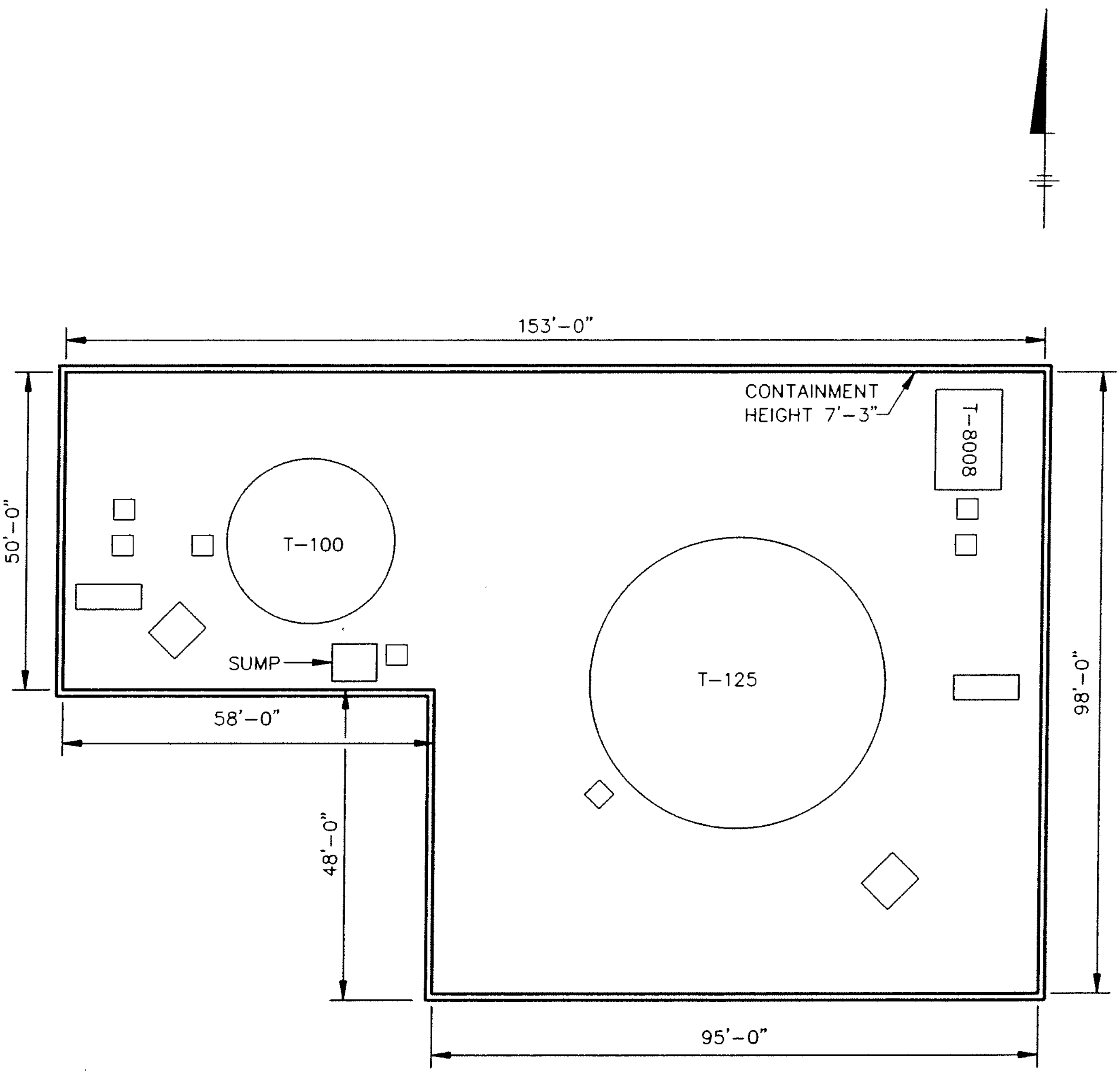
$$375\,gallons + 3{,}915.9\,gallons = 4{,}290.9\,gallons$$

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable. Calculations are based on eliminating the tank's interconnections.

FIGURE D-17

TANKS T-100, T-125 AND T-8008



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANKS T-100, T-125, & T-8008

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

FIGURE **D-17**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G20.DWG

TANKS T-100, T-125, AND T-8008

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(48.0′ x 95.0′ x 7.3′)+ (50.0′ x 153.0′ x 7.3′) = 89,133.0 CF

Subtractions:

Note:
Additional volume of sump and displacements such as tank supports, FRP stairway, piping and pumps will only account for a very small volume and will not be included in the net containment volume.

Tank T-100 Pad and Tank:

$\pi \times 18.0'^2 \times 7.25' = 7{,}379.6$ CF

Tank T-125 Pad:

$\pi \times 41.0'^2 \times 1.0' = 5{,}281.0$ CF

Concrete Pads:

4(1.0′ x 1.0′ x 0.7′) = 2.8 CF

Concrete Pads:

2(1.5′ x 4.5′ x 0.7′) = 9.5 CF

Concrete Pads:

2(1.83′ x 0.83′ x 0.96′) = 2.9 CF

Concrete Pad:

2.0′ x 2.0′ x 0.54′ = 2.2 CF

Concrete Pad:

6.0′ x 5.0′ x 0.8′ = 24 CF

TANKS T-100, T-125, AND T-8008 (continued)

Concrete Pad:

0.25′ x 10.2′ x 0.48′ = 50.2 CF

Total Available Volume:

89,133.0 CF - 7,379.6 CF - 5,281.0 CF - 2.8 CF - 9.5 CF - 2.9 CF - 2.2 CF - 24 CF - 50.02 CF = 76,380.8 CF
= (76,380.8 CF x 7.48 gal/CF) = 571,328.4 gallons

Required Volume:

Volume of largest tank:

Tank T-125 = 394,271 gallons

25 Year, 24 Hour Precipitation Event:

(48.0' x 95.0' x 0.33') + (50.0' x 153.0' x 0.33') = 4,029.3 CF x 7.48 gal/CF = 30,139.2 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Secondary Containment:

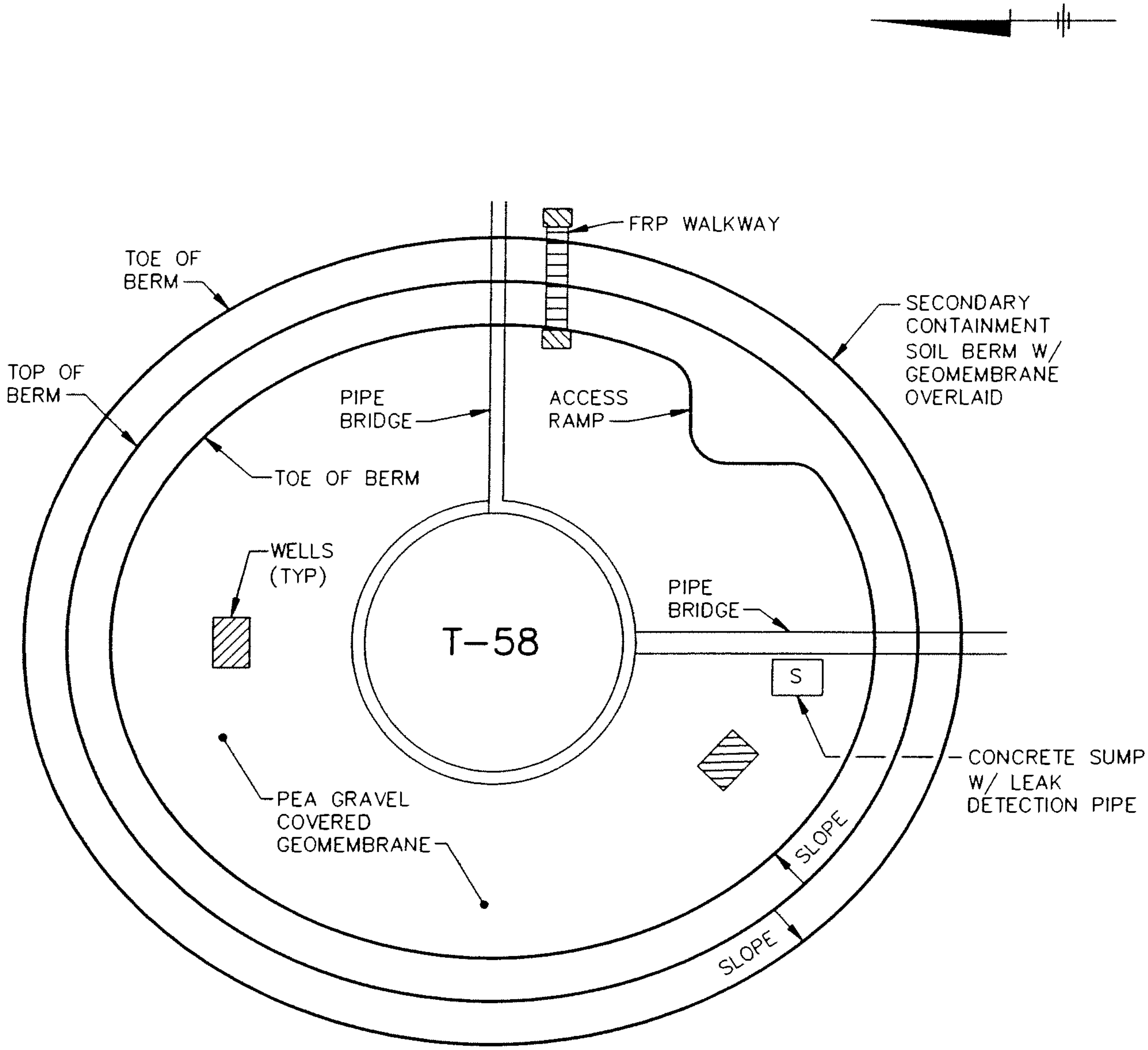
394,271 gallons + 30,139.2 gallons = 424,410.2 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank interconnections.

FIGURE D-18

TANK T-58



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-58

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

FIGURE **D-18**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-DJP SDL ROC-54-SLM
05052080/05052G29.DWG

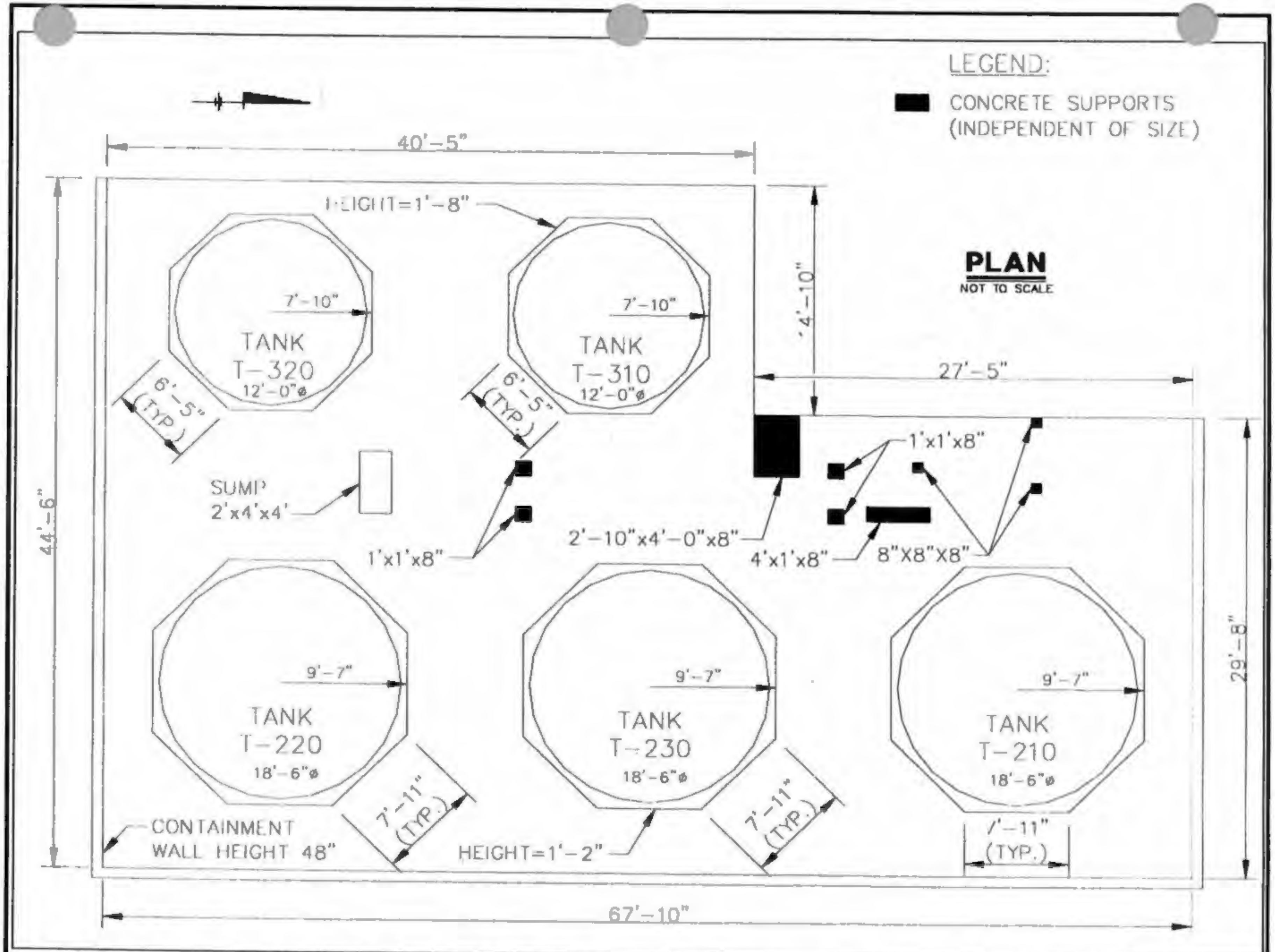
A VARIANCE FROM SECONDARY CONTAINMENT REQUIREMENTS IS ALLOWED FOR TANK T-58 IN ACCORDANCE WITH 6NYCRR 373-2.10(d)(7)

FIGURE D-19

AWT EAST TANK FARM

TANKS

T-210 T-220
T-230 T-310
T-320



EnSol, Inc. Environmental Solutions Niagara Falls, New York	CWM Chemical Services, LLC	6NYCRR PART 373 PERMIT APPLICATION AWTS EAST TANK FARM	Date: Aug-07 Project No: 07-7012 Figure: D-19

Modified: 06/10

BBL

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM Chemical Services, LLC PROJECT: Permit Renewal Prepared By: PJC Date: 02/15 2001
TITLE: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001
Latest Revised Date: 01/12/2005

AWT EAST TANK FARM

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

(27.4′ x 29.7′ x 4.0′) + (40.4′ x 44.5′ x 4.0′) = 10,446.3 CF

Sump:

2.0′ x 4.0′ x 4.0′ = 32.0 CF

Subtractions:

Note:
Additional volume displacements such as small concrete supports, FRP stairway, piping, pumps, and carbon cans will only account for a very small volume and will not be included in the net containment volume.

Tanks T-210, T-220, and T-230 Pads:

3(0.5 x 8 x 7.9′ x 9.6′ x 1.2′) = 1,092.1 CF

Tanks T-210, T-220, and T-230:

3(π x 9.25′^{2} x 2.8′) = 2,257.9 CF

Tanks T-310 and T-320 Pads:

2(0.5 x 8 x 6.4′ x 7.8′ x 1.7′) = 678.9 CF

Tanks T-310 and T-320:

2(π x 6.0′^{2} x 2.3′) = 520.2 CF

Total Available Volume:

10,446.3 + 32.0 – 1,092.1 – 2,257.9 – 678.9 – 520.2 = 5,929.2 CF = 5,929.2 CF x 7.48 gal/CF = 44,350.4 gallons

Required Volume:

Volume of Largest Tank:

Tank T-310 = 30,457 gallons

AWT EAST TANK FARM (continued)

25-Year, 24-Hour Precipitation Event:

(27.4′ x 29.7′ x 0.33′) + (40.4′ x 44.5′ x 0.33′) = 861.8 CF x 7.48 gal/CF = 6,446.3 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

30,457 gallons + 6,446.3 gallons = 36,903.3 gallons

CONCLUSIONS:

Available volume exceeds required volumes; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank interconnections.

FIGURE D-20

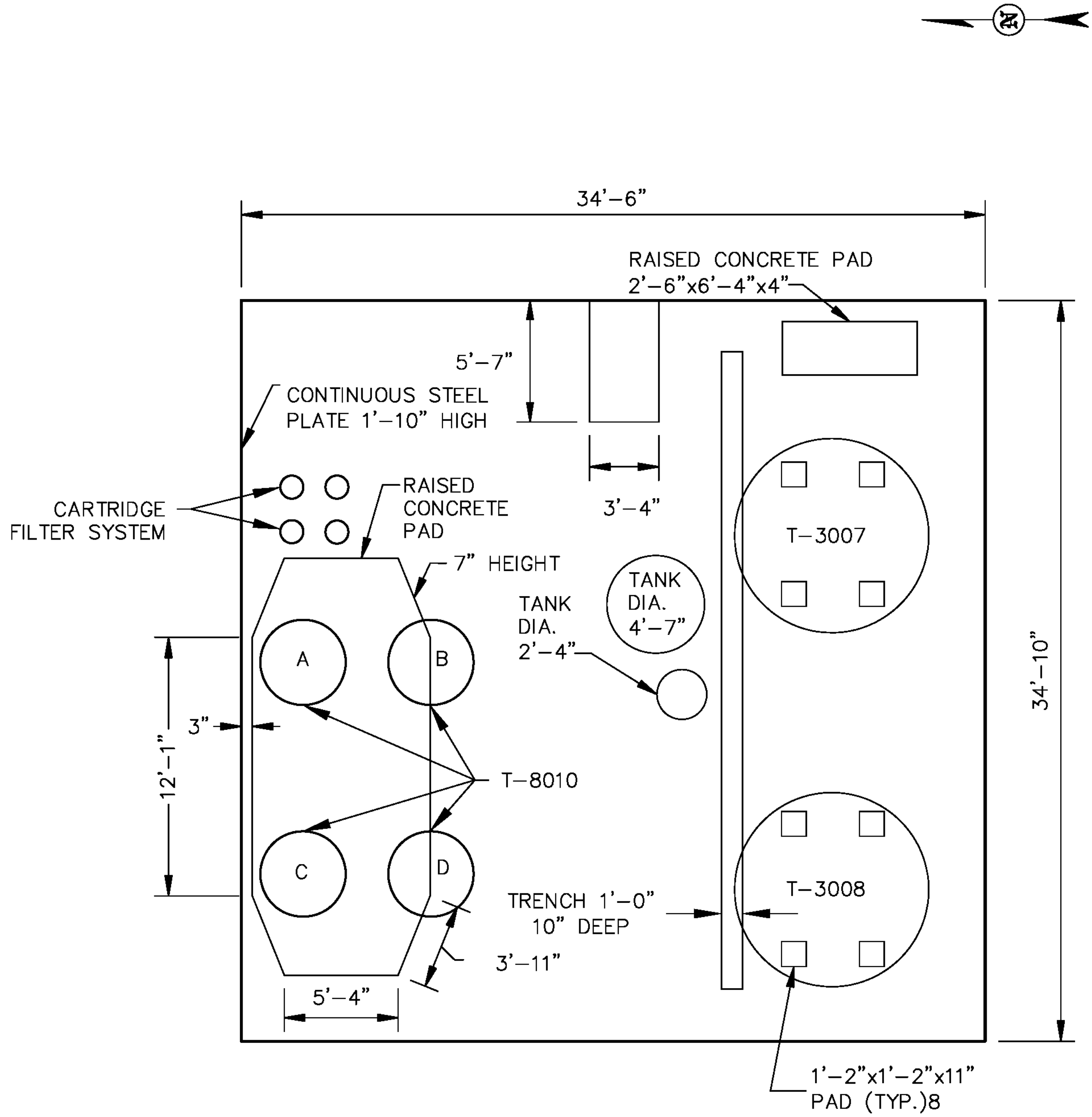
WASTEWATER TREATMENT BUILDING

TANKS

T-3004	**T-3005**
T-3007	**T-3008**

T-3010A T-3010B
T-3010C T-3010D

Modified: Nov. 2013



PLAN
N.T.S.

Modified: Nov. 2013

WATER TREATMENT BUILDING
6NYCRR PART 373 PERMIT

CWM CHEMICAL SERVICES LLC
TOWN OF PORTER, STATE OF NEW YORK

EnSol, Inc.
Environmental Solutions
661 MAIN STREET
NIAGARA FALLS, NY 14301
PHONE (716) 285-3920
FAX (716) 285-3928

FIGURE D-20

8/13/13 | PN: 13-7028

EnSol, Inc.
Environmental Solutions

PROJECT NO.:

CLIENT: CWM Chemical Services LLC **PROJECT:** 13-7028 **Prepared By:** TAS **Date:** 8/13/13
SUBJECT: Water Treatment Building Secondary Containment Calculations **Reviewed By:** BDS **Date:** 8/13/13

WATER TREATMENT BUILDING

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

34.5′ x 34.8′ x 1.83′ = 2,197.1 CF

Trench:

(29.9′ x 1.0′ x 0.8′) + (31.1′ x 1.3′ x 0.1′) = 27.9 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping, and pumps will only account for a very small volume and will not be included in the net containment volume.

Tank Pad:

[(12.083′ x 9.0′) + 2(3.75′ x 1.896′) + 2(3.75′ x 5.2083′)] x 0.5′ = 81.01 CF

Concrete pad:

6.3′ x 2.5′ x 0.3′ = 4.73 CF

Stairway:

5.7′ x 3.3′ x 1.8′ = 33.86 CF

4’-7” Tank:

π x 2.29′^{2} x 1.8′ = 29.65 CF

2’-4” Tank:

π x 1.17′^{2} x 1.8′ = 7.74 CF

Tank T-3007 and T-3008 Legs (8):

8(1.15′ x 1.15′ x 0.9′) = 9.52 CF

EnSol, Inc.
Environmental Solutions

PROJECT NO.:

CLIENT: CWM Chemical Services LLC **PROJECT:** 13-7028 **Prepared By:** TAS **Date:** 8/13/13
SUBJECT: Water Treatment Building Secondary Containment Calculations **Reviewed By:** BDS **Date:** 8/13/13

WATER TREATMENT BUILDING (continued)

Cartridge Filters (4):

$4(\pi \times 0.54'^2 \times 1.5') = 5.50$ CF

Wall Outcrop:

$(^1/_2(14.4' + 15.5')\ 0.4) \times 1.8' = 10.76$ CF

Total Available Volume:

= 2,197.1 + 27.9 - 81.01 - 4.73 - 33.86 - 29.65 - 7.74 - 9.52 - 5.50 - 10.76 = 2,042.2 CF = (2,042.2 CF x 7.48 gal/CF) = 15,275.7 gallons

Required Volume:

Volume of Largest Tank (Interconnected):

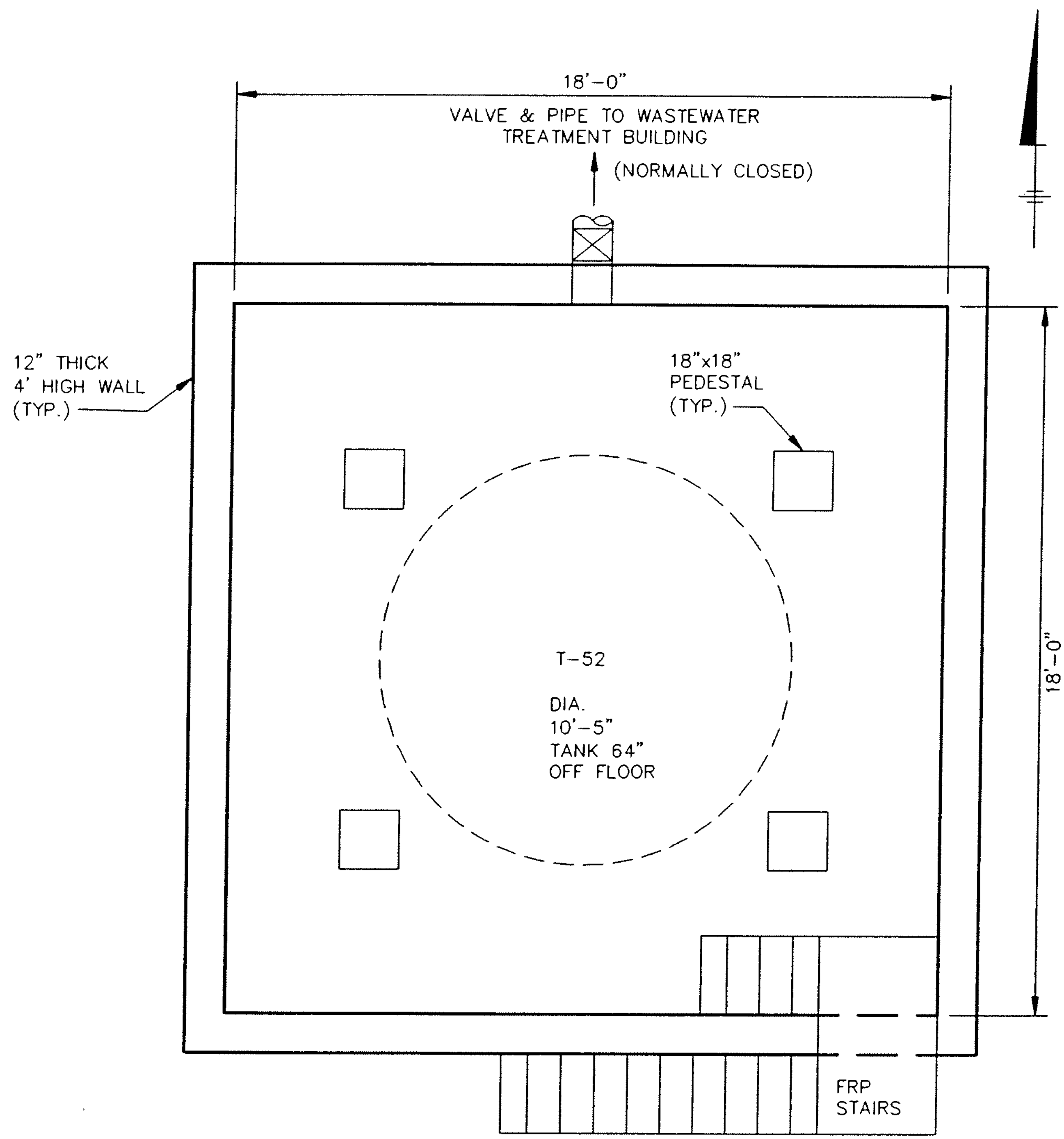
Tank T-3007 + Tank T-3008 = 15,200 gallons

CONCLUSIONS:

The available volume of secondary containment exceeds the volume of the largest tank (T-3007 and T-3008 interconnected).

FIGURE D-21

TANK T-52



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-52

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

FIGURE **D-21**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
4/2/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G17.DWG

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-52

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

18.0′ x 18.0′ x 4.0′ = 1,296.0 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway and piping will only account for a very small volume and will not be included in the net containment volume.

