



May 11, 2006

Mr. James Strickland, P.E.
New York State Department of
Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

CWM CHEMICAL SERVICES, LLC

1550 Balmer Road
PO Box 200
Model City, NY 14107
(716) 754-8231
(716) 754-0211 Fax

Re: Revised Soil Sampling Plan – Response to NYSDEC Comments

Dear Mr. Strickland:

On October 27, 2005, CWM Chemical Services, LLC (CWM), submitted the Sitewide Radiological Investigation Soil Sampling Plan, prepared by URS Corporation, as required by Module II, Condition J(2), of CWM's Part 373 Permit No. 9-2934-00022/00097. New York State Department of Environmental Conservation (NYSDEC) issued comments regarding that plan on January 25, 2006. Attached please find responses to the NYSDEC comments and a revised plan addressing these comments and responses. The attached revised plan replaces the October 2005 plan in its entirety.

Please call Mr. John Hino at (716) 754-0278 or myself at (716) 754-0246 if you have any questions or comments.

"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 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."

Sincerely,
CWM CHEMICAL SERVICES, LLC

Jill A. Banaszak
Technical Manager
Model City Facility

JBH/JAB/jbh
Attachment

May 11, 2006

Mr. James Strickland, P.E.

NYSDEC

Re: Revised Soil Sampling Plan – Response to NYSDEC Comments

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cc:	B. Rostami	- NYSDEC/Region 9	- W/O Attachment
	P. Kutlina	- NYSDEC/On-site Monitor	- W/Attachment
	E. Dassatti	- NYSDEC/Albany, NY	- W/Attachment
	B. Youngberg	- NYSDEC/Albany, NY	- W/Attachment
	S. Gavitt	- NYSDOH/Troy, NY	- W/Attachment
	J. Devald	- NCHD/Lockport, NY	- W/Attachment
	R. Sturges	- CWM/Model City, NY	- W/O Attachment
	J. Hino	- CWM/Model City, NY	- W/Attachment
	S. Rydzyk	- CWM/Model City, NY	- W/Attachment
	CAC		- W/Attachment
	EMD Subject File		
	Q & A		

CWM Chemical Services, LLC.
Sitewide Radiological Investigation Soil Sampling Plan
October 2005

Response to NYSDEC Comments dated January 25, 2006

Section 5, Data Quality Objectives:

***NYSDEC Comment:** Please revise this section to delete references to "soil acceptance limits prescribed by DEC." The Department has not prescribed soil acceptance limits for the CWM site. The minimum detection limits for the radionuclides listed should be no greater than 1 pCi/g. Such detection limits are routinely achieved.*

CWM Response – The reference to "*soil acceptance limits prescribed by DEC*" has been removed in Sections 5 and 8. Also, the minimum detection limits for the radionuclides have been changed such that none of the radionuclides are greater than 1 pCi/g.



***SITEWIDE RADIOLOGICAL INVESTIGATION
SOIL SAMPLING PLAN***

For

**CWM Chemical Services, LLC
Model City Facility
1550 Balmer Road
Model City, New York, 14107**

Prepared by

**URS Group, Inc.
77 Goodell Street
Buffalo, New York**

**October 2005
(Revised May 2006)**

1.0 Introduction

This Soil Sampling Plan (SSP) was developed by URS for CWM Chemical Services, LLC. (CWM), pursuant to the New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 373 Sitewide Permit, which requires CWM to conduct site-wide Radiological Monitoring of the facility. This SSP addresses those actions necessary to sample areas where elevated radiation levels were identified during the site gamma walkover survey. Each area that has been identified with elevated radiation levels will be delineated and sampled using protocols identified in this SSP as discussed below. NYSDEC and New York State Department of Health (NYSDOH) will be notified in advance of scheduled sampling activities.

2.0 Delineation of Elevated Areas

Areas in which elevated radiation readings are identified will be delineated (marked) for identification of the horizontal extent of the suspected contamination. For purposes of this SSP, an elevated radiological reading will be defined as readings greater than 16,000 counts per minute (cpm) or above the media specific investigation levels that are being developed as part of the gamma walkover survey. A sequential numbering system will be used to identify the individual areas. Marking areas may be through any combination of the following: Global Positioning System (GPS) coordinates or physical markings such as stakes, flags, or spray paint. The spot of highest activity in the area will be marked.

3.0 Soil Sampling

Due to the history of the site and the identification of small isolated areas with elevated readings, it is expected that several of the elevated readings are due to the presence of a discreet item or object located below the surface. As such, two sampling methods are included in this plan: location specific sampling to be used when the area survey identifies a "maximum activity" believed to be due to the presence of an item below the surface and an area assessment sampling method using multiple samples to evaluate a defined area of interest. The purpose of the location specific sampling procedure is to locate the specific item causing the elevated reading and remove it for testing. The determination of which sampling method will be employed for each area with above background readings will be made by CWM's health physicist consultant. A job hazard analysis was used to identify expected hazards associated with minor soil sampling activities and was described in the previously developed Health and Safety Plan (HASP).

