WASTE MANAGEMENT

CWM CHEMICAL SERVICES, LLC
1550 Balmer Road
Model City, NY 14107
716 286 1550
716 286 0211 Fax

September 18, 2014

Mr. Michael Cruden
NYSDEC
Division of Environmental Remediation
Bureau of Program Management
625 Broadway, 12th Floor
Albany, NY 12233-7012

Re: Supplemental Investigation Well Installation Work Plan – West Drum Area

Dear Mr. Cruden:

CWM Chemical Services, LLC (CWM) is submitting this work plan to install three deep groundwater wells to collect new data to assess the claims that the deep groundwater in the vicinity of the West Drum Area is contaminated and flows in a due Westerly direction. The attached work plan includes the procedures for well installation, development, hydraulic testing and sampling.

CWM will mobilize a drilling contractor and qualified geologist approximately two weeks (early October) following approval of the plan, dependent on the acquisition of the needed well construction materials. Well installations, including development and hydraulic testing, are anticipated to take approximately two weeks to complete. Sampling for analytical testing will be performed approximately two weeks after well completion to allow the aquifer to stabilize. A well installation report, including analytical results, will be submitted to the NYSDEC approximately four weeks from the date of receipt of the analytical results from the laboratory.

CWM would appreciate an expeditious review and approval of this work plan. If you have any questions or comments, please feel free to call Mr. Jonathan P. Rizzo at (716) 286-0354 or myself at (716) 286-0246.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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 submitted 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."

Sincerely,
CWM CHEMICAL SERVICES, LLC

Jill A. Banaszak

Jill A. Banaszak
Technical Manager
Model City Facility

JPR/JAB/jpr
Attachment

cc:	D. Stever	- NYSDEC/Region 9
	D. Weiss	- NYSDEC/Region 9
	P. Grasso	- NYSDEC/Region 9
	B. Rostami	- NYSDEC/Region 9
	K. Johnson	- NYSDEC/Albany, NY
	M. Mortefolio	- NYSDEC/Albany, NY
	On-site Monitors	- NYSDEC/Model City, NY
	A. Park	- USEPA/New York, NY
	J. Devald	- NCHD/Lockport, NY
	M. Mahar	- CWM/Model City, NY
	J. Rizzo	- CWM/Model City, NY
	D. Darragh	- Cohen & Grigsby/Pittsburgh, PA
	EMD Subject File	
	Q & A	

SUPPLEMENTAL INVESTIGATION
WELL INSTALLATION PLAN
WEST DRUM AREA

CWM CHEMICAL SERVICES, LLC.
MODEL CITY FACILITY

September 2014

Prepared By: *CWM Chemical Services, LLC.*
1550 Balmer Road
Model City New York, 14107

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

CWM is submitting this plan to install three deep groundwater monitoring wells to collect new data to assess the claims that the deep groundwater in the vicinity of the West Drum Area (WDA) is contaminated and flows in a due Westerly direction. The proposed location of these wells is shown on attached Figure 1. CWM will utilize the Materials and Procedures for Installation of Detection Zone Wells previously utilized for Glaciolacustrine Silt/Sand Aquifer (Detection Zone) monitoring wells at the facility. These wells will be installed with screened intervals in the Glaciolacustrine Silt/Sand Aquifer (Detection Zone) and will be located directly west of the Corrective Measures at the West Drum Area.

During drilling activities, chemical and radiation surveying will be performed according to the “Monitoring Plan for RMU-2 Groundwater Well Installations”, dated April 2005 (revised March 2006) and the “Revised Generic Small Project Soil Excavation Monitoring and Management Plan”, dated November 30, 2006. Upon well installation, the wells will be developed and hydraulically tested according to the procedures in this plan. Upon well installation and development, the wells will be sampled and analyzed for volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides, and metals. Additionally, the wells will be sampled and analyzed for radiological isotopes. The unfiltered samples will be analyzed for isotopic uranium (^{234}U, ^{235}U and ^{238}U), isotopic thorium (^{228}Th, ^{230}Th and ^{232}Th), radium (^{226}Ra and ^{228}Ra), and gamma spectroscopy analysis.

Upon receipt of the analytical test results, a letter report will be submitted which will include the well installation logs and the analytical data.

