ENCLOSURE

Response to Request for Information and Comments on the February 2007 Permit Application Submittal for Siemens Water Technologies

A. PART A APPLICATION

COMMENT A1: Please revise the Part A permit application to include the RF-1 unit (furnace and air pollution control equipment, etc.), as this unit is not RCRA clean closed. Since it has not been RCRA clean closed and dismantled, it will need to be described in the Part A as a non-operating unit.

RESPONSE: Siemens and EPA Agreed to use the January 1996 Part A which contains the RF-1 equipment and is signed by both CRIT and the facility operator.

COMMENT A2: Please revise the Part A permit application to identify each RCRA regulated unit by volume/capacity and process code.

RESPONSE: See answer to comment number A1.

COMMENT A3: Please ensure that the revised Part A permit application includes all the waste codes for the spent carbon wastes received at the Siemens facility, and that it excludes the spent carbon wastes that Siemens is not allowed to receive as per the results of the Comprehensive Performance Test (CPT) results and the Human Health Risk Assessment (HHRA) results.

RESPONSE: Siemens has reviewed both the Part A and Part B documents for consistency, and has removed waste codes that the facility has chosen not to receive.

COMMENT A4: It appears to EPA that there are perceived discrepancies within the different sections of the Siemens Part B application. Following are examples of the perceived discrepancies that Siemens needs to clarify:

RESPONSE: See responses to specific comments below.

COMMENT A4.1: Currently Section C of the Part B permit application indicates that Siemens does not accept spent carbon with poly chorinated dibenzo dioxins (PCDDs)/poly chlorinated dibenzo furans (PCDF)s. However, the current amended Part A application along with Table 1 in Appendix C of the Waste Analysis Plan contain waste codes that include PCDD, PCDF, and other dioxins and furans as hazardous constituents in the F039 waste carbon. EPA needs clarification on whether Siemens receives F039 waste carbon with dioxins and furans. If Siemens has been receiving F039 waste with dioxins and furans, please provide information on how much F039 waste is received on a monthly basis and at what concentrations. Please provide this

information for the last 3 years. Please update the Part A and Section C to resolve these discrepancies.

RESPONSE: Siemens does not accept wastes containing PCDD/PCDF. Siemens has specifically excluded wastes with Codes F032, F020, F021, F022, F026, F027, and F028. In addition, Siemens has adopted a profiling system in which the waste generator declares that the wastes do not contain PCDD/PCDF.

COMMENT A4.2: Please compare the wastes listed in the Part A permit application with the list of wastes included in Table C-1 Waste Analysis Plan, Section C and Appendix IV, of the Part B permit application and correct the lists to include those wastes that can be accepted at Siemens. Please ensure the Part A matches the waste listed in the Contingency Plan, Section G and Appendix XIII of the Part B permit application. Please revise the permit application to make the table contain the same listed allowed constituents, using the most conservative list. Additionally, Table C-1 (Hazardous Wastes Received at the Parker Facility) in Section C of the Siemens Part B permit application lists wastes that contain hazardous constituents that should not be accepted at Siemens (e.g., several waste codes with PCDDs and PCDFs in addition to F020 – F023, F026, and F-027.) Please clarify this for EPA.

RESPONSE: Siemens has reviewed the tables in the Part A, the Contingency Plan (Appendix XIII) and in Section C. All tables are internally consistent. Siemens does not accept wastes containing PCDD/PCDF.

COMMENT A5: Please correct the discrepancies in the volumes provided in the current amended Part A permit application and Section D of the Part B permit application and the 1994 Tank Assessment.

RESPONSE: The Tank Assessment has been revised, and is included in the Part B. EPA has requested that Siemens utilize the Part A Application from 1995, which will not reflect the exact tank volumes addressed in the Part B Application.

B. 40 CFR PART 264. SUBPART CC AND 40 CFR PART 61 SUBPART FF

COMMENT B1: Please demonstrate that Siemens is subject to Code of Federal Regulations (CFR) 40 CFR 61 and Subpart FF requirements and use waste analysis and manifest data collected during the most recent three years to support this demonstration. As part of this demonstration, please clearly describe how Siemens calculates the total annual benzene (TAB) quantity including a description of the waste streams that were considered in the calculation. Include a narrative describing the waste streams and how each waste stream contributes into the final TAB. Describe how you obtain the quantity of benzene generated and received.

RESPONSE: Siemens receives waste streams from generators who are subject to 40 CFR 61, Subpart FF, and who notify Siemens that these wastes must be treated accordingly. Section 3.2 of Siemens' Subpart FF Compliance Plan contains a description of how the TAB is calculated. The TAB is calculated in accordance with 40 CFR 61.355. Specifically, the plan states:

> ***"Total Annual Benzene Quantity (TAB)*** - the sum of the annual benzene quantity for each hazardous waste stream from a chemical manufacturing plant, a coke by-product recovery plant, or a petroleum refinery received at the Facility that has a flow-weighted annual average water content greater than 10 percent or that is mixed with water, or other wastes, at any time and the mixture has an annual average water content greater than 10 percent, calculated in accordance with 40 CFR §61.355."

COMMENT B2: EPA realizes that you must be in compliance with 40 CFR Part 61, Subpart FF (Subpart FF), however since benzene is a volatile organic, compliance with 40 CFR Part 264, Subpart CC (Subpart CC) will also keep you in compliance with FF. The 40 CFR Part 264, Subpart CC and Subpart FF regulations are similar enough that Siemens could be in compliance with both regulations. The following hybrid has been discussed between EPA and Siemens and agreed upon as a possible solution. EPA requests that Siemens revise the Part B application to address monitoring tanks, containers, canisters, and piping for benzene and other volatile organic compounds (VOCs) using 40 CFR Part 60, Appendix A, Method 21. Please also revise the Part B application to require that the monitoring results be recorded and kept as required by both regulations alike.

RESPONSE: Siemens will monitor the outlet of the carbon adsorbers on a monthly basis, (before the carbon is changed) using an FID or PID instrument, in accordance with EPA Method 21, which responds to benzene and other VOCs, to ensure that the engineering calculations supporting the change-out schedule is conservative enough to meet the applicable regulations. By demonstrating compliance with Subpart FF using

monitoring according to EPA Method 21, which responds to benzene and other VOCs, Siemens is complying with the Benzene NESHAPS (and in effect also demonstrating compliance with Subpart CC). Siemens has modified its Subpart FF implementation plan to use monthly monitoring to support its engineering calculations for demonstrating compliance.

