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Subject:	B310 DCAP SWMU Closure
Date:	Wednesday, March 09, 2016 8:29:49 AM
Attachments:	IBM DCAP Project SWMU Closure Approach_02.02.16.pdf

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Alex and Henry,

As part of IBM's asset retirement obligation project, IBM will be decommissioning the former DCAP manufacturing line in B310 at the former IBM East Fishkill facility. Several Solid Waste Management Units (SWMU) will be closed as part of the project. The project will be managed by the Global Foundries facility team on behalf of IBM and the work will be performed in accordance with the closure approach described in the attached document. The closure approach is the same as for the MLC ARO project in B330C, B330D, and B338 that you previously reviewed and approved. Please contact me if you have any questions.

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MEMO

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Date:

February 2, 2016

Arcadis Project No.:

B0000130.0003

Subject:

IBM DCAP EOL ARO Project
Approach for Closure of SWMUs in Building 310

This memorandum summarizes the approach that will be implemented to close solid waste management units (SWMUs) as part of the IBM DCAP End of Life (EOL) Asset Retirement Obligation (ARO) Project (the "Project") at the GLOBALFOUNDRIES US2 LLC Fab 10 Facility, Hopewell Junction, New York. DCAP refers to a type of multilayer ceramic capacitor for microelectronics. The SWMUs to be closed during the Project are accessible components of the fluoride/heavy metals lift stations, industrial wastewater lift stations, solvent waste lift stations, and associated transfer piping within Building 310. The Project will initially include decontamination and removal of the lift stations that received wastewater or solvent waste from process tools, wet benches, sinks and water heating equipment in DCAP fabrication and testing areas and associated transfer piping. These lift stations are identified as SWMUs in accordance with Permit Module II of IBM's 6NYCRR Part 373 Hazardous Waste Management Permit.

The SWMUs associated with Building 310 were sorted from IBM's SWMU database and listed in Table 1 as they appear in the Part 373 Permit Module. Table 1 provides the entire list of active, closed, inactive and removed SWMUs within or associated with Building 310. The approach outlined in this memo applies to the active SWMUs listed on Table 1 that are no longer required for operation of building systems.

The SWMU closure activities to be implemented in support of the Project include:

- Conducting a reconnaissance of the SWMUs included in Table 1 to confirm which SWMUs will be closed, document the existing conditions of the SWMUs, and formulate the final decontamination and/or disposition approach for each SWMU.

- Implementing decontamination and closure activities for the SWMUs.
- Preparing a Certification Letter to document that the SWMUs have been closed.

The single SWMU identified as “Fluoride/Heavy Metals Lift Stations in Building 310 (B/310 LS FL)” includes all lift stations that may receive fluoride or metal wastewaters, or other compatible non-solvent wastewaters. These lift stations are routed to the active onsite fluoride/heavy metals treatment facility at Building 386. Within the DCAP Project Area, the recent wastewater sources were hooded wet benches and a bottle wash station where hydrofluoric acid (HF) and chromates were handled. All “LS FL” lift stations in the Project area are small polyethylene pump tanks (typically 15-35 gallons), either within metal drip pans sitting on tiled floors or within protected concrete pits.

The single SWMU identified as “Industrial Wastewater Lift Stations in Building 310 (B/310 LS IW)” includes all acid drain lift stations that may receive wastewaters not designated for fluoride/heavy metals treatment. The acid drain systems in Building 310 are routed to the industrial wastewater treatment facility at Building 312. Within the DCAP Project Area, the wastewater sources include industrial wash sinks, various eyewash stations, wet benches where acids other than HF were used, high temperature tools (condensate), and hot water conditioning units. All “LS IW” lift stations within the Project area are small polyethylene pump tanks (typically 15-50 gallons), either within metal drip pans sitting on tiled floors or within protected concrete pits.

An overview of the SWMU closure approach is presented below.

SWMU Reconnaissance

The initial step of the closure approach consists of field reconnaissance of the listed active SWMUs within the Project area to determine which SWMUs will be closed, document the existing conditions of the SWMUs, and formulate the final decontamination and/or disposition approach for each SWMU. Active SWMUs consisting of multiple components (e.g., lift stations) will be inventoried and each component will be assigned an index number to associate with closure documentation.

The GLOBALFOUNDRIES Facilities Engineering Team, who is implementing the project for IBM, is not aware of any previous environmental releases associated with any of the SWMU components to be closed under this Project.

SWMU Closure Activities

Closure activities, consisting of decontamination and removal of SWMU components, will be implemented by subcontractors Stryker DES (Stryker) and Techtron Environmental, Inc. (Techtron) and documented by Arcadis of New York, Inc. (Arcadis).

Decontamination activities will generally include the following steps:

- Preparing the work area for decontamination activities by establishing health and safety requirements, including exclusion zones and appropriate personal protective equipment for the task.

- Removing wastewater and accumulated residues, if any, from SWMU components by pumping, flushing, and/or use of hand tools. All potential hazardous waste generated by decontamination will be placed in appropriate containers and collected by Techtron for waste profiling and subsequent onsite treatment or offsite disposal based on the appropriate waste profiles.