Concrete Tank Supports:

4(1.5′ x 1.5′ x 2.2′) = 19.8 CF

Total Available Volume:

1,296.0 CF - 19.8 CF = 1,276.2 CF = (1,276.2 CF x 7.48 gal/CF) = 9,546.0 gallons

Required Volume:

Volume of Largest Tank:

Tank T-52 = 7,600 gal

25 Year, 24 Hour Precipitation Event:

18.0′ x 18.0′ x 0.33′ = 106.9 CF = 106.9 CF x 7.48 gal/CF = 799.6 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

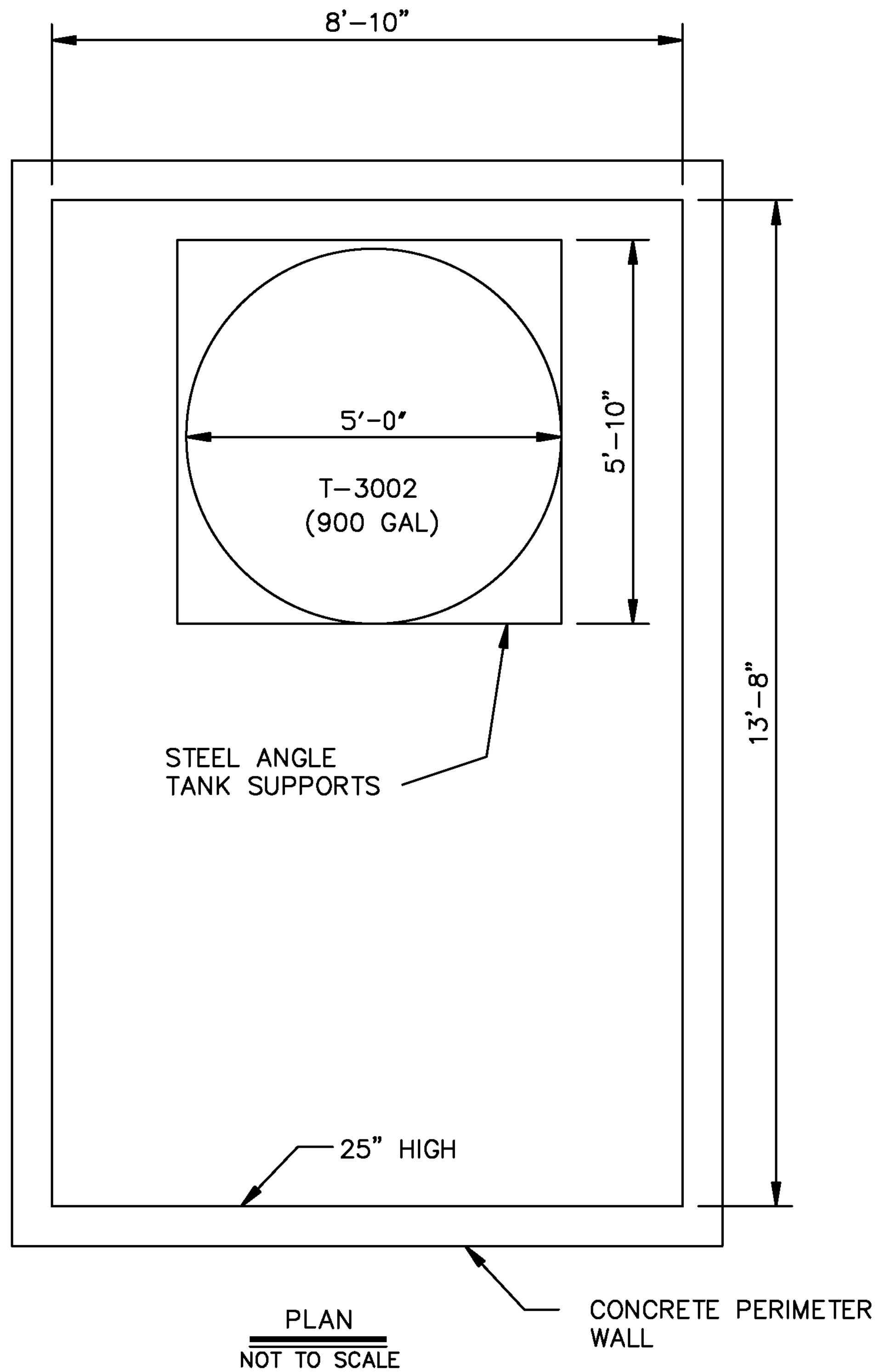
7,600 gallons + 799.6 gallons = 8,399.6 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-22

TANKS T-3001 AND T-3002



Modified: Oct. 2015

TANK T-3002 6NYCRR PART 373 PERMIT		
CWM CHEMICAL SERVICES LLC TOWN OF PORTER, STATE OF NEW YORK		
EnSol, Inc. Environmental Solutions	661 MAIN STREET NIAGARA FALLS, NY 14301 PHONE (716) 285-3920 FAX (716) 285-3928	FIGURE D-22
JULY 2015	PN: 15-7007	

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 15-7007

CLIENT: CWM Chem. Svcs. **PROJECT T-3002** **Prepared By: ALA** **Date: 7/13/15**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 7/13/15**

TANK T-3002

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

13.7′ x 8.7′ x 2.1′ = 250.3 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, and piping will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

250.3 CF x 7.48 gal/CF = 1,872.2 gallons

Required Volume:

Volume of Largest Tank:

Tank T-3002 = 900 gallons

25 Year, 24 Hour Precipitation Event:

13.7’ x 8.7’ x 0.33’ = 39.3 CF = 39.3 CF x 7.48 gal/CF = 294.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

900 gallons + 294.0 gallons = 1,194.0 gallons

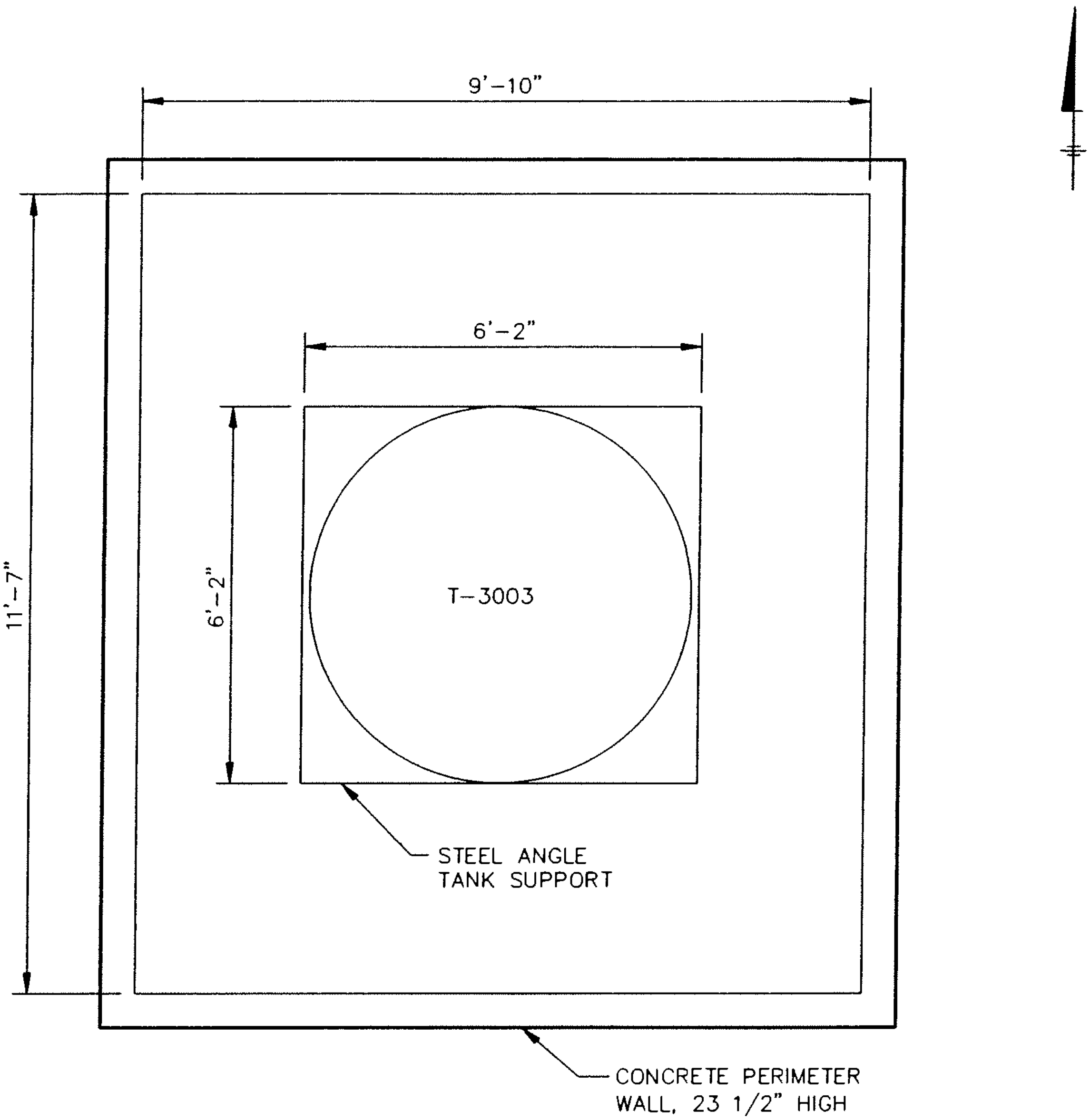
CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

Modified: Oct. 2015

FIGURE D-23

TANK T-3003



PLAN

NOT TO SCALE

X: 05052X00.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052080/05052G07.DWG

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-3003

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

FIGURE
D-23

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

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
SUBJECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-3003

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

11.6′ x 9.8′ x 1.96′ = 222.8 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, and piping will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

222.8 CF x 7.48 gal/CF = 1,666.5 gallons

Required Volume:

Volume of Largest Tank:

Tank T-3003 = 1,210 gallons

25 Year, 24 Hour Precipitation Event:

11.6' x 9.8' x 0.33' = 37.5 CF = 37.5 CF x 7.48 gal/CF = 280.5 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

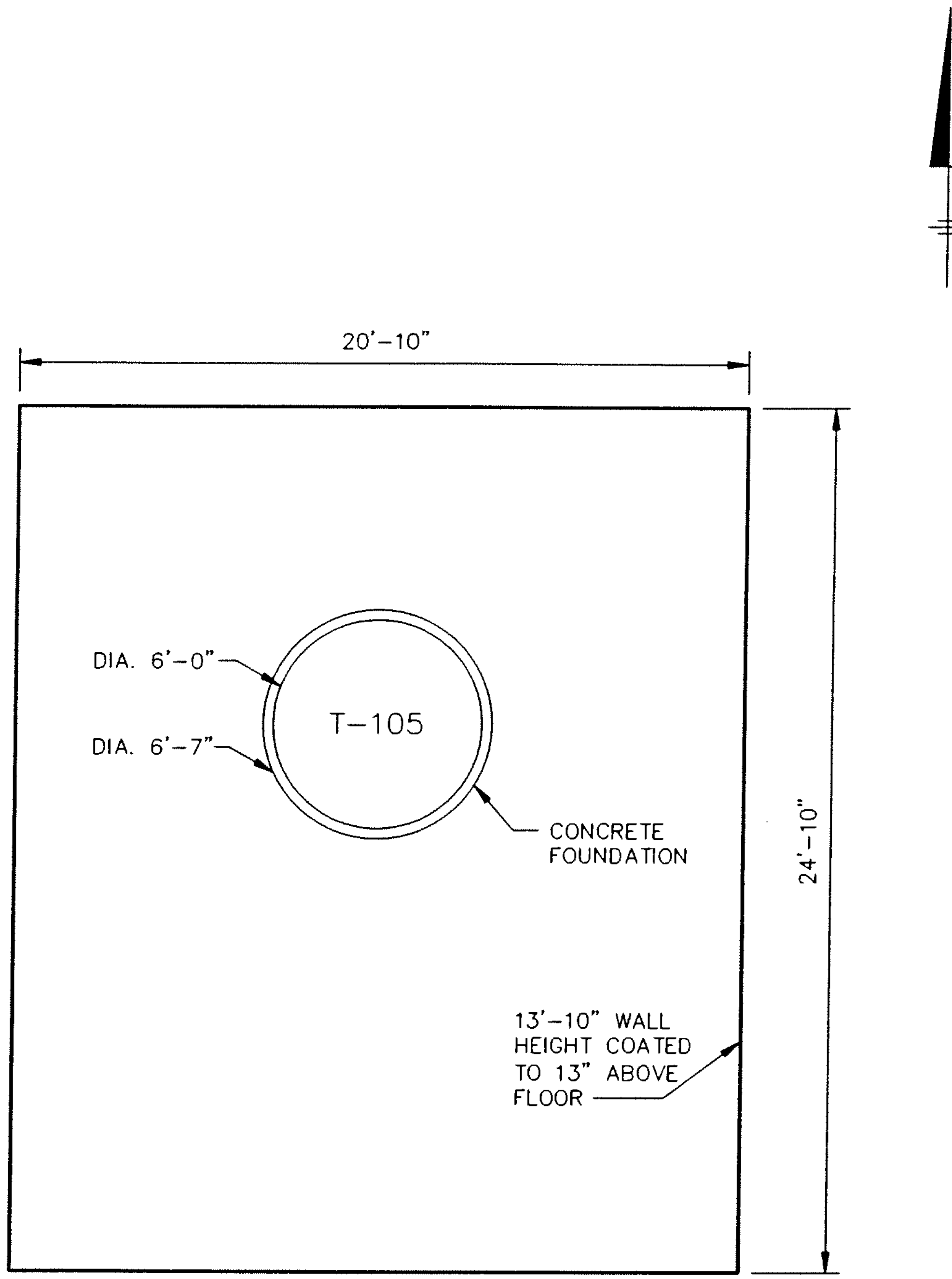
1,210 gallons + 280.5 gallons = 1,490.5 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank's interconnections.

FIGURE D-24

TANK T-105



PLAN
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CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-105

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

FIGURE **D-24**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G11.DWG

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
S' ~~E~~CT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-105

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

24.8′ x 20.8′ x 1.1′ = 567.4 CF

Subtractions:

Note: Additional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Concrete Foundations:

π x $3.3'^2$ x 0.33′ = 11.3 CF

Column Foundations (4):

1.2′ x 1.2′ x 0.4′ x 4 = 2.3 CF

Total Available Volume:

567.4 CF - 11.3 CF - 2.3 CF = 553.8 CF = 553.8 CF x 7.48 gal/CF = 4,142.6 gallons

Required Volume:

Volume of Largest Tank:

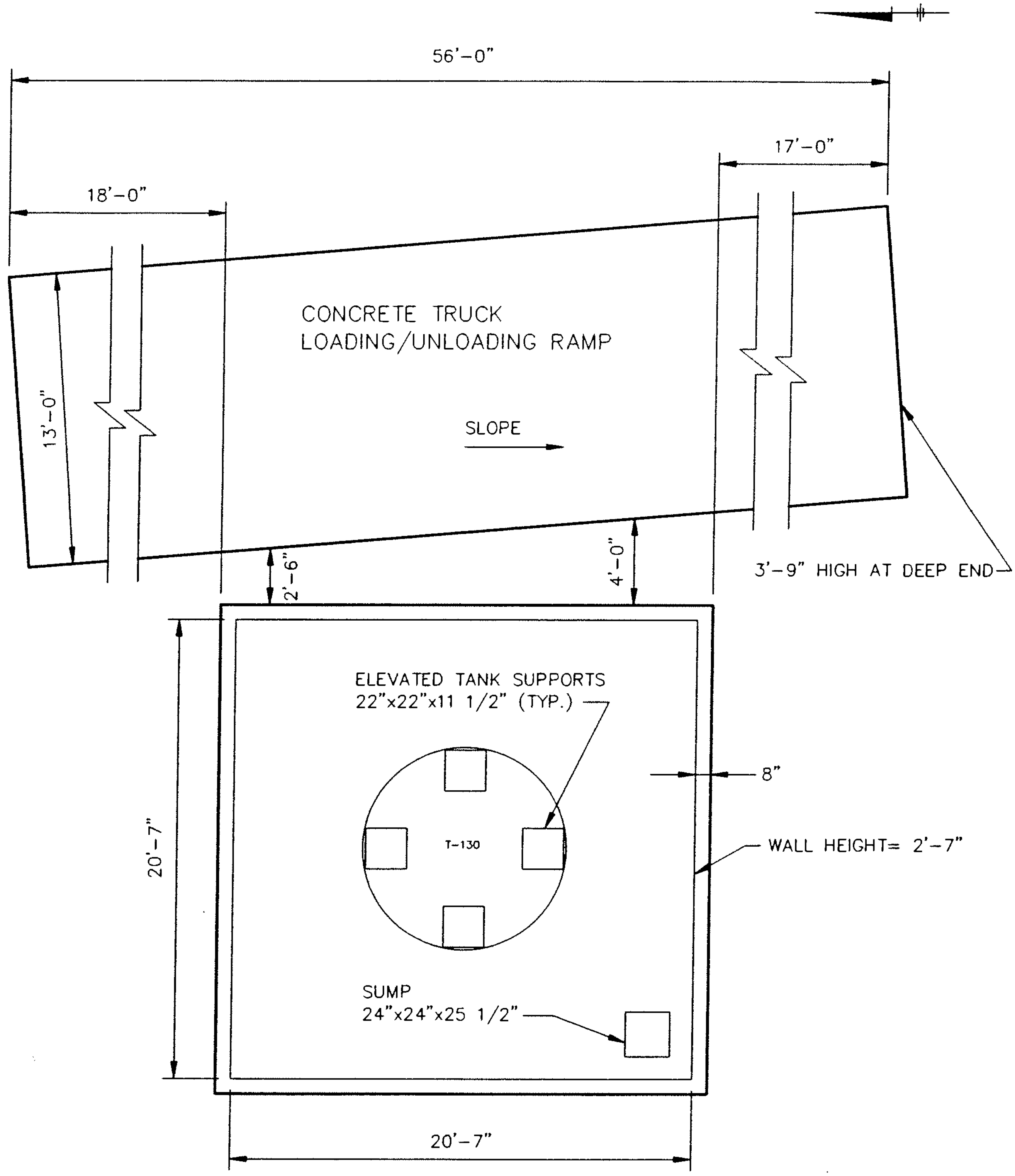
Tank T-105 = 3,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-25

TANK T-130



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-130

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

FIGURE D-25

X: 05052X00
L: ON=* OFF=*REF*
P: STD-PCP/AP
4/2/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G05.DWG

CALCULATION SHEET

TANK T-130

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

20.6' x 20.6' x 2.6' = 1,103.3 CF

Sump:

2.0' x 2.0' x 2.1' = 8.4 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Concrete Pad:

4(1.8' x 1.8' x 0.9') = 11.7 CF

Total Available Volume:

1,103.3 CF + 8.4 CF - 11.7 CF = 1,100 CF x 7.48 gal/CF = 8,228 gallons

Required Volume:

Volume of Largest Tank:

Tank T-130 = 5,732 gallons

25 Year, 24 Hour Precipitation Event:

(20.6' x 20.6' x 0.33') = 141.3 CF = 141.3 CF x 7.48 gal/CF = 1,057.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).
This assumes that the rain gutters for tanks fail.

Required Volume:

5,732 gallons + 1,057.0 gallons = 6,789.0 gallons

JAN 3 1 2002

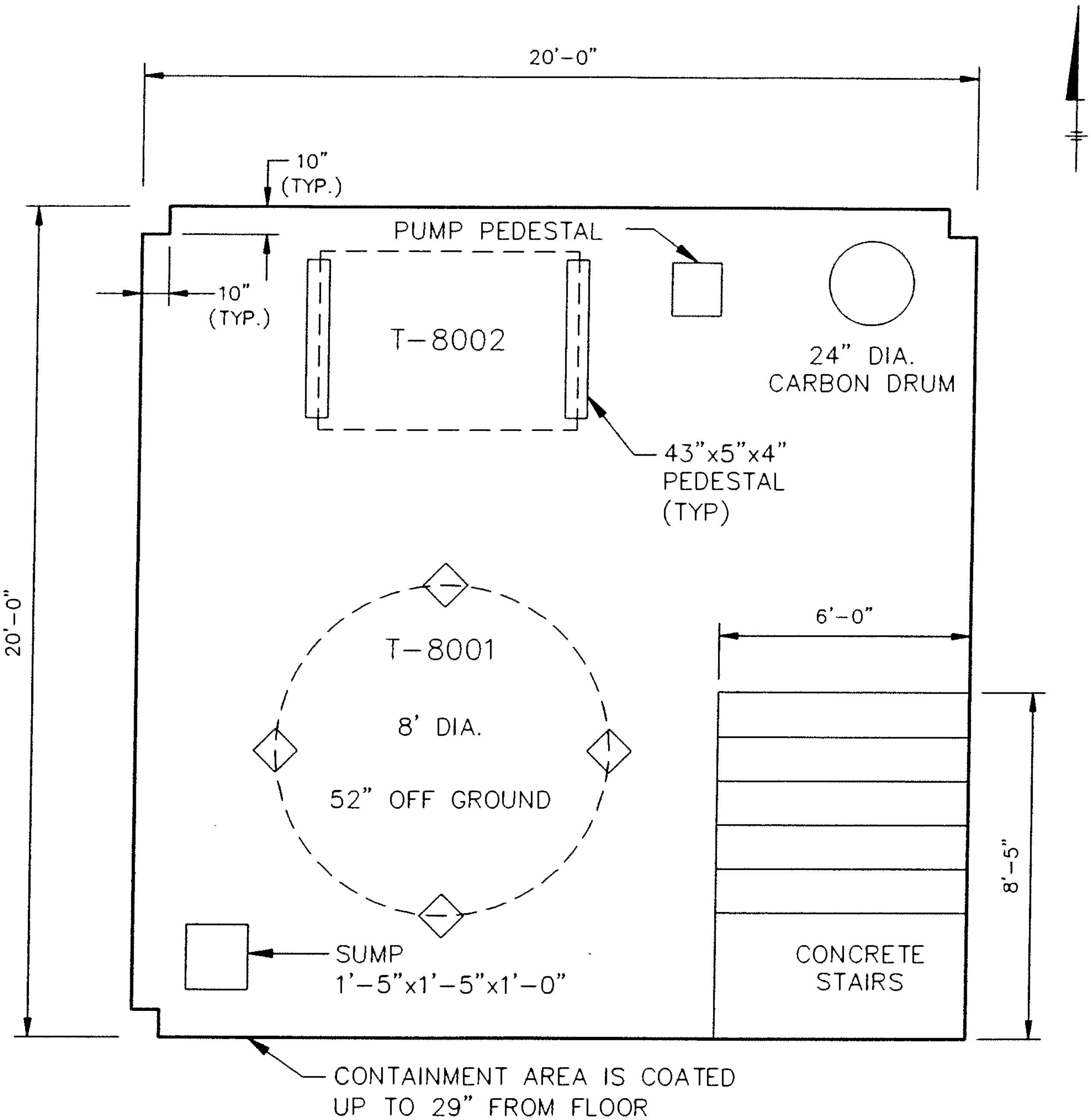
TANK T-130

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-26

TANKS T-8001 AND T-8002



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANKS T-8001 & T-8002

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

FIGURE **D-26**

X: 05052X00.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-SDL DJP SDL ROC-54-SLM
05052080/05052G18.DWG

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

CALCULATION SHEET

PROJECT NO.: 05052.030

IENT: CWM	**PROJECT:** Permit Renewal	**Prepared By:** PJC	**Date:** 02/15/2001
ECT: Secondary Containment Calculations		**Reviewed By:** CBT	**Date:** 02/19/2001

TANKS T-8001 AND T-8002

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

20.0′ x 20.0′ x 2.4′ = 960.0 CF

Sumps:

1.4′ x 1.4′ x 1.0′ = 2.0 CF

Subtractions:

:

.ditional volume displacements such as steel tank supports, piping, pumps and carbon cans will only account for a very small volume and will not be included in the net containment volume.

Stairway:

0.5(6.0′ x 3.5′ x 2.4′) + (6.0′ x 4.9′ x 2.4′) = 95.8 CF

Corner Columns (3):

3(0.8′ x 0.8′ x 2.4′) = 4.6 CF

Total Available Volume:

960.0 CF + 2.0 CF - 95.8 CF - 4.6 CF = 861.6 CF = (861.6 CF x 7.48 gal/CF) = 6,444.8 gallons

Required Volume:

Volume of Largest Tank:

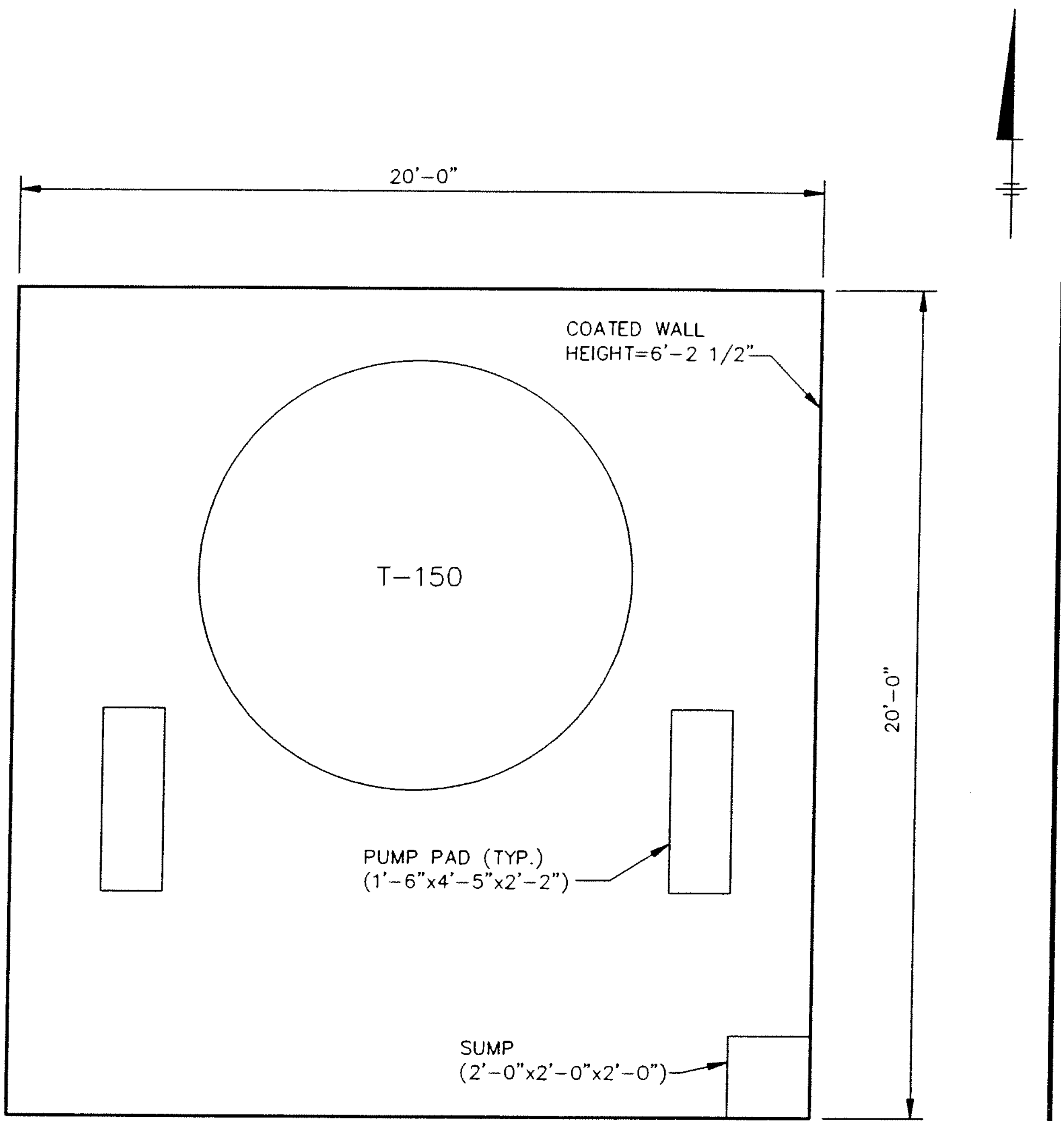
Tank T-8001 = 5,000 gallons

CONCLUSIONS:

ilable volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-27

TANK T-150



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-150

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

FIGURE **D-27**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G02.DWG

CALCULATION SHEET

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

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
ECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-150

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

20.0′ x 20.0′ x 6.2′ = 2,480.0 CF

Sump:

2.0′ x 2.0′ x 2.0′ = 8.0 CF

Subtractions:

itional volume displacements such as steel tank supports, FRP stairway, piping and pumps will only account for a very s..all volume and will not be included in the net containment volume.

Pump bases (2):

2 (1.5′ x 4.5′ x 2.2′) = 29.7 CF

Total Available Volume:

2,480.0 CF + 8.0 CF - 29.7 CF = 2,458.3 CF = (2,458.3 CF x 7.48 gal/CF) = 18,388.1 gallons

Required Volume:

Volume of Largest Tank:

Tank T-150 = 8,000 gallons

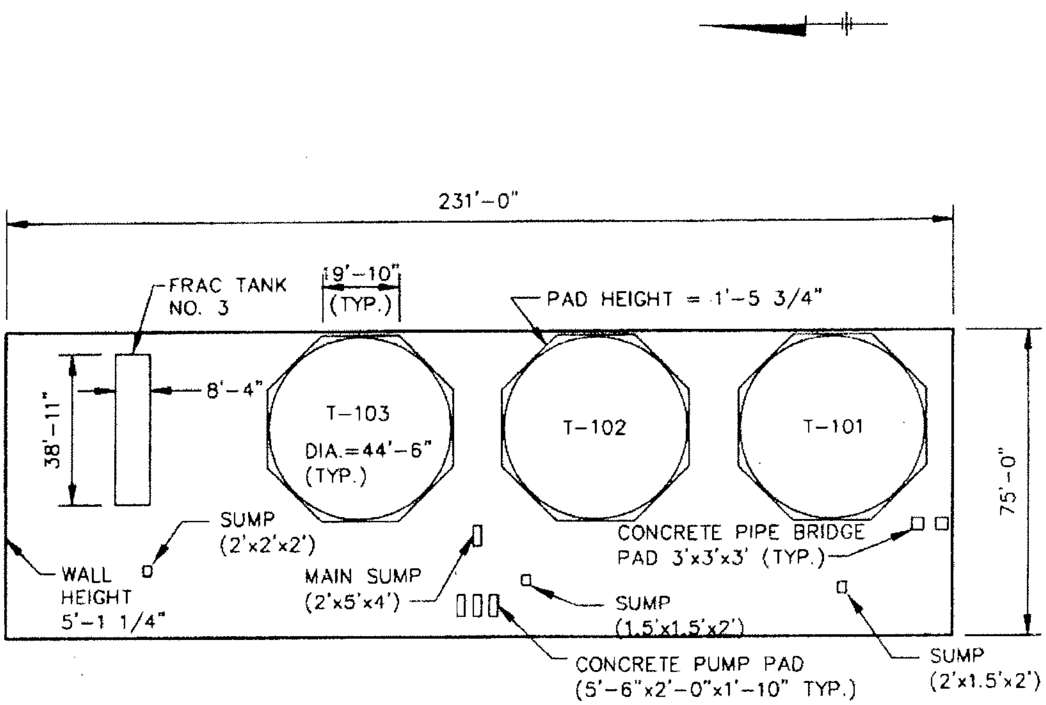
CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-29

LEACHATE TANK FARM

TANKS T-101, T-102, T-103 AND FRAC TANK 3



PLAN

NOT TO SCALE

NOTES:

1. ORIGINAL BASEMAP TAKEN FROM BBL DRAWING 05052C03 DATED 3/14/2001.

X:\AAAg\CWM\10-7017 Leachate Tank Farm Sump Design (Task 8)\ACAD\05052p03 - rev 1 Aug-2010.dwg, 8/31/2010 2:26:01 PM, Tyler Sweet, EnSol

LEACHATE TANK FARM

6NYCRR PART 373 PERMIT

CWM CHEMICAL SERVICES LLC

TOWN OF PORTER, STATE OF NEW YORK

EnSol, Inc.
Environmental Solutions

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NIAGARA FALLS, NY 14301
PHONE (716) 285-3920
FAX (716) 285-3928

8/31/2010 | PN: 10-7017

FIGURE D-29

Modified: 3/11

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 10-7017

CLIENT: CWM Chem. Svcs. PROJECT: Leachate Tank Farm Prepared By: TAS Date: 8/31/2010
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 8/31/2010

LEACHATE TANK FARM

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

75.0′ x 231.0′ x 5.1′ = 88,357.5 CF (at lowest wall height)

Sumps:

(2.0′ x 5.0′ x 4.0′) + (2.0′ x 2.0′ x 2.0′) + (2.0′ x 1.5′ x 2.0′) + (1.5′ x 1.5′ x 2.0′) = 58.5 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping, pumps and carbon can will only account for a very small volume and will not be included in the net containment volume.