The following sections describe the well installation, well development, hydraulic testing, QA/QC, and general sampling procedures for the new Glaciolacustrine Silt/Sand wells west of the West Drum Area.

2.0 WELL INSTALLATION PROCEDURE

2.1 General Field Program

Upon approval of the plan and the well locations by the NYSDEC, the monitoring wells will consist of two-inch diameter, polyvinyl chloride (PVC) well screen and Schedule 40 PVC riser pipe with flush-threaded joints. The screen sections are to consist of spiral-wrapped No. 6 slot (0.006-inch). The sand used as filter material around the screen sections will be #1-Q or #00N graded sand. The drilling and well installation is to be performed by a driller with previous site experience. Drilling and well installations are to be inspected and logged by a qualified geologist.

2.2 Materials and Procedures for the Detection Zone Wells

This section outlines the general procedure proposed to be followed for the installation of Detection Zone wells into the Glaciolacustrine Silt/Sand unit for monitoring of the uppermost aquifer. Where the Glaciolacustrine Silt/Sand aquifer is greater than 20 feet thick, two wells would be installed, an upper and lower deep well. It is anticipated that the Glaciolacustrine Silt/Sand aquifer in this area will be less than 20 feet thick. Minor changes to the proposed procedure outlined in this plan may be made on a location-specific basis as deemed necessary by field geologist as a result in variation in stratigraphy, or conditions encountered during drilling or installation of the well.

1. All drilling equipment (i.e., drill rig, all tools and toolboxes, and all drill rods, plugs, and augers) are to be decontaminated with pressurized low-volume water or steam upon arrival on-site and between borings. Decontamination procedures are discussed in Section 2.6;
2. Drillers and field geologist are to arrive at the well location and prepare the rig for drilling;
3. Drilling is to begin with 8¼-inch I.D. HSAs. Split-spoon sampling will be performed from the surface through the entire depth of the boring using American Society for Testing and Materials (ASTM) D1586-11, Method for Penetration Test and Split-Barrel Sampling of Soils. Samples are to be logged using the Unified Soil Classification System (USCS) and then placed in glass observation jars for stratigraphic record;
4. Drilling and sampling is to continue until such a point where the boring penetrates into the Glaciolacustrine Clay unit. One additional split-spoon sampler (i.e., 24 inches in length) is to be advanced into the Glaciolacustrine Clay unit to ensure full penetration of the Upper Tills unit.
5. When the Glaciolacustrine Clay unit is encountered, then the augers are to be removed from the borehole
6. Following removal of the 8¼-inch I.D. HSAs, a bentonite clay grout slurry is to be mixed to approximate proportions of 1.5 to 2.0 pounds of dry bentonite per 1.0 gallon of potable water. The bentonite clay grout slurry is to then be tremied

under pressure into the borehole to within 2.0 feet to 3.0 feet below ground surface;

7. An appropriate length of 10-inch I.D., schedule 80 PVC surface casing with flush-threaded joints is to then be placed in the borehole and then pushed approximately 1.0 feet into the Glaciolacustrine Clay. The excess PVC casing (above ground surface) is to be cut off at the ground surface;

8. The bentonite clay grout slurry is to then be washed out of the inside of the surface casing using potable water tremied under pressure, until the return water is generally clear;

9. Drilling is to continue through the surface casing with 4¼-inch I.D. HSAs. Split-spoon sampling is to be performed from the base of the borehole using ASTM D1586-11, Method for Penetration Test and Split-Barrel Sampling of Soils, and USCS logging criteria. Sampling and augering is to proceed until the Basal Red Till or Shallow Bedrock units are encountered. The borehole is to be advanced an additional six inches into the Basal Red Till or Shallow Bedrock to provide a notch for setting the well. The augers are then to be removed from the borehole;

10. Next, a 6-inch diameter steel, temporary casing is to be lowered (hammered or hydraulically pushed) to the bottom of the borehole;