COMMENT B3: EPA requests that Siemens explain how the details that are provided by the waste generators on the profile sheets are used in the management of feed rates concentrations as well as in tank and container management and monitoring.

RESPONSE: Siemens does not use profile information for feed rate compliance. Rather, waste feed analytical results are used, as described in the Waste Analysis Plan (Appendix IV, Section 4.5), to manage waste feed rates, and to demonstrate compliance with constituent feed rate limits. Siemens manages tank and container storage in a similar manner for all spent carbon received.

C. WASTE ANALYSIS PLAN

COMMENT C1: Please resolve the discrepancy between Sections C.2.4 and C.2.6 of the Part B permit application and Section C.2.5 and Table C-1. This comment refers to the acceptance of F039 waste that includes prohibited wastes that should not be accepted at the Siemens facility.

RESPONSE: Table C-1 was revised to correct the definition of the F039 waste code in accordance with 40 CFR 261.31. The revised definition reads:

"LEACHATE FROM DISPOSAL OF MORE THAN ONE RESTRICTED WASTE CLASSIFIED AS HAZARDOUS UNDER SUBPART D; (LEACHATE RESULTING FROM THE DISPOSAL OF ONE OR MORE OF THE FOLLOWING EPA HAZARDOUS WASTES AND NO OTHER HAZARDOUS WASTES, RETAINS ITS EPA HAZARDOUS WASTE NUMBER(S): F020, F021, F022, F026, F027, AND/OR F028.)"

Siemens has also removed Hazardous Waste Code U021 from Table C-1.

COMMENT C2: Include in the revised Part B application and in the Waste Analysis Plan (WAP) the use of 40 CFR Part 60, Appendix A, Method 21 for monitoring tanks, containers and piping for benzene and other VOCs as this method will satisfy both Subpart CC and Subpart FF.

RESPONSE: EPA Method 21 is used for compliance with Subpart FF (and therefore CC), and will be added to section 9.2 of the WAP.

COMMENT C3: Provide data to demonstrate and confirm the containment volume calculations for the spent carbon storage tank systems are consistent with the volumes in the revised Part A permit application.

RESPONSE: EPA requested the submittal of a Part A application showing both the inactive RF-1 unit as well as the active RF-2 unit. Therefore, the Part A application from October 1996 has been included in Appendix I.

Since the time of the original October 1996 Part A submittal, the facility has removed certain waste codes from the list of those accepted, and has also been requested by EPA to add a new hazardous waste tank (which increases the tank capacity). Additionally, a Performance Demonstration Test (PDT) of the RF-2 unit has been conducted, resulting in a higher processing capacity than shown on the 1996 Part A application. These differences are reflected in the Part B application. For these

reasons, a revised set of Part A forms has been included in Appendix I, in addition to the original 1996 Part A application. This revised set of Part A forms are provided for informational purposes only, and are consistent with the information presented in the Part B application. This supplemental information should provide the EPA reviewers with appropriate information to resolve any apparent discrepancies between the 1996 Part A and the current Part B materials.

COMMENT C4: Revise the Part B application to include data and analysis to demonstrate that the wastewater and recycle water tanks T-9, T-11 and T-19 are exempt from Resource Conservation and Recovery Act (RCRA) as you have shown in the status column in the table on page D-10. The existing application language specifies that an "appropriate" averaging period will be implemented. Please provide details on the monitoring and averaging requirements for these tanks. These requirements must follow the requirements of 40 CFR Sections 264.1082 and 264.1083.

RESPONSE: Emissions from Tank T-9 are controlled using the same system as the hazardous waste tanks (T-1, T-2, T-5 and T-6). This control system is monitored for benzene and other VOCs using EPA Method 21, in accordance with the Subpart FF compliance plan and the Subpart CC compliance plan. Tank T-19 is the packed bed scrubber recirculation tank, which is where city water is added to the air pollution control system. As such, T-19 is actually part of the air pollution control system, and is not a hazardous waste tank. Water from T-19 mixes with other water from the air pollution control system and is eventually collected in Tank T-11, which is monitored annually to determine if this tank is subject to Subpart CC. This monitoring is described in Sections 4.3.2 and 4.4 of the Subpart CC Compliance Plan. Initial assessment data are presented in the Subpart CC Compliance plan, and annual data is kept in the facility operating record.

COMMENT C5: Please provide a process flow diagram that identifies each of the points at which Siemens collects samples throughout the entire spent carbon treatment train including the RF-2 unit (hearth and associated ancillary equipment (e.g., weigh belt), related air pollution control equipment (including associated ancillary equipment), onsite waste water treatment plant (influent, effluent, filter cake, and any other sludges), bag houses, and carbon adsorbers. The diagram should include the analytical parameters for which samples are collected at each point in the spent carbon treatment process.

RESPONSE: The WAP has been revised to include a figure (WAP-001) showing the approximate locations where samples are collected within the facility. Analytical parameters for each sampling location have also been included on the figure.

COMMENT C6: Please provide the documentation and data in the revised Part B application to monitor for benzene and other VOCs at the carbon canisters and establish an appropriate change out schedule that is in accordance with the hybrid of 40 CFR Part 264, Subpart CC and 40 CFR Part 61, Subpart FF using method 21.

RESPONSE: This comment has been resolved through communications with the EPA Project Manager (Mike Zabaneh) by instituting monthly monitoring of the emission control devices using EPA Method 21 for benzene and other VOCs. Carbon changeout based on engineering calculations, which are verified by the results of the monthly monitoring.

COMMENT C7: The laboratory methods used by Siemens need to be adequately validated for activated carbon. This is why typical quality control criteria such as matrix spikes fail. The laboratory methods need to be "patched" specifically for activated carbon matrices. EPA would like to work with Siemens' and their laboratory to help find the simplest approach for validating the laboratory methods for activated carbon.