Tanks (2):

$\pi/4 \times d^2 \times h = \pi/4 \times 44.5'^2 \times (5.1'$ (wall height) - 1.5′ (tank pad height)) = 5,599.0 CF = 11,198.0 CF

Tank Foundations (3):

(48.0′ x 19.9′ x 1.48′) + 2((0.5(19.9′ + 48.0′) 14.1′) 1.48) = 1,411.9 CF + 1,416.4 CF = 2,828.3 CF = 8,484.9 CF

Frac Tank #3:

8.3′ x 38.9′ x 5.12′ = 1,646.6 CF (at lowest wall height)

Concrete Pump Pads (3):

5.5′ x 2.0′ x 1.8′ = 19.8 CF = 59.4 CF

Concrete Pipe Bridge (2):

3.0′ x 3.0′ x 3.0′ = 27.0 CF = 54.0 CF

Total Available Volume:

88,357.5 CF + 58.5 CF - 11,198.0 CF - 8,484.9 CF - 1,646.6 CF - 59.4 CF - 54.0 CF = 66,973.1 CF

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 10-7017

CLIENT: CWM Chem. Svcs. PROJECT: Leachate Tank Farm Prepared By: TAS Date: 8/31/2010
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 8/31/2010

= 66,973.1 CF x 7.48 gal/CF = 500,958.8 gallons

LEACHATE TANK FARM (continued)

Required Volume:

Volume of Largest Tank:

Tank T-101 = 350,000 gallons

25 Year, 24 Hour Precipitation Event:

75.0′ x 231.0′ x .33′ = 5,717.3 CF = 5,717.3 CF x 7.48 gal/CF = 42,765.0 gallons
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain)
This assumes that the rain gutters for tank fail.

Required Volume:

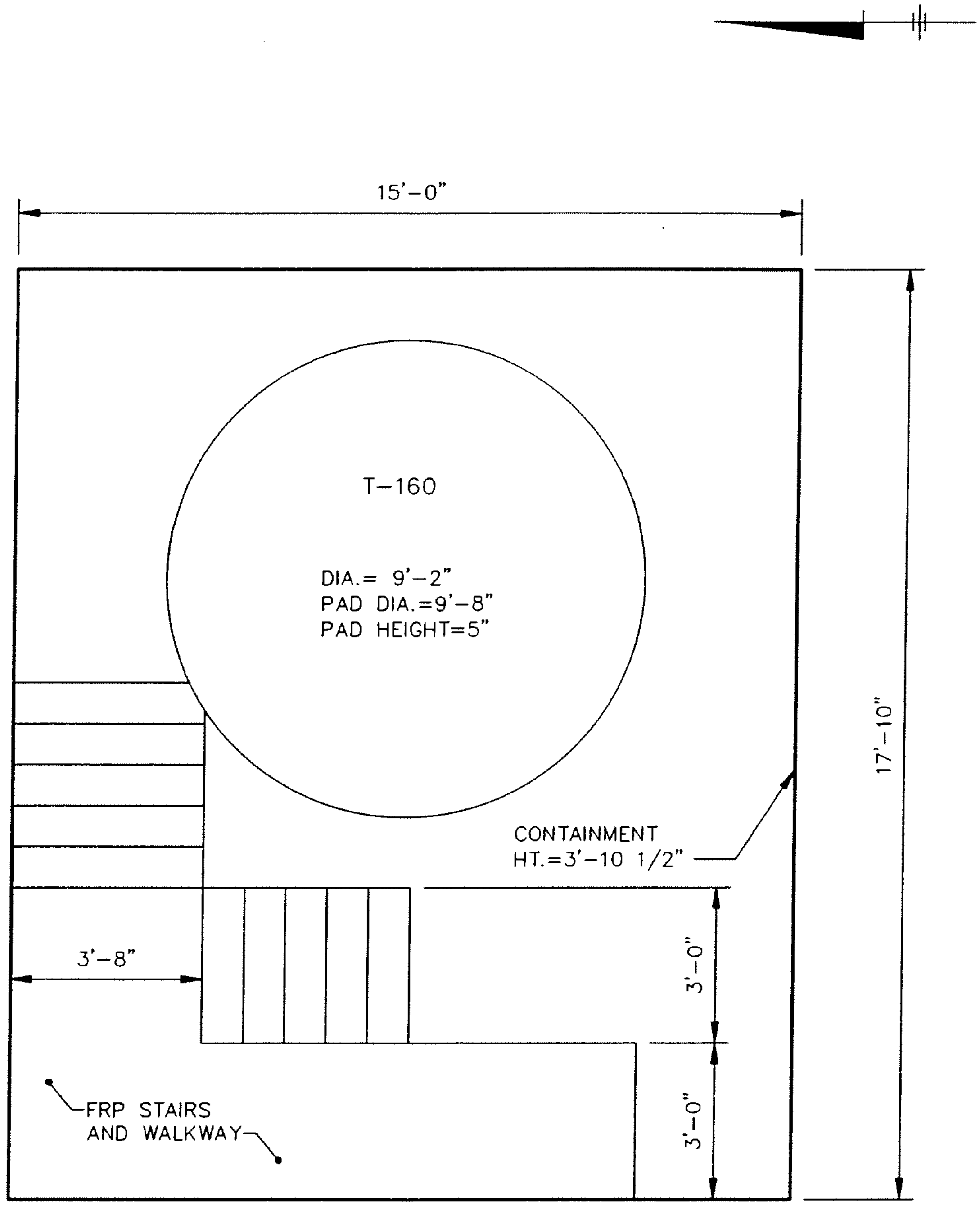
350,000 gallons + 42,765.0 gallons = 392,765.0 gallons

CONCLUSIONS:

vailable volume exceeds required volume; therefore, containment volume is acceptable.
Calculations are based on eliminating the tank's interconnections.

FIGURE D-30

TANK T-160



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-160

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

FIGURE **D-30**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-HSB DJP SDL ROC-54-SLM
05052080/05052G04.DWG

CALCULATION SHEET

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

PROJECT NO.: 05052.030

CLIENT: CWM	PROJECT: Permit Renewal	Prepared By: PJC Date: 02/15/2001
S' 'CT: Secondary Containment Calculations		Reviewed By: CBT Date: 02/19/2001

TANK T-160

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

15.0′ x 17.8′ x 3.9′ = 1,041.3 CF

Subtractions:

Note:
Additional volume displacements such as steel tank supports, FRP stairway, piping and pumps will only account for a very small volume and will not be included in the net containment volume.

Tank Foundation:

$\pi \times 4.9'^2 \times 0.4' = 30.2$ CF

Total Available Volume:

1,041.3 CF - 30.2 CF = 1,011.1 CF = 1,011.1 CF x 7.48 gal/CF = 7,563.0 gallons

Required Volume:

Volume of Largest Tank:

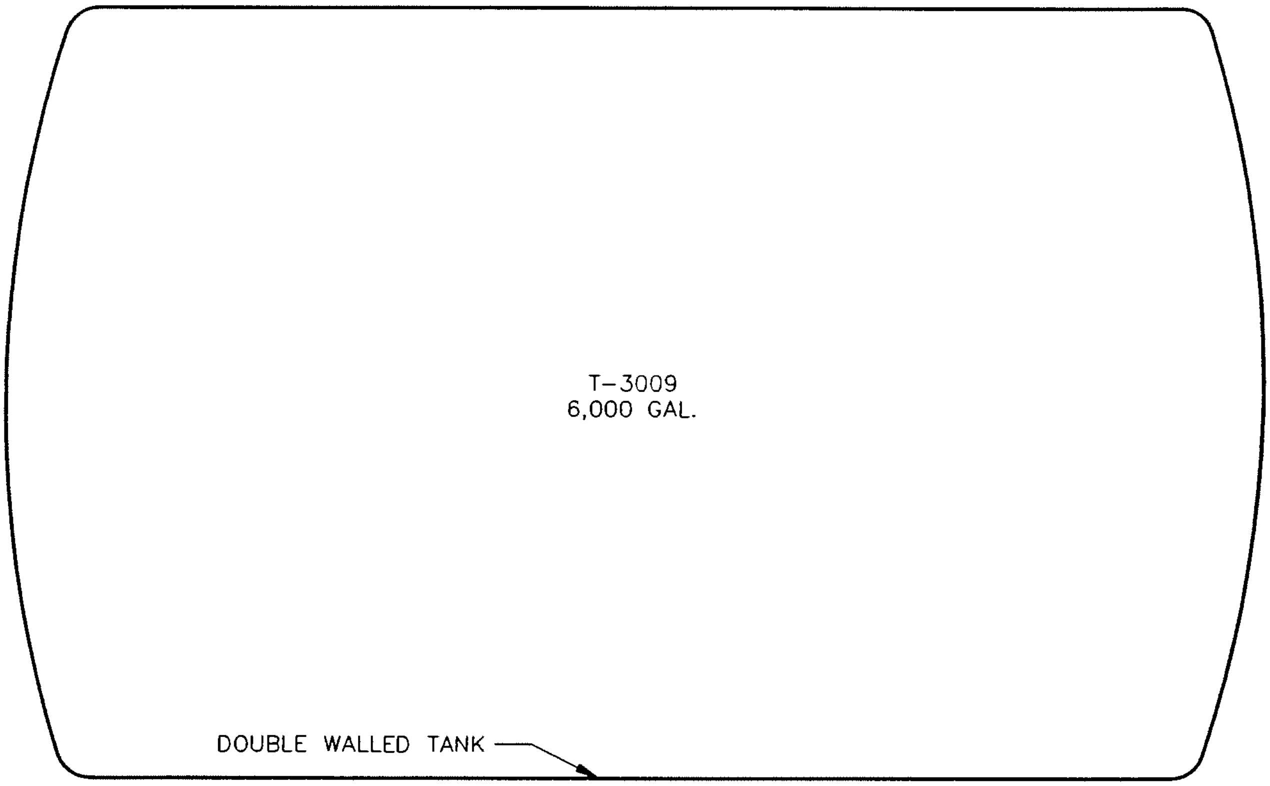
Tank T-160 = 3,000 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-31

TANK T-3009



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-3009

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

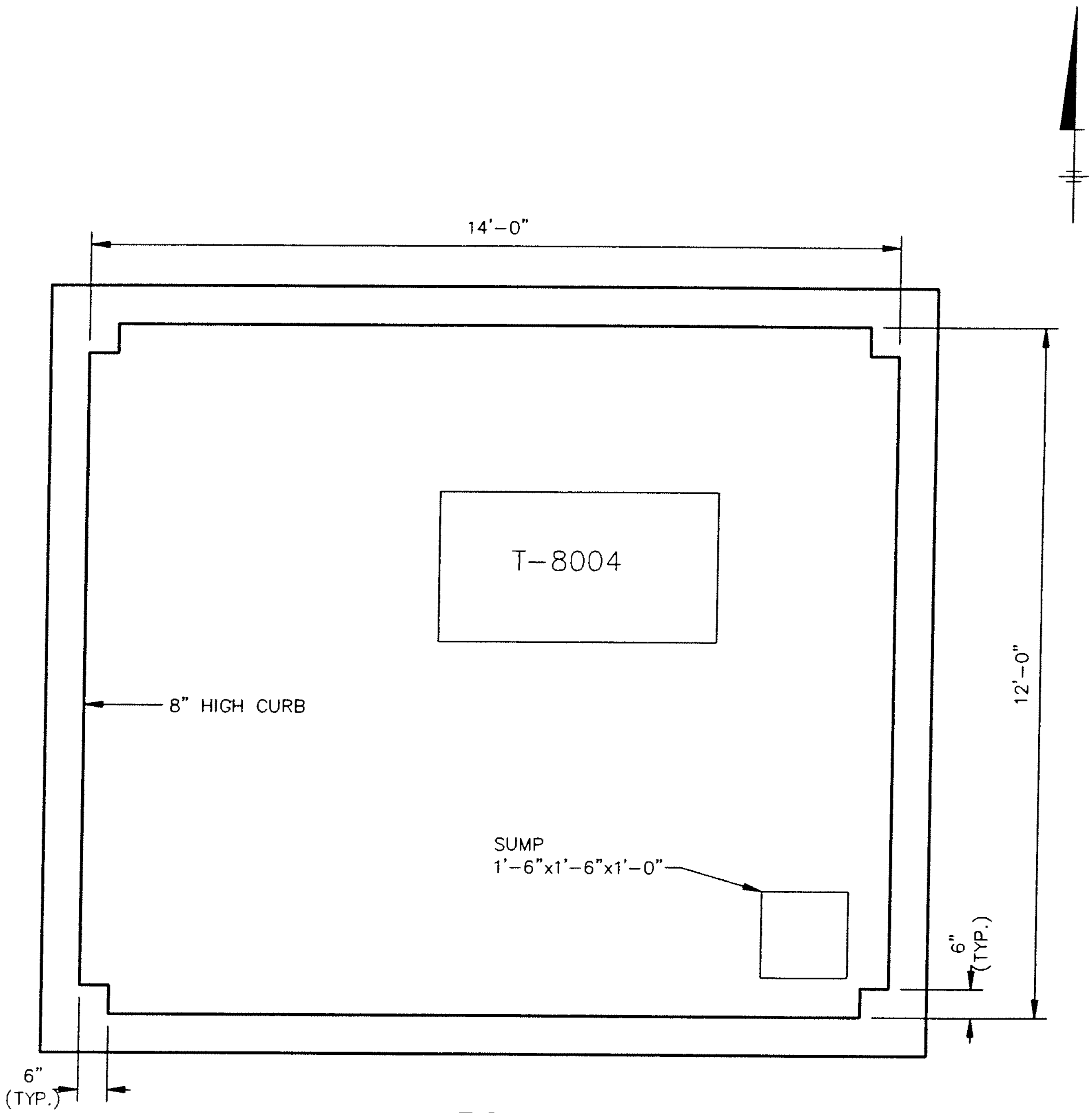
FIGURE D-31

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
4/2/01 SYR-54-DJP SDL ROC-54-SLM
05052080/05052G28.DWG

DOUBLE WALLED ABOVEGROUND STORAGE TANK.

FIGURE D-32

TANK T-8004



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-8004

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

FIGURE **D-32**

X: 05052X00
L: ON=*, OFF=*REF*
P: STD-PCP/AP
3/14/01 SYR-54-HSB DJP ROC-54-SLM
05052080/05052G08.DWG

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

CALCULATION SHEET

PROJECT NO.: 05052.030

CLIENT: CWM PROJECT: Permit Renewal Prepared By: PJC Date: 02/15/2001
JECT: Secondary Containment Calculations Reviewed By: CBT Date: 02/19/2001

TANK T-8004

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

14.0′ x 12.0′ x 0.7′ = 117.6 CF

Sumps:

1.5′ x 1.5′ x 1.0′ = 2.3 CF

Subtractions:

e:
ditional volume displacements such as tank supports, piping, pumps and carbon cans will only account for a very small volume and will not be included in the net containment volume.

Corner Columns (4):

4(0.5' x 0.5' x 0.7') = 0.7 CF

Total Available Volume:

117.6 CF + 2.3 CF – 0.7 CF = 119.2 CF = (119.2 CF x 7.48 gal/CF) = 891.6 gallons

Required Volume:

Volume of Largest Tank:

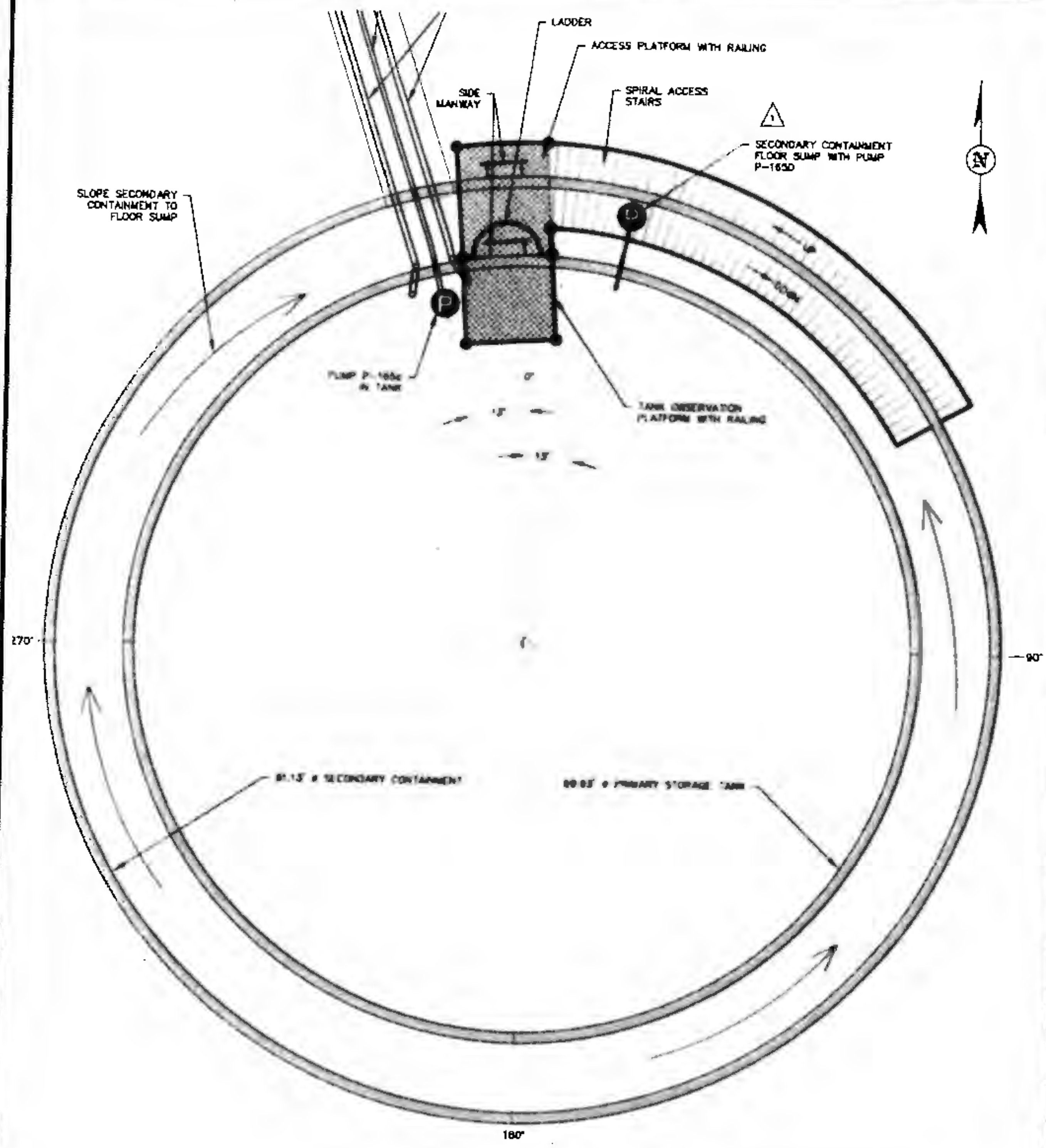
Tank T-8004 = 550 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-33

TANK T-165



PLAN

NOT TO SCALE

CWM CHEMICAL SERVICES, LLC
MODEL CITY, NEW YORK
6NYCRR PART 373 PERMIT APPLICATION

TANK T-165

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FIGURE
D-33

Modified: 06/10

CALCULATION SHEET

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 09-7024

CLIENT: CWM Chem. Svcs. PROJECT: Tank T-165 Design Assessment Prepared By: AMW Date: 5/20/2010
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 5/20/2010

TANK T-165

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Gross Available Volume:

Containment Area:
$\pi \times (40.565')^2 \times 24' = 124{,}069.23$ CF

Subtractions:

Primary Tank Concrete Footer:
$\pi \times (35.59')^2 \times 0.5' = 1{,}989.65$ CF

Note:
Additional minor volume displacements such as steel tank supports, stairway, floor sump, and piping will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

124,069.23 CF - 1,989.65 CF = 122,079.58 CF = (122,079.58 CF x 7.48 gal/CF) = **913,155.26 gallons**

Required Volume:

Volume of Tank T-165:

$\pi \times (34.97')^2 \times 30.51' = 117{,}215.04$ CF = 117,215.04 CF x 7.48 gal/CF = 876,768.51 gallons

25 Year, 24 Hour Precipitation Event:
$\pi \times (40.565')^2 \times 0.33' = 1705.95$ CF = 1705.95 CF x 7.48 gal/CF = 12,760.52 gallons
0.33 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

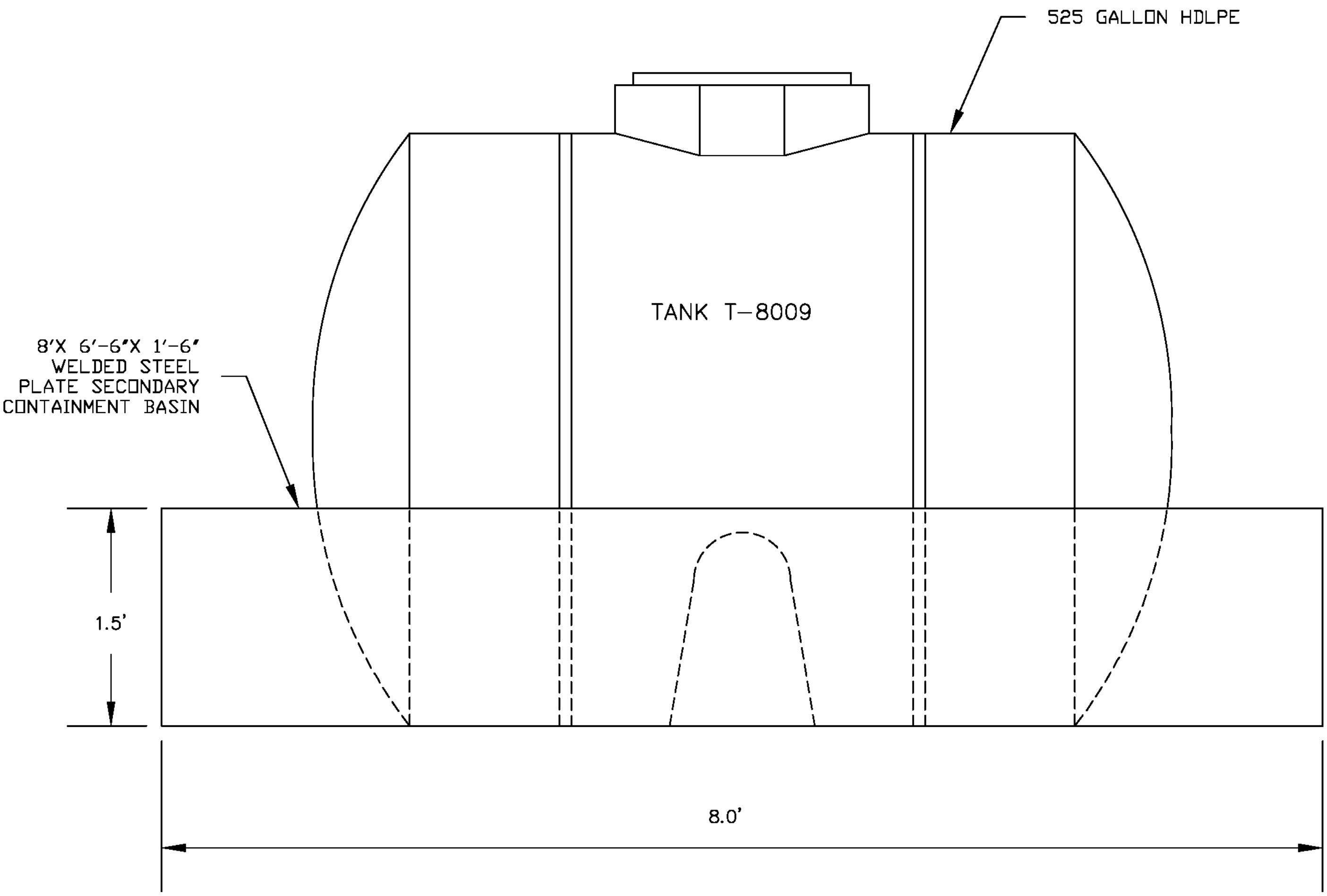
Required Volume:
876,768.51 gallons + 12,760.52 gallons = **889,529.03 gallons**

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-34

TANK T-8009



ELEVATION

NOT TO SCALE

PROCESS AREA IV TANK T-8009

6NYCRR PART 373 PERMIT

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FIGURE D-34

3/30/2012

PN: 12-7009

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 12-7009

CLIENT: CWM Chemical Services PROJECT: Site wide Permit Prepared By: CAC Date: 3/30/2012
SUBJECT: Secondary Containment Calculations Reviewed By: BDS Date: 3/30/2012

PROCESS AREA IV TANK T-8009

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

8.0′ x 6.5′ x 1.5′ = 78 CF

Subtractions:

Note:
Additional minor volume displacements such as tank supports, FRP grating, piping etc., will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

78 CF x 7.48 gal/CF = 583 gallons

Required Volume:

Volume of Largest Tank:

Tank T-8009 = 525 gallons

Net Difference

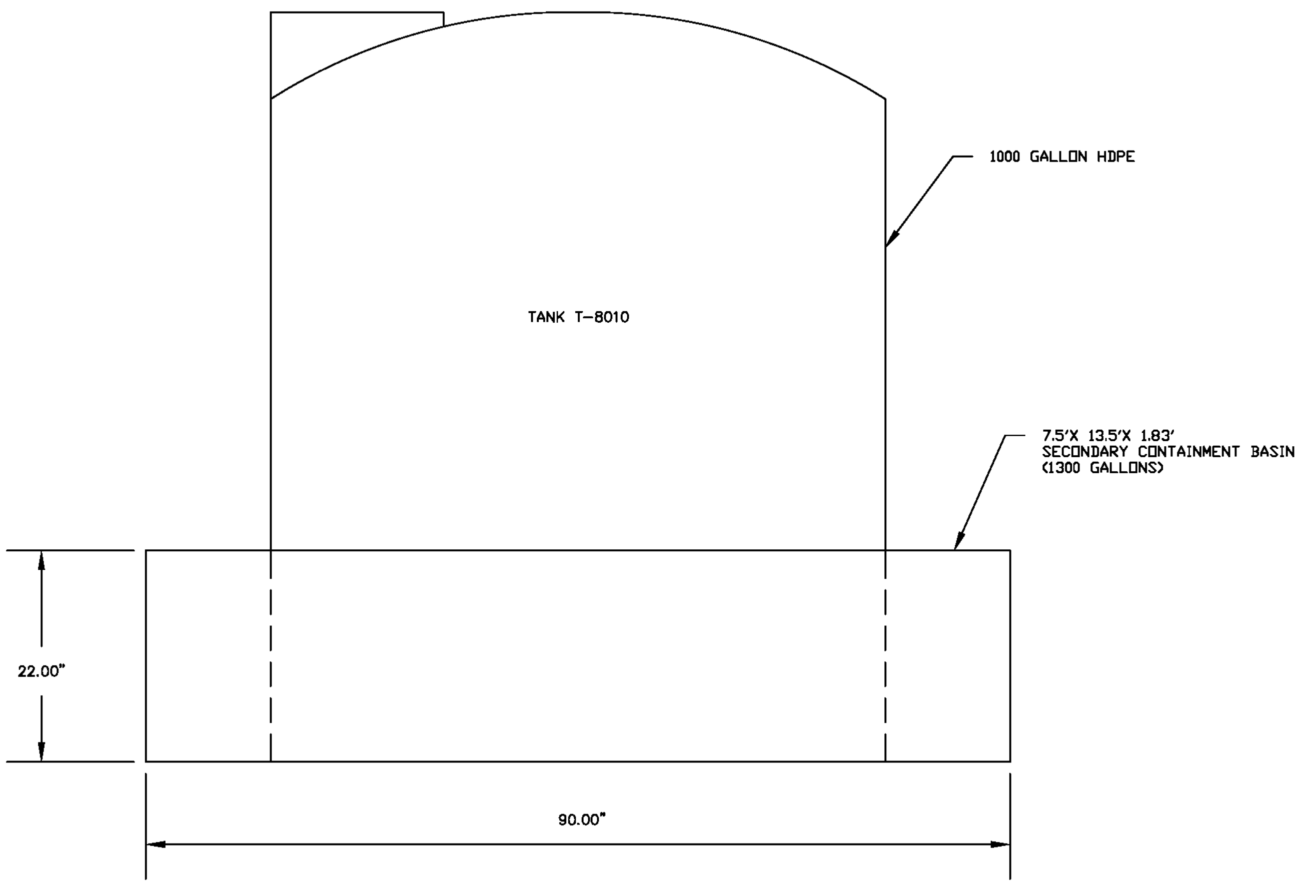
Tank T-8009 = 525 gallons
Secondary Containment = 583 gallons
Difference = +58 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

FIGURE D-35

TANK T-8010



ELEVATION
NOT TO SCALE

PROCESS AREA III TANK T-8010
6NYCRR PART 373 PERMIT

CWM CHEMICAL SERVICES LLC
TOWN OF PORTER, STATE OF NEW YORK

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PHONE (716) 285-3920
FAX (716) 285-3928

FIGURE D-35

3/30/2012 PN: 12-7009

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 12-7009

CLIENT: CWM Chemical Services PROJECT: Site wide Permit **Prepared By: CAC Date: 3/30/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS Date: 3/30/2012**

PROCESS AREA III TANK T-8010

TASK:

Calculate the total volume within the secondary containment area.