11. The borehole is to then be flushed by rotary wash method using a tri-cone roller bit. The roller bit is to be equipped with a collar used to catch the coarse sand and gravel from settling back to the bottom of the borehole. The roller bit washing process is to continue until the return water is clear and generally free of sediment. The roller bit and rods is to then be removed from the borehole. Data collected previously in the area has not indicated any contamination in the Glaciolacustrine Silt/Sand aquifer, CWM will discharge drilling water for the installation of the Detection Zone (Deep) wells at the well location. If contamination is suspected CWM will containerize the drilling water for the installation of the Detection Zone (Deep) wells at the well location and the water will be transported to the site aqueous treatment area;

12. Following completion of the boring, well materials are to be transported from the stockpile location. The well screen and riser, being cleaned, wrapped, and heat sealed at the factory, are to not be steam cleaned prior to installation. If the seal of the wrapping on the screen or riser is broken, then the screen or riser is to be steam cleaned prior to installation;

13. The temporary casing is to be retrieved about six inches and approximately six inches of #4-Q graded sand is to be tremied to the bottom of the borehole;

14. The spiral wrapped PVC screen and Schedule 40 PVC riser pipe sections are to be threaded together to construct the well. The factory installed Viton "O" rings on the male ends of the screens and risers is to be removed prior to threading together of the pipe sections. Male ends of the pipe are to be wrapped with PTFE (e.g., Teflon®) tape prior to screwing the pipe joints together. The screened section is to extend from the bottom of the borehole to approximately

the top of the Glaciolacustrine Silt/Sand unit as identified from boring samples. The well is to be installed in such a way that the top of the well is to generally have a 3.0-foot stickup above ground surface. The screen and riser pipe sections are to be placed into the borehole with both end caps in place;

15. Number 1-Q or #00N graded sand is to be tremied with potable water into the annulus of the temporary casing while slowly retrieving the temporary casing out of the borehole with frequent and careful measurements of the sand pack thickness. The sand pack, when complete, is to extend approximately 2.0 feet above the well screen within the borehole. The depth to the top of the sand pack is to be measured and recorded;

16. Approximately 3.0 feet of dry 3/8-inch bentonite pellets or chips is to be tremied with potable water through the annulus of the temporary casing while slowly retrieving the casing out of the borehole in 6-inch increments. The depth to the top of the bentonite seal is to be measured and recorded;

17. A 0.5 foot to 1.0 foot layer of #4-Q graded sand is to be tremied with potable water into the annulus of the temporary casing, while slowly retrieving the casing out of the borehole in 6-inch increments;

18. A bentonite clay grout slurry is to be mixed to approximate proportions of 1.5 to 2.0 pounds of dry bentonite per gallon of water. The grout slurry is to be tremied under pressure into the annulus of the temporary casing up to within 3.0 feet of the ground surface. The remaining temporary casing is to be removed from the borehole while the grout is pumped into the annulus of the surface casing to within 3.0 feet of the ground surface; and

19. A grout slurry composed of bentonite, cement, and water is to be mixed in accordance with the following specifications. Bentonite and water is to be premixed prior to adding cement.

    1.5% to 3.0% weight - Dry Bentonite

    40% to 60% weight - Cement (Portland Type I)

    40% to 60% weight - Potable Water

20. The grout slurry is to be poured into the borehole up to the ground surface. An 8-inch diameter anodized aluminum protective casing is to be pushed into the grouted borehole so that the top of the casing is from 0.5 to 1.0 foot above the top of the riser pipe. Number 4-Q graded sand is to be placed inside the protective casing to about six inches below the top of the riser pipe. Four drain holes are to be drilled into the protective casing at approximately the grout/sand interface. A lock is to be fastened to the protective casing.

Material quantities are to be recorded, including the amount of sand, bentonite pellets, grout, and lengths of well screen and riser pipe on a well construction log. Upon completion of well installations, the location of the wells and elevation of the ground surface and the top of riser pipe are to be surveyed for location and elevation. Survey data are to be recorded on the well installation logs.

2.3 Geotechnical Laboratory Testing

Grain size tests are to be performed on soil samples collected from screened intervals of the well boreholes to be installed. The analyses are to be conducted in general accordance with ASTM D421-85 (2007), Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants, and ASTM Standard D422-63 (2007), Method for Particle-Size Analysis of Soils. Sampling location and depth are to be determined in the field by a field geologist.