Surface soils may be sampled using a spade, trowel, or scoop. There are two primary potential problems associated with soil sampling - cross contamination of samples and improper sample collection. Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary.

Soil sampling equipment includes any of the following:

- Maps/plot plan
- Safety equipment, as specified in the site-specific HASP
- Survey equipment or GPS to locate sampling points
- Tape measure
- Survey stakes or flags
- Camera and film or digital camera with data storage
- Stainless steel, plastic, or other appropriate homogenization bucket, bowl or pan
- Appropriate size sample containers
- Ziplock[®] plastic bags
- Logbook
- Labels
- Chain of Custody records and custody seals
- Field data sheets and sample labels
- Vermiculite for cushioning
- Decontamination supplies/equipment
- Canvas or plastic sheet
- Spade or shovel/Spatula/Scoop/Plastic or Stainless Steel Spoons/Trowel(s)

3.1 Sample Procedure – Isolated Location

- A. Perform a general area survey prior to site entry in accordance with the site-specific HASP or use information from the gamma walkover survey data. Use either information for briefing purposes and comparison with HASP.
- B. Obtain necessary sampling and monitoring equipment.
- C. If needed, decontaminate or pre-clean equipment, if not new.
- D. Use stakes, flags or paint to identify and mark all sampling locations. Sample coordinates will be obtained by GPS or equivalent survey methods when possible. All staked locations will be utility-cleared by CWM prior to soil sampling.
- E. All data will be documented on field data sheets or within site logbooks.
- F. A canvas or plastic sheeting barrier will be placed on the ground next to the spot with the highest activity. Soils removed from the surface will be placed upon barrier during the investigation in order to segregate from adjacent, undisturbed soils. A scoopful of soil will be removed and surveyed. If the reading is approximately equal to or below background readings and no items of interest are noted, it will be placed on the barrier. Additional scoops will be taken and screened until one with an elevated reading is located. The soil will be placed on the barrier and inspected for items of interest (chip, stone, piece of cake, debris, etc.) If an item is located, it will be separated and surveyed. If it appears to be the source of elevated readings, it will be placed in a sample jar for testing.

- G. The sample location will then be re-scanned to determine if there are other similar objects present. If there are no further objects that cause the reading to be elevated, a soil sample(s) will be obtained to verify that there was no radioactivity added to the soil from the presence of the object(s). In addition, field duplicates will be obtained as necessary. If satisfactory scanning results are obtained (ie. <16,000 cpm), CWM intends to backfill the sample area with the non-contaminated soil. If scanning results indicate that some or all of the removed soil still has elevated radiation readings (as determined by CWM's health physicist consultant), the removed soil will be sampled for testing, containerized, labeled, tracked, and stored at CWM until a proper disposal outlet has been determined.

3.2 Sample Procedure – Area Sampling Program

- A. Perform a general survey of delineated area prior to site entry in accordance with the site-specific HASP or use information from the gamma walkover survey data. Use either information for briefing purposes and comparison with HASP.
- B. Obtain necessary sampling and monitoring equipment.
- C. If needed, decontaminate or pre-clean equipment, if not new.
- D. Use stakes, flags or paint to identify and mark all sampling locations. Sample coordinates will be obtained by GPS or equivalent survey methods when possible. All staked locations will be utility-cleared by CWM prior to soil sampling.
- E. All data will be documented on field data sheets or within site logbooks.
- F. For an area sampling program, at least five samples will be obtained for each delineated area. Field duplicates (co-located samples) or split samples will be obtained in delineated areas at an approximate 10% rate depending on the consistency of radiation readings and/or amount of material available. Duplicates may be either co-located (adjacent) or a split sample where a larger volume is divided between two samples.
- G. Identify the five (5) sampling locations (north, south, east, west and center) within the identified area. Determine whether a duplicate sample will be required from this area.
- H. Mark or label containers and collect samples from surface soil (up to 6" or 15 cm) with tools such as spades, shovels, trowels, or scoops. Surface material (excluding plants) is removed to the required depth and a stainless steel or plastic scoop is then used to collect the sample. Sampling should be focused on obtaining a cylinder rather than an inverted pyramid of material

4.0 Sample Identification, Chain of Custody, and Handling

The sample collector will enter the identification code, grid reference points, sample collection depth (or “SS” for surface sample), date of sampling, sampler initials and other pertinent information on the appropriate forms and on the sample container. The container will be marked with an indelible pen (e.g., a Sharpie) or use prepared labels.

The sample collector is responsible for maintaining custody of all samples. If requested, tamper proof seals will be placed on the sample container prior to shipment to the laboratory. A sample label will be signed, dated, and placed across the lid and container so that its removal or disruption is evident. Evidence of tampering and/or deviations must be explained in the remarks section of the chain of custody form. If a sample’s integrity is questioned, a “Non-conformance Report” will be initiated and resolved, or that sample’s result may not be used.

There are no holding time requirements for the field samples. Samples are considered active until disposed, transferred or destroyed. Archived samples will be stored in a designated area with access controlled by CWM or their designee. Sample disposal must be approved by CWM.