RESPONSE: Siemens only conducts analyses for certain physical/chemical parameters such as flashpoint, pH, and compatibility testing, in addition to the analysis of metals and total chlorine/chloride for permit feed rate compliance. All other analyses are conducted by the waste generator, and are provided to Siemens for purposes of waste acceptance and reporting. The WAP describes how analytical data supplied by the waste generators are used at the site, and it also describes the sampling and analysis methods, as well as the appropriate QA/QC procedures, used by Siemens for waste screening and for compliance with the permit feed rate limits for specific metals and total chlorine/chloride. Siemens instructs its generators to use certified laboratories to conduct their analyses, and Siemens contracts certified laboratories for its metals and total chlorine/chloride analyses, utilizing standard EPA methods applied to solid matrices. Review of the data quality reports, including matrix spike and matrix spike duplicate analyses, for the metals and total chlorine/chloride analyses conducted by Siemens' contract laboratory indicates that recoveries (accuracy) and the results of duplicates (precision) are well within the method limits. These results indicate that the analytical methods routinely used by Siemens' contract laboratory work well on activated carbon samples. In addition, no recovery problems were identified for either the organic or the inorganic analyses conducted by the laboratories used by Siemens' testing contractors during the PDT.

In order to alleviate EPA's concern, Siemens discussed the situation with the EPA Project Manager (Mike Zabaneh) and has agreed that if matrix spike recoveries for the analyses conducted by Siemens on the activated carbon for feed rate limit compliance (metals and total chlorine/chloride) fall outside the method quality control limits,

Siemens will "adjust" the analytical results based on the spike recovery associated with the specific sample batch. This provision has been added to the WAP, and includes the following equation for making any needed analytical result adjustment.

$$C_{corr} = C_{unc} \times \frac{100}{Spike\ Recovery\ \%}$$

Where:

C_{corr} = Corrected analytical result
C_{unc} = Uncorrected analytical result

D1 CONTAINERS

COMMENT D1.1: Please submit the following information related to the container storage area:

a. Verification that the calculated containment storage area volume is sufficient to accommodate the volume of the containers to be stored there;

b. A diagram depicting the highest total volume container arrangement used for the calculations;

c. Drawings and calculations that demonstrate containment capacity to handle rupture of the largest container to be stored; and

d. The specific required aisle space in inches or feet for the container storage area. (EPA recommends as a minimum, four (4) feet.)

RESPONSE: Containment volume calculations and a drawing of the containment area are provided in Appendix VII to the RCRA Part B Permit Application. The storage volume of the containment area is not based on any specific arrangement of containers, but is based on the total permitted container storage volume which was selected prior to facility construction based on anticipated storage needs. RCRA requires that the spill containment volume for container storage areas be at least 10% of the volume of containers, or the volume of the largest container, whichever is greater (See 40 CFR 264.175(b)(3)). The total container storage capacity is 100,000 gallons, while the largest container (PV2000) holds 614 gallons. Thus, the minimum containment volume for the container storage area is 10,000 gallons (10% of the total volume of containers). The RCRA regulations do not require a specific amount of aisle space. The requirement is for sufficient aisle space to allow for the unobstructed movement of personnel, fire protection equipment, spill equipment and decontamination equipment to any area of the facility in case of an emergency. See 40 CFR 264.35. Aisle space is checked as part of the daily and weekly inspection procedures.

COMMENT D1.2: Please provide a table of each type of container and its exact volume. This information is not on the drawings. We prefer to also see these volumes in a table for clarity.

RESPONSE: Siemens has prepared a table identifying the volume of each typical container type used at the facility, and has added it to Appendix VIII of the permit Application.

COMMENT D1.3: Please submit a monitoring plan for containers with VOCs and benzene using 40 CFR Section 60, Appendix A, method 21. Please record and maintain the results as required by both Subparts CC and FF alike.

RESPONSE: Initial Method 21 monitoring is required to be performed by the generator. Additional monitoring is required for containers stored for over one year. RCRA containers are not stored at the facility for over a year. Siemens will monitor any non-RCRA containers stored at the facility for over one year, for both benzene and other VOCs using EPA Method 21. This is addressed in the Subpart FF Compliance Plan.

COMMENT D1.4: Please submit in a revised application in Section D or Section F the inspection requirements and monitoring requirements for containers. [40 CFR Sections 61.345(a)(1) and (2), 264.175 and 264.1088(a) and (b).

RESPONSE: The comment makes reference to various portions of the regulations dealing with RCRA Subpart CC, RCRA Subpart I, and the Benzene NESHAP, 40 CFR 61 Subpart FF. Container inspections are addressed in Section F of the RCRA Part B Application, and are further addressed in the Inspection Plan (Appendix XII of the Part B Application). Monitoring of containers is conducted according to the RCRA Subpart CC Compliance Plan contained in Appendix XX of the Part B Application, which states that containers stored at the facility for over one year will be monitored for benzene and other VOCs using EPA Method 21. Monitoring for Benzene NESHAP Subpart FF compliance is conducted in accordance with the facility's Benzene NESHAP compliance plan.

D2. TANKS

COMMENT D2.1: Please provide the new tank assessment that was performed by the Professional Engineer and add an implementation plan and a schedule on how the recommendations from the assessment will be implemented.

RESPONSE: A new tank assessment has been conducted and is included the revised RCRA Part B Permit Application (April 2012).

COMMENT D2.2: Please submit the following information regarding the tank systems:

a. Provide in a table or paragraph form tank description, tank volume, pressure settings for alarm triggers, bypass and/or relief valves; and

b. Provide data to demonstrate and confirm the containment volume calculations for the spent carbon storage tank systems are consistent with the volumes in the revised Part A permit application.

RESPONSE: Applicable information concerning tank volumes, controls, alarms, etc., is provided in the tank assessment included with the revised RCRA Part B Permit Application (April 2012).

Tank Systems Descriptions

COMMENT D2.3: D-4a(1) Dimensions and Capacity of each Tank. Please submit in a revised application the following information regarding the tank systems as indicated in the Table below and add this table to the tank section. (Please note that blank cells and question marks "???" are data fields that all need to be filled in by the facility):

TABLE 4-1 -- HAZARDOUS WASTE TANK INFORMATION

Tank No.	Materials Of Construction	Dimensions	Minimum Shell Thickness	Design Capacity(1) (Gallons and cubic meters)	Capacity(1) Alarm Level (Gallons and cubic meters)	Maximum Allowable Design Vapor Pressure (kPa)
H-1						Atmospheric
H-2						Atmospheric
T-1	300 Series Stainless Steel	16'-0" Straight Side 10'-0" Diameter 8'-0" 62° Bottom Cone		8,319 gal. ??? m^3		
T-2	300 Series	16'-0" Straight		8,319 gal.		