2.4 Wells and Piezometer Development

The wells installed during this program are to be developed using bailers or other approved methods. The development water for the deep wells will be discharged to the ground surface in the well area. If contamination is suspected, the development water is to be containerized in drums at the well location for disposition by CWM or transported to the CWM aqueous treatment plant.

1. The water level in the well is to be measured to the nearest hundredth (0.01-foot) and recorded prior to development;
2. An appropriate development method based on water level depth, bottom of screened interval, piezometer productivity, and sediment content of water is to be selected. Development options include bailing and/or the use of Waterra® foot valve pumps and dedicated tubing;
3. Detection Zone wells (deep wells) may be developed using decontaminated stainless steel bailers and Waterra® pumps. The deep wells may be developed using a bailer and/or the Waterra® pump until the field parameters (pH, specific conductance, and temperature) are stable. Wells that exhibit high turbidity are to be further developed using the Waterra® pumps until the purge water clears or until such a time that further development would not be beneficial. Waterra® pumps will consist of a Delron® foot valve connected to dedicated 3/4-inch polyethylene tubing. The dedicated polyethylene tubing is to be rinsed with analyte-free water prior to its use to develop the wells. A minimum of one additional well volume is to be removed from the wells using a bailer following development with the Waterra® pumps;
4. During development, the volume of water purged from the well is to be monitored. A sample of the water is to be collected in a glass jar and field tests for pH, specific conductance, and temperature are to be performed to evaluate the development process. The pH/conductivity/temperature meters and glass jar

are to be rinsed with deionized water and then sample water prior to each measurement;

5. Development is to be deemed complete when the pH, specific conductance, and temperature measurements have stabilized and the purged water is generally clear; and

6. The type, dates, and times of development, pH, specific conductance, temperature, clarity, and the water level recovery after the development is stopped are to be recorded on field development logs.

2.5 Well Recovery Test Procedures

Hydraulic conductivity values are to be determined for the new wells and piezometer using the variable head slug test method. These tests are to be performed upon completion of development procedures and will include purging of the piezometers by bailing and monitoring the water levels during well recovery.

Variable head slug tests are to be analyzed using a water level versus time relationship developed for cased holes with uncased (screened) extensions by Hvorslev (Hvorslev, M.G., 1951). This method is applicable for hydraulic determinations at depth in soils that are relatively homogeneous and isotropic; the method assumes a constant water table level. The formula, used in the analysis, includes a well shape factor dependent on open interval length, radius of intake point, radius of standpipe, and a recovery term dependent on the rate of change of the unrecovered head.

Alternatively, rising head tests may be analyzed using the method developed by Cooper, Bradehoeft, and Papadopoulos (Cooper, et. al, 1967).

2.6 Decontamination of Drill Rigs and Equipment

The following methods are to be used for the decontamination of drilling equipment (i.e., drill rig, tools, drill rods, plugs, and augers) used during the drilling program. Equipment is to be decontaminated at the facility's Aqueous Wastewater Treatment System (AWTS) building, or at a temporary decontamination pad constructed for the project upon arrival at the site. Drill rigs and equipment are to also be decontaminated between borings. The decontamination procedures to be followed are listed below:

1. All soil/rock material is to be removed from the equipment at the borehole site;

2. Augers, tools, and other reusable items are to be wrapped with a plastic cover prior to transport from the borehole site to the decontamination facility;

3. Equipment and drill rig are to be transported to the decontamination facility in a manner that minimizes the spread of potential contaminants.

4. Equipment is to be thoroughly washed with pressurized low-volume water or steam cleaner using a wire brush to remove visible soils, etc. adhering to the equipment.
5. A laboratory-grade detergent (Alconox®) is to be used to remove any oils, grease, and/or hydraulic fluids adhering to the equipment.
6. The equipment is to be rinsed with pressurized low-volume water or steam.
7. The equipment is to be allowed to air dry.
8. Following final rinse, openings are to be visually inspected to verify they are free of soil and other particulates, which may contribute to possible cross-contamination.
9. The equipment is to be wrapped in clean plastic prior to transporting to the next borehole to prevent contamination.