CALCULATIONS:

Available Volume:

Containment Area:

7.5′ x 13.5′ x 1.8′ = 182.2 CF

Subtractions:

-8.45 CF for baffles within the secondary containment structure.

Note:
Additional minor volume displacements such as tank supports, FRP grating, piping etc., will only account for a very small volume and will not be included in the net containment volume.

Total Available Volume:

173.8 CF x 7.48 gal/CF = 1300 gallons

Required Volume:

Volume of Largest Tank:

Tank T-8010 = 1000 gallons

Net Difference

Tank T-8010 = 1000 gallons
Secondary Containment = 1300 gallons
Difference = +300 gallons

CONCLUSIONS:

Available volume exceeds required volume; therefore, containment volume is acceptable.

ATTACHMENT E

Corrective Action Requirements

ATTACHMENT E - CORRECTIVE ACTION REQUIREMENTS

SWMU Group Status Summary:

Group A:

Units: SLF 1, SLF 2, SLF 3, SLF 4, SLF 5, SLF 6, Drainage Swale, Town of Lewiston Salts Area, Drum Storage West of SLF 1

GROUP A INVESTIGATION STATUS

SLF 1 - 6 Area: The RCRA Facility Investigation (RFI) of secure landfills SLF 1-6 consisted of an evaluation of landfill leachate and groundwater monitoring data from wells in the vicinity of these units. Historical groundwater monitoring results have indicated the presence of Volatile Organic Compounds (VOCs) at concentrations above statistical trigger levels in monitoring wells W202S, W301S, W302S, W401S, and W501S. Subsequent investigations of these wells included: sampling the wells in question for USEPA Appendix IX parameters, comparing of chemical data from landfill leachate to groundwater results to identify a potential source, and a soil boring program to determine the extent and possible source of contamination.

The nature and distribution of contamination in the vicinity of wells W202S, W301S and W401S is such that CWM was not able to determine a specific source of the contamination. Possible sources include surface spills, past site practices in the area, the East-West Salts Area, SLF 3 and/or SLF 4. Remediation of the groundwater contamination detected in these wells was evaluated as part of the Corrective Measures Study (CMS) for the facility. An alternative statistical evaluation criteria along with a quarterly monitoring schedule has been implemented to keep track of the magnitude and extent of contamination in the vicinity of these wells. The data evaluation procedures are included in Exhibit F in Schedule 1 of Module I of this permit. Groundwater monitoring data from the wells indicate contamination levels have stabilized and are trending lower.

The nature and distribution of contamination in the vicinity of well W501S suggests that the source of VOCs in W501S appears to be related to surface spills or possibly past activities associated with a former Air Force Burn Pit. Remediation of the groundwater contamination detected in this well was evaluated as part of the Corrective Measures Study (CMS) for the facility. An alternative statistical evaluation criteria along with a quarterly monitoring schedule has been implemented to keep track of the magnitude and extent of contamination in the vicinity of this well. Contamination has not been detected in well W501S since 1994. The data evaluation procedures are included in Exhibit F in Schedule 1 of Module I of this permit.

During the investigation of well W302S an additional area of contamination was found in the vicinity of boring MW3-2-1W. Follow-up investigation of this area consisted of the collection of soil and groundwater samples. It appears that a past external leachate collection sump is the source of the contamination in W302S and in the area south of SLF 3. Data collected from the various investigations south of SLF 3 were used to prepare a interim remedial design for the area. This design included the installation of two extraction wells in the area to remove groundwater containing organic contaminants in the Upper Tills. Upon DEC and EPA approval, the two extraction wells (EW06 & EW07) were installed south of SLF 3 in November 1990. The extraction well (interim corrective measures) system has been in operation since July 1991. The ICM system has a performance monitoring program in place to evaluate the systems effectiveness in capturing and containing groundwater contamination. The Interim corrective measures system was evaluated under the CMS and determined it is suitable as part of the long term corrective measures program needed for the facility. Seasonal (April 1 – December 1) operation of the installed corrective measures system, in accordance with the approved Groundwater Extraction Systems Operations and Maintenance Manual and Groundwater Sampling and Analysis Plan, shall constitute the final corrective measure.

Swale: The RFI for the Swale consisted of six (6) soil borings (DA41-1 through DA41-6). Four of the borings were sampled for Volatile Organic Analysis, Priority Pollutant Metals, and PCBs. Two soil borings were sampled for the full suite of priority pollutants. In addition, samples from each boring were collected and analyzed using a field GC during the investigation. Analytical results of the samples indicate that metals concentrations are within the expected background range. In addition, Methylene Chloride was present at levels below 5 parts per billion in all borings, and total PCBs were present at a concentration of 2.38 parts per million (PPM) in sample DA41-3-2 (boring DA41-3). Remedial programs to address the contamination were evaluated as part of the **Site-Wide** CMS. The Department has determined that no further action is necessary.

Town of Lewiston Salts Area: The RFI for this Area consisted of eight (8) soil borings (DA42-1 through DA41-8). Six of the borings were sampled for Volatile Organic compounds, Priority Pollutant Metals, and PCBs. Two soil borings were sampled for the full suite of priority pollutants. In addition, samples from each boring were collected and analyzed using a field GC during the investigation. Analytical results of the samples indicate that metals concentrations are within the expected background range. In addition, Methylene Chloride was present at levels below 12 parts per billion (ppb) in all borings, and total PCBs were present at a concentration of 9 ppb in sample DA42-4-1B (boring DA42-4). Based upon CWM's investigation of the Town of Lewiston Salts Area the Department has determined that a significant release to the environment has not occurred and that remedial measures are not needed for the unit.

Drum Storage Area West of SLF-1: The initial RFI of the Drum Storage Area West of SLF-1 was composed of sampling four (4) soil borings (DA6-1 through DA6-4) for priority pollutant analysis. A field GC was used to perform headspace analysis of soil samples in the field. Laboratory analyses of the four soil samples indicate the presence of several organic compounds in each sample. Based on these results, a Phase II investigation consisting of analyses of nine (9) soil borings (DSW-1 through DSW-9) and groundwater samples was performed. The Phase II investigation results indicate:

- PCBs at levels greater the 10 ppm in borings DSW-2, DSW-3, DSW-4 and DA6-2.

- The presence of organic compounds in borings DSW-5, DSW-7, DSW-8, and Phase I borings DA6-3 and DA6-4.

As a result of the investigation, CWM has concluded that:

- The presence of organic contaminants is limited to the first few feet of the Upper Clay Till.

- The areal extent of VOCs in the soils appears to be limited to the southern portion of the Drum Storage Area West of SLF-1.

- The source of the contamination is suspected to be the result of past spills or drum leakage along the roadway.

Remedial measures to address the contamination detected in this area was evaluated as part of the Corrective Measures Study (CMS) for the facility. The Department has determined that Natural Attenuation will serve as the final remedy for this area.

References

CWM Chemical Services Inc., February 1992, "Data Collection Program; Interim Measures Remedial Systems, CWM Chemical Services Inc., Model City New York."

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., April 1989a, "Interim Report, MW-3-1S, MW3-2S, and MW4-1S Investigation, Model City TSD Facility, Model City, New York."

Golder Associates Inc., April 1989b (Vol. I) and December 1989 (Vol. II), "Interim Report on East Salts Area, West Salts Area, TMW-1S Investigation, Model City TSD Facility, Model City, New York," Volumes I and II.

Golder Associates Inc., September 1989a, "Well MW5-1S Investigation, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., January 1990a, "Conceptual Interim Remedial Design Area Adjacent to Well MW3-2S, Model City TSDR Facility."

Golder Associates Inc., April 1990a, "Detailed Design of Interim Measures, West Drum Area, Lagoons Area and South of SLF 3, Model City, New York," Volumes I and II.
Golder Associates Inc., June 1990b, "Landfills SLF 1 through 6, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., January 1991a, "Interim Report on the Site Areas Investigation, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., October 1991, "Letter Report on Background Trace Metal Evaluations."

Golder Associates Inc., February 1992, "Drum Storage Area West of SLF 1 Phase II Investigation, Model City, New York."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

<u>Group B</u>:

Units: SLF 7, SLF 11, Drum Area I, North Drum Area, Drum Storage Along H Street and MacArthur Street

GROUP B INVESTIGATION STATUS

<u>SLF 7:</u> The RCRA Facility Investigation (RFI) of Secure Landfill 7 consisted of an evaluation of landfill leachate and groundwater monitoring data from wells in the vicinity of this unit. In addition, the groundwater investigation program included an evaluation of VOCs detected in well W703S. The investigation program for well W703S consisted of sampling for USEPA Appendix IX parameters, a geophysical survey and soil borings with soil headspace analyses.

Evaluation of the results of the RFI indicate that source(s) of VOCs detected in well W703S adjacent to SLF 7 were linked to past government use of the property. CWM has concluded that the Olin Burn Area (see Group I) is the probable source of the VOCs detected in well W703S. Alternative statistics have been developed for W703S to allow for its continued use in the detection monitoring network for SLF 7. Groundwater monitoring results indicate contaminant concentration reduction of an order of magnitude, from 500 ppb to approximately 50 ppb. The data evaluation procedures for this well are included in Exhibit F in Schedule 1 of Module I of this permit.

Subsequent to the RFI, well W705S failed the statistical evaluation procedures for 1,1,1-Trichloroethane and a total VOC concentration of 25 ppb. CWM has performed a NYSDEC approved investigation and has determined that the contamination is not related to releases from the landfill. The Department has approved an alternative statistical evaluation procedure for well W705S. Remedial measures to address the groundwater contamination detected in the monitoring wells in the vicinity of SLF 7 was evaluated as part of the Corrective Measures Study (CMS). The Department has determined that Natural Attenuation will serve as the final remedy for this area.

<u>SLF 11 and Drum Area I:</u> The RFI for SLF 11 and Drum Area I include an evaluation of landfill leachate and groundwater monitoring data from wells in the vicinity of the units. The evaluation included the investigation of four monitoring wells (W1103S, W1104S, W1105S and W1106S) which contained statistically significant concentrations of VOCs. The source of the VOCs in these wells is presumed to be a result of past drum storage along the roadways (see following summary of Drum Storage Along "H" Street and Mac Arthur Street investigation). Alternative statistical procedures for these wells have been developed for the continued use of these wells for detection monitoring of SLF 11. Remedial measures to address the groundwater contamination detected in the monitoring wells in the vicinity of SLF 11 was evaluated as part of the Corrective Measures Study (CMS). The Department has determined that Natural Attenuation will serve as the final remedy for this area. Groundwater monitoring results indicate contaminant concentration reduction of an order of magnitude, from approximately 150 ppb to approximately 15 ppb. The data evaluation procedures for this well are included in Exhibit F in Schedule 1 of Module I of this permit.

<u>North Drum Area:</u> The North Drum Area investigation included two soil borings which were sampled and analyzed for VOCs in the field using a field gas chromatograph (GC). One sample from each boring was also sent to an analytical laboratory for priority pollutant analysis. Results of these analyses did not indicate the presence of any constituents at concentrations requiring further action.

<u>Drum Storage Along "H" Street and Mac Arthur Street:</u> Investigations performed to evaluate the impacts of known past drum storage along H street and McArthur street include the well Z03 assessment, soil sampling along H street and McArthur street (associated with assessments of wells W1103S, W1104S, W1105S, W1106S), the well W1103 confirmation study and Drum storage - McArthur street between Main street and J street investigation. The conclusions of the first two investigations were that VOCs are present in soils and groundwater in random, localized zones as a result of leakages from drums or tank trucks which were stored along the roadways. Alternative statistics were developed for wells P701S, P703S, W1103S, W1104S, W1105S, W1106S for their continued use as monitoring wells.

Continued monitoring well W1103S indicated VOCs at concentrations which exceeded the alternative statistics developed for this well. To evaluate if the source of increased VOCs in well

W1103S was due to past drum storage, a confirmation study was performed. The confirmation study consisted of analysis of a groundwater sample from W1103S for Appendix 33 constituents: replacement of four downgradient shallow trench wells with bored wells (GZR01S through GZR04S) of similar design to the 373-2 monitoring wells; and subsequent analysis of samples from the four replacement wells. Results of the Appendix 33 analyses on the sample from W1103S did not indicate additional constituents to those previously detected and attributed to past drum storage. Analyses of samples from the replacement wells did not indicate the presence of VOCs. The study confirmed that the VOCs detected were due to past drum storage and that the downgradient extent of the VOCs is limited. The Department has determined that Natural Attenuation will serve as the final remedy for this area.

An additional investigation was conducted to evaluate whether past drum storage along the roadway may have impacted the environment along McArthur street between Main street and J street. This investigation consisted of eight soil borings (MR-1 through MR-8) which were continuously sampled through the Upper Till units and into the underlying Glaciolacustrine Clay. All soil samples were analyzed for select VOCs with a field GC. One soil sample, from boring MR-6, was sent to an analytical laboratory for volatile organic analysis. Results of the investigation did not indicate the presence of VOCs along this portion of McArthur street.

References

CWM Chemical Services Inc., January 1990, "SLF 11 Confirmation Study"

CWM Chemical Services Inc., April 1992, "Monitoring Well W705S" Letter Report.

Golder Associates Inc., April 1988b, "Well MW7-3S Investigation, Model City TSD Facility, Model City, New York."

Golder Associates Inc., February 1989 and Revised Figures, May 1989, "Aerial Photographic Interpretation Report, Model City TSD Facility, Model City, New York."

Golder Associates Inc., June 1989, "SLF 7 Interim Report, Model City TSD Facility, Model City, New York."

Golder Associates Inc., September 1989b, "Interim Report on SLF 11, Drum Area I, and Drum Storage Along H Street and McArthur Street, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., January 1990b, "Investigation of McArthur Street Between Main Street and J Street, Model City TSD Facility, Model City, New York."

Fred C. Hart Associates, Inc., April 1986, "H Street Soil Sampling Program, SCA Chemical Services, Inc., Model City, New York."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units.

<u>Group C</u>:

Units: Lagoon 1, Lagoon 2, Lagoon 5, Lagoon 6, Lagoon 7, North Salts Area, West Drum Area, Area West of West Drum Area

GROUP C INVESTIGATION SUMMARY

<u>Lagoons 1, 2, 5, 6 AND 7:</u> VOCs were detected in groundwater samples from several wells around the Lagoons (TW05S, TW08S, TW09S and TW10S). The source of these VOCs is suspected to be the Lagoons. As a result of these detections, investigations were conducted under the DEC investigation program. The investigation included Appendix 33 groundwater sampling of three wells monitoring the lower Glaciolacustrine Silt/Sand unit (TW09D, TW10D, and TW30D) and field/laboratory analyses of twenty two soil borings.

Based on the results of the investigations, the Department required CWM to develop Interim Corrective Measures (ICM) for the removal and treatment of contaminated groundwater around the lagoons. Further investigations North and West of the Lagoons were implemented to delineate the extent of the areas where interim measures were needed. This program included borings LS-18 through LS-41. In November 1990, five groundwater extraction wells North of the Lagoons and one hundred eighty feet (180') of groundwater collection trench West of Lagoon 6 were installed. Start-up of the ICM system was initiated in June 1991. The ICM system was expanded in 1998. CWM has a performance monitoring program in place to evaluate the systems effectiveness in capturing and containing the groundwater contamination.. The Interim corrective measures system was evaluated under the CMS to determine its applicability as part of the final corrective measures for the facility.

A SWMU specific CMS was conducted to evaluate remediation of Lagoons 1,2,5,6 & 7 and the East/West and North Salts Areas. The SWMU-Specific CMS (RE&I, May 1995), which evaluated remedial alternatives for sludges/sediments contained in eight (8) surface impoundments (Lagoons and Salts Areas) was submitted to the Department in May 1995. The Lagoons and Salts Areas consist of the following surface impoundments:

- Lagoons 1, 2 and 5; and
- East Salts, West Salts, North Salts, and Lagoon 6 and 7 Salts Areas

CWM subsequently conducted an additional evaluation of alternative corrective measures through the use of a team of recognized experts from academia and consulting firms, referred to herein as the Peer Review Panel. The Peer Review Panel conducted an independent review and assessment of the corrective measures being considered for the facility and provided the Permittee with their recommendations for a comprehensive approach to closure and corrective measures at the central area of the facility. The Peer Review Panel Report was submitted to the Department in April 1996.

A Draft Addendum to the Site-Wide and SWMU-Specific CMS (Golder, July 1996) (Draft Addendum) was submitted to the Department on July 2, 1996. It presented revised proposed corrective measures alternatives for the Lagoons and Salts Areas based on the recommendations of the Peer Review Panel. The proposed measures included installation of a groundwater collection system downgradient of the Lagoons and in-situ stabilization of the waste material in the Salts and Lagoons. The Draft Addendum also included an update on progress made related to the Site-Wide CMS and addressed proposed resolutions to outstanding issues related to the Site-Wide CMS.

Although the Department and CWM were in general agreement with the nature and the scope of the remedies proposed in the Corrective Measures Studies, the Department had some differences of opinion with the CWM over certain aspects of the Corrective Measures Program. The most important issues requiring resolution were the acceptability of the pulsed-pumping strategy the Permittee proposed for groundwater remediation, and the acceptability of the in-situ stabilization process which was proposed for remediation/closure of the Salts and Lagoons. Based on the groundwater modeling which the Permittee performed, and on the performance monitoring results from the Interim Corrective Measures groundwater collection systems, the Department has determined that pulsed pumping is acceptable for containment and cleanup of the site groundwater.

The AUpdate to Corrective Action Program, CWM Chemical Services, LLC., Model City, New York Facility,@ April 1999, summarizes the correspondence between the Department and the Permittee regarding the Corrective Measures process at the facility.

In order to evaluate the CWM=s proposed approach for remediation/closure of the Salts and Lagoons, the Department required CWM to implement a field-scale demonstration of the in-situ stabilization technology. In April 2000, the Permittee submitted the ALagoon 5 Field Demonstration Phase Report, Lagoons 1, 2 and 5 Corrective Measures.@ That report describes the activities completed during the demonstration phase, and the achievement of all performance criteria which the Department has established for a successful demonstration of the technology. Upon issuance of the Final Statement of Basis (NYSDEC, 2001), approximately 200,000 cu. yds. of materials were treated and capped in place. Operation and maintenance of the containment and groundwater remedial system are addressed as part of the approved Groundwater Extraction Systems Operations and Maintenance Manual and Groundwater Sampling and Analysis Plan.

<u>North Salts Area:</u> The RFI of the North Salts Area was performed by evaluating all the North Salts Area groundwater monitoring data and sludge samples taken from the salts impoundment. The salts samples contained VOCs in high (> 500 ppb) concentrations. Groundwater data from wells around the unit show no indications of releases of VOC's from the impoundment. Final Measures will include in-situ treatment of the lagoon sludges and soils.

Drum Area II (West Drum Area): Initial clean-up of this area involved the removal of approximately 10,000 cubic yards of contaminated surface soils. Further excavation to remove contaminated soil to a depth ranging from 5 to 20 feet, was performed in 1986 and the area was certified as closed. Thereafter, monitoring wells (TW16s, TW17S and TW18S) were installed to evaluate the impacts of the unit on groundwater. High concentrations of several organic compounds were detected in samples from wells TW16S and TW17S. In addition, the potential presence of DNAPLs was observed during the initial sampling program.

CWM was required to perform an RFI to determine the nature and extent of the organic compounds in the vicinity of the units. Based on the results of the investigation, CWM was required to develop Interim Corrective Measures (ICM) for the containment, removal and treatment of contaminated groundwater in the vicinity of the West Drum Area. Additional investigations were performed to delineate the extent of the areas where interim measures were needed. That program included borings WDGW1 through WDGW20.

In the fall of 1990, seven hundred and fifteen feet of collection trench was constructed along the western and northern boundaries of the area. Start-up of the ICM system was initiated in June 1991. The ICM system has a performance monitoring program in place to evaluate the systems effectiveness in capturing and containing groundwater contamination. The Interim corrective measures system was evaluated under the CMS to determine its applicability as part of the Final Corrective Measures for the facility. The department has determined that the ICMs shall continue as the final remedy for this area.

Area West Of Drum Area II: The RFI for the Area West of Drum Area II consisted of two soil borings, DA2-1 and DA2-2. Two organic compounds, PCB-1260 and PCB-1242, were detected in soils in this area. The concentrations of PCB,s are below CWM's investigative action level of 10 ppm, but further evaluation of the PCB contamination was required as part of the corrective measures study. No further actions are required at this area.

References

CWM Chemical Services Inc., February 1992, "Data Collection Program; Interim Measures Remedial Systems, CWM Chemical Services Inc., Model City New York."

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., November 1988, "Investigations North and West of the West Drum Area, Model City TSD Facility, Model City, New York."

Golder Associates Inc., February 1989 and Revised Figures, May 1989, "Aerial Photographic Interpretation Report, Model City TSD Facility, Model City, New York."

Golder Associates Inc., March 1989a, "Interim Report on Lagoons and Salts Area 7 Investigation, Model City TSD Facility, Model City, New York," Volumes I and II.

Golder Associates Inc., May 1989, "Delineation of Area for Interim Remedial Measures, Former West Drum Area."
Golder Associates Inc. July 1989, "Delineation of Area for Interim Remedial Measures, Lagoon Areas."

Golder Associates Inc., August 1989 (Volume I and II) and October 1989 (Vol. III), "Report on Conceptual Remedial Design, West Drum and Lagoon Areas, Model City TSDR Facility," Volumes I through III.

Golder Associates Inc., April 1990a, "Detailed Design of Interim Measures, West Drum Area, Lagoons Area and South of SLF 3, Model City, New York," Volumes I and II.

Golder Associates Inc., May 1990, "Interim Report on North Salts Area, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., August 1991, "As-Built Documentation and Construction Certification Interim Remedial Systems, " Volume I, Calocerinos and Spina Engineers, P.C., Volume II.

Fred C. Hart Associates, Inc., December 1986, "Closure Report and Certification, West Drum Area, SCA Chemical Services, Inc., Model City, New York,"

Northeast Research Institute Inc., March 1989, "Results on the Findings of the Petrex Soil Gas Survey Conducted at the Model City Landfill in New York for Golder Associates."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

<u>Group D</u>:

Units: Lagoon 3, Lagoon 4, Drum Storage Area east of Lagoon 2, Trailer Parking Area

GROUP D INVESTIGATION SUMMARY

The Trailer Parking Area is the only unit which is still in operation, the other units were closed by 1980.

The initial RFI evaluation of Group D consisted of 11 shallow soil borings (DA24-1 through DA24-10 and DA24-1A) from which soil samples were collected and analyzed in the field using field gas chromatographs. Additionally, ten (10) soil samples, representing the first undisturbed soil layer encountered in each boring, were sent to an analytical lab for priority pollutant analysis. Review of the field and analytical data indicated the presence of organic compounds at five locations (DA24-1, DA24-3, DA24-5, DA24-6 and DA24-8). Based on the results of the initial investigation of the Group D Area, a further investigation was required to evaluate the areal and vertical extent of the contamination. The Phase II investigation consisted of six (6) additional borings (GDA-1 through GDA-6) from which soil and groundwater samples were collected and analyzed using the field GC. In addition, one soil sample was collected and sent to an analytical lab for priority pollutant organics analysis. Review of the Phase II investigation field and analytical results indicated the presence of organic contaminants in five of six borings.

Based on the findings of the Phase I and Phase II investigations of Group D Area, the following general conclusions were made:

- Borings completed at the north, south, east and west boundaries of the Group D area that yielded soil, groundwater or both, having minor or no reported detection of organic compounds;

- The vertical extent of organic compounds in the subsurface of the Group D Area has been defined. All Phase II borings were terminated in the Glaciolacustrine clay. Organic compounds were not reported in samples collected from this unit. Detections of organic compounds were confined to the fill or Upper Tills unit;

- The localized nature of the impacted areas suggest potential sources such as surface spills from past waste handling practices or residual organic compounds related to the lagoons which formerly occupied the area.

An additional monitoring well (GDA01S) was installed downgradient of Group D to confirm that natural attenuation is an appropriate final remedy for this area.

The Department is aware of the presence of inactive TNT process lines associated with the former Department of Defense (DOD) usage of the Site. Past analyses of the contents of these lines reveal the presence of significant concentrations of hazardous constituents. The NYSDEC anticipates that the Department of Defense will assume responsibility for development and implementation of appropriate corrective measures to address the TNT lines.

References

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., January 1992b, "Group D Area: Lagoons 3 and 4, Trailer Parking and Empty Drum Storage Area, Model City TSDR Facility," Volumes I and II.

<u>Group E</u>:

Units: Facultative Pond 1, Facultative Pond 2, Facultative Pond 3, Facultative Pond 8, Facultative Pond 9, Fire Pond, Aggressive Biological Treatment Unit (A.B.T.U.) 58

GROUP E INVESTIGATION STATUS

<u>Fac Ponds 1,2,3,and 8</u>: The RFI for Fac. Ponds 1,2,3 and 8 consisted of an evaluation of existing groundwater monitoring data. Review of the historical data indicates that hazardous waste constituents have not been released from these impoundments to the groundwater. These units are subject to continued groundwater detection monitoring requirements as part of the 6 NYCRR Part 373~~-2~~ Site-Wide permit. Further evaluation of the possible impacts of these units will be addressed as part of a NYSDEC approved closure plan.

<u>Fac Pond 9</u>:Fac. Pond 9 was evaluated under the RFI in the same manner as Fac. Ponds 1,2,3 & 8. Review of the historical data indicated that this unit had not impacted the groundwater in its vicinity.

In 1991, CWM closed Fac. Pond 9 in accordance with an approved closure plan. The closure of this unit consisted of draining the impoundment followed by the collection of samples from 55 locations. Due to QA/QC problems with some of the analyses, the DEC requested additional sampling and analysis. Results of the additional sampling did not reveal the presence of organic or metallic compounds above trace levels. The DEC accepted CWM=s certification of the "Clean Closure" of FAC Pond 9 on August 7, 1992.

<u>Fire Pond</u>: The RFI for the Fire Pond consisted of an evaluation of existing groundwater monitoring data. Review of the historical data indicates that hazardous waste constituents have not been released from this impoundment to the groundwater.

In 1988, CWM initiated closure activities for the Fire Pond. Closure activities consisted of fluid removal, excavation of the top 6 inches of sediment inside the impoundment and the collection of samples. Results of the sampling did not reveal the presence of organic or metallic compounds above trace levels. The DEC accepted CWM=s certification of the "Clean Closure" of the Fire Pond in 1990.