	Stainless Steel	Side 10'-0" Diameter 8'-0" 62° Bottom Cone		??? m^3		
T-5	300 Series Stainless Steel	16'-0" Straight Side 10'-0" Diameter 8'-0" 62° Bottom Cone		8,319 gal. ??? m^3		
T-6	300 Series Stainless Steel	16'-0" Straight Side 10'-0" Diameter 8'-0" 62° Bottom Cone		8,319 gal. ??? m^3		
T-18	300 Series Stainless Steel	7'-6" Straight Side 10'-4.5" Diameter 9'-4.75" 60° Bottom Cone		6,500 gal. ??? m^3		
T-9						
T-11						
T-12						
T-19						

RESPONSE: Tank information is provided in the new tank assessment included with the revised RCRA Part B Permit Application (April 2012).

COMMENT D2.4: Please revise the application to include a description of the feed systems and construction materials for the hoppers. We do have the drawing, but are requesting tables and a narrative be included in Section D-4.

RESPONSE: The hoppers and other components of the feed system are constructed of mild steel. They are already described in Section D.2.1 of the permit application. Additional language has been added to indicate the materials of construction.

COMMENT D2.5: Include the information specified below in Section D-4. If these parts are not on the tanks, provide an explanation why they are not on the tanks. The following information can be added as additional columns to the above-mentioned table.

- safety cut-offs;
- bypass systems;
- Pressure controls (e.g., valves, spring loaded relief mechanisms, any other relief valves/closures.);
- Age of tank system; Tanks T-1, T-2, T-5 and T-6 were manufactured in 1956 and T-8 which is not used anymore was manufactured in 1992;

- The date in which each tanks was put into service;
- Any unique or special features associated with the activity; and
- A reference to any special permit conditions;

RESPONSE: Applicable information is in the new tank assessment included with the revised RCRA Part B Permit Application (April 2012).

D3. Performance Demonstration Test Report (PDT Report)

COMMENT D3.1: Please submit one complete hard copy and a CD-ROM containing a complete electronic copy of the Final Human Health Risk Assessment (HHRA) for inclusion in the Administrative Record for the permit decision.

RESPONSE: These documents have been supplied in both hard-copy and electronic form to EPA. Copies of the PDT Report and the Risk Assessment Report are included with the revised RCRA Part B Permit Application in Appendices V and XI, respectively.

COMMENT D3.2: Please submit a table of the following:

- Verify and summarize the emission rates, and the operating conditions/limits (such as feed rates) that Siemens is proposing to be permitted;
- At a minimum, the requested table should identify the sources(s) used to develop the emission rates and the limits and conditions for all the operating parameters;
- If any of the emission rates and/or operating limits and/or conditions measured or developed based upon the Performance Demonstration Test (PDT) via testing and/or monitoring instrumentation have changed based upon the HHRA, identify such changes in the verification table;
- Identify any parameters developed using approaches, such as mathematical extrapolation from regulatory standards, separate or in conjunction with the PDT; and
- Table D.3.1 has been provided below for your use. Please add columns to the table to provide the above requested information as needed.

RESPONSE: A complete copy of the Performance Demonstration Test Report has been included in the Part B Permit Application (Appendix V). Several tables in the report contain the requested information, but please refer specifically to Table 6-1 for the proposed permit operating conditions, derived from the PDT.

RF-2 AND AIR POLLUTION CONTROL DEVICES (APCD) EQUIPMENT

COMMENT D3.3: In accordance with 40 CFR Section 270.62(b)(2)(vi), and 40 CFR Section 63.1209(m)(1)(iv)(A), 1209(j), 1209(k), 1209(m)(1), 1209(n),1209(o), 1209(p), 1209(q), 1209(r), 1209(l)(v), and 1209 (r), please submit the operating conditions derived from the stack test and PDT report. The test shows results, but the Permit Applicant should derive the operating conditions from the report and present them in Section D. Operating Parameter Limits (OPLs) should be presented in a table that shows an operating range or limit and an Automatic Waste Feed Cutoff (AWFCO) table for those OPLs that should cut off feed. 40 CFR Section 63.1209(p) does not apply as

we agree that the hearth is a sealed system. 40 CFR Section 63.1209(q) does not apply as the Permit Applicant did not test at different modes. Tables D.3.1 and D.3.2 have been provided below for your use. Please add columns to the tables to provide the above requested information as needed.

RESPONSE: This is a RCRA Subpart X facility. The requirements of 40 CFR 63 Subpart EEE do not apply, but were used as guidance in developing the PDT Plan and in developing operating parameter limits for the system. Siemens has included a complete copy of the PDT Plan and Report in Appendix V of the Part B Permit Application, and has also included a table and discussion of the operating parameter limits derived from the PDT in section D of the Part B Permit Application.

COMMENT D3.4 Please revise the SSMP in accordance with 40 CFR Section 270.62(b)(2)(vii) and 40 CFR Section 63.1206(c)(2) and submit it to EPA for approval.

RESPONSE: Siemens prepared a SSMP using 40 CFR 63.1206(c)(2) as guidance, and submitted it to EPA in 2003. No comments have been received on this plan.

Automatic Waste Feed Cutoff (AWFCO)

COMMENT D3.5: Siemens should present all AWFCOs in a separate table. Table D-2 of the application presents a mix of operating conditions and AWFCOs together and these parameters should be presented separately and in accordance with the requirements of 40 CFR Section 63.1206(c)(3). Please submit these changes. Table D.3.2 has been provided below for your use. Please add columns to the table to provide the above requested information as needed.

RESPONSE: This is a RCRA Subpart X facility. The requirements of 40 CFR 63 Subpart EEE do not apply, but were used as guidance in developing the PDT Plan and in developing operating parameter limits and AWFCOs for the system. Siemens has included a complete copy of the PDT Plan and Report in Appendix V of the Part B Permit Application. Siemens has also included a table of OPLs and AWFCO parameters in section D of the Part B Permit Application. The list of AWFCO parameters addresses all appropriate portions of 40 CFR 63.1209.

COMMENT D3.6: Pursuant to 40 CFR Section 63.1207(f)(1)(iii), please revise and resubmit Section D of the application so that it includes a detailed engineering description of the hazardous waste combustor, including:
a. Manufacturer's name and model number of the hazardous waste combustor;
b. Type of hazardous waste combustor;

c. Maximum design capacity in appropriate units;
d. Description of the feed system for each feedstream;
e. Capacity of each feed system;
f. Description of automatic hazardous waste feed cutoff system(s);
g. Description of the design, operation, and maintenance practices for any air pollution control system; and
h. Description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring systems.