- Decontaminating SWMU component surfaces using treated facility water for rinsing components or wiping surfaces with wet rags. Treated facility water is a clean non-potable water supply to eyewash stations, sinks, lavatories and general facility hose spigots. Water is the most appropriate cleaning agent for removing residual acid and inorganic sediment residue expected in these lift stations. Where additional measures are needed to complete decontamination, cleaning agents such as Simple Green® and/or acid neutralizers may be used. Wastewater generated by decontamination activities will be collected by Techtron for treatment at the appropriate onsite wastewater treatment facility.

- The SWMU components will be carefully disassembled during decontamination and testing and rendered unusable. Scrap metal from the decontaminated SWMUs will be separated by metal type and shipped offsite for recycling. Decontaminated non-metal components of the SWMUs (e.g., polyethylene tanks and PVC piping) will be containerized for off-site disposal as a non-hazardous waste at a permitted solid waste landfill or waste to energy facility.

- Onsite decontamination activities will be observed and documented by an ARCADIS field representative. ARCADIS will conduct representative real-time testing of SWMU component (lift station) tanks and piping, which may have contained potentially corrosive wastewaters, to determine the pH of component surfaces and pipe outlets upon light wetting with treated facility water. Decontamination efforts will be considered complete if the test results for pH are within the range of 5.0-8.0. If the pH is outside this range, the SWMU components will be re-cleaned until decontamination objectives are achieved.

- The ARCADIS field representative will complete a checklist for each SWMU or identified SWMU component that will document the status of inspection and decontamination activities, provide decontamination verification and closure dates, and identify the final disposition of the SWMU components. Representative photographs will be attached to the checklists and pH verification data will be recorded on data tables for inclusion with the checklists and photographs.

Certification Letter

Following completion of the SWMU closure activities, ARCADIS will prepare a closure Certification Letter signed by a licensed New York State Professional Engineer to document that certain specific SWMUs or SWMU components have been closed with no documented releases or remaining environmental concerns associated with the SWMUs (if applicable). The Certification Letter will include the results of the field reconnaissance, a description of the decontamination activities for each SWMU, the results of decontamination verification samples, and checklist-based documentation of the final disposition of each SWMU. IBM will submit the Closure Certification letter prepared by Arcadis to the NYSDEC RCRA Corrective Action Project Manager for IBM's 6NYCRR Part 373 Hazardous Waste Management Permit. Following NYSDEC acceptance of the certification letter, GLOBALFOUNDRIES will update the status of the "active" Building 310 SWMUs that have been closed during the Project to a "removed" status in the

facility listing of RCRA SWMUs that is submitted to the NYSDEC on a periodic basis in accordance with Module II of the 6NYCRR Part 373 Hazardous Waste Management Permit.

Note: Initial excerpt from Part 373 Module II 20110606 (pages II-2 through II-22 accessible SWMUS and Page II-36 for inaccessible SWMUs)

From: Table II-1
Solid Waste Management Units (Associated with Building 310)

UNIT ID #	DESCRIPTION	LOCATION	STATUS	GW REMEDIATION AREA?*	RCRA STATUS
14	Perchloroethylene Sludge	B/310	Removed	Area A	No Further Action *
16	Perchloroethylene Waste	B/310 E	Removed	Area A	No Further Action *
17	Perchloroethylene Waste	B/310 E	Removed	Area A	No Further Action *
350	Industrial Wastewater	B/310 C-24	Removed	Area A	No Further Action *
3129	Industrial Wastewater	B/310 CRTYD PMP	Active	Area A	No Further Action *
3134	Industrial Wastewater	B/310 CRTYD PMP	Active	Area A	No Further Action *
3135	Fluoride/Heavy Metals Wastewater	B/310 B-24	Active	Area A	No Further Action *
3158	Solvent Waste - Mixed	B/310 J-14	Removed	Area A	No Further Action *
4038	Contaminated Groundwater - Vapor Liquid Separator	B/310, E10/E11, 1st Floor	Active	Area A	No Further Action*
B/310 LS FL	Fluoride/Heavy Metals Lift Stations	B/310	Active	Area A	No Further Action *
B/310 LS IW	Industrial Wastewater Lift Stations	B/310	Active	Area A	No Further Action *
B/310 LS SO	Solvent Waste Lift Stations	B/310	Active	Area A	No Further Action *
B310-SO	Solvent Waste Transfer Piping	B/310	Closed	Area A	Inaccessible SWMU
B310-FL	Fluoride/Heavy Metals Wastewater Transfer Piping	B/310	Inactive, Closed	Area A	Inaccessible SWMU
B310-IW	Industrial Wastewater Transfer Piping	B/310	Inactive	Area A	Inaccessible SWMU
B310-SO (2)	Solvent Waste Transfer Piping	B/310	Active	Area A	No Further Action *
B310-FL (2)	Fluoride/Heavy Metals Wastewater Transfer Piping	B/310	Active	Area A	No Further Action *
B310-IW (2)	Industrial Wastewater Transfer Piping	B/310	Active	Area A	No Further Action *

Notes:

* The solid waste management units have been categorized by Areas of Concern (Area A, Area B, etc.) due to the physical location of the units within known areas of soil

The investigation of soil and groundwater contamination has been implemented in the Areas of Concern. These investigations have taken into consideration the location,

The Areas of Concern are listed above and the locations are provided on the Figures in Appendix II-Eb. In addition to these AOCs, the bedrock aquifer has been

1 Tank #3935 removed from Table II-1; redundant with Tank #3938.

2 Tank #3936 removed from Table II-1; redundant with Tank #3939.