<u>A.B.T.U. 58</u>: In August 1991, CWM informed the Department that well F5801S failed its statistical evaluation procedures. As required, an investigation consisting of Appendix 33 groundwater sampling and a review of existing soils investigation data was performed. The results of the investigation revealed the presence of Phenol in the soils at a concentration >1000 ppb. Based on those results, the Department required CWM to undertake an additional investigation to determine whether a release from A.B.T.U. 58 had occurred. The investigation included an inspection of the concrete floor of the impoundment and the evaluation of soil

borings at 4 locations. Soil and groundwater samples were obtained from each of the borings and analyzed by field GC. Additionally groundwater samples were obtained from the open boreholes and analyzed for phenol at an analytical laboratory. The only VOCs detected during the investigation were limited to boring F5801S-2. The contamination in the vicinity of A.B.T.U. 58 is believed to be related to former operations in the Process Area rather than to releases from the impoundment. Remedial measures to address the contamination were evaluated in the Corrective Measures Study. The groundwater monitoring and response program will continue at the active SWMUs.

References

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., March 1989b, "Interim Reports on ABTU 58 and the Fire Pond, Interim/Group E Report: FAC Ponds 1 and 2, FAC Pond 3, FAC Pond 8 and FAC Pond 9," Volumes I and II.

Golder Associates Inc., January 1991a, "Interim Report on the Site Areas Investigation, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., October 1991, "Letter Report on Background Trace Metal Evaluations."

Golder Associates Inc., June 1992a, "F5801S Well Investigation, Model City TSDR Facility, New York."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

Group F:

Units: Houghson Lagoon, Acid Pit, Oil Pit, Syms Tank Area, Syms Property Underground Tanks

GROUP F INVESTIGATION SUMMARY

Houghson Lagoon: The RFI for the Houghson Lagoon consisted of sampling the contents of the lagoon, both sludge and liquid, and installation and sampling of four soil borings and a groundwater monitoring well. All collected samples were analyzed by an analytical lab for priority pollutants. The sludge sampled from the Houghson lagoon did not indicate the presence of VOCs or PCBs. The sludge sample was reported to contain elevated concentrations of cadmium, chromium, copper, lead, nickel and zinc, and high concentrations of polynuclear aromatics. Three phenolic compounds were also reporter at elevated concentrations in the sludge sample. The water sample collected from the lagoon was reported to contain trace amounts of nickel, 1,2-dichloroethane an bis(2-ethylhexyl)phthalate. A groundwater sample collected from the monitoring well installed downgradient of the lagoon indicated relatively low concentrations of VOCs. Only one of the soil samples collected from north of the Houghson Lagoon indicated the presence of contaminants. That sample contained 1,2-dichloroethane at a relatively low concentration.

<u>Acid Pit (Acid Neutralization Lagoon)</u>: The RFI for the Acid Pit consisted of sampling the contents of the Lagoon, both sludge and liquid, and installing and sampling a groundwater monitoring well adjacent to the unit. The water sample collected from the lagoon was reported to contain only trace levels of nickel. The sludge samples were reported to contain elevated levels of PCBs (>10 ppm), VOCs (230 ppb), cadmium, chromium, copper and lead. Samples collected from the groundwater well installed downgradient of the lagoon did not detect contamination.

<u>Oil Pit (Oil/Water Separator)</u>: The RFI for the Oil pit consisted of sampling the contents of the lagoon and a soil boring adjacent to the unit for priority pollutants. Priority Pollutant Organics (PPO's) were not detected in either of the water samples collected from the Oil/Water separator. However, a soil sample collected downgradient of the lagoon was reported to contain elevated levels of organics, copper and chromium.

<u>Syms Underground Tanks</u>: The RFI for the Underground Tanks consisted of sampling the contents of the tanks. These tanks are former chemical waste lift stations associated with an underground piping network in the area. This piping network is associated with the former Air Force Plant 68. Sludge and water samples were collected from Chemical Waste Lift Stations 7, 7A and 8. Analysis of the sludge samples revealed the presence of relatively high concentrations of metals, VOCs, Semi-volatiles and PCBs in each of the lift stations. The water sample collected from lift station 8 also was reported to contain high levels of VOCs. In 2000, the U.S. Army Corps of Engineers conducted an Interim Removal Action (IRA) on the underground tanks. The IRA consisted on removal of the sludges and liquids within the tanks.

<u>Syms Tank Area</u>: The RFI for the Syms Tank Area consisted of two shallow soil borings with samples analyzed for priority pollutants. The samples were reported to contain metals at concentrations below background levels in soil. PPO compounds were not present at levels above detection limits. However, cyanide was detected at 5.9 ppm in sample DA22-4-1.

The investigation of the SWMUs in the "Syms Area" indicates the presence of relatively high levels of both organic and inorganic contamination in the soil and groundwater. The source of the compounds identified in the soil and/or groundwater samples from outside the Houghson lagoon and Oil/Water Separator cannot be definitely associated with any documented waste management activities. Some of the compounds identified could have been used or handled by either the DOD or Chem-Trol/SCA. Past DOD production related and waste handling activities are suspected as a source of the elevated concentrations of some of the organics and inorganics in the sludge samples from the Acid Neutralization Lagoon, the Houghson Lagoon and the Chemical Waste Lift Stations. The DOD is currently investigating these units and other areas of past government involvement for possible remedial measures. The NYSDEC anticipates that the Department of Defense will assume responsibility for development and implementation of appropriate corrective measures to address the Group I soil and groundwater contamination.

References

Acres International Corporation, August 1990, "Final Remedial Investigation Report, PD-8, RI/FS Former Lake Ontario Ordnance Works, Lewiston/Porter, Niagara County, New York."

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., January 1991a, "Interim Report on the Site Areas Investigation, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., January 1991b, "Interim Report on Syms Area, Model City Facility, New York," Volumes I through III.

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

Groups G & H:

Units (Group G):	Acid Neutralization Area, Filter Press Area, Leachate Storage Tank Construction Area, Tank Farm A, Surface Runoff Drainage Construction Area, Water Treatment Building 13, Underground Tank 1
Units (Group H):	Tank Farm B, Tank Farm C, Tank Farm D, Building 11, Thermal Oxidizer, Thermal Oxidation Area, Cell Area, Fractional Distillation and LUWA Areas, Tank Farm E, Drum Crusher Area

GROUPS G & H (Process Area) INVESTIGATION SUMMARY

The Group G and H RFI investigations were combined into one study encompassing the entire Process Area. The initial investigations of the Process Area included the completion of the 27 borings and one monitoring well (AT01S) shown on Figure H-2 in the RFI. Generally, these borings were terminated at about 4 feet in depth, at which point one soil sample was collected from the top of natural materials for priority pollutant analysis. Three borings (DA11-1, DA12-5, DA20-1) were extended to the top of clay. Results of the field and laboratory analysis indicated the presence of organic compounds in each of the samples collected. In addition, Boring DA12-5 also contained Non-Aqueous Phase Liquids (NAPL).

Based upon these initial results, a Phase II investigation was conducted to evaluate the vertical and areal extent of organic compounds in the Process Area. Approximately 400 soil samples from 39 soil borings (designated PRO-# on Figure H-2 in RFI) were analyzed using the field GC. Most of the soil samples collected from the Upper Tills unit during the Phase II investigation were reported to contain target compounds. NAPL was encountered in the Upper Tills at boring PRO-9 near the Drum Crusher. In addition, target compounds were detected in samples collected from the Glaciolacustrine Silt/Sand and the Basal Red Tills units. Groundwater samples were also collected, from many of the borings. The field GC results of groundwater analyses were similar to the soil sample results. When target compounds were detected in soil samples, target compounds were also present in the groundwater.

The Department has determined that Interim Corrective Measures (ICM) are necessary for the Process Area. A groundwater interceptor trench has been constructed along the northern portion of the Process Area. This trench will intercept the flow of contaminated groundwater in the Upper Tills. Collected groundwater will be treated at the Facility's aqueous treatment facility. In addition, the former Tank Farms B, C and D were temporarily clay capped to prevent the accumulation of liquids within the secondary containment berms.

Upon system start-up, the groundwater extraction system was evaluated in order to determine its effectiveness as a remedial measure. The contamination detected in the Process Area and the Applicability of the ICM as a final corrective measure was evaluated as part of the Corrective Measures Study. Continued operation of the Central Area IRM has been selected as the final remedy for this area.

<u>Tank Farm E</u> The initial RFI investigation of the Tank Farm E Area consisted of soil samples collected from below fill at the five locations shown on Figure H-1 in the RFI. Collected samples were analyzed for volatile organic compounds (VOCs) using a field GC and also sent to an analytical laboratory for priority pollutant analysis. Both the field GC and the analytical results of the initial investigation of Tank Farm E indicate the presence of organic compounds. An additional investigation, consisting of six soil borings was performed to further evaluate the contamination. The borings were continuously sampled. Soil and groundwater samples were analyzed with the field GC. Two soil samples were also sent to analytical laboratory for organic analysis. The field GC results indicated the presence of low levels of VOCs. Laboratory analytical results confirmed the presence of VOCs in soils. Low levels of VOCs were detected in groundwater samples from boring TFE-2 and TFE-4. Further evaluation of the Tank Farm E Area was required as part of the Corrective Measures Study. Natural attenuation of the contamination has been selected as the final remedy. A downgradient monitoring well (GDA01S) was installed to confirm that the magnitude and extent of the groundwater contaminant plume does not increase.

Groundwater monitoring wells were installed in 2007 for a proposed landfill expansion designated Residuals Management Unit No. 2 (RMU-2). Sampling of two wells (R201S and R202S) in and near Groups G & H (Process Area) indicated the presence of VOCs. An additional radiological and chemical investigation of the proposed RMU-2 area was performed in 2008. One of the direct-push borings identified as Boring #43 (adjacent to and south of the Full Trailer Park) was observed to contain oily black soil and had very high (in excess of the meter range) OVM detections at sample depths ranging from 4.0 to 15.5 feet below grade surface (bgs), which suggests the presence of non-aqueous phase liquid (NAPL). Another direct-push borehole location identified as Boring #61 – (east of well R201S) had high OVM detections and soil concentrations of VOCs in the 100-450 ppm range at sample depths ranging from 2 to 14 feet.

Subsequently, SWMU investigations were performed for the well R201S/R202S and boring #43/61 areas in 2008. The results of the R201S and R202S investigation indicated that the areal extent of the VOCs appeared to be limited to the areas along the haul roads, while vertical VOC detections were generally concentrated in the shallow depths of the Upper Tills. The probable source of the VOCs detected in the investigation of R201S and R202S is likely due to past waste transfer operations at the site. The results of the boring #43 and #61 investigations indicated that the areal extent of the VOCs appeared to be limited to the general areas of the initial borings, while vertical VOC detections were generally concentrated in the shallow depths of the Upper Tills. The source of the VOCs detected in the investigation of the boring #43 and #61 areas is likely associated with historical waste and chemical transfer and localized operations along the old rail bed and the former Tank Farm E. The potential sources include drum storage, truck leakage, tank and container leakage and/or spills.

A combined Corrective Measures Study (CMS) was performed for the well R201S/R202S and boring #43/61 areas. The Department has determined that Corrective Measures are necessary for the well R201S/R202S and boring #43/61 areas. A groundwater interceptor trench has been constructed along the northern portion of Tank Farm E. This trench will intercept the flow of contaminated groundwater in the Upper Tills.

References

Golder Associates Inc., June 1988 and Revision 2, August 1989, "RCRA Facility Investigation Work Plan, Model City Facility, New York," Volumes I through IV.

Golder Associates Inc., June 1990a, "The Tank Farm E Area Investigation, Model City TSDR Facility."

Golder Associates Inc., June 1991b, "Interim Report on Process Area Phase II Investigation, Model City TSDR Facility, Model City, New York," Volume I and II.

Golder Associates Inc., October 1991, "Letter Report on Background Trace Metal Evaluations."

Golder Associates Inc., January 1992a, "Tank Farm E Phase II Investigation, Model City TSDR Facility."

Golder Associates Inc., March 1992, "Tank 42 Area and Tanks 50 and 51 Area Initial RFI and Phase II Investigations, Model City Facility, Model City, New York," Volumes I and II.

Golder Associates Inc., March, 2009a, “Report on R201S and R202S Well Investigation Boring Program, Model City TDS Facility, New York.”

Golder Associates Inc., March, 2009b, “Report on RMU-2 Footprint Investigation Boring Program, Model City TDS Facility, New York.”

Golder Associates Inc., January, 2010, “Residuals Management Unit Two, Phase 1 Groundwater Monitoring Program, Model City TDS Facility, Model City, New York.”

Golder Associates Inc., April 2010, “Focused Corrective Measures Study, Monitoring Wells R201S and R202S and Soil Boring Areas #43 and #61.”

SCA Chemical Services, Inc., 1985, "Partial Closure of Tankage at SCA Chemical Services, Inc., Model City, New York, USEPA Facility I.D. Number NYD049836679."

SEC Donohue, June 1992, "Final Engineering Design For The Process Area Interim Measures, Model City Facility."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

URS Corporation, April 2009, “Results of Subsurface Soil and Pond Sediment Sampling for RMU-2.”

<u>Group I</u>:

Units: Olin Burn Area, Air Force Drum Area I, Air Force Drum Area II, Air Force Drum Area III, Acid and TNT Lines, Low Level Radioactive Contamination, "M" Street Manhole, Property "G", Nike Underground Tank, Waterline Construction Area 2, Waterline Construction Area 3, Waterline Construction Area 4.

GROUP I INVESTIGATION SUMMARY

The units listed in Group I are currently being investigated for the Department of Defense by the U.S. Army Corps of Engineers. Additional information on the investigation can be found in the following documents:

- Final Remedial Investigation Report, PD-8, RI/FS Former Lake Ontario Ordnance Works, Lewiston/Porter, Niagara County, New York, August 1990, Acres International Corporation.

- Preliminary Contamination Assessment Report: Operable Unit No. 2, RI/FS Former Lake Ontario Ordnance Works, Lewiston/Porter, Niagara County, New York, December 1992, Acres International Corporation.

Based upon the information presented in those reports, the Department has determined that remediation of the Group I SWMU's is necessary. The NYSDEC anticipates that the Department of Defense will assume responsibility for development and implementation of appropriate corrective measures to address the Group I soil and groundwater contamination.

<u>Individual SWMU Status Summary</u>:

<u>RCRA REGULATED UNIT</u>

SLF 10

UNIT DESCRIPTION:	Secure Landfill
STATUS:	Closed, 6 NYCRR Part 373-2 Regulated Unit
PERIOD OF OPERATION:	8/82 - 12/84
TYPE OF WASTE(s):	Full spectrum of wastes in drums and bulk.
CONSTITUENTS:	Full Spectrum
MEDIA of CONCERN:	Groundwater, Soil
STATUS OF INVESTIGATION:	The RFI evaluation of this unit included an evaluation of leachate and groundwater monitoring data from the detection monitoring network . In addition, CWM investigated the source and extent of contamination detected in groundwater samples from well MW10-2S.

The investigation of MW10-2S included: Appendix 23 sampling of well MW10-2S, a geophysical survey of the area and eight continuously sampled soil borings (See Figure J-1 in RFI). The geophysical survey results did not identify any features which could be considered potential sources of the groundwater contamination. Soil sample headspace analyses performed for this investigation indicated VOCs along the roadway adjacent to the landfill and the well, **but not between the well and the landfill**.

To further evaluate VOCs detected in investigation borings west (MW10-2S-1W, MW10-2S-2W) and south (MW10-2S-1S) of well MW10-2S, two additional wells (TMW-24S , TMW-29S) were installed. Samples from borings between MW10-2S and the landfill and north of wells MW10-2S were not contaminated. The soil and groundwater contamination in the vicinity of MW10-2S has been attributed to past waste storage and handling practices at the site and **not from SLF 10**.

Alternative statistical procedures have been implemented for well MW10-2S to allow for its continued use as a detection monitoring well for SLF 10. The continued investigation monitoring of wells TW24S and TW29S is located in Appendix E-1 of this Attachment. Remedial Measures to address the contamination detected in well MW10-2S and during the investigation was evaluated as part of the Corrective Measures Study. Perpetual monitoring and maintenance of the landfill is required. Natural Attenuation of the contamination has been selected as the final corrective measure for this area.

NON-DISCERNIBLE UNIT

PIEZOMETER P 12 - 2 S

UNIT DESCRIPTION: Two inch stainless steel piezometer located on the eastern side of SLF 12.

STATUS: Active

PERIOD OF OPERATION: 1986 - Present

TYPE OF WASTE(s): Unknown

CONSTITUENTS: Carbon tetrachloride, Chloroform

MEDIA of CONCERN: Groundwater, soil

STATUS OF INVESTIGATION: Investigation of contamination detected in well P12-2S initially consisted of 9 borings as shown on Figure J-2 in the RFI. Collected samples were analyzed for Total Volatile Organic Compounds (TVOC) utilizing an Organic Vapor Analyzer. The results of the TVOC analyses indicated the presence of VOCs in borings BLF12-M1, BLF12-S1, P12-2S-S1 and P12-2S-E1. Nine additional borings were drilled to further determine the extent of contamination. Results of the second phase of the investigation detected contamination in three of the additional borings (P12-2S-E2, P12-2S-E3, and P12-2S-S3).

The VOCs identified around P12-2S were not considered to extend beneath the boundary of Landfill SLF 12. The overall conclusion of the program was that the detected VOCs would not degrade the performance of the SLF 12 groundwater monitoring program. Based on the contaminants of concern and the nature of the contamination, it is believed that the contamination in this area is associated with previous use of the area by the U.S. Air Force. Subsequent to the investigation monitoring wells TW25S and TW26S were installed to monitor the possible migration of the contamination.

Due to the magnitude of the contamination the Department determined that Interim Remedial Measures were required for this area. Continuation of the IRM shall constitute the final corrective measures for this area. The remedial program is discussed in Module II.

<u>RCRA SOLID WASTE MANAGEMENT UNIT</u>

Facultative Pond 4

UNIT DESCRIPTION:	Former Aqueous Waste Treatment Lagoon, 16,007,000 gal. capacity, located in the SE portion of the facility.
STATUS:	Inactive, SWMU.
PERIOD OF OPERATION:	1978 - 1980
TYPE OF WASTE(s):	Aqueous for biological treatment in lagoon
CONSTITUENTS:	Low concentrations of metals and anions
MEDIA of CONCERN:	Groundwater, Soil
STATUS OF INVESTIGATION:	The initial RFI Evaluation consisted of soil samples collected from four locations shown on Figure J-3 in the RFI. Collected samples were analyzed by an analytical laboratory for priority pollutants and in the field, using the field GC for target volatile compounds. The results of analyses indicate the presence of low levels of VOCs and arsenic in a sample from location DA31-3 and low levels of 1,2-DCA at location DA31-4. However, laboratory validation of the data identified QA/QC problems associated with these samples. In order to verify the presence of the VOCs in these samples, two additional borings (FP4-1 & FP4-2) were sampled. No target compounds were detected in the collected samples. Based on the results of the investigation it is concluded that no contamination related to past or present waste handling activities is present in the FAC Pond 4 Area. No further action is necessary.

RCRA REGULATED UNIT

West Salts Area, East Salts Area

UNIT DESCRIPTION:	Aqueous Waste Sludge Storage Lagoons West Salts area - 15,618,240 gal. capacity East Salts Area - 10,659,000 gal. capacity
STATUS:	Active, Regulated Units
PERIOD OF OPERATION:	1973 – 1988
TYPE OF WASTE(s):	WWTP Sludge
CONSTITUENTS:	PCB's, heavy metals as salts
MEDIA of CONCERN:	Groundwater, Air, Soil
STATUS OF INVESTIGATION:	The RFI evaluation of these units included groundwater monitoring, evaluation as part of a NYSDEC approved closure plan and an investigative program for well TMW-1S.

The investigation of TMW-1S included eleven soil borings (See Figure J-4 in the RFI) to evaluate the vertical and horizontal extent and possible source of the groundwater contamination. VOCs were detected in 8 of the 11 borings completed during the investigation. Due to a relatively large concentration (approximately 300 ppb) of TCE in boring TMW-1S-3N, an additional investigation was performed. This investigation consisted of fourteen additional soil borings. Field GC analyses detected VOCs in nine of the 14 soil borings. The variability in VOCs detected and the variable vertical distribution of the VOCs detected during the TMW-1S and TMW-1S-3N investigations suggest that the source of contamination in this area is a result past waste handling practices. Constituent migration from the East-West Salts area cannot be ruled out; however, based on correlation of chemical data, a source other than the East-West Salts area is a strong possibility. The contamination detected in the area was evaluated as part of the corrective measures study (CMS). Final Remedial Measures for the unit included in-situ treatment of the sludges and contaminated soils in the vicinity of the impoundments.
The requirements for development of Final Corrective Measures for this impoundment are described in Exhibit B of Schedule 1 of Module I.

RCRA SOLID WASTE MANAGEMENT UNIT

TANK 42

UNIT DESCRIPTION:	14,180 gal tank formerly located on M street
STATUS:	Inactive, Removed by 1973, Exact date unknown
PERIOD OF OPERATION:	Unknown
TYPE OF WASTE(s):	Unknown
CONSTITUENTS:	Unknown
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	The initial RFI investigation of the Tank 42 Area consisted of soil samples collected from below the surficial fill at the two locations shown on Figure J-5 in the RFI. Collected samples were analyzed for target compounds using a field GC and by an analytical laboratory for priority pollutants. None of the target compounds were detected by the field GC during the initial investigation. The results of the laboratory analyses, however indicated the presence of organic compounds and metals in both borings. An additional investigation consisting of four soil borings was performed to further evaluate the contamination. The borings were continuously sampled and analyzed with the field GC. The field GC results indicated the presence of low levels of VOCs in the soils and groundwater. Analytical results confirmed the presence of VOCs and certain PCB arochlors. The vertical extent of contamination appears to be from 4 to 12 feet beneath the surface. The areal extent appears to be limited to the area east and south of borings T42-4 and T42-2 respectively. The groundwater samples did not detect target compounds. Further evaluation of the Tank 42 Area was required as part of the Corrective Measures Study. No further action is necessary.

<u>RCRA SOLID WASTE MANAGEMENT UNIT</u>

TANKS 50 and 51

UNIT DESCRIPTION:	Two 9,900 gal. tanks located east of Tank 58
STATUS:	Inactive, Removed and disposed in SLF 11
PERIOD OF OPERATION:	Unknown
TYPE OF WASTE(s):	Unknown
CONSTITUENTS:	Unknown
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	The initial RFI investigation of the Tanks 50 & 51 Area consisted of soil samples collected from below the surficial fill at the two locations shown on Figure J-5 in the RFI. Collected samples were analyzed for target compounds using a field GC and also sent to an analytical laboratory for priority pollutant analyses. TCE was detected in boring DA 16-2 by the field GC during the initial investigation. The results of the laboratory analyses indicated the presence of organic compounds in both borings. An additional investigation consisting of four soil borings was performed to further evaluate the contamination. The borings were continuously sampled; soil and groundwater samples were analyzed with the field GC. The field GC results indicated the presence of low levels of VOCs. Laboratory analytical results confirmed the presence of VOCs, PCBs and semi-volatiles in soils. Low levels of VOCs were detected in groundwater samples from boring T50-4. The vertical extent of contamination appears to be 2 feet to 14 feet below ground surface. The areal extent appears to be limited to the areas between borings T50-1 and T50-3 respectively. Further evaluation of the Tanks 50 & 51 Area was required as part of the Corrective Measures Study. No further action is necessary.

<u>RCRA SOLID WASTE MANAGEMENT UNIT</u>

TANKS 64 AND 65

UNIT DESCRIPTION:	Two 101,112 gal. tanks located west of the former Tank Farm A.
STATUS:	Partially Closed
PERIOD OF OPERATION:	Early 70's to 1990
TYPE OF WASTE(s):	Tank 64: PCB lean water/oil Tank 65: PCB leachate/water
CONSTITUENTS:	PCB oils, water soluble organics
MEDIA of CONCERN:	Air, Soil, Groundwater
STATUS OF INVESTIGATION:	Evaluation of the potential for releases to the environment from the units will be covered under an approved NYSDEC closure plan. Phase I Closure Certification (removal of tanks) was submitted on April 15, 1994. Phase II (closure of secondary containment) is pending final Department of Energy evaluation of the area. Investigation of the area was performed by the Department of Energy to evaluate the potential of radiological contamination in 1995. A 1996 report indicates the presence of radionuclides; these results are being evaluated by DOE to determine if remedial action is required.

RCRA SOLID WASTE MANAGEMENT UNIT

PCB WAREHOUSE

UNIT DESCRIPTION: Single story brick and frame structure located southeast of SLF 11 c. The floor is an eight inch thick slab with a containment berm constructed around certain areas of the floor.

STATUS: Active

PERIOD OF OPERATION: 1940'S - Present

TYPE OF WASTE(s): PCB's, solvents

CONSTITUENTS: PCB's, organics

MEDIA of CONCERN: Air, Soil, Groundwater

STATUS OF INVESTIGATION: The initial RFI investigation consisted of two soil borings (DA5-1 & DA5-2) into natural materials at locations shown on Figure J-6 in the RFI. Collected samples were analyzed for target compounds using a field GC and sent to an analytical laboratory for priority pollutant organic (PPO) analysis. In each boring staining was observed in the first sample in the natural material and therefore, a second, deeper, sample in the natural material was collected. Staining was also observed in the top portion of the second sample.

Results of the initial investigation indicated the presence of VOCs and PCBs in the soil samples. An additional investigation consisting of 17 soil borings (Designated PCBW-#) was performed to further evaluate the contamination. Collected soil and groundwater samples were analyzed for target compounds by the field GC. In addition, selected samples were obtained and analyzed by the CWM Model City laboratory for PCBs or by an off-site laboratory for PPO analyses. Of the 17 borings completed as part of the Phase II investigation, 10 borings were reported to contain target compounds in soil samples, primarily in the Upper Tills units. Only two soil samples, one each from borings PCBW-6 and PCBW-8 were reported to contain PCBs above the 5 ppm detection limit of the Model City lab. However, the reported PCB concentrations were below the 10 ppm CWM investigative level. The groundwater samples from Phase II borings contained target compounds in seven of the 13 borings sampled.

There are primarily two subsurface areas of limited extent which appear to have been impacted by activities at the PCB Warehouse Area: the area south of the PCB Warehouse and, the area north of the PCB Warehouse. Past waste handling practices in the vicinity of the PCB Warehouse are the likely source of the organic compounds. However, past DOE and/or DOD operational practices associated with an underground storage tank (~~recently~~ removed from the south side of the warehouse) may be partially responsible for the presence of the organic compounds detected south of the PCB Warehouse.

The contamination is addressed through installation of an IRM groundwater collection system. Continued operation of the IRM system shall constitute the final corrective measures for the area.

RCRA SOLID WASTE MANAGEMENT UNIT

DRUM STORAGE WAREHOUSE

UNIT DESCRIPTION:	Building was erected in 1982. All drums are currently stored here prior to processing.
STATUS:	Active, RCRA authorized storage area
PERIOD OF OPERATION:	1982 - present
TYPE OF WASTE(s):	Various containerized
CONSTITUENTS:	Various
MEDIA of CONCERN:	Air, Soil, Groundwater
STATUS OF INVESTIGATION:	Collection areas including trenches are inspected regularly as part of operations (Exhibit C of Schedule 1 of Module I of the Permit) Inspection results indicate that the integrity of the container storage areas is acceptable.

RCRA REGULATED UNIT

LEACHATE STORAGE TANK
(SLF 1-6)

UNIT DESCRIPTION:	Underground tank used to store leachate removed from SLF 1-6. Formerly located near the former Fire Pond.
STATUS:	Closed
PERIOD OF OPERATION:	1981 - 1995
TYPE OF WASTE(s):	Leachate
CONSTITUENTS:	Various
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	In 1997, CWM closed the SLF 1-6 Leachate Storage Tank in accordance with an approved closure plan, as documented in a closure certification report dated June 30, 1997. Single walled lines associated with this unit were replaced with double walled piping in 1997-98, as documented in a closure certification report dated February 16, 1999.

RCRA REGULATED UNIT

LEACHATE STORAGE TANK
(SLF 7)

UNIT DESCRIPTION:	Underground tank used to store leachate removed from SLF 7.
STATUS:	Active
PERIOD OF OPERATION:	1978 - 1995
TYPE OF WASTE(s):	Leachate
CONSTITUENTS:	Various
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	In 1997, CWM closed the SLF 7 Leachate Storage Tank in accordance with an approved closure plan, as documented in a closure certification report dated June 30, 1997. Single walled lines associated with this unit were replaced with double walled piping in 1999, as documented in a closure certification report dated October 31, 2000.

<u>RCRA REGULATED UNIT</u>

LEACHATE STORAGE TANK
(SLF 10)

UNIT DESCRIPTION:	Underground tank used to store leachate removed from SLF 10
STATUS:	Closed
PERIOD OF OPERATION:	1982 - 1995
TYPE OF WASTE(s):	Leachate
CONSTITUENTS:	Various
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	In 1997, CWM closed the SLF 10 Leachate Storage Tank in accordance with an approved closure plan, as documented in a closure certification report dated June 30, 1997. Single walled lines associated with this unit were replaced with double walled piping in 1998, as documented in a closure certification report dated February 16, 1999.

