

PERMIT ATTACHMENT

APPENDIX XIX

SUBPART BB COMPLIANCE PLAN

This document was not altered from
the April 2016 Application.

APPENDIX XIX

SUBPART BB COMPLIANCE PLAN

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LIST OF ATTACHMENTS

Attachment

- 1 RCRA SUBPART BB WASTE DETERMINATION
- 2 LIST OF EQUIPMENT ITEMS THAT MAY CONTAIN OR CONTACT WASTE WITH GREATER THAN 10% ORGANICS FOR LESS THAN 300 HOURS PER YEAR

1.0 GENERAL FACILITY INFORMATION

Siemens Water Technologies, Inc. (Siemens) operates a carbon reactivation facility in Parker, Arizona (the "Facility"). The Facility manages spent activated carbon classified as hazardous waste from a wide variety of sources. Prior to processing, the spent material is temporarily stored in containers and tanks. The spent carbon is processed in a multiple hearth reactivation furnace to restore specific product quality standards. The off-gases from the reactivation furnace are vented to an air pollution control system consisting of an afterburner and several wet scrubbing devices.

Both containerized and bulk shipments are received at the Facility. Upon receipt, all shipments are inspected, sampled and tested in accordance with the Facility's Waste Analysis Plan. Upon approval, containerized shipments are stored in properly designated areas or immediately charged to the feed system. Bulk shipments are off-loaded dry or in a wet slurry form directly into the feed system. In all cases, the spent carbon is placed into hoppers and is mixed with water to form a slurry, which is then transported using water educators to holding tanks and a feed tank.

The spent carbon slurry is discharged from the feed tank to a dewatering screw which conveys the spent carbon to a weigh belt and into the reactivation furnace. The motive water separated from the spent carbon is collected and reused within the facility.

2.0 APPLICABILITY

The equipment leak standards outlined in the RCRA Subpart BB regulations apply to emissions from equipment including valves, pumps, compressors, and lines in contact with hazardous waste streams with organic concentrations in excess of 10% by weight.

The specific requirements for pumps (§264.1052 and §264.1058), compressors (§264.1053), sampling connection systems (§264.1055) and closed vent systems (§264.1060) do not apply to the Facility because that equipment is not used for the management of spent activated carbon. The specific requirements for pressure relief devices in gas/vapor service (§264.1054) do not apply because the hazardous wastes managed at the Facility are not in gas or vapor form.

The other equipment listed in the regulations (valves, flanges, and other pressure relief devices) may be used at the facility when slurring spent carbon/water mixtures between bulk shipment vessels, feed hoppers, storage tanks and the feed tank.

3.0 COMPLIANCE PLAN

Siemens proposes a three (3) tier approach to demonstrate compliance with the RCRA Subpart BB standards.

3.1 Tier 1 - Exempt from Subpart BB Standards

Siemens has conducted a waste determination and has determined that the organic loading of materials currently being managed at the facility is less than 10% by weight. Therefore the RCRA Subpart BB standards do not apply. Information regarding the waste determination is presented in Attachment 1.

The waste determination calculates the organic loading on the spent activated carbon as it is received at the Facility, which would result in an organic loading of 10 wt% after the slurring operation. These calculations show that the “as received” carbon must contain an organic loading of at least 55 wt% in order for the final slurried carbon handled at the Facility to contain an organic loading of 10 wt% and being potentially subject to the RCRA Subpart BB standards. Should Siemens accept spent activated carbon waste streams with greater than 55% by weight organics, stream specific waste determinations, similar to the determination presented in Attachment 1, will be made. The stream specific waste determinations will be made based on information provided on the specific Spent Carbon profile sheets, specific information regarding how the material will be water slurried, and specific analytical data (as required). Provided the waste determination indicates less than 10% organics of the spent carbon/water slurry mixture, the Subpart BB standards do not apply.

Siemens will demonstrate compliance with this section by:

1. Profile Sheets

A profile sheet for each spent carbon waste stream managed at the facility is included in the Facility’s operating records. The profile sheet includes information

regarding loading of each spent carbon stream which can be compared to the waste determination.

2. Waste Determinations

Batch specific waste determinations, similar to the analysis presented in Attachment 1, will be made as required. The waste determination(s) will be completed in accordance with §264.1063(d) and will be included in the operating record.