RESPONSE: There are no hazardous waste combustors at the Siemens facility. The carbon reactivation unit is a RCRA Subpart X miscellaneous treatment unit. All of the relevant information requested is included in the Performance Demonstration Test (PDT) Plan that was submitted and approved by EPA in separate documents from the Part B Permit Application. The PDT Plan was approved by EPA prior to conducting the test. A copy of this plan has been included in Appendix V, along with the PDT Report. The system description is presented in Section 3.0 of the PDT Plan.

COMMENT D3.7: The Appendix X information is illegible except for the Continuous Emissions Monitoring System (CEMS) and burner information. Please submit a table for each item in the hearth and APCD equipment with the manufacturer name and the manufacturer's operational specs.

RESPONSE: Additional details of the system components are provided in the PDT Plan (Section 3.0 and Attachment E), which has been added to Appendix V of the RCRA Part B Application. In addition, all documents have been submitted to EPA in PDF format and represent as legible copies as are available.

COMMENT D3.8: Please submit a table that specifies the maintenance schedule and practices for all key components essential for the system operation. [40 CFR 63.1206(c)(7).]

RESPONSE: The requirements of 40 CFR 63 Subpart EEE do not apply, This is a RCRA Subpart X facility. The regulations cited in this comment are for the Hazardous Waste Combustor MACT, which does not apply to the Siemens carbon reactivation facility. The RCRA regulations do not require the submittal of maintenance information. Siemens performs routine maintenance and periodic maintenance, as required. However, Siemens has prepared a list of available operations and maintenance manuals for the RF-2 system components. This list has been added to Section D of the RCRA Part B Permit Application for information purposes.

COMMENT D3.9: Please ensure the standards of Table D-3 are in accordance with the new standards of 40 CFR Section 63.1219(a).

RESPONSE: The Siemens carbon reactivation furnace is a RCRA Subpart X Miscellaneous Treatment Unit. It is not an incinerator. Siemens has agreed with EPA to apply the emission standards applicable to existing hazardous waste incinerators under 40 CFR 63, Subpart EEE. At the time the PDT Plan was developed and when the PDT was conducted, the applicable standards were included at 40 CFR 63.1203. Since that time, the HWC MACT regulations have been revised to add Section 1219. Siemens has reviewed the new provisions of 40 CFR 63.1219, and has determined that the performance demonstrated during the PDT also meets these new requirements.

COMMENT D3.10: Please complete the following table and add it to Section D. This table will differ from the D-3 table as these values should be derived from the PDT.

TABLE D.3.1 OPERATING CONDITIONS

Operating Condition	Operating Parameter	Purpose
A. Spent carbon feed rate Block hourly average	3049 lb/hr	Compliance with 40 CFR Section 63.1209
B. Residence time	42 minutes	Compliance with 40 CFR Section 63.1206(b)(11) and 1207(f)(1)(ix)
1. Rabble arm rotational speed per minute		Validate residence time
C. Hearth 1 temperature minimum HRA AWFCO permit condition		Compliance with 40 CFR Section 63.1209(j)(1)/(k)(2)
D. Hearth 5 temperature minimum and maximum range HRA permit condition		Compliance with 40 CFR Section 63.1209(j)(1)/(k)(2)
E. Minimum afterburner temperature Measure at exit HRA permit condition		Compliance with 40 CFR Section 63.1209(j)(1)(i)
F. Maximum air speed through the system HRA as calculated L/G		Compliance with 40 CFR Section 63.1209(k)(3)(i)
G. Venturi scrubber differential pressure drop		
H. Minimum scrubber flow rate		

through Venturi/Quench		
I. Venturi pH to wet scrubber instantaneous		As per EPA guidance document: Handbook: Guidance on Setting Permit Conditions and Reporting Trial Burn Results (EPA/625/6-89/019) Chapter 2, Table 2.1
J. Maximum temperature at exit of Venturi	Less than 350 degrees	Compliance with 40 CFR Section 63.1209(g)(2) and as per EPA guidance document: Handbook: Guidance on Setting Permit Conditions and Reporting Trial Burn Results (EPA/625/6-89/019) Chapter 4, Table 4.4 (example test case)
K. Packed bed Ph	HRA	
L. Minimum scrubber flow rate through packed bed	HRA	
M. Packed bed differential pressure	HRA	
N. Venturi scrubber blowdown rate	HRA	Compliance with 40 CFR Section 63.1209(m)(1)(ii)
O. Minimum WESP secondary voltage	HRA	
P. Maximum stack gas flow rate permit condition	HRA	
Q. CO HRA permit condition	HRA	
R. Fan on/off on permit condition		Compliance with 40 CFR Section 63.1209(g)(2)
S. Total hydrocarbons (strip charts) < 100 ppm CO or <10 ppm as propane permit condition if using this option for CO		Compliance with 40 CFR Section 63.1209((a)(1)
T. Organics feed rate	HRA	Compliance with 40 CFR Section 63.1209(c) and 40 CFR Section 63.1209(g)(2)
U. Semivolatile metals feed rate	12 hour rolling average; include feed metals for a	Compliance with 40 CFR Section 63.1219

	total feed rate	
V. Low volatile metals feed rate	12 hour rolling average; include feed metals for a total feed rate	Compliance with 40 CFR Section 63.1219
W. Mercury (MTEC) feed rate	12 hour rolling average	
X. Total metals feed rates for all 18 risk metals	12 hour rolling average	
Y. Maximum chlorine/chloride feed rate	12 hour rolling average	As per EPA guidance document: Handbook: Guidance on Setting Permit Conditions and Reporting Trial Burn Results (EPA/625/6-89/019), Section 2.1.6

RESPONSE: Siemens developed a Performance Demonstration Test (PDT) Plan that was approved by the Agency. Siemens implemented that plan, and based on successful demonstration of performance, a list of operating parameter limits was developed consistent with the approved plan and the provisions of 40 CFR 63, Subpart EEE (HWC MACT), which was used as guidance for this facility. A number of the items in Table D.3.1 appear to be either incorrect or do not apply. A table of Operating Parameter Limits (OPLs) and Automatic Waste Feed Cutoffs (AWFCOs) derived from the PDT test has been included in Section D of the Part B Permit Application. This table is consistent with the approved PDT Plan (Appendix V to the Part B Application), the regulations at 40 CFR 63 Subpart EEE, and the information presented in the PDT report (Appendix V to the Part B Application).