RCRA REGULATED UNIT

LEACHATE STORAGE TANK
(SLF 11)

UNIT DESCRIPTION:	Underground tank used to store leachate removed from SLF 11
STATUS:	Closed
PERIOD OF OPERATION:	1984 - 1995
TYPE OF WASTE(s):	Leachate
CONSTITUENTS:	Various
MEDIA of CONCERN:	Soil, Groundwater
STATUS OF INVESTIGATION:	In 1997, CWM closed the SLF 11 Leachate Storage Tank in accordance with an approved closure plan, as documented in a closure certification report dated June 30, 1997. Single walled lines associated with this unit were replaced with double walled piping in 1999, as documented in a closure certification report dated October 31, 2000.

<u>RCRA SOLID WASTE MANAGEMENT UNIT</u>

SPENT CARBON PILES

UNIT DESCRIPTION:	Carbon piles (from wastewater treatment operations?) Location of this unit is near NW corner of Salts Area 7.
STATUS:	Inactive
PERIOD OF OPERATION:	Unknown
TYPE OF WASTE(s):	Unknown
CONSTITUENTS:	Unknown
MEDIA of CONCERN:	Groundwater, soil, surface water
STATUS OF INVESTIGATION:	The RFI for the Spent Carbon Piles consisted of the collection and analysis of one composite sample from the Spent Carbon Piles, and collection and analysis of two soil samples from beneath the piles after the piles were removed (See Figure J-7 in RFI). Results of analysis of the carbon detected the presence of several organic compounds. The carbon piles were removed and disposed of in SLF 12. With the exception of di-n-butyl phthalate, which is considered a sampling and analysis artifact, analysis of soil samples from beneath the piles did not detect contaminants above background levels. Based on the data collected as part of the investigation, there has been no apparent impact to the environment associated with the storage of waste carbon at that location. No further action is necessary.

RCRA SOLID WASTE MANAGEMENT AREA

TRUCK WASH

UNIT DESCRIPTION:	Building and associated sump and lines historically used for exterior washing of trucks and equipment.
STATUS:	Active
PERIOD OF OPERATION:	? - Present
TYPE OF WASTE(s):	Contaminated soils washed off trucks
CONSTITUENTS:	Various
MEDIA of CONCERN:	Groundwater, soil
STATUS OF INVESTIGATION:	Tank/Sump and lines associated with this unit are regularly inspected as described in Exhibit D of Schedule 1 of Module I Permit. Inspection results indicate that the integrity of the lines is acceptable. No further action is necessary.

NON-DISCERNIBLE UNIT

MONITORING WELL BW - 2 S

UNIT DESCRIPTION: Background monitoring well (former)
Initial sampling of well BW-2S indicated the presence of VOCs (>100 ppm). Much lower concentrations (<100 ppb) of VOCs were also detected in well BW-2D.

STATUS: Inactive

PERIOD OF OPERATION: 1986

TYPE OF WASTE(s): Contaminated groundwater

CONSTITUENTS: Volatile and Semi-volatile organics

MEDIA of CONCERN: Groundwater, soil

STATUS OF INVESTIGATION: Initial investigation of the contamination in this area consisted of Appendix 23 sampling of well BW-2S, a geophysical survey of the area and seven continuously sampled soil borings. Additional phases to the investigation included six additional borings and the installation of two monitoring wells (TMW-21S, TMW-27S) (See Figure J-8 in RFI). Investigation of well BW-2D involved the drilling of a single boring (BW-2S-CD) which was cased from the surface to the Glaciolacustrine Clay and then augered into the Glaciolacustrine silt/sand unit.

Results of the soils investigations indicated random detection of VOCs in the Upper Tills unit along the roadway adjacent to BW-2S. Analysis of samples collected from boring BW-2S-CD, indicate that no VOCs are present in the Glaciolacustrine Clay or Glaciolacustrine silt/sand unit. In addition, concentrations of VOCs in well BW-2D groundwater samples appear to be decreasing. The geophysical survey did not indicate an existing buried source.

The source of the contamination in Well BW-2S is believed due to past tank or truck spills, or drum storage along the roadway. Further, it is believed that the contamination detected in well BW-2D may be due to dragdown during drilling and not representative of contamination of the Glaciolacustrine silt/sand unit.

Due to the magnitude of the contamination the Department has determined that Interim Remedial Measures were required for this area. Continued operation of the IRM groundwater collection system has been selected as the Final Remedy for this SWMU.

RCRA SOLID WASTE MANAGEMENT UNIT

STABILIZATION AREA

UNIT DESCRIPTION:	Bermed area south of SLF 7 where kiln dust is added to sludges for stabilization.
STATUS:	Closed
PERIOD OF OPERATION:	? - 1991
TYPE OF WASTE(s):	Spills
CONSTITUENTS:	Various
MEDIA of CONCERN:	Groundwater, soil
STATUS OF INVESTIGATION:	This unit has been closed in accordance with a NYSDEC approved closure plan. Confirmation samples have indicated that operations at this unit have not impacted the environment.

NON-DISCERNIBLE UNIT
SITEWIDE PCB SAMPLING

UNIT DESCRIPTION: 100 shallow soil samples collected from locations around the facility.

STATUS: N/A

PERIOD OF OPERATION: N/A

TYPE OF WASTE(s): PCB's from salts lagoons

CONSTITUENTS: PCB's

MEDIA of CONCERN: Soil

STATUS OF INVESTIGATION: The RFI for this area of concern involved the collection of a total of 114 shallow soil samples (105 initial samples, 4 duplicates, and 5 additional samples) for PCB analysis from locations shown on Figure J-9 in the RFI. PCBs were reported at concentrations above the detection limit in 98 of 109 of the initial sample. Most of those samples (74) contained PCBs at total concentrations of less than 1 part per million (ppm). PCBs were reported above the CWM 10 ppm investigative level of concern in only five of the 109 sample locations:

- In the area of former Air Force Plant 68 on the western portion of the facility (location 7);
- The Process Area (locations 48 & 56);
- Northeast of the East Salts Area (location 49);
- Northeast of the North Salts Area (location 63).

Additional samples were collected northeast of the North Salts Area and northeast of the East Salts Area to further delineate the extent of PCBs at concentrations above 10 ppm. The results of the additional investigation indicated that the extent in both areas is limited to the immediate area of the original samples. Excavation of the contaminated soils was performed as an IRM. Further evaluation of areas of PCB contamination at levels above health based standards was performed as part of the Corrective Measures Study. No further action is needed. **However, this determination shall in no way limit sampling and possible additional measures required by Condition K in Exhibit F of Schedule 1 of Module I of this Permit.**

RCRA SOLID WASTE MANAGEMENT UNIT

SURFACE WATER SWALES

UNIT DESCRIPTION:	Surface water drainage for site.
STATUS:	Active
PERIOD OF OPERATION:	Non-specific
TYPE OF WASTE(s):	Contaminated surface water
CONSTITUENTS:	Unknown
MEDIA of CONCERN:	Surface water, soil
STATUS OF INVESTIGATION:	The RFI for this area of concern consisted of 20 sediment samples collected for priority pollutant analysis from site surface water drainage ditches (See Figure J-9 in RFI). Trace metals above the expected background levels were identified at several locations: surface water drainage course near the Syms area, north of SLF 7 and around SLF 11. Additional samples were collected around locations initially indicating the highest levels of trace metals, all of which yielded expected background results. CWM evaluated the need for remediation of the contamination under the Corrective Measures Study. The Department has determined that remediation of the Swale is not necessary. **However, this determination shall in no way limit sampling and possible additional measures required by Condition K in Exhibit F of Schedule 1 of Module I of this Permit.**

RCRA SOLID WASTE MANAGEMENT UNIT

RMU - 1 WELL INVESTIGATIONS

UNIT DESCRIPTION:	Investigation of groundwater contamination detected in three monitoring wells , R102S, R108S & R110S installed as part of the RMU - 1 monitoring system. (See Figures J-10, J-11 and J-11 in RFI)
STATUS:	Active
PERIOD OF OPERATION:	February 1992 - Present
TYPE OF WASTE(S):	Contaminated groundwater
CONSTITUENTS:	Volatile Organic Compounds (VOCs)
MEDIA of CONCERN:	Groundwater, Soil
STATUS OF INVESTIGATION:	CWM has determined the extent of Soil and groundwater contamination been detected in the vicinity of the three wells. CWM has also installed replacement wells for use in the RMU-1 detection monitoring network. CWM evaluated the contamination as part of the Corrective Measures Study. Natural Attenuation of the groundwater contamination is included as part of the Final Remedy for the facility.

RCRA SOLID WASTE MANAGEMENT UNIT

HEAVY EQUIPMENT MAINTENANCE BUILDING WASH WATER SUMP/TANK

UNIT DESCRIPTION: 2000 Gallon Concrete Underground Storage Tank.

STATUS: Closed

PERIOD OF OPERATION: ? - 2010

TYPE OF WASTE(s): Water from floor washing and snowmelt collected by floor drains in Equipment Maintenance Building

CONSTITUENTS: Various, Petroleum

MEDIA of CONCERN: Groundwater, soil

STATUS OF INVESTIGATION: In March of 2010 CWM investigated the underground storage tank. During excavation potentially impacted soil was noted and a formal assessment plan was submitted in accordance with the 6NYCRR Part 373 permit. The tank and surrounding soils were removed as part of closure. Post-excavation samples did not indicate the presence of contamination above New York State Cleanup Objectives. This unit has been closed in accordance with a NYSDEC approved closure plan and no further action is required.

REFERENCES

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EnSol, Inc., August 2010, “Heavy Equipment Maintenance Building Wash Water Sump/Tank – SWMU Assessment Report, CWM Chemical Services, LLC., Model City Facility.”

Golder Associates Inc., August 1986, "Interim Report on Wells BW-2S and BW-2D Investigation, Model City TSDR Facility."

Golder Associates Inc., December 1987, "SLF 12 Ground Water Monitoring Program, Model City, New York Facility."

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Golder Associates Inc., April 1990b, "PCB Warehouse Investigations, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., February 1991, "Drum Storage Warehouse, Truck Wash, and Leachate Storage Tanks and Oil/Water Separator for SLF 1 through 6, SLF 7, SLF 10, and SLF 11, Model City TSDR Facility, Model City, New York."

Golder Associates Inc., October 1991, "Letter Report on Background Trace Metal Evaluations."

Golder Associates Inc., April 1992, "Final Interim Report on FAC Pond 4 Area Initial RFI and Phase II Investigations, Model City TSDR Facility," Volumes I and II.

Golder Associates Inc., June 1992b, "Final Interim Report on RMU-1 Ground Water Monitoring Program, Model City TSDR Facility; Model City, New York.:

NYSDEC, January 2001, “Selection of Final Corrective Measures, Final Statement of Basis, CWM Chemical Services, L.L.C., USEPA ID No. NYD049836679, Model City, NY 14107.”

SCA Chemical Services, Inc., 1985, "Partial Closure of Tankage at SCA Chemical Services, Inc., Model City, New York, USEPA Facility I.D. Number NYD049836679."

URS Consultants, Inc., August 1986, "Identification of Known Past and Present Waste Areas and Solid Waste Management Units."

APPENDIX E-1

Corrective Action
Groundwater Monitoring

The following Groundwater Monitoring requirements of this Appendix apply to the North Salts and the East West Salts Areas.

I. **Detection Monitoring Program**

The Permittee is required to maintain and follow the Detection Monitoring Program as described below:

A. Point of Compliance. The Point of Compliance for the applicable units are as follow:

1. North Salts Area: The Point of Compliance for this surface impoundment is defined as the vertical surface passing through the downgradient monitoring wells TW12S, TW13S, TW14S and TW15S.

2. East/West Salts Area: The Point of Compliance for this surface impoundment is defined as the vertical surface passing through the downgradient monitoring wells TW01S, TW02S, TW03S, TP04S and WS01S.

B. Length of Monitoring Requirements. The groundwater monitoring requirements set forth herein shall extend in perpetuity.

C. Description of Wells. The Detection Monitoring network shall consist of the following wells:

1. Upgradient.
Background monitoring wells BW01S, BW01D, BW03S, BW03D, BW04S, BW04D, BW05S, BW05D.

2. Downgradient.

Monitoring wells TW12S, TW13S, TW14S, TW15S and TW15D will be used to monitor the North Salts Area.

Monitoring wells TW01S, TW02S, TW03S, TW03D, TP04S, and WS01S will be used to monitor the East/West Salts Area.

D. Additional Monitoring. RESERVED

E. Sampling Frequency. All monitoring wells in the Detection Monitoring Program must be sampled at least semi-annually.

F. Site Specific Indicator Parameters (27 VOCs). The following parameters shall be used as indicator parameters in the Detection Monitoring Program:

Volatile Organic Compounds:

Benzene	Ethylbenzene
Bromoform	Methyl Bromide
Carbon Tetrachloride	Methyl Chloride
Chlorobenzene	Methylene Chloride
Chlorodibromomethane	1,1,2,2-Tetrachloroethane
Chloroethane	Tetrachloroethylene
1,2-Dichlorobenzene	
Toluene	
Chloroform	1,2-Trans-Dichloroethylene
Dichlorobromomethane	1,1,1-Trichloroethane
1,1-Dichloroethane	1,1,2-Trichloroethane
1,2-Dichloroethane	Trichloroethylene
1,1-Dichloroethene	Vinyl Chloride
1,2-Dichloropropane	
cis-1,3-Dichloropropylene	
trans-1,3-Dichloroproplyene	

The Permittee shall analyze all Detection Monitoring wells for the site specific indicator parameters and, exclusive of Methylene Chloride, shall statistically compare the values obtained during each sampling event with the background values of the parameters.

G. Background Values for Indicator Parameters.
To date hazardous waste constituents have not been detected in groundwater samples obtained from background monitoring wells BW01S, BW01D, BW03S, BW03D, BW04S, BW04D, BW05S and BW05D.

H. Statistical Evaluation. Whenever the Permittee determines groundwater quality at the Point of Compliance, he must determine whether there has been a statistically significant increase in any of the site specific indicator parameters, excluding Methylene Chloride when compared against the established trigger values. That determination must be made for each site specific indicator parameter and for every well.

For the Model City Facility, Poisson Prediction Limits shall be used for statistical comparison of monitoring well data. This method is appropriate for data that exhibit truncated distributions with skewed tails such as volatile organic constituents in contaminant free areas.

A statistically significant increase in the concentration of the indicator parameters, excluding Methylene Chloride shall be triggered by any one of the three mechanisms described below:

1) t-Prediction Interval (Concentration)
2) Multiple Detections
3) Persistent Detections

1. Prediction Interval (Concentration): A concentration based t-prediction interval has been developed for the Model City site. Based on data obtained from analysis of background groundwater quality, field and trip blanks, The t-prediction interval has been calculated to be a sum total of site specific indicator parameters, excluding Methylene Chloride in a single scan. The prediction interval for the specific units covered by this section is as follows:

    a) North Salts Area: For wells which comprise the Point of Compliance for the North Salts Area the prediction interval (PI) has been calculated to be 23 ug/l as a sum total concentration of site specific indicator parameters, excluding Methylene Chloride, in a single scan.

    b) East/West Salts Area:

        i) Wells TW02S, TW03S, TW03D, TP04S & WS01S: The prediction interval (PI) has been calculated to be 23 ug/l as a sum total concentration of indicator parameters, excluding Methylene Chloride in a single scan.

        ii) Well TW01S: Low level (ppb) contamination has been detected in this well. An investigation of this contamination concluded that the East/West Salts Area and past practices and spills are all potential sources of the VOCs present in the groundwater. Department has recognized that the close proximity of the above units limits the ability to determine a specific source of the contamination. However, since the East/West Salts Area cannot be eliminated as a source of contamination, its presence requires the use of an alternative statistical approach. The statistical procedure will be to total the site specific indicator parameters (27 VOCs) (excluding methylene chloride) then compare to a modified prediction interval (PI) of 340 ug/l.

2. Multiple Detections. A Prediction Interval, based on the number of compounds detected in a single scan, has been calculated for the Model City site. The number shall be more than 3 site specific indicator parameters detected in any well in a single scan, independent of summed total concentration and excluding methylene chloride. Persistent compounds detected in wells evaluated using an "alternative statistical approach" shall not be counted when determining the number of detections in a single scan.

3. Persistent Detections. A statistically significant increase will also result if any site specific indicator parameter, excluding Methylene chloride, is detected in any well on three (3) consecutive sampling events (independent of concentration) . Persistent compounds detected in wells evaluated using an "alternative statistical approach" shall not be counted when determining persistent detections.

   Statistical Based Trigger mechanisms are outlined in Figure 2 in **Exhibit F in Schedule 1 of Module I** of this Permit.

I. Reporting Requirements. The Permittee shall report the results of all groundwater analyses which are obtained from the Detection Monitoring Network.

The results of all routine environmental monitoring that occurs during a month must be submitted to the Department within 90 days from the end of that month. The sampling data must be submitted in accordance with the requirements of Condition N of Module I.

The depth to the static water surface shall be measured to the nearest 0.01 feet each time a well is sampled prior to well purging. As a check, a duplicate water level measurement will be taken and recorded on every fifth well.

The Permittee must evaluate the data using the procedures set forth in Figure 2 in **Exhibit F in Schedule 1 of Module I** of this Permit and submit the results of the statistical comparison of the site specific indicator parameters as part of the Routine Environmental Monitoring Report. If the analyses reveal a statistically significant increase in the concentration of a indicator parameter at any well in the Detection Monitoring Network, the Permittee must:

1. If the results of analyses fail either of the first two statistical criteria, the data will have a QA/QC review of the analysis. If the results fail the third statistical criteria, the well in question will be resampled within fourteen (14) days.

2. If the QA/QC data review indicates that the analytical data is erroneous, the evaluation returns to Detection Monitoring with a statement in the annual report that indicates the reasons for the erroneous data. Otherwise, the well in question must be resampled within thirty (30) days of receipt of the original detection monitoring results.

3. Within seven (7) days of receipt of the results of the resampling, the results shall be subjected to the same statistical criteria (total concentration and multiple detections).

4. If the resampling results pass statistical criteria 1 and 2, then the well in question returns to detection monitoring with a statement in the annual report.

5. If the resampling results fail statistical criteria 1 and 2 then, within 7 days of receiving the results, the Permittee shall provide written notification of the failure of the evaluation criteria to the Department. Within thirty (30) days of receiving results of the resampling, a plan must be submitted to the Department to determine the source of the detected organic compounds. Within ninety (90) days of receiving the results of the resampling, a permit modification request must be submitted to the Department.

6. In addition to step 5, If the resampling results fail statistical criteria 1 or 2 then, Within fourteen (14) days of receiving the resampling results (for evaluations under criteria 1 and 2), the affected well and adjacent wells that monitor the regulated unit must be sampled for Appendix 33 constituents. Adjacent wells will be those wells immediately next to the well(s) with the detected compounds. For example, for a shallow (upper tills) monitoring well with detected compounds, the corresponding deep (glaciolacustrine silt/sand) well and the two shallow wells on either side will be considered adjacent wells. For a deep monitoring well, the adjacent wells would be the corresponding shallow well and the deep wells on either side. If compounds are detected in a well at which there is not a well or a well pair on one side monitoring the same regulated unit, then the number of adjacent wells will be reduced by one.

7. For wells that fail statistical criteria 3, within thirty (30) days of receiving the results of the resampling called for in step 1, the Permittee shall meet with the Department to discuss the results. Based on discussions, the Department will determine if further action is required. If further action is not required, then the consecutive count shall reset to zero, and the well returns to detection monitoring. If further action is required, a source investigation must be submitted to the Department within thirty (30) days (if required).

8. Upon approval of the source investigation plans, called for in steps 5 and 7, by the Department; an evaluation must be made to determine the source of the detected compounds.

9. If the source investigation determines that the regulated unit is not the source of the detected compounds, the Permittee must submit a permit modification application to modify the detection monitoring program. In addition, an investigation must be conducted to determine the source, rate of migration and extent of the contamination.

10. If the source investigation determines that the regulated unit is the source of the detected compounds, the Permittee must submit a permit modification application for either a compliance monitoring or corrective action program.

    The evaluation procedure is outlined in Figure 2 in **Exhibit F in Schedule 1 of Module I** of this Permit.

J. Inability to Obtain Samples. If the Permittee knows that a well or piezometer may not provide representative samples or accurate piezometric values, may be damaged in some way, or is inaccessible, the Permittee shall, within fourteen (14) days of such knowledge, attempt to remedy the problem and, when appropriate, sample the well or piezometer. Within thirty (30) days of such knowledge, the Permittee shall, through written notification to the Department, provide information which describes the nature of the problem associated with the device, and in the event of a failure to obtain a sample, the reason why a sample was not obtained.

   In addition the notification shall contain:

   1. A description of how the problem was corrected; or

   2. A schedule for the rehabilitation or replacement of the device.

   If a problem with a well prevented obtaining a sample as scheduled, a sample must be obtained within fourteen (14) days after rehabilitation or replacement of the well.

K. Well Rehabilitation. Every five (5) years, the Permittee shall inspect the Detection Monitoring Network to determine its integrity. The inspection shall be certified by a professional engineer or qualified geologist. The inspection shall include the following:

   1. A survey of all groundwater wells and piezometers in the monitoring network (performed by a New York State licensed surveyor) to the top of well casing elevation and to provide updated site plan. The survey must be accurate to within

0.01 feet of elevation and the site plan must be presented on a scale of 1 inch equals 200 feet.

2. An establishment of the ability of all wells and piezometers in the monitoring network to yield meaningful groundwater elevations when measured with an instrument accurate to within 0.01 feet. The ability of the wells to yield such information shall be based upon a comparison of the sounding of a well to its historical depth. Wells shall be considered obstructed if 10% or more of the well screen is covered or otherwise inaccessible. At a minimum, these wells must be redeveloped to remove sediments from the bottom of the well prior to the next sampling event.

3. An establishment of the ability of all groundwater wells to yield representative samples for determining the concentration of hazardous waste constituents that may be present in the groundwater. Physical examination of the well shall include removal and inspection of any dedicated sampling device to assure that the device is functioning as designed.

L. Permit Modification. If the Permittee determines that the monitoring programs required under this Permit no longer satisfy the requirements of the regulations, the Permittee shall, within ninety (90) days of such determination, submit an application for a permit modification which describes the changes that will be necessary to maintain regulatory compliance at the site. The Commissioner may require the Permittee to perform additional sampling and install additional monitoring wells, as necessary, to maintain compliance with 6NYCRR Part 373-2.6 at the site. If at any time it is determined that the groundwater monitoring network is not in compliance, the Department shall require the Permittee to take whatever actions are necessary to bring the monitoring network into compliance.

M. Additions to the Sampling Program. If hazardous waste constituents are consistently present in the Detection Monitoring wells below the statistical "trigger" levels, the Department may require the Permittee to perform additional sampling and install additional wells to determine whether the constituents originate from the Regulated Unit.

N. Sampling and Analysis. All Sampling and Analysis shall be performed in accordance with the approved CWM Groundwater Monitoring Sampling and Analysis Plan (SAP). Any modification of the approved SAP must be approved by the Department prior to its implementation.

II. Corrective Action Monitoring

The Corrective Action/Corrective Measures program pursuant to 6NYCRR Subpart 373-2.6 (k) and (l) is specified herein for the following areas:

West Drum Area
Lagoons 1,2,5,6 & 7
Area South of SLF 3
Process Area
Area South of the PCB Warehouse
BW02S Area
P1202S Area

A. Point of Compliance. The Point of Compliance for the applicable units are as follow:

1. **West Drum Area**: The point of compliance for the West Drum Area consists of aqueous sumps AQ01, AQ02, AQ03, AQ04, AQ05 AQ06 and AQ07 and monitoring wells TW19S and WDA01S.

2. **Lagoons 1, 2, 5, 6 & 7**: The point of compliance for Lagoons 1, 2, 5, 6 & 7 consists of monitoring wells LMS01S, LMS02S, LMS03S, LMS04S and TW11S, and aqueous sumps AQ13W and AQ14E.

3. **Area South of SLF 3**: The point of compliance for this area consists of monitoring wells W302S and W303S.

4. **Process Area**: The point of compliance for the Process Area consists of Aqueous Sumps AQ08, AQ09, AQ10, AQ11, AQ12 and Extraction Wells EW08, EW09, EW10, EW11, EW12, EW13 and EW14.

5. **Area South of PCB Warehouse:** The point of compliance for this area consists of monitoring well W1109S.

6. **BW02S Area:** The point of compliance for the BW02S area consists of monitoring well TW21S.

7. **P1202S Area:** The point of compliance for the P1202S area consists of monitoring well TW26S.

B. Length of Monitoring Requirements. The groundwater monitoring requirements set forth herein shall extend in perpetuity.

C. Description of Wells. The wells which comprise the corrective action monitoring program for each of the applicable areas are described in Section 220 of the Groundwater Extraction Systems (GWES) Operations and Maintenance (O&M Manual). All revisions to the O&M Manual must be approved by the NYSDEC Region 9 Hazardous Waste Engineer.

D. Additional Monitoring. Every quarter that the GWES Systems are in operation, water level measurements will be taken from selected wells and piezometers as specified in Attachment 1 of the GWES O&M Manual. In addition, DNAPL sumps will be checked for DNAPL presence as specified in Attachment 1 of the GWES O&M Manual.

E. Sampling Frequency. As specified in Section 220 of the GWES O&M Manual, selected monitoring points in the corrective action monitoring program must be sampled annually for Site Specific VOCs, semi-volatiles, metals, PCBs and pesticides. Other monitoring points are sampled semiannually for the Site Specific Priority Pollutant VOC List described in II.F of this Appendix.

F. Site Specific Indicator Parameters (27 VOCs). For selected monitoring points, the following parameters shall be used as indicator parameters in the corrective action monitoring program:

Volatile Organic Compounds:

Benzene	Ethylbenzene
Bromoform	Methyl Bromide
Carbon Tetrachloride	Methyl Chloride
Chlorobenzene	Methylene Chloride
Chlorodibromomethane	1,1,2,2-Tetrachloroethane
Chloroethane	Tetrachloroethylene
1,2-Dichlorobenzene	1,2-Trans-Dichloroethylene
Toluene	1,1,1-Trichloroethane
Chloroform	1,1,2-Trichloroethane
Dichlorobromomethane	Trichloroethylene
1,1-Dichloroethane	Vinyl Chloride
1,2-Dichloroethane	cis-1,3-Dichloropropylene
1,1-Dichloroethene	trans-1,3-Dichloroproplyene
1,2-Dichloropropane	

The Permittee shall analyze all corrective action monitoring wells for the site specific indicator parameters and shall compare the values obtained during each sampling event with the previous values of the parameters.

G. Groundwater Protection Concentration. The following hazardous constituents have been identified in the groundwater, and the corresponding concentrations have been established as Groundwater Protection Standards for the facility. The Commissioner shall review these concentrations annually to determine if there is a need to revise, add or delete a constituent and its associated protection concentration. Based upon site specific background water quality data, the Commissioner may establish site specific concentrations for certain constituents as Groundwater Protection Standards in recognition of natural background water quality.

A complete listing of groundwater protection standards is located in the Table at the beginning of **Exhibit B in Schedule 1 of Module I** of the Permit.

1. The total concentration of all organic constituents, excluding pesticides, herbicides, vinyl chloride and trihalomethanes, shall not exceed 100.0 ug/l

2. Total concentration of all trihalomethanes not to exceed 100.0 ug/l.

H. Reporting Requirements. The Permittee shall report the results of all groundwater analyses which are obtained from the Corrective Action Monitoring Network.

Chemical and physical data collected from the GWES are submitted in January, April, July and October of each year. The sampling data must be submitted in accordance with the requirements of Condition N of Module I.

Along with the sampling results, the Permittee shall submit the results of the NAPL Sump Check and the volume of NAPL removed from the DNAPL Sumps, if any, and the groundwater elevation measurements which were obtained at the time the Corrective Action Monitoring Network was sampled. In addition, the Permittee shall determine the groundwater flow rate and direction at least annually [6 NYCRR 373-2.6 (i)(5)].

The Permittee shall also submit the potentiometric surface data which were obtained at the time that the Corrective Action Monitoring Network was sampled. The depth to the static water surface shall be measured to the nearest 0.01 feet each time a well is sampled prior to well purging.

I. Inability to Obtain Samples. If the Permittee knows that a well or piezometer may not provide representative samples or accurate piezometric values, may be damaged in some way, or is inaccessible, the Permittee shall, within fourteen (14) days of such knowledge, attempt to remedy the problem and, when appropriate, sample the well or piezometer. Within thirty (30) days of such knowledge, the Permittee shall, through written notification to the Department, provide information which describes the nature of the problem associated with the device, and in the event of a failure to obtain a sample, the reason why a sample was not obtained.