2.7 Field Quality Assurance/Quality Control

2.7.1 Procedures

During the drilling and well installation program, field Quality Assurance/Quality Control (QA/QC) samples are to be collected. Samples are to be collected to assure that contamination was not introduced to the wells through the drilling and well installation process. The types of samples to be collected are to include the following:

- Auger rinse sample;
- Municipal water source sample;
- Water truck or drill rig tank sample; and
- Riser rinse sample.

Auger rinse samples are to be collected by pouring laboratory-supplied analyte-free water through the augers that will be used for drilling. The samples are to be obtained at the decontamination area following decontamination of the augers, tools, and drill rig adhering to procedures outlined in Section 2.6. The frequency for collecting auger rinse samples is to obtain one sample per drill rig per week of drilling.

Municipal water source samples are to be collected at each location at which water will be obtained for either decontamination or well installation procedures. Water sources are to be sampled directly from the spigot from which water was obtained or from hydrants prior to the water being transferred to drill rig water tanks or water truck tanks or used for decontamination purposes. The frequency for collecting water source samples is to obtain one sample per source for the project.

Water truck and drill rig water tank samples are to be collected from each drill rig equipped with a tank and from the water truck tanks used for the drilling and well installation procedures. The samples are to be obtained directly from the spigots on the drill rig tanks and the water truck tank. The frequency for collecting the water truck and drill rig tank samples are to be one per water truck tank and one per drill rig tank for the project.

A riser rinse sample is to be collected by pouring laboratory-supplied analyte-free water through a section of riser pipe prior to its installation in a well. The sample is to be obtained following removal of the riser pipe from the factory wrapping and prior to its use. One riser rinse sample is to be collected for the project.

All field samples collected are to be placed in coolers with ice. The samples are to be shipped to the analytical laboratory. The samples are to be analyzed for list of analytes in Table 1 for volatile organic compounds, semi-volatile organic compounds, PCBs, and pesticides.

3.0 GROUNDWATER SAMPLING, ANALYSIS, AND EVALUATION

3.1 Monitoring Parameters

Upon well installation and development, the wells will be sampled in accordance with the Groundwater Sampling and Analysis Plan (December 2013), which is a Reference Document to the Sitewide Part 373 Permit. The samples will be analyzed for volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides, and metals by Test America. Table 1 provides an analyte list for the analyses to be performed. Additionally, the wells will be sampled and analyzed for radiological isotopes. The unfiltered samples will be analyzed for isotopic uranium (^{234}U, ^{235}U and ^{238}U), isotopic thorium (^{228}Th, ^{230}Th and ^{232}Th), radium (^{226}Ra and ^{228}Ra), and gamma spectroscopy analysis.

3.2 Water Levels

Water levels from the new wells will be obtained prior to the sampling event. Additionally, water levels will be collected from Glaciolacustrine Silt/Sand wells in the general West Drum Area. The water levels will be used to prepare potentiometric contour map(s) such that an evaluation of the groundwater flow conditions can be performed.

4.0 REPORTING

At the completion of the well installations, groundwater sampling and sample analyses, a report will be prepared which will include the well completion logs, the analytical data, and the water level data.

Table 1
LIST OF ANALYTES
WDA DEEP WELL INSTALLATION
CWM CHEMICAL SERVICES, LLC, MODEL CITY, NY

Volatiles
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,2-Dichloroethane
1,2-Dichloroethene (Total)
1,2-Dichloropropane
2-Chloroethylvinyl ether
2-Hexanone
Acetone
Benzene
Bromoform
Bromomethane
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,3-Dichloropropene
Dibromochloromethane
Dichlorobromomethane
Ethylbenzene
Methyl Ethyl Ketone
Methyl Isobutyl Ketone
Methylene Chloride
Styrene
Tetrachloroethene (PERC)
Toluene
Total Xylenes
Trans-1,2-Dichloroethene
Trans-1,3-Dichloropropene
Trichloroethene (TCE)
Vinyl acetate
Vinyl Chloride