The following paragraphs discuss each item from Table D.3.1 above in greater detail. Please note that the commenter has provided a column in the table above labeled "Purpose" for many of the parameters listed. Some of these "purposes" are obviously intended as the basis for establishing permit operating limits, while others cite portions of the regulations or guidance documents which suggest that the request is for informational purposes or simply to document certain parameters (such as solids residence time) which do not require establishing a permit operating limit. Other items are listed with no "purpose" identified. Siemens is concerned that the table above does not distinguish between process operating information that the Agency may want in order to better understand how the process operates, versus data from the PDT which

is used to establish permit conditions (and operating limits). Siemens has provided operating data from the PDT with the report, and the EPA observers took notes of many operating parameters during the test which were not recorded as part of the official test record. In the paragraphs below, Siemens has provided typical or expected process operating ranges when discussing certain parameters in an effort to provide EPA with the information that they are requesting. In other instances, Siemens has provided values which have been established from the PDT as operating parameter limits, and which Siemens expects to have incorporated into its permit. The comment responses attempt to clearly delineate what information is being provided for informational purposes and what is being provided for use in setting permit limits. The OPL table which has been added to the Part B Permit Application only addresses items which are expected to be permit limits. The HWC MACT regulations list all permit operating limits, and how they are to be established, in section 1209. Regulatory citations for each permit operating limit are provided in the paragraphs below and in the new OPL table in Section D of the Part B Permit Application.

A. Spent carbon feed rate block hourly average

This will be an Operating Parameter Limit, based on the PDT. The maximum spent carbon feed rate limit is established in accordance with 40 CFR 63.1209(j)(3), and 63.1209(k)(4). While the regulations call for establishing this limit on an hourly rolling average basis using the average of the highest hourly rolling average values from each test run, Siemens preferred a block hour average, and therefore used the average of the test run averages (which is a more conservative value). The limit is 3049 lb/hr, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

B. Residence time

The item referenced in the table is the solids residence time in the reactivation furnace. The regulations establish a limit on the minimum gas residence time (which is discussed below under the heading “Maximum Stack Gas Flow Rate Permit Condition”). With regard to the solids residence time, the regulations only state that the facility should document the hazardous waste residence time (See 40 CFR 63.1206(b)(11)). The regulations do not establish any permit limits regarding hazardous waste residence time (See 40 CFR 63.1209). For documentation purposes, the hazardous waste residence time is 38 minutes based on the speed of the rabble arms. Although the rabble arm motor has a variable speed drive, the facility has never changed the speed. The solids residence time is documented in Appendix Ag of the PDT Report (Appendix V of the RCRA Part B Permit Application).

B1. Rabble arm rotational speed per minute

See the discussion of Item “B. Residence Time”, above.

C. Hearth 1 temperature minimum HRA AWFCO permit condition
No temperature limits or permit limits are set for Hearth #1. A minimum temperature Operating Parameter Limit has been established for the afterburner to ensure destruction of organic constituents in accordance with 40 CFR 63.1209(j)(1), and 63.1209(k)(2). See the discussion of Item E "Minimum Afterburner Temperature" below. Organic materials are heated and volatilized in the various hearths of the reactivation furnace, but the hearths are not used for combustion or destruction of the organics. The organic vapors are transported to the afterburner where they are thermally oxidized for destruction. Hearth #1 is the top-most hearth and is not fired. For information purposes, typical Hearth #1 temperatures range from 500°F to 1000°F.

D. Hearth 5 temperature minimum and maximum range HRA permit condition
The regulations used as guidance for the PDT do not require establishing either a minimum or a maximum temperature for any of the reactivation furnace hearths. A minimum is not required since the reactivation furnace is not used for organic destruction (only volatilization). The HWC MACT regulations do not require a maximum temperature at all (See 40 CFR 63.1209). During on-site discussions with EPA representatives during the PDT, the issue of minimum and maximum temperatures were brought up, even though the approved PDT Plan does not identify establishment of either as a test objective. In order to proceed with the PDT, Siemens agreed (after strenuous argument to the contrary) that it would operate Hearth #5 at a maximum temperature during the PDT, and would establish a minimum Hearth #5 temperature by other means following the PDT.

In EPA's "Final Technical Support Document for HWC MACT Standards. Volume IV: Compliance with the HWC MACT Standards", published by the U.S. EPA, Office of Solid Waste and Emergency Response, July 1999, the Agency states that while a maximum temperature limit had been established under the RCRA BIF regulations as a means of controlling metals emissions, EPA considers such a limit to no longer be necessary, since review of trial burn data indicates that there is no demonstrated relationship between combustion chamber temperatures and metals emissions. This issue is specifically discussed in Section 6.1.4 of the referenced document, and excerpts are contained in Attachment 1 to these comment responses. Therefore, Siemens is not establishing a Hearth #5 maximum temperature condition.

Siemens has agreed with EPA that, even though the reactivation furnace hearths do not provide organic destruction, a minimum temperature in Hearth #5 is a reasonable permit condition to ensure adequate volatilization of organic constituents from the spent carbon feeds. Siemens undertook an extensive review of boiling point data for the specific organic constituents associated with the waste codes accepted at the Parker Facility, and determined that a temperature of 1000°F would ensure volatilization of those constituents, and documented this to EPA in a letter to Mr. Steve Armann, dated September 8, 2004. Siemens understands that this exercise is theoretical, so in order

to ensure a reasonable contingency is provided, a minimum Hearth #5 temperature permit limit of 1350°F is being established. This will be implemented as an Operating Parameter Limit, with an associated AWFCO, based on an hourly rolling average. This limit has been included in the OPL table in the Part B Permit Application.

E. Minimum afterburner temperature Measure at exit HRA permit condition
This will be an Operating Parameter Limit, based on the PDT. The minimum afterburner temperature limit is established in accordance with 40 CFR 63.1209(j)(1), and 63.1209(k)(2) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 1760°F, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

F. Maximum air speed through the system HRA as calculated L/G
Siemens limits the overall "air speed through the system" by setting a maximum OPL on the stack gas flow rate, as required by 40 CFR 63.1209(j)(2), 63.1209(k)(3), 63.1209(m)(2), 63.1209(n)(5), and 63.1209(o)(2). See the discussion of "Item P. Maximum stack gas flow rate permit condition", below. Further, the "L/G" or "liquid-to-gas ratio" cannot be directly measured or calculated since the gas flow rate through each air pollution control device cannot be measured. Rather the L/G is effectively limited in the Quench/Venturi and in the Packed Bed Scrubber by establishing OPLs on the maximum stack gas flow rate and the minimum recycle liquid flow rate in each device, as allowed by 40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of <u>either</u> a minimum L/G <u>or</u> a maximum stack gas flow rate and a minimum liquid flow rate. See the discussion of "Item H. Minimum scrubber flow rate through Venturi/Quench" and "Item L. Minimum scrubber flow rate through packed bed", below.