Field control of cross-contamination is determined at the time of sampling by the on-site URS health physics staff using locally available instrumentation. The degree of concern and precautions followed will be determined by the specific site conditions and activity levels involved. Equipment used for sample collection should be surveyed and cleaned as necessary following each use.

Equipment for decontamination may include the following:

- Tap water
- Non-phosphate detergent
- Isopropyl alcohol
- Spray bottles
- Stiff bristle brush
- Moist paper towels

Equipment surfaces will be wiped free of loose material using moist paper towels. If necessary, use tap water, detergent and brush, and rinse with de-ionized water, or with isopropyl alcohol. Allow equipment to air dry.

Samples will be screened after they are inside their containers. If a sample is greater than 50,000 cpm, but less than 500,000 cpm, it is moderate activity. Low activities are <50,000 cpm and high activities are >500,000 cpm, respectively. Samples are scanned with a 2” NaI (TI) meter on contact with the sample, nominally a 500 gram container of soil. Samples will be marked accordingly for appropriate handling in the contract laboratory.

5.0 Data Quality Objectives

Soil samples will be analyzed to determine radioactivity for the following radionuclides, matrices, methods and default reporting level (ie., minimum detection limit):

Analyte	Matrix	Method	Default RL (pCi/g)
Ra-226	Soil	EPA 901.1m	1.0
U-234	Soil	PGH-R-008A	1.0
U-235	Soil	PGH-R-008A	1.0
U-238	Soil	PGH-R-008A	1.0
Th-228	Soil	PGH-R-008A	1.0
Th-230	Soil	PGH-R-008A	1.0
Th-232	Soil	PGH-R-008A	1.0
Am-241	Soil	EPA 901.1m	1.0
Be-7	Soil	EPA 901.1m	0.3
Ce-141	Soil	EPA 901.1m	0.1
Ce-144	Soil	EPA 901.1m	0.25
Cs-134	Soil	EPA 901.1m	0.1
Cs-137	Soil	EPA 901.1m	0.1
Co-57	Soil	EPA 901.1m	0.1
Co-60	Soil	EPA 901.1m	0.1
Mn-54	Soil	EPA 901.1m	0.1
Zn-65	Soil	EPA 901.1m	0.1
Zr-95	Soil	EPA 901.1m	0.1
Cd-109	Soil	EPA 901.1m	0.1

The URS contract laboratory, Pace Analytical Services, Inc., qualifications and capabilities were reviewed and determined to meet minimum detection limits stated above.

6.0 Analytical Procedures

Procedures for determination of all radionuclides listed above in Section 5 are maintained by the URS contract laboratory. Procedure PGH-R-023 (Gamma Spectroscopy by EPA method 901.1m) is used for determination of radium-226 by in-growth and other radionuclides, except isotopic uranium and isotopic thorium, present by gamma

spectroscopy; procedure PGH-R-008A is for isotopic uranium and isotopic thorium via alpha spectroscopy. The Pace Analytical Services, Inc. procedure for alpha spectroscopy is numbered PGH-R-008A since there is no EPA method for alpha spectroscopy.

7.0 Data Review

Analytical data packages from laboratory analyses will be evaluated to verify the adequacy of calibrations, performance within tolerance limits, calculations, blanks, lab duplicates, field duplicates, spike recoveries, laboratory control samples, quantitation and detection limits, and other analytical parameters.⁽¹⁾ Laboratory control samples, laboratory/instrument blanks, matrix spikes, and lab duplicates must be analyzed at a minimum 5% frequency and field duplicates must be analyzed at a minimum 10% frequency.

Data that does not satisfy one or more of the data quality criteria will be qualified in the following manner. Blank results that fall outside the appropriate tolerance limits or net blank results that exceed their associated uncertainty will be qualified as estimated (J), along with all associated sample results that are less than 10 times the blank value. Chemical recoveries between 50 to 100% are acceptable; those ranging from 20% - 50% or from 100% - 150% are estimated (J); and those below 20% or above 150% are unusable (R). Lab control samples in the ranges of 40%-70% or 130%-160% are estimated (J) and those <40% or >160% are unusable (R). Duplicate error ratios for lab duplicates must be less than unity, or the associated samples are estimated (J). Analyses not attaining the required detection limits are labeled (DL). Analyses reported without analytical uncertainties are estimated (J). Net negative values with uncertainties smaller than their absolute value are unusable (R). Errors in the calculation of uncertainties are labeled as (JE).

8.0 Data Assessment

All analytical results will be discussed with the NYSDEC. The analytical results of area analyses will be compared to a reference concentration (e.g., 5 pCi/g Ra-226, 5 pCi/g Th-230, 60 pCi/g U_{tot}). Results that exceed these criteria will be investigated further for remedial action. Results satisfying these criteria will be proposed to the NYSDEC as acceptable. Results represented by inadequate laboratory data or inadequate/improper sampling will be further characterized to attain the requisite analytical results for comparison with the reference concentrations.

¹ T. L. Rucker and C. M. Johnston, Laboratory Data Validation Guidelines for Evaluating Radionuclide Analyses, Oak Ridge, TN: SAIC report 143-ARCS-93.03, Rev. 05A, April 29, 1993.