In addition the notification shall contain:

1. A description of how the problem was corrected; or

2. A schedule for the rehabilitation or replacement of the device.

If a problem with a well prevented obtaining a sample as scheduled, a sample must be obtained within fourteen (14) days after rehabilitation or replacement of the well.

J. Well Rehabilitation. Every five (5) years, the Permittee shall inspect the Corrective Action Monitoring Network to determine its integrity. The inspection shall be certified by a professional engineer or qualified geologist. The inspection shall include the following:

1. A survey of all groundwater wells and piezometers in the monitoring network (performed by a New York State licensed surveyor) to the top of well casing elevation and to provide updated site plan. The survey must be accurate to within 0.01 feet of elevation and the site plan must be presented on a scale of 1 inch equals 200 feet.

2. An establishment of the ability of all wells and piezometers in the monitoring network to yield meaningful groundwater elevations when measured with an instrument accurate to within 0.01 feet. The ability of the wells to yield such information shall be based upon a comparison of the sounding of a well to its historical depth. Wells shall be considered obstructed if 10% or more of the well screen is covered or otherwise inaccessible. At a minimum, these wells must be redeveloped to remove sediments from the bottom of the well prior to the next sampling event.

3. An establishment of the ability of all groundwater wells to yield representative samples for determining the concentration of hazardous waste constituents that may be present in the groundwater. Physical examination of the well shall include removal and inspection of any dedicated sampling device to assure that the device is functioning as designed.

4. The requirements specified in Conditions 2 and 3 above shall not apply to monitoring wells TW16S and TW17S provided no occurrences of equipment malfunction or other atypical incidents are noted during routine sampling of these wells.

K. Permit Modification. If, after review of the Corrective Action Monitoring Data, the Department determines that the Corrective Measures are not sufficiently protective of human health or the environment, The Department may require CWM to modify the design or operation of the groundwater recovery systems.

If the Department determines that a remedial technology other than groundwater extraction is needed to protect human health and the environment, the Department will initiate a Permit Modification pursuant to Part 621.

CWM may implement, without prior Department approval, adjustments to the groundwater recovery systems that will facilitate or improve groundwater control and cleanup. Other modifications to the groundwater recovery systems may only be made after receipt of written approval by the Department.

L. Sampling and Analysis. All Sampling and Analysis shall be performed in accordance with the approved CWM Groundwater Monitoring Sampling and Analysis Plan (SAP). Any modification of the approved SAP must be approved by the Department prior to its implementation.

III. Additional Corrective Action Activities

The Corrective Action/Corrective Measures program pursuant to 6NYCRR Subpart 373-2.6 (k) and (l) is specified herein for the following areas:

A. Additional Areas:

There are certain areas identified during the RCRA Facility Investigation (RFI) and the Corrective Measures Study (CMS) process that require additional groundwater monitoring. Those areas include:

Tank Farm D
Railroad Bed Investigation Area
Area downgradient of TW26S

1. **Tank Farm D:** The Permittee shall monitor well GDA01S.

2. **Railroad Bed Investigation Area:** The Permittee shall monitor well RR01S.

3. **Area Downgradient of TW26S**: The Permittee shall monitor well W1209S.

The Permittee shall sample these wells on an annual basis, unless the Department determines that more frequent sampling is necessary. Well samples shall be analyzed for the Site Specific Indicator Parameters (27 VOCs) in accordance with the approved Groundwater Sampling and Analysis Plan (GWSAP) which is incorporated by reference into this Permit by **Schedule 1 of Module I** of this Permit. Results are to be included in the monthly monitoring reports.

B. Natural Attenuation Areas:

There are certain areas at the facility where, despite the fact that hazardous waste constituents have been observed in the groundwater at concentrations that exceed the 6NYCRR Part 703 groundwater quality standards, the Department has not required the Permittee to implement Corrective Measures. These areas include:

Drum Storage Along H Street and Mac Arthur Street
Drum Storage Along Mac Arthur Street near SLF-10
RMU-1 Investigation Wells

The source of the contamination in these areas has been attributed to historic drum storage along roadways during the initial stages of development of the facility as a commercial disposal facility (many years prior to the Permittee's involvement with the site) and solvent use during the years when the site was utilized for military purposes. The Department has required the Permittee to investigate, and subsequently monitor these areas since they were identified during the RCRA Facility Investigation (RFI). The Department has also established Well-Specific statistically based contaminant evaluation protocols that have been used to track changes in the nature and extent of the contamination in these areas and to trigger additional actions in the event that the prescribed threshold concentrations are exceeded. Those protocols are set forth in the Permittee's approved Groundwater Sampling and Analysis Plan (GWSAP) which is incorporated by reference into this Permit by **Schedule 1 of Module I** of this Permit.

Based upon the groundwater monitoring data collected in these areas during the past twelve years, the Department has determined that the plumes of groundwater contamination in these areas are essentially stable and that active hydraulic containment of the plumes is unnecessary for the protection of human health and the environment. Therefore, active remediation of these areas is not required at this time. The Department will rely on Natural Attenuation of the groundwater contamination in these areas as the means for achieving the Remedial Goals. In order to insure that Natural Attenuation remains an appropriate remedy in the future, the Permittee must continue to implement the following monitoring and response programs at the areas designated below:

1. Drum Storage along H and Mc Arthur Streets - In order to monitor the magnitude and extent of the groundwater contamination, the Permittee shall monitor wells P701S, P703S, GZR01S, GZR02S, GZR03S and GZR04S at least semi-annually for Site Specific Indicator Parameters (27 VOCs).

2. Drum Storage along Mc Arthur street near SLF 10 - In order to monitor the magnitude and extent of the groundwater contamination, the Permittee shall monitor wells TW24S and TW29S at least semi-annually for Site Specific Indicator Parameters (27 VOCs).

3. Area of Contamination North of RMU-1 (J Street) - In order to monitor the magnitude and extent of the groundwater contamination, the Permittee shall monitor wells R102S, R108S, and R110S at least semi-annually for Site Specific Indicator Parameters (27 VOCs).

The Permittee shall follow the well specific evaluation procedures in the approved Groundwater Sampling and Analysis Plan (GWSAP) which is incorporated by reference into this Permit by Schedule 1 of Module I of this Permit, to track and assess the groundwater contamination.

In the event that statistical triggers (see GWSAP) for monitoring wells in these areas are exceeded, the Department will reevaluate the appropriateness of using Natural Attenuation, and may require the Permittee to implement a groundwater containment program to remediate the affected area.

C. Groundwater Monitoring Requirements for Additional Corrective Action:

1. Length of Monitoring Requirements - The length of monitoring for the additional corrective action monitoring program shall be the same as required by **Condition I.B** of this appendix.

2. Sampling Frequency - All monitoring wells in the additional corrective action monitoring program must be sampled at least semi-annually, except that GDA01S, RR01S, and W1209S must be sampled at least annually.

3. Site Specific Indicator Parameters – The site specific indicator for the additional corrective action monitoring program shall be the same as required by **Condition I.F** of this appendix.

4. Background Values for Site Specific Indicator Parameters – The site specific indicator parameter background values for the additional corrective action monitoring program shall be the same as required by **Condition I.G** of this appendix.

5. Statistical Evaluation - Whenever the Permittee determines groundwater quality at the Point of Compliance, he must determine whether there has been a statistically significant increase in any of the site specific indicator parameters, excluding Methylene Chloride when compared against the established trigger values. That determination must be made for each site specific indicator parameter and for every well.

   For the Model City Facility, Poisson Prediction Limits shall be used for statistical comparison of monitoring well data. This method is appropriate for data that exhibit truncated distributions with skewed tails such as volatile organic constituents in contaminant free areas.

   A statistically significant increase in the concentration of the indicator parameters, excluding Methylene Chloride shall be triggered by any one of the three mechanisms described below:

   a. t-Prediction Interval (Concentration)
   b. Multiple Detections
   c. Persistent Detections

a. Prediction Interval (Concentration): A concentration based t-prediction interval has been developed for the Model City site. Based on data obtained from analysis of background groundwater quality, field and trip blanks. The t-prediction interval has been calculated to be a sum total of site specific indicator parameters, excluding Methylene Chloride in a single scan. The prediction interval for the specific units covered by this section is as follows:

i. For Additional Corrective Action Monitoring wells, except P701S and P703S, the prediction interval (PI) has been calculated to be 23 ug/l as a summed total concentration of all indicator parameters, excluding Methylene Chloride. Prediction Interval (Concentration).

ii. Well P701S: Low levels of trichloroethylene (TCE), trans-1,2-dichloroethylene (t-DCE) have been detected in this well. The statistical procedure will be the summed total concentration of all indicator parameters, with the exception of methylene chloride, TCE and t-DCE. This value will then be compared to a modified prediction interval (PI) of 23 ug/l. The compound specific prediction intervals for trichloroethene, and trans-1,2-dichloroethene are as follows:

Trichloroethene	260 ug/l
trans-1,2-Dichloroethene	85 ug/l

iii. Well P703S: Low levels of 1,1-dichloroethane, 1,2-dichloroethane, ethylbenzene, and chlorobenzene have been detected in this well. The statistical procedure will be the summed total concentration of all indicator parameters, with the exception of methylene chloride, 1,1-dichloroethane, 1,2-dichloroethane, ethylbenzene, and chlorobenzene. This value will then be compared to a modified prediction interval (PI) of 23 ug/l. The compound specific prediction intervals for 1,1-dichloroethane, 1,2-dichloroethane, ethylbenzene, and chlorobenzene are as follows:

1,1-Dichloroethane	23 ug/l
1,2-Dichloroethane	120 ug/l
Ethylbenzene	190 ug/l
Chlorobenzene	27 ug/l

b. Multiple Detections: For the additional corrective action monitoring program, the procedure for evaluating multiple detections shall be the same as required by **Condition I.H.2** of this appendix.

c. Persistent Detections: For the additional corrective action monitoring program, the procedure for evaluating persistent detections shall be the same as required by **Condition I.H.3** of this appendix.

6. Reporting Requirements – The reporting requirements for the additional corrective action monitoring program shall be the same as required by **Condition I.I** of this appendix.

7. Inability to Obtain Samples – The procedure to be followed for the additional corrective action monitoring program whenever there is an inability to obtain samples shall be the same as required by **Condition I.J** of this appendix.

8. Well Rehabilitation – The well inspection and rehabilitation procedures for the additional corrective action monitoring program shall be the same as required by **Condition I.K** of this appendix.

9. Permit Modification – The modification procedures for the additional corrective action monitoring program shall be the same as required by **Condition I.L** of this appendix.

10. Additions to the Sampling Program – the requirements to perform additional sampling for the additional corrective action monitoring program shall be the same as required by **Condition I.M** of this appendix.

11. Sampling and Analysis – the sampling and analysis procedures for the additional corrective action monitoring program shall be the same as required by **Condition I.N** of this appendix.

TABLE 1
SITE SPECIFIC "APPENDIX 23" PARAMETERS
FOR
SLF 3,4,7 AND 10, EAST-WEST SALTS AREA, P 1202S AND BW02S

Site Specific Volatile Organic Compounds:

Benzene	Ethylbenzene
Bromoform	Methyl Bromide
Carbon Tetrachloride	Methyl Chloride
Chlorobenzene	Methylene Chloride
Chlorodibromomethane	1,1,2,2-Tetrachloroethane
Chloroethane	Tetrachloroethylene
1,2-Dichlorobenzene	Toluene
Chloroform	1,2-Trans-Dichloroethylene
Dichlorobromomethane	1,1,1-Trichloroethane
1,1-Dichloroethane	1,1,2-Trichloroethane
1,2-Dichloroethane	Trichloroethylene
1,1-Dichloroethene	Vinyl Chloride
1,2-Dichloropropane	cis-1,3-Dichloropropylene
trans-1,3-Dichloroproplyene	

TABLE 2
SITE SPECIFIC "APPENDIX 23" PARAMETERS FOR
LAGOONS 1,2 AND 5, SALTS AREA 7 AND WEST DRUM AREA

Site Specific Volatile Organic Compounds:

Benzene	Ethylbenzene
Bromoform	Methyl Bromide
Carbon Tetrachloride	Methyl Chloride
Chlorobenzene	Methylene Chloride
Chlorodibromomethane	1,1,2,2-Tetrachloroethane
Chloroethane	Tetrachloroethylene
1,2-Dichlorobenzene	Toluene
Chloroform	1,2-Trans-Dichloroethylene
Dichlorobromomethane	1,1,1-Trichloroethane
1,1-Dichloroethane	1,1,2-Trichloroethane
1,2-Dichloroethane	Trichloroethylene
1,1-Dichloroethene	Vinyl Chloride
1,2-Dichloropropane	cis-1,3-Dichloropropylene
trans-1,3-Dichloroproplyene	

TABLE 2 (cont.)
SITE SPECIFIC "APPENDIX 23" PARAMETERS FOR LAGOONS 1,2 AND 5, SALTS AREA 7 AND WEST DRUM AREA

Priority Pollutant Base/Neutral/Acid Extractable Compounds:

Acenaphthene	Acenaphthylene
Anthracene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoroanthene
Benzo(g,h,i)perlyene	Benzo(k)fluoranthene
Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate
4-Bromophenylphenylether	Butylbenzylphthalate
2-Chlorophthalene	4-Chlorophenylphenylether
Chrysene	Dibenzo(a,h)anthracene
1,2-Dichlorobenzene	1,3-Dichlorobenzene
1,4-Dichlorobenzene	3,3'-Dichlorobenzidine
Diethylphthalate	Dimethylphthalate
Di-n-butylphthalate	2,6-Dinitrotoluene
2,4-Dinitrotoluene	Di-n-octylphthalate
Fluoranthene	Fluorene
Hexachlorobenzene	Hexachlorobutadiene
Hexachlorocyclopentadiene	Hexachloroethane
Indolent(1,2,3-cd)pyrene	Isophrone
Naphthalene	Nitrobenzene
N-nitrosodi-n-propylamine	N-nitrosodiphenylamine
Phenanthrene	Pyrene
1,2,4-Trichlorobenzene	2-Chlorophenol
2,4-Dichlorophenol	2,4-Dimethylphenol
4,6-Dinitro-o-cresol	2,4-Dinitrophenol
2-Nitrophenol	4-Nitrophenol
p-Chloro-m-cresol	Pentachlorophenol
Phenol	2,4,6-Trichlorophenol

Aroclors (PCB) Compounds:

Aroclor 1242
Aroclor 1254
Aroclor 1260
Aroclor 1248
Aroclor 1232
Aroclor 1221
Aroclor 1016

APPENDIX E-2

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APPENDIX E-3

Newly Discovered SWMUs

A. ASSESSMENT OF NEWLY IDENTIFIED SWMU's

1. The Permittee The Permittee shall notify the Department, in writing, of any additional SWMU's discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means within fifteen (15) days of discovery. Thereafter, the Permittee shall proceed with the assessment, investigation, evaluation and remediation of the SWMU as set forth in this Appendix.

2. Within thirty (30) days from notification of the Department, the Permittee shall prepare and submit to NYSDEC, a SWMU assessment plan and a proposed schedule of implementation and completion for any additional SWMU which is discovered subsequent to the issuance of this permit and is known or suspected to have releases of hazardous waste or releases of hazardous constituents to the environment. The plan shall include methods and specific actions as necessary to determine whether a prior or continuing release of hazardous constituents has occurred at each SWMU. The plan must also include, at a minimum, the following information for each unit:

   a. Type of unit;
   b. Location of each unit on a topographic map of appropriate scale;
   c. Dimensions and capacities;
   d. Function of unit;
   e. Dates that the unit was operated;
   f. Description of the wastes that were placed in the unit; and
   g. Description of any known releases or spills (to include groundwater data, soil analyses, and/or surface water data)

3. Upon completion of the assessment plan required by B.2. above, an assessment report shall be submitted to DEC. The assessment report shall include an RFI workplan for any SWMU which has been determined to have had a prior or continuing release. The workplan shall be implemented in accordance with the Department approved schedule of implementation. Thereafter, if requested by the Department, the Permittee shall submit a CMS. Upon approval of the CMS, the Department will modify the Permit to include any necessary corrective measures as part of the Final Corrective Measures for the facility.

APPENDIX E-4

CORRECTIVE ACTION
FIGURES

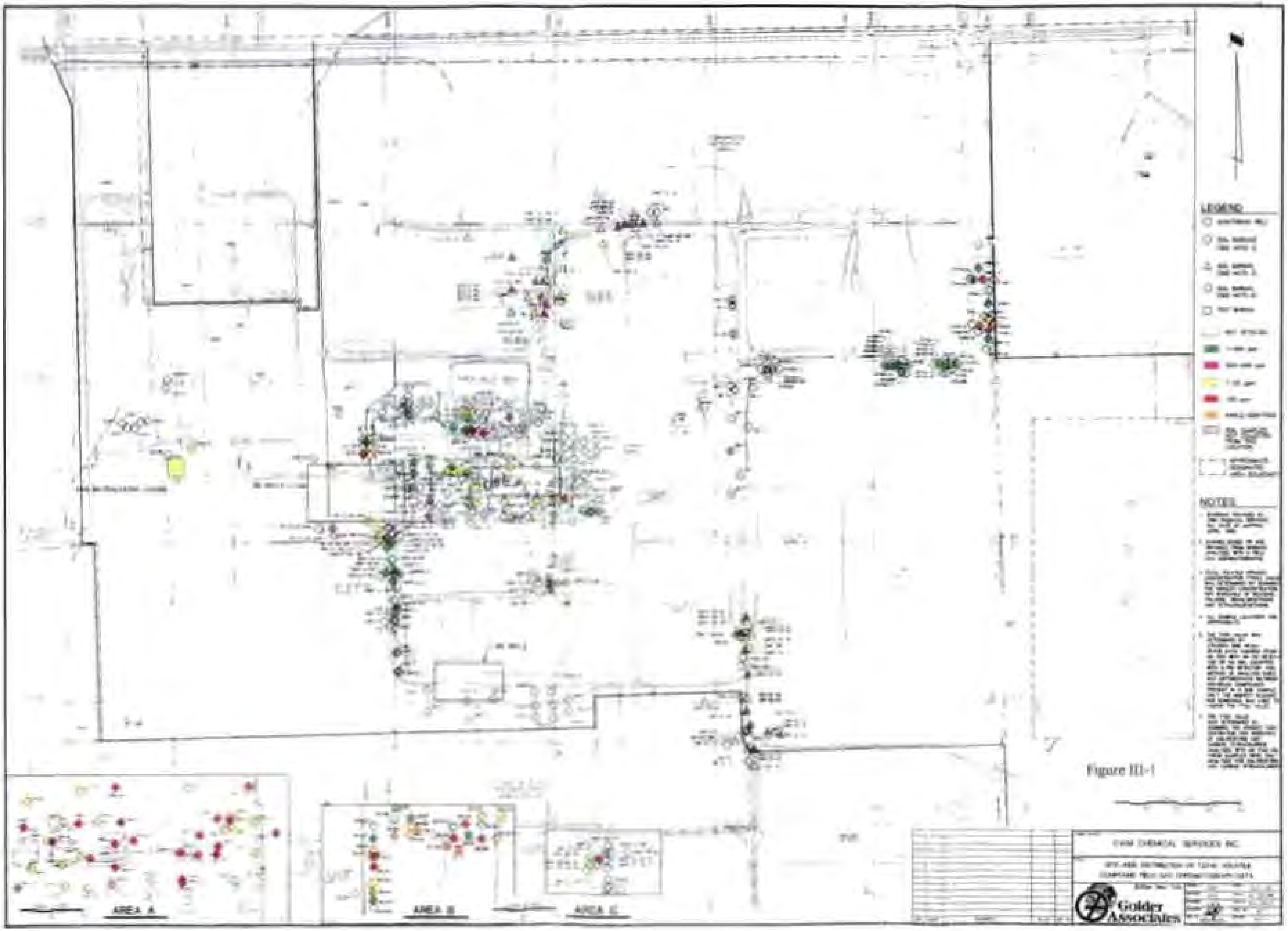

LEGEND
NOTES
AREA A
AREA B
AREA C
CWM CHEMICAL SERVICES INC
Golder Associates

Figure III-1

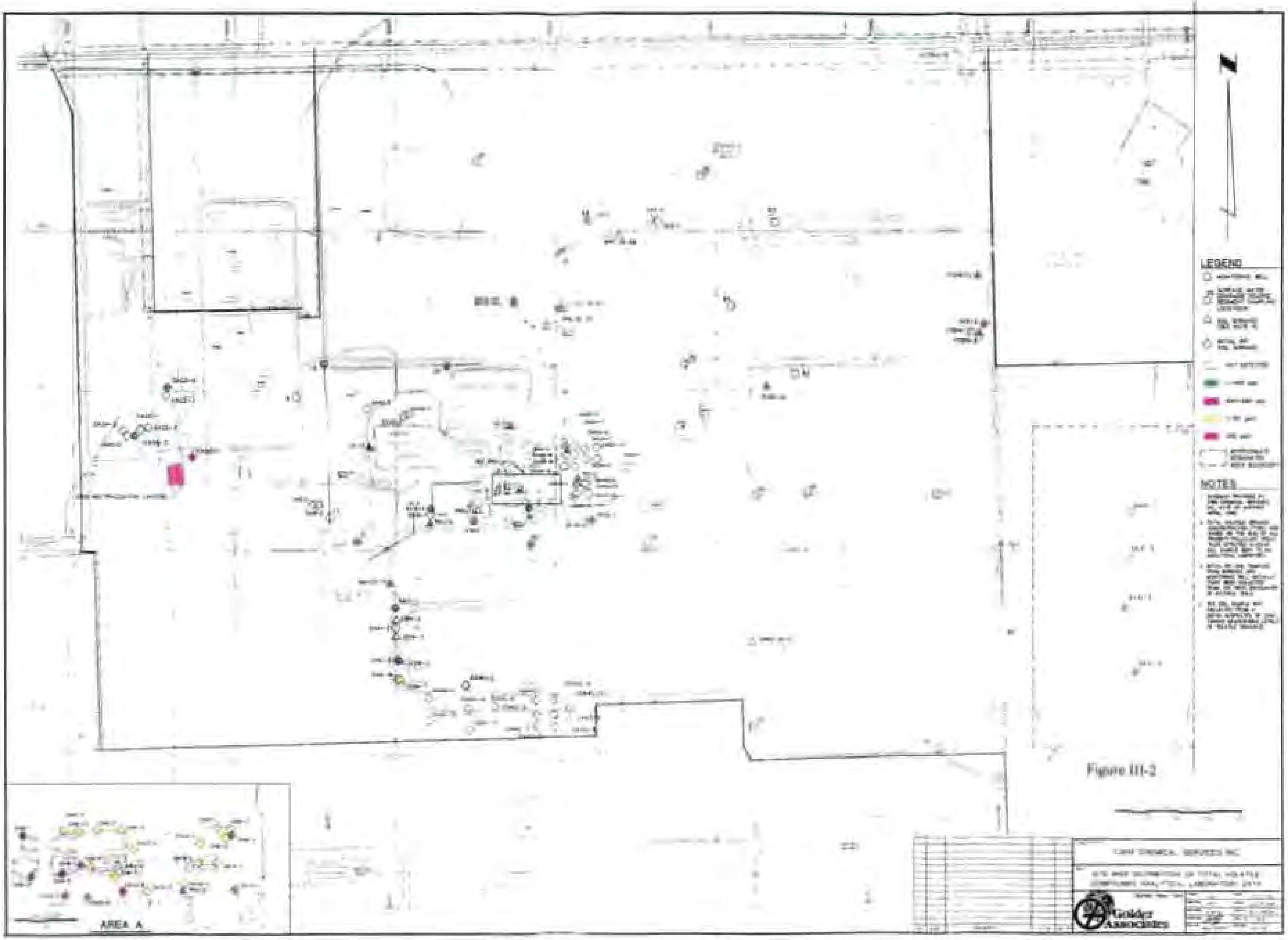


Figure III-2


LEGEND
NOTES
AREA A
CWM CHEMICAL SERVICES INC.
Golder Associates

Figure III-3

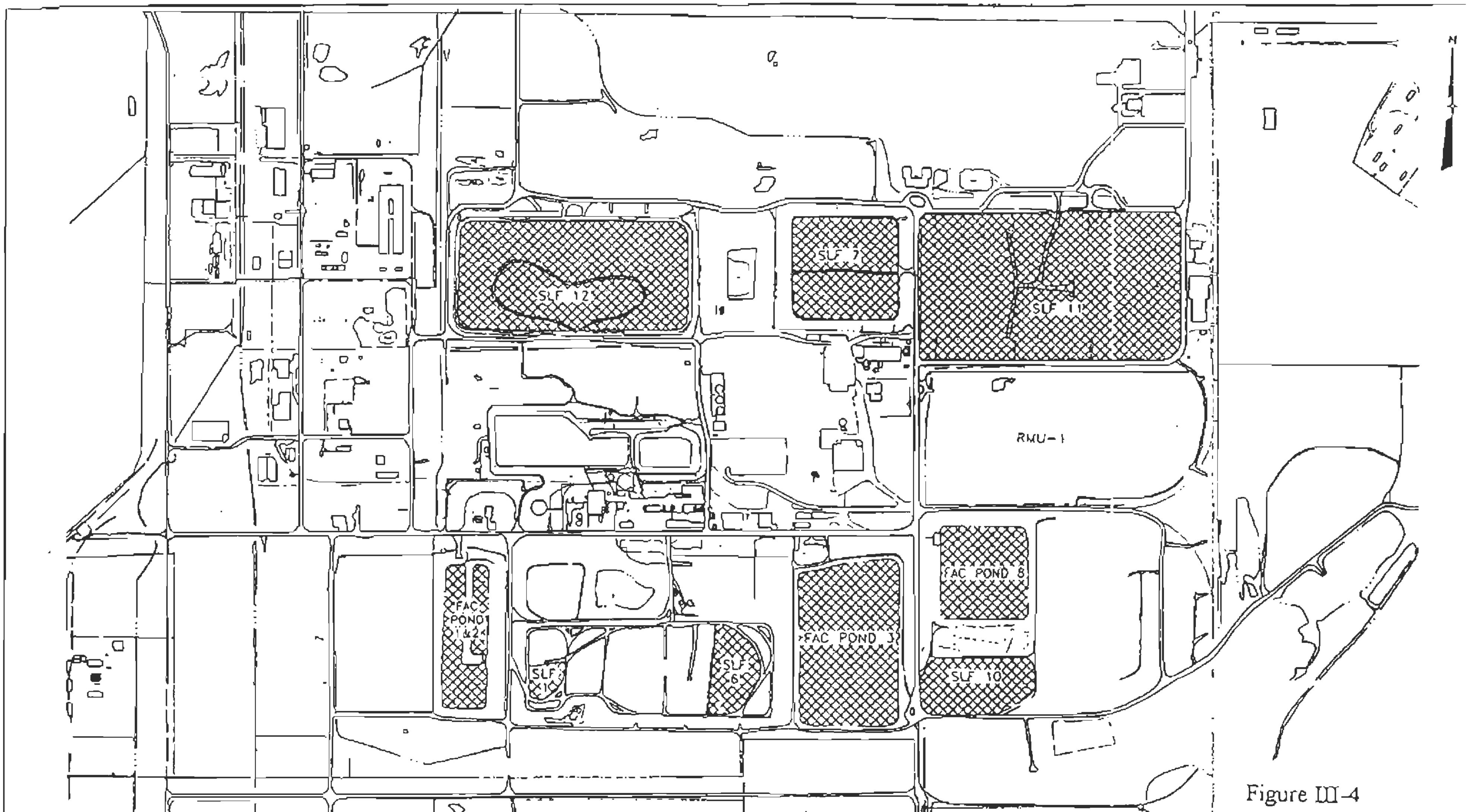


Figure III-4

RUST ENVIRONMENT & INFRASTRUCTURE
495 Commerce Drive Amherst, NY 14228

CATEGORY 1
SWMU LOCATIONS
CWM CHEMICAL SERVICES, INC.
MODEL CITY, NY

PROJECT NO. 37877.100	DATE: JAN., 1993	DWG. NO. 37877R31	SCALE 1" = 500'	FIGURE NO. 3.1

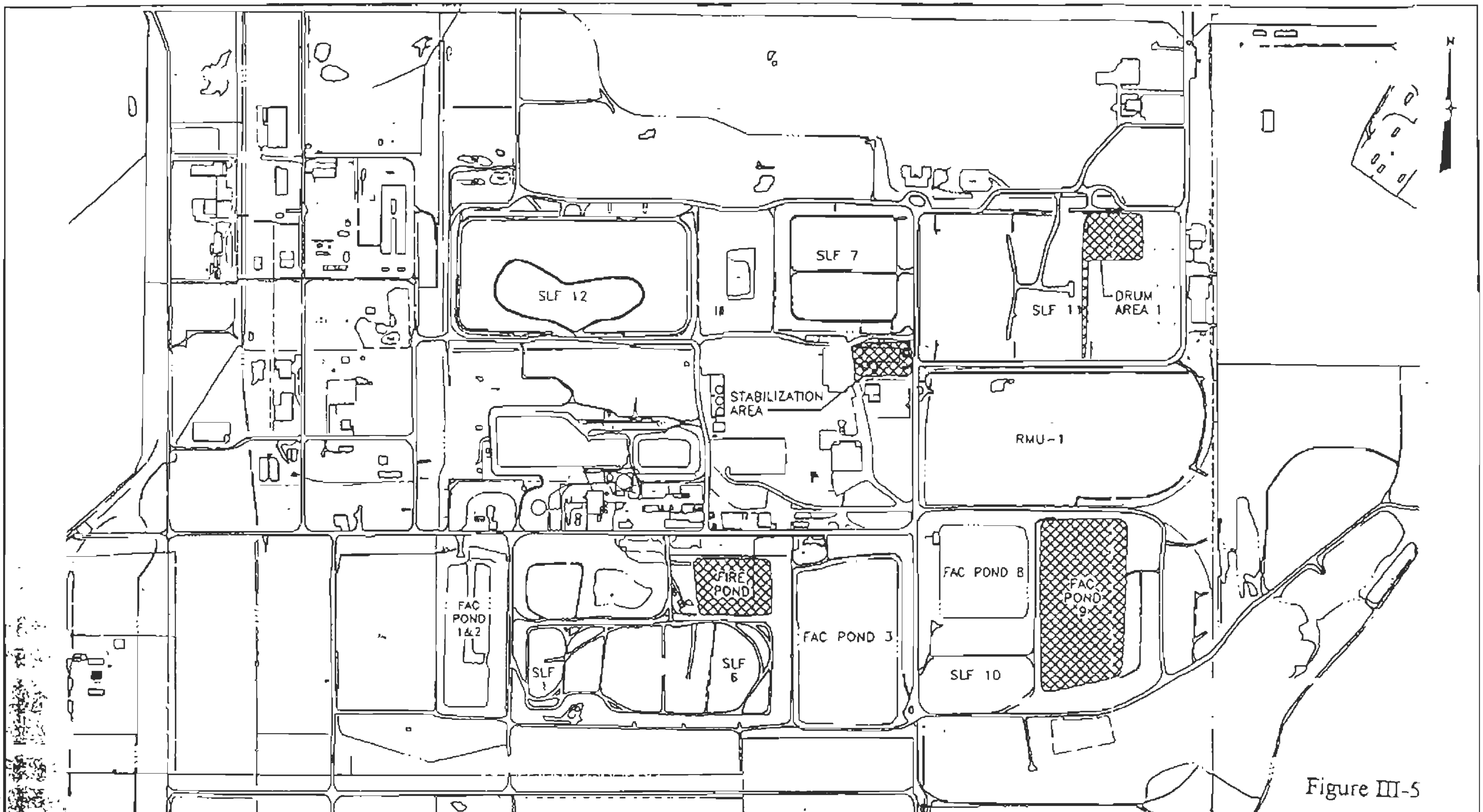


Figure III-5

RUST ENVIRONMENT & INFRASTRUCTURE
Quality through teamwork
495 Commerce Drive Amherst, NY 14228