G. Venturi scrubber differential pressure drop
This will be an Operating Parameter Limit, based on the PDT. The minimum venturi pressure differential limit is established in accordance with 40 CFR 63.1209(m)(1)(i)(A), 63.1209(o)(3)(i), and 63.1209(n)(3) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 18 inches of water column, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

H. Minimum scrubber flow rate through Venturi/Quench
This will be an Operating Parameter Limit, based on the PDT. The minimum quench/venturi liquid flow limit is established in accordance with 40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of <u>either</u> a minimum L/G <u>or</u> a maximum stack gas flow rate and a minimum liquid flow rate. The limit is established as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 75 gpm, and an AWFCO will be triggered if

this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

I. Venturi pH to wet scrubber instantaneous

The Quench/Venturi is used to cool the gases exiting the afterburner and to remove particulate matter and some metals from the gas. Some removal of acid gases is incidental to its operation, but is not its primary function. The Packed Bed Scrubber is the device used for acid gas control. Therefore, the Packed Bed Scrubber has an OPL established for minimum pH (See the discussion of "Item K. Packed bed pH", below). The OPLs established for the Quench/Venturi are minimum pressure differential (40 CFR 63.1209(m)(1)(i)(A), 63.1209(o)(3)(i), and 63.1209(n)(3)), minimum liquid flow rate (40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3)), and minimum blowdown flow rate (40 CFR 63.1209(m)(1)(i)(B), and 63.1209(n)(3)); established commensurate with this device's role as a particulate matter and metals control device. No pH limits are required for the Quench/Venturi.

For informational purposes, the pH of the Quench/Venturi operates over a typical range of about 4.5 to 8.5.

J. Maximum temperature at exit of Venturi

The HWC MACT regulations at 40 CFR 63 Subpart EEE only establish temperature limits on organic destruction devices, such as combustion chambers, and for the inlet temperature to a dry particulate matter control device. (See 40 CFR 63.1209(j)(1), 63.1209(k)(2), 63.1209(k)(1), and 63.1209(n)(1)). The venturi is a wet device used for the control of particulate matter and some metals. OPLs related to particulate matter and metals control have been established for the venturi.

The Venturi handles gases exiting the quench section of the system, which have been saturated with water through evaporation. These gases are at or near the "adiabatic saturation temperature" which is a function of the enthalpy and humidity of the gases entering the quench from the afterburner. The gas temperature does not change to an appreciable extent between the quench outlet and the venturi outlet, and typically fluctuates over a relatively narrow temperature range. For informational purposes, the venturi outlet gas temperature typically ranges from 160°F to 195°F.

K. Packed bed pH

This will be an Operating Parameter Limit, based on the PDT. The minimum pH limit is established in accordance with 40 CFR 63.1209(o)(3)(iv) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 4.4, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

L. Minimum scrubber flow rate through packed bed
This will be an Operating Parameter Limit, based on the PDT. The minimum packed bed liquid flow limit is established in accordance with 40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of either a minimum L/G or a maximum stack gas flow rate and a minimum liquid flow rate. The limit is established as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 63 gpm, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

M. Packed bed differential pressure
This will be an Operating Parameter Limit, based on the PDT. The minimum pressure differential limit is established in accordance with 40 CFR 63.1209(o)(3)(ii). The limit is established manufacturer's information and operating experience, and is implemented on an hourly rolling average basis. The limit is 0.1 inches of water column, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

N. Venturi scrubber blowdown rate
There is no separate blowdown stream from the venturi scrubber. Rather, the venturi scrubber liquid is discharged to the packed bed scrubber, and subsequently, the blowdown from the overall air pollution control system comes from the packed bed scrubber. Accordingly, an Operating Parameter Limit for the packed bed scrubber minimum blowdown flow rate has been established, based on the PDT. The minimum packed bed scrubber blowdown flow rate limit is established in accordance with 40 CFR 63.1209(m)(1)(i)(B), and 63.1209(n)(3) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 58 gpm, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

O. Minimum WESP secondary voltage
This will be an Operating Parameter Limit, based on the PDT. The minimum WESP secondary voltage limit is established in order to comply with the provisions of 40 CFR 63.1209(m)(1)(iv), and 63.1209(n)(3) which require the establishment of appropriate limits for control devices not specifically addressed in other parts of the regulations. The limit has been established from the average of the minimum hourly rolling averages recorded during each test run, and is implemented on an hourly rolling average basis. The limit is 24 KVDC, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

P. Maximum stack gas flow rate permit condition
This will be an Operating Parameter Limit, based on the PDT. The maximum stack gas flow rate limit is established in accordance with 40 CFR 63.1209(j)(2), 63.1209(k)(3),

63.1209(m)(2), 63.1209(n)(5), and 63.1209(o)(2) as the average of the stack gas flow rate measurements from each test run, and is implemented on an hourly rolling average basis. The limit is 9550 actual cubic feet per minute (acfm), and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

Q. CO HRA permit condition
This will be an Operating Parameter Limit. The maximum stack gas CO concentration limit is 100 ppmv, dry basis, corrected to 7% oxygen, and is established to comply with the requirements of 40 CFR 63.1203(a)(5)(i). The limit is implemented on an hourly rolling average basis, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

R. Fan on/off on permit condition
There are no regulations requiring a permit condition related to the fan being on or off. However, as a practical matter, the carbon reactivation system automatically shuts down if the induced draft fan motor is off. An OPL requiring an automatic waste feed cutoff whenever the induced draft fan motor is "off" has been included in the OPL Table in the Part B Permit Application.

S. Total hydrocarbons (strip charts) < 100 ppm CO or <10 ppm as propane permit condition if using this option for CO
The facility continuously monitors CO in compliance with the provisions of 40 CFR 63.1203(a)(5)(i). (See the discussion of "Item Q. CO HRA Permit Condition", above). Further, during the DRE testing conducted as part of the Performance Demonstration Test, the facility documented compliance with the hydrocarbon standard of 40 CFR 63.1203(a)(5)(ii). Therefore, in accordance with 40 CFR 653.1203(a)(5)(i), continuous monitoring of total hydrocarbons is not required.