SVOA Compounds
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
2,2'-Oxybis(1-chloropropane)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronapthalene
2-Chlorophenol
2-Methylnaphthalene
2-Nitroaniline
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Nitroaniline
4-Bromophenyl phenyl ether
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Nitroaniline
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a) anthracene
Benzo(a) pyrene
Benzo(b) fluoranthene
Benzo(g,h,l) perylene
Benzo(k) fluoranthene
Benzoic acid
Benzyl alcohol
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-Ethylhexyl)phthalate
Butyl benzyl phthalate
Chrysene
Cresol, 4,6-Dinitro-O-
Cresol, o-
Cresol, p-
Cresol, p-Chloro-m-
Di-n-butyl phthalate
Di-n-octyl phthalate
Dibenzo(a,h) anthracene
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd) pyrene
Isophorone
N-Nitroso-di-n-Propylamine
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
Naphthalene
Nitrobenzene
Pentachlorophenol
Phenanthrene
Phenol
Pyrene

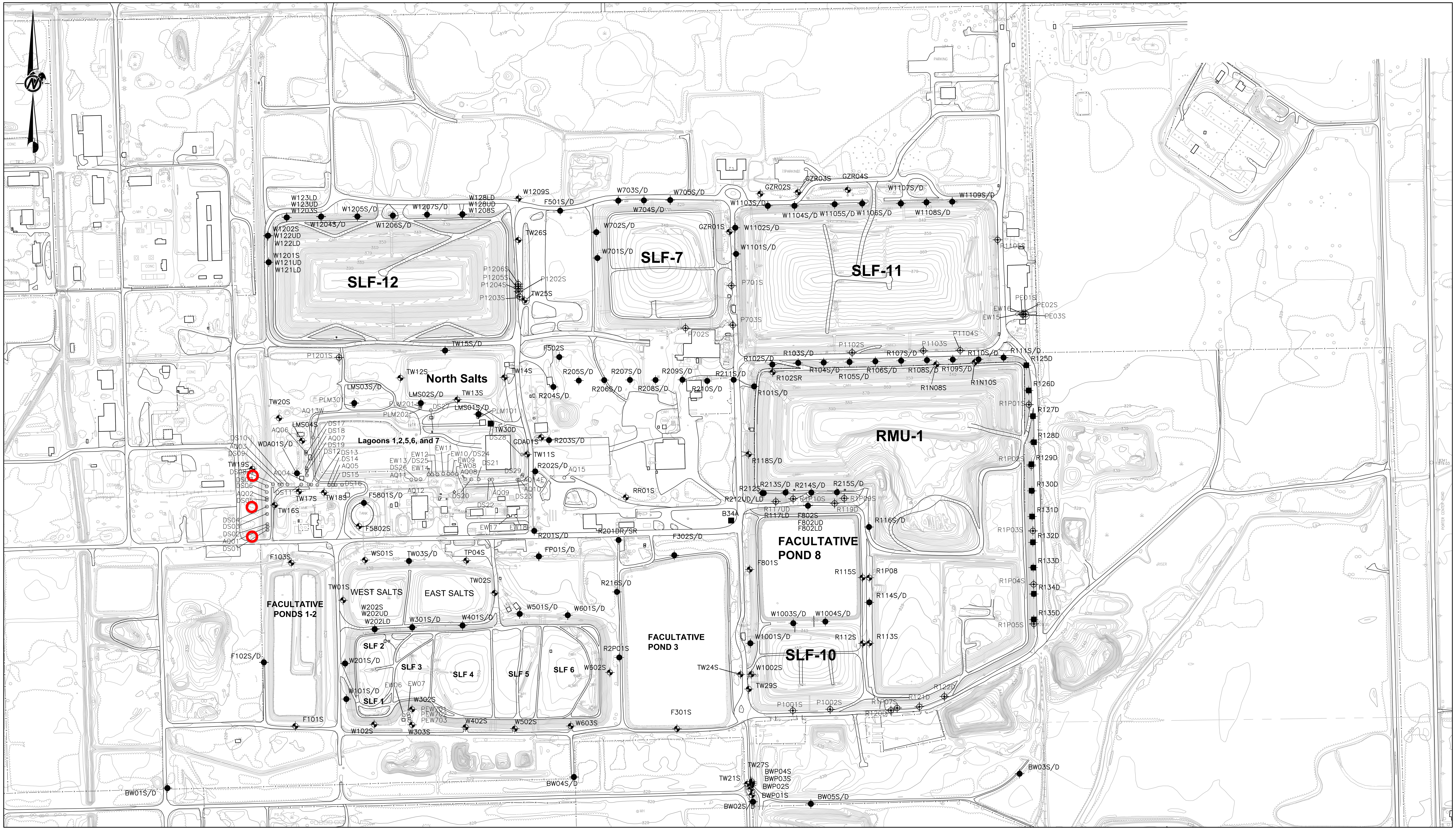
PCB
PCB 1016
PCB 1221
PCB 1232
PCB 1242
PCB 1248
PCB 1254
PCB 1260