3.2 Tier 2 - Exempt if Less Than 300 Hours per Calendar Year Operation

As stated above, the waste determination demonstrating the organic content of the spent carbon/water mixtures managed at the facility are less than 10% by weight is based on a maximum loading of 55% by weight organics on the carbon. A review of operating records indicate that the vast majority of carbon streams received at the Facility have an organic loading that is much lower than 55 wt%. There are however, a few instances in which Siemens would receive a spent carbon containing greater than 55% by weight organics. Per §264.1050(f), provided that the operations involving these materials is less than 300 hours per calendar year, the Subpart BB standards do not apply.

Siemens will demonstrate compliance with this section by including data in the operating record on the hours of operations involving spent carbon/water mixtures greater than 10% by weight. In particular, detailed logs identifying applicable equipment in contact with the specific waste streams and the hours that the specific equipment was used for the slurry operations involving those waste streams will be maintained at the facility. These data will be used to develop the list of equipment required by §264.1064(g)(6).

3.3 Tier 3 - Compliance with Subpart BB Standards

Should Siemens manage spent carbon/water mixtures with greater than 10% by weight organics for greater than 300 hours per calendar year, Siemens will comply with the RCRA Subpart BB standards. The specific equipment that will be used at the facility for slurring spent carbon/water mixtures between bulk shipment vessels, storage tanks and the feed tank will be operated and marked in accordance with the applicable standards of §264.1052 through 1063. All applicable recordkeeping and reporting requirements will be included in the Facility's operating record.

As stated above, detailed logs recording applicable equipment and hours of use will be maintained. In preparation of demonstrating compliance with the Subpart BB standards, at 200 hours of operation, each applicable piece of equipment will be marked as specified in 40 CFR §264.1050(d).

At least 30 days before operating under Tier 3 compliance, Siemens will submit notification to EPA enumerating the specific requirements from 40 CFR §264.1050 through 264.1065 to the operations at the Facility.

ATTACHMENT 1
RCRA SUBPART BB WASTE DETERMINATION

RCRA SUBPART BB WASTE DETERMINATION

OBJECTIVE: Calculate the maximum organic loading on “as received” carbon that will result in a 10 wt% organic loading after slurry operations.

BASIS: Worst case carbon loading is on Vapor Phase carbon.

According to Process Flow calculations for vapor phase carbon (Siemens Drawing PC-1466-PR-003, Rev 1, 2-12-2007), there is 13,154 pounds of water added to 1,237 pounds of carbon (dry, organic-free basis). This is the lowest water-to-carbon ratio shown on any of the process calculations reviewed for this waste determination, so it will result in the highest final organic concentration after slurrying.

A maximum organic loading of 10 wt% after slurrying is allowable without triggering RCRA Subpart BB applicability.

CALCULATIONS:

Carbon, as received: 1,237 lb C
75 lb water

Slurrying water added: 13,154 lb

Final composition (organic free): 1,236 lb C
13,229 lb water
14,266 lb total

At 10 wt% organics, the total carbon, plus water is equal to 90% of the total mass, thus:

$$\frac{14,466 \text{ lb}}{0.90} = 16,073 \text{ lb total mass (carbon + water + organics)}$$

$$\text{Organic content} = 16,073 - 14,466 = 1,607 \text{ lb organics}$$

On an “as received” basis, the maximum organic loading on the carbon that will result in 10 wt% organic loading after slurrying is:

$$\frac{1,607 \text{ lb organics}}{(1,237 \text{ lb carbon} + 75 \text{ lb water} + 1,607 \text{ lb organics})} \times 100\% = 55 \text{ wt\% organics}$$

CONCLUSION:

Spent activated carbon received at the Facility with organic loadings of less than 55 wt% will not trigger RCRA Subpart BB applicability.

ATTACHMENT 2
LIST OF EQUIPMENT ITEMS THAT MAY CONTAIN OR CONTACT WASTE WITH
GREATER THAN 10% ORGANICS FOR LESS THAN 300 HOURS PER YEAR

LIST OF EQUIPMENT ITEMS THAT MAY CONTAIN OR CONTACT WASTE WITH
GREATER THAN 10% ORGANICS FOR LESS THAN 300 HOURS PER YEAR

Flanges between the Spent Carbon Unloading Hoppers (H-1 and H-2) and the Spent Carbon Storage Tanks (T-1, T-2, T-5, and T-6)

Flanges between the Spent Carbon Storage Tanks (T-1, T-2, T-5, and T-6) and the Furnace Feed Tank (T-18)