CATEGORY 2
SWMU LOCATIONS
CWM CHEMICAL SERVICES, INC.
MODEL CITY, NY

PROJECT NO 37877.400	DATE JAN., 1995	DWG NO 37877RS2	SCALE 1"-300'	FIGURE NO. 3.2

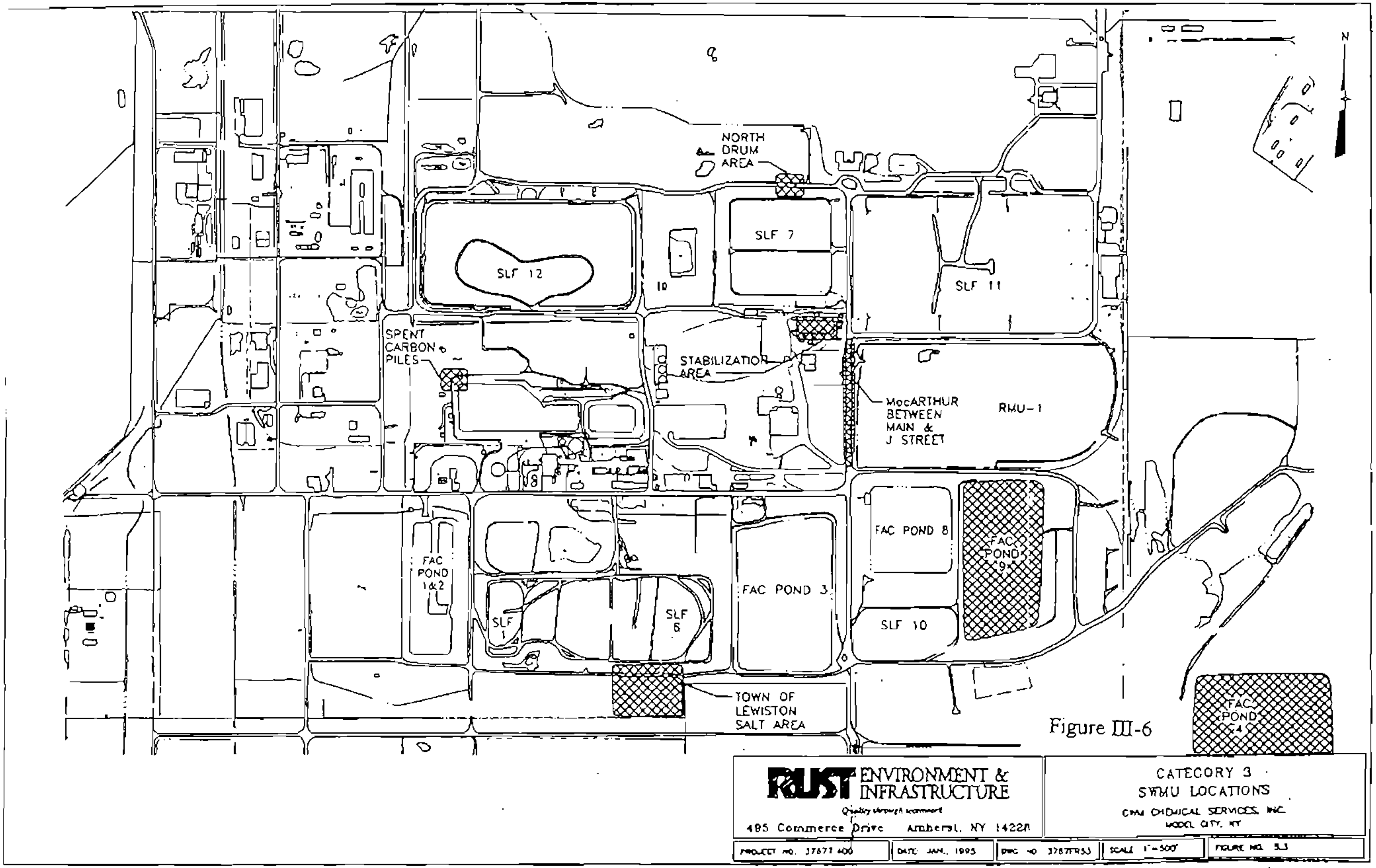

N
NORTH DRUM AREA
SLF 12
SLF 7
SLF 11
SPENT CARBON PILES
STABILIZATION AREA
MacARTHUR BETWEEN MAIN & J STREET
RMU-1
FAC POND 8
FAC POND 9
FAC POND 1&2
SLF 1
SLF 6
FAC POND 3
SLF 10
TOWN OF LEWISTON SALT AREA
FAC POND 4
RUST ENVIRONMENT & INFRASTRUCTURE
485 Commerce Drive Amherst, NY 14228
CATEGORY 3
SWMU LOCATIONS
CWM CHEMICAL SERVICES, INC.
MODEL CITY, NY
DATE: JAN., 1995
SCALE 1"=500'

Figure III-6

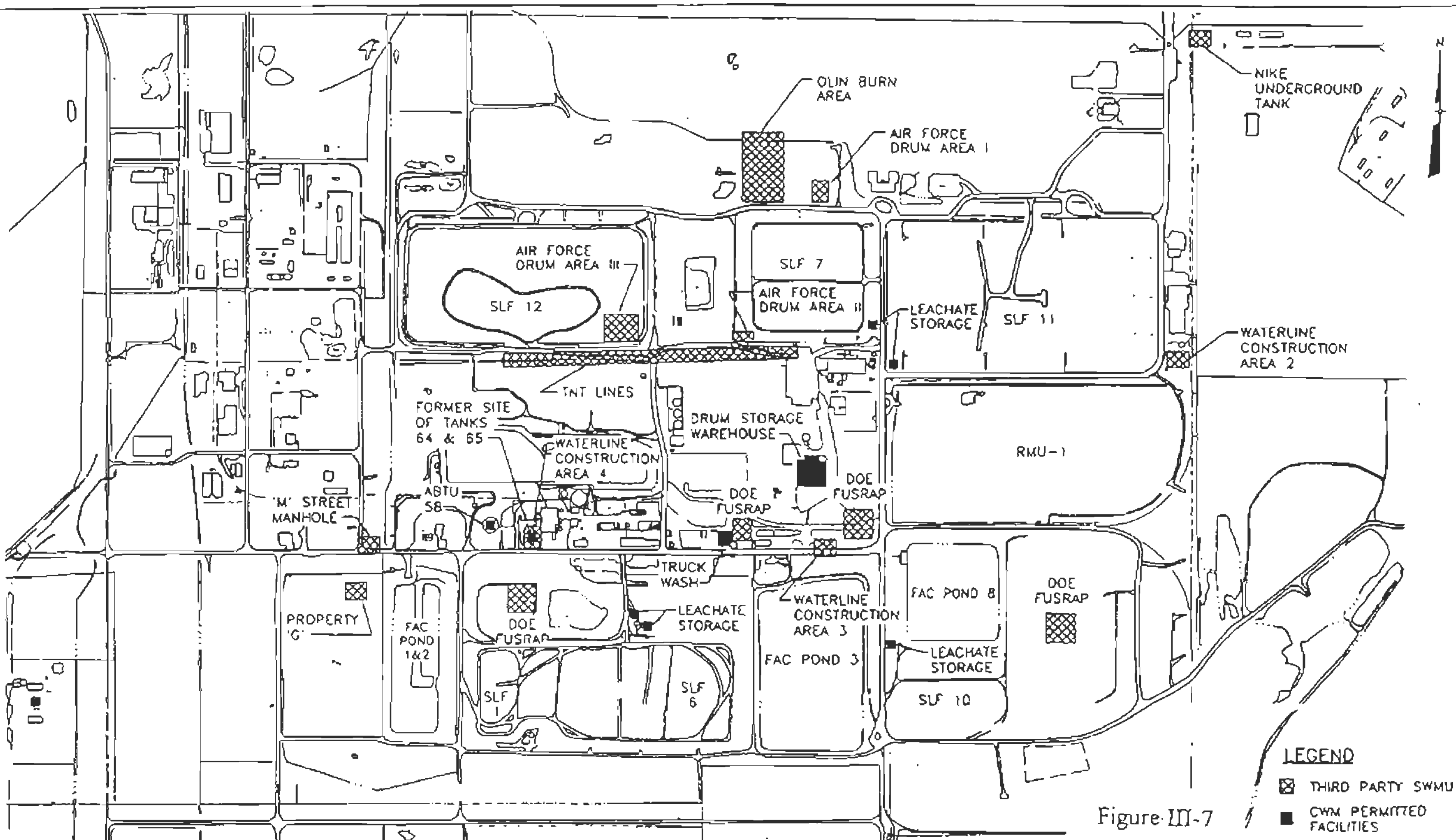
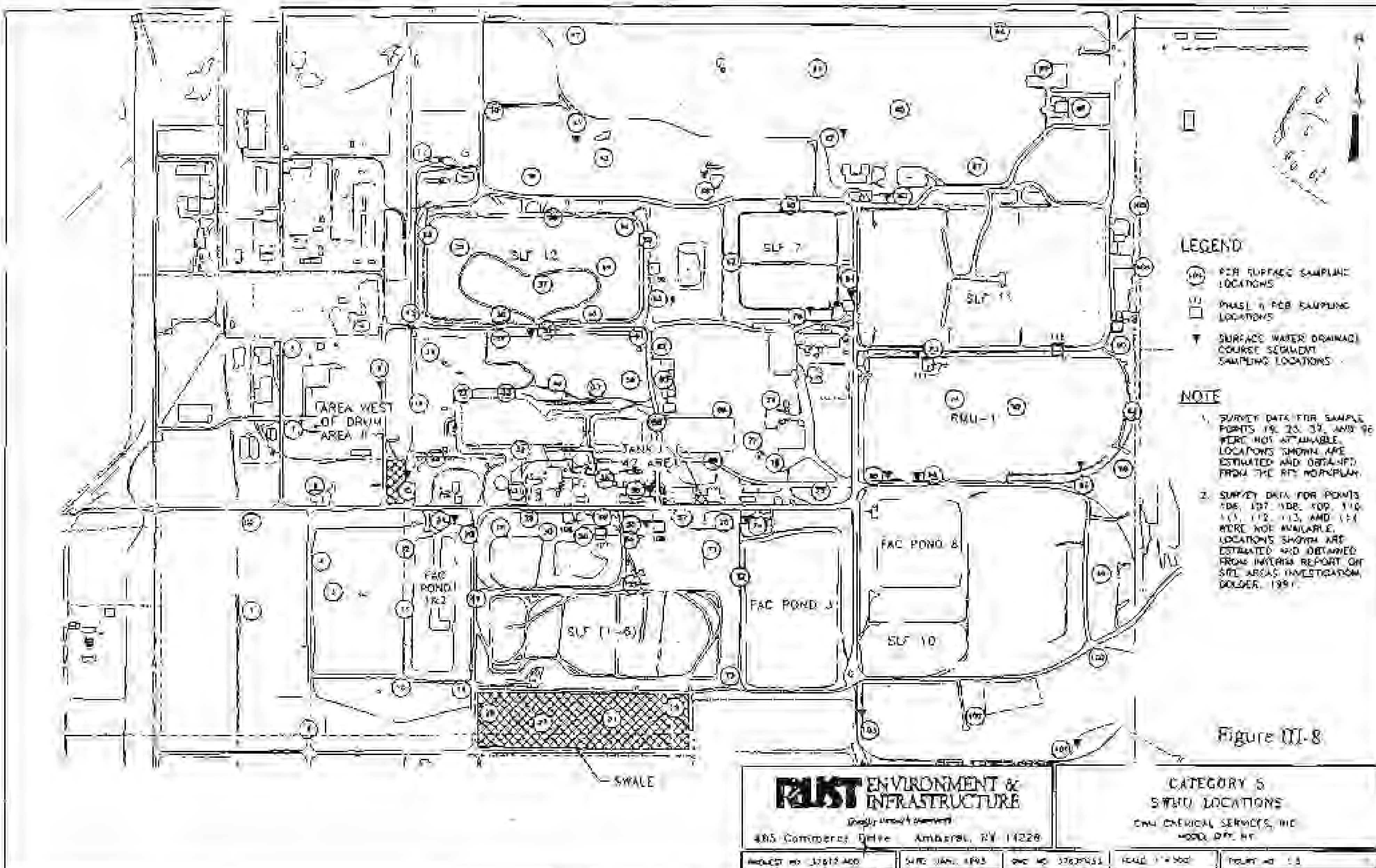


Figure III-7

RUST ENVIRONMENT & INFRASTRUCTURE Quality through teamwork 485 Commerce Drive Amherst, NY 14228	CATEGORY 4 SWMU LOCATIONS CWM CHEMICAL SERVICES, INC. MODEL CITY, NY

PROJECT NO. 37877.400	DATE: JAN., 1995	DWG. NO. 37877R54	SCALE: 1"=500'	FIGURE NO. 5.4


SLF 12
SLF 7
SLF 11
AREA WEST OF DRUM AREA II
RMU-1
FAC POND 6
FAC POND 1&2
FAC POND 3
SLF (1-6)
SLF 10
SWALE
LEGEND
PCB SURFACE SAMPLING LOCATIONS
PHASE II PCB SAMPLING LOCATIONS
SURFACE WATER DRAINAGE COURSE SEGMENT SAMPLING LOCATIONS
NOTE
1. SURVEY DATA FOR SAMPLE POINTS 19, 23, 37, AND 96 WERE NOT ATTAINABLE. LOCATIONS SHOWN ARE ESTIMATED AND OBTAINED FROM THE RFI WORKPLAN.
2. SURVEY DATA FOR POINTS 106, 107, 108, 109, 110, 111, 112, 113, AND 114 WERE NOT AVAILABLE. LOCATIONS SHOWN ARE ESTIMATED AND OBTAINED FROM INTERIM REPORT ON SWL AREAS INVESTIGATION, OCTOBER, 1991.
RUST ENVIRONMENT & INFRASTRUCTURE
485 Commerce Drive Amherst, NY 14228
CATEGORY 5
SWMU LOCATIONS
CWM CHEMICAL SERVICES, INC
MODEL CITY, NY
Figure III-8

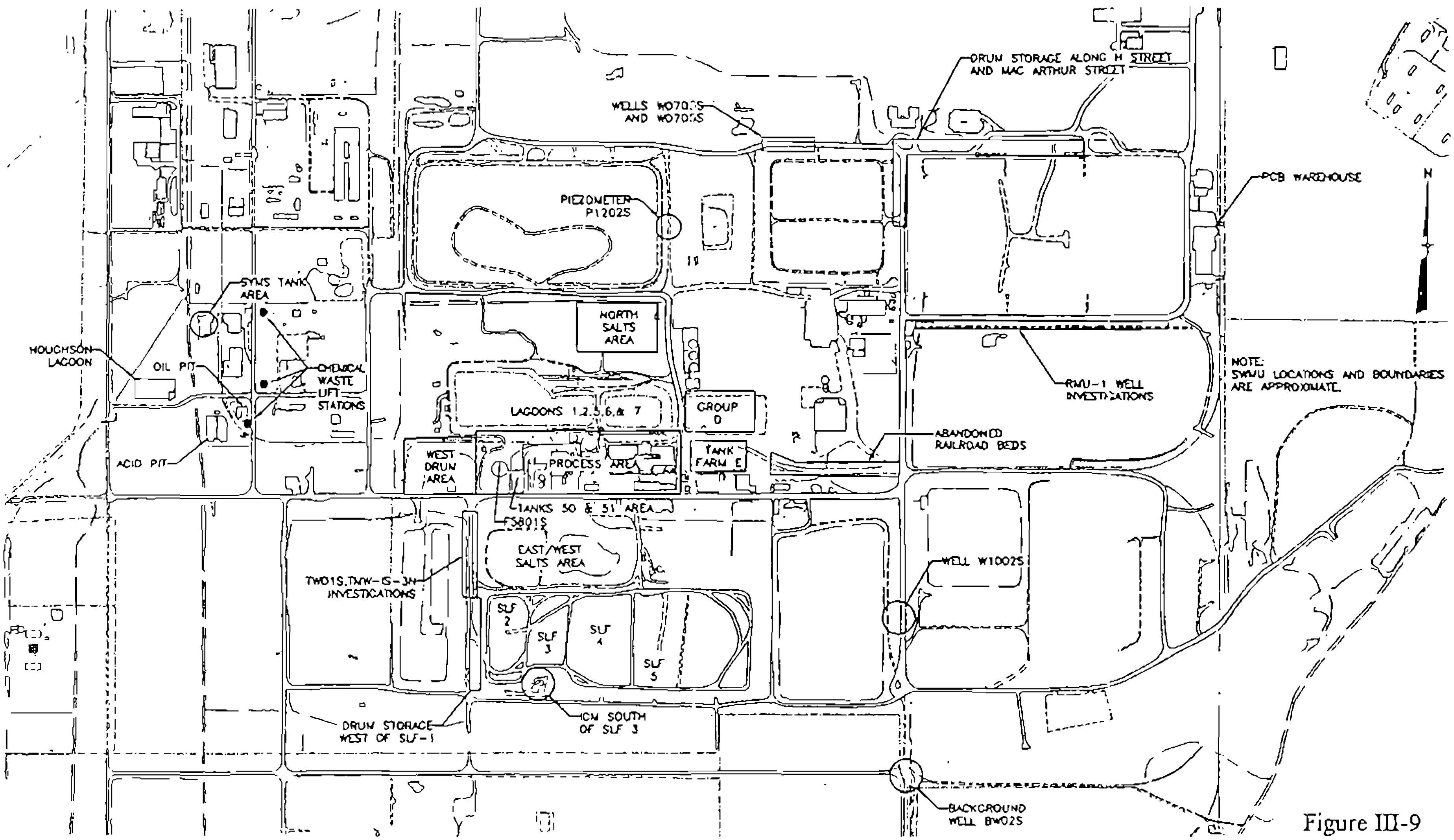


Figure III-9

RUST ENVIRONMENT & INFRASTRUCTURE Quality through teamwork 495 Commerce Drive Amherst, NY 14228	CATEGORY 6 SWMU LOCATIONS CWM CHEMICAL SERVICES, INC. Model City, NY

PROJECT NO 37677.400	DATE: JAN., 1995	DWG. NO 37677R12	SCALE 1" = 500'	FIGURE NO 1.2

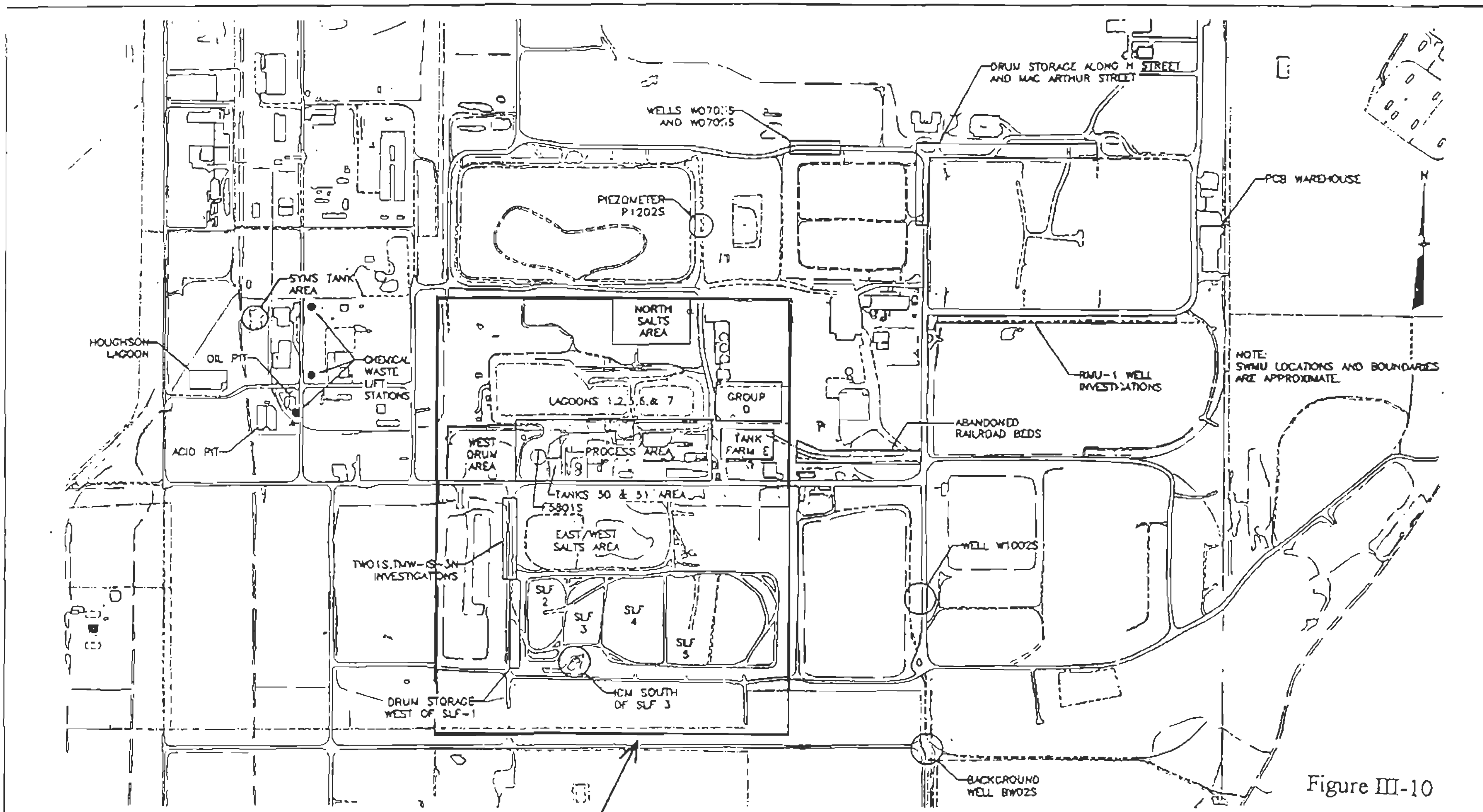


Figure III-10

Central Area

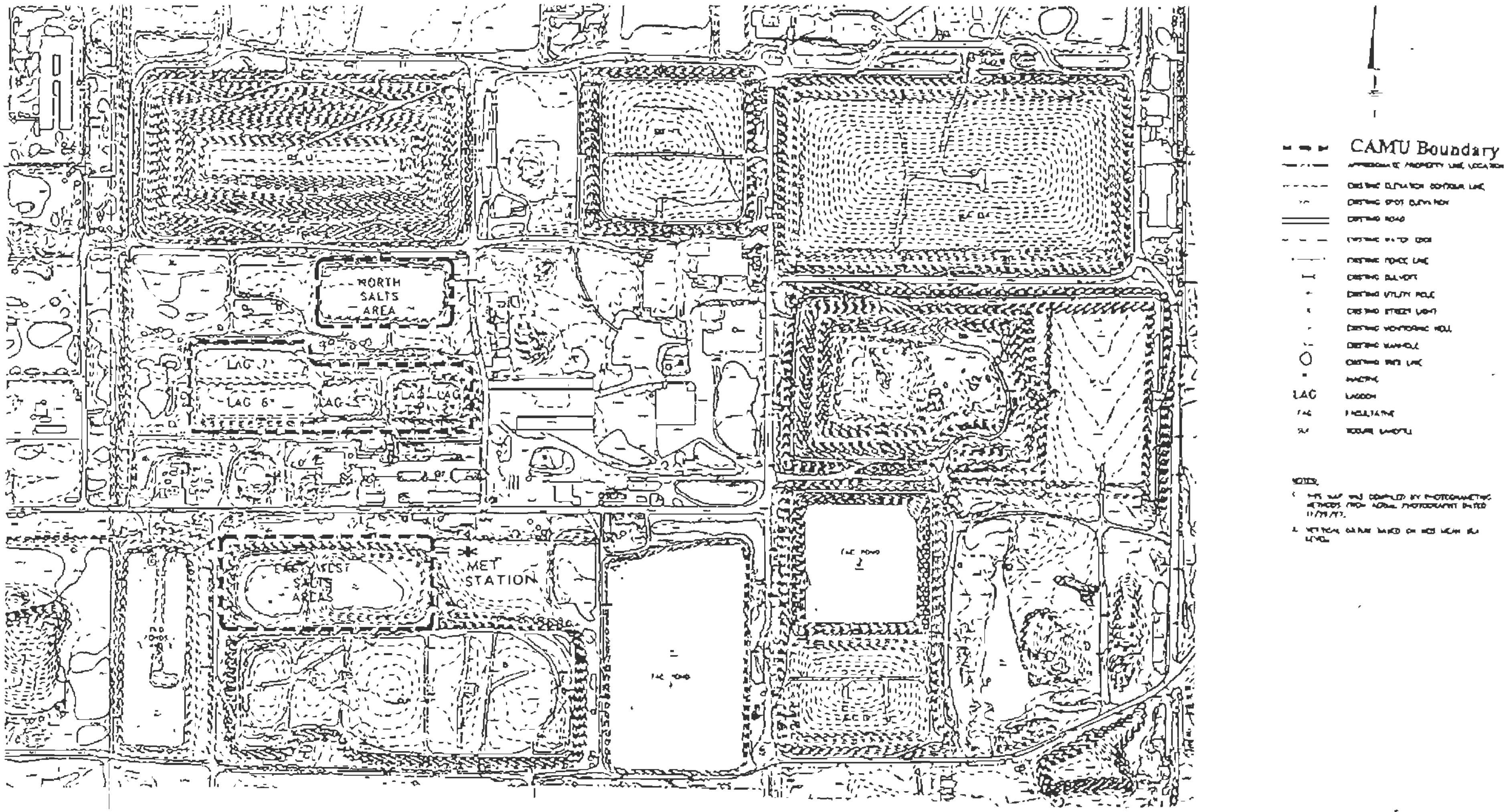
RUST ENVIRONMENT & INFRASTRUCTURE

Quality through teamwork

495 Commerce Drive Amherst, NY 14228

Central Area

PROJECT NO. 37677.400	DATE JAN. 1995	DWG. NO. 37677R12	SCALE 1" = 500'	FIGURE NO. 12



Corrective Action Management Units

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

LAGOON/SALTS AREA IN-SITU STABILIZATION IMPLEMENTATION PLAN

SITE PLAN

Figure III-11