Pesticides
4,4'-DDD
4,4'-DDE
4,4'-DDT
Aldrin
alpha-BHC
beta-BHC
Chlordane
delta-BHC
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan Sulfate
Endrin
Endrin aldehyde
gamma-BHC (Lindane)
Heptachlor
Heptachlor epoxide
Toxaphene

Metals
Aluminum - Total
Antimony - Total
Arsenic - Total
Barium - Total
Beryllium - Total
Cadmium - Total
Calcium - Total
Chromium - Total
Cobalt - Total
Copper - Total
Iron - Total
Lead - Total
Magnesium - Total
Manganese - Total
Mercury - Total
Nickel - Total
Potassium - Total
Selenium - Total
Silver - Total
Sodium - Total
Thallium - Total
Vanadium - Total
Zinc - Total

Wet Chemistry
Cyanide - Total **(ppm)**

Radiochemistry
Gamma Cs-137 & Hits by EPA 901.1 MOD
Cesium 137
Radium 226 by EPA 903.0 MOD
Radium 226
Radium 228 by GFPC EPA 904 MOD
Radium 228
Iso Uranium (short CT) DOE A-01-R MOD
Uranium 234
Uranium 235
Uranium 238
Iso Thorium (short CT) DOE A-01-R MOD
Thorium 228
Thorium 230
Thorium 232



LEGEND

- UPPER TILLS UNIT (SHALLOW) MONITORING WELL
- UPPER TILL UNIT (SHALLOW) AND GLACIOLACUSTRINE SILT/SAND UNIT (DEEP) MONITORING WELL PAIR OR TRIPLET
- GLACIOLACUSTRINE SILT/SAND UNIT (DEEP) MONITORING WELL OR DEEP PAIR
- PIEZOMETER
- GROUND WATER EXTRACTION AQUEOUS SUMP, DNAPL SUMP OR EXTRACTION WELL

NOTES

1.) WELL AND PIEZOMETER LOCATIONS ARE APPROXIMATE.

REFERENCES

1.) BASE MAP COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED MAY 31, 2001 BY AIR SURVEY CORP., DULLES, VIRGINIA.

200 0 200 400
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
7	5/16/13	AJN	Added 2012 Extraction Wells EW17 and EW18 and Aqueous Sump AQ15.	AJN	DCW	BCS
6	1/12/10	AJN	Added RMU-2 Footprint Relocation wells: F501S/D, F502S; R201DR/SR; R216D/S; R2P01S; R212S/UD/LD.	AJN	DCW	BCS
5	10/9/08	AJN	Added RMU-2 wells; west-central portion of figure. Removed wells R1P06S, R123D and R124D (removed for construction of truck ramp).	AJN	DCW	BCS
4	2/21/05	AJN	Changed name of F58025 to F5802S.	AJN	JPR	JPR
3	9/23/04	JPR	Changed R118S/D from piezometers back to monitoring wells.	JPR	JPR	BCS
2	2/11/04	AJN	Removed compliance boundaries; changed R118S/D, R117LD/UD, R119D-R124D to piezometers.	AJN	JPR	BCS
1	10/29/03	JPR	Added new wells east of RMU-1 and compliance boundaries.	JPR	JPR	BCS

PROJECT

CWM CHEMICAL SERVICES, L.L.C.
MODEL CITY, NEW YORK

TITLE

FACILITY WELLS

Golder Associates
Buffalo, NY

PROJECT No.		023-9312
DESIGN	JPR	02/04/02
CADD	AJN	5/16/13
CHECK	DCW	5/16/13
REVIEW	DCW	5/16/13

FILE No. 0239312D172
SCALE AS SHOWN REV. 1

FIGURE 1