T. Organics feed rate
There are no regulatory requirements for an organics feed rate permit condition. Feed rate limits for total hazardous waste, mercury, semivolatile metals, low volatility metals, and total chlorine/chloride have been established in accordance with the provisions of 40 CFCR 63.1209(j) through (o).

The citation of 40 CFR 63.1209(c) given in the table above requires an analysis of the waste feed that is sufficient to document compliance with the applicable feed rate limits in Section 1209. Those feed rate limits are as described above, and do not include any limits on specific or total organics.

The citation of 40 CFR 63.1209(g)(2) given in the table above, provides the Administrator latitude to impose additional limits on a particular facility if they are necessary to document compliance with the specific emission limits.

The issue of placing a limit on the total organic feed rate to the reactivation furnace has been discussed many times, and Siemens believes that the above citation is being used as an attempt to impose an arbitrary requirement on this facility that is not necessary, is not justified, nor is it a limit that is even placed on hazardous waste incinerators which feed materials that are essentially 100% organic. This facility treats only spent activated carbon, with varying degrees of organic contamination. During the PDT, the facility agreed to add a mixture of organic materials to the spent carbon feed in order to increase the organic loading above typical values, and to generate a suite of potential products of incomplete combustion for purposes of the risk assessment. The risk assessment showed no unacceptable risks; the facility demonstrated compliance with the organic destruction efficiency, total hydrocarbon, and dioxin/furan emission requirements; the facility has established a minimum afterburner temperature limit (with an AWFCO) to ensure continuing organic matter destruction, the facility has established a spent carbon feed rate limit (with an AWFCO); and it continuously monitors the emissions of carbon monoxide (with an AWFCO) as an indicator of good combustion (and proper organic destruction). Given all of these facts, plus the fact that the regulations do not even discuss the need for an organic feed rate limit, there is no need or justification for a limit on organic feed rate.

U. Semivolatile metals feed rate

This will be an Operating Parameter Limit, based on the PDT. The maximum semivolatile metal feed rate limit is established in accordance with 40 CFR 63.1209(n)(2), as the average of the semivolatile metal feed rates during each test run, and is implemented on a 12-hour rolling average basis. The limit is 1.0×10^{-1} lb/hr of cadmium and lead, combined. This parameter is included in the OPL Table in the Part B Permit Application.

V. Low volatile metals feed rate

This will be an Operating Parameter Limit, based on the PDT. The maximum low volatility metal feed rate limit is established in accordance with 40 CFR 63.1209(n)(2), as the average of the low volatility metal feed rates during each test run, extrapolated upward based on the measured system removal efficiency of the low volatility metals. The limit is implemented on a 12-hour rolling average basis, and is 1.5 lb/hr of chromium, beryllium, and arsenic, combined. This parameter is included in the OPL Table in the Part B Permit Application.

W. Mercury (MTEC) feed rate

This is an Operating Parameter Limit. Due to the low amounts of mercury expected in the spent activated carbon, Siemens has elected to comply with the mercury standard by calculating and complying with a 12-hour rolling average Maximum Theoretical Emission Concentration (MTEC), as described in 40 CFR 63.1209(l)(1)(iii)(D), conservatively assuming no mercury removal across the APC system. The MTEC is

complied with as a maximum mercury feed rate limit. This limit has been calculated from the performance test data by using the stack gas flow rate and oxygen concentration, and the maximum allowable stack gas mercury concentration based on the HWC MACT regulations. The feed rate limit is 1.8×10^{-3} lb/hr, and was determined assuming that all mercury is emitted, and is complied with as a maximum 12-hour rolling average mercury feed rate limit. This parameter is included in the OPL Table in the Part B Permit Application.

X. Total metals feed rates for all 18 risk metals

The risk assessment found no adverse risks associated with the operation of the RF-2 unit, thus no risk-based limits are needed. Further, the lower particulate matter standard in the HWC MACT regulations (which is being complied with for this facility), compared to the RCRA Subpart O incinerator regulations, was established to serve as a surrogate for the non-enumerated HAP metals (those metals other than As, Be, Cd, Cr, Hg, and Pb, for which specific limits are established under 40 CFR 63 Subpart EEE).

In the preamble to the HWC MACT regulations, EPA states:

> *"The particulate matter standard is a necessary, effective, and appropriate surrogate to control nonmercury metal HAPs. The record demonstrates overwhelmingly that when a hazardous waste combustor emits particulate matter, it also emits nonmercury HAP metals as part of that particulate matter, and that when particulate matter is removed from emissions the nonmercury HAP metals are removed with it.[130] Nonmercury metal HAP emissions are therefore reduced whenever particulate matter emissions are reduced. The particulate matter standard thus is an effective and appropriate surrogate that assures sources are controlling these metal HAP with an appropriate back-end control technology. National Lime v. EPA, 233 F. 3d at 639. The nonenumerated metal HAP are no different than other semivolatile or low volatile metals in that they also will be effectively controlled with a back-end particulate matter air pollution control device."*
>
> *[130] "This statement is equally true for any emitting source, not just hazardous waste combustors. It is well established that semivolatile and low volatile metals exist in solid particulate form at typical air pollution control device operating temperatures. This is supported by 1) known operating temperature ranges of air pollution control devices used by hazardous waste combustors; 2) known metal volatility equilibrium relationships; and 3) extensive technical literature. See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 3.1".*

For these reasons, no additional metal feed rate limits are necessary for the RF-2 unit.

Y. Maximum chlorine/chloride feed rate
This will be an Operating Parameter Limit, based on the PDT. The maximum total chlorine/chloride feed rate limit is established in accordance with 40 CFR 63.1209(n)(4), and 63.1209(o)(1), as the average of the total chlorine/chloride feed rates during each test run, and is implemented on a 12-hour rolling average basis. The limit is 60 lb/hr. This parameter is included in the OPL Table in the Part B Permit Application.

COMMENT D3.11: Please complete the following table and add it to Section D. Please note that the AWFCO list is a subset of the operating conditions. This table will differ from the D-3 table as these values should be derived from the PDT.

TABLE D.3.2 AWFCO CONDITIONS

Operating Condition	**limit**	**Purpose**
A. Spent carbon feed rate Block hourly rolling average permit condition AWFCO	not to exceed____	Compliance with 40 CFR Section 63.1209
B. Residence time 42 minutes operating condition	no less than -____	Compliance with 40 CFR Section 63.1206(b)(11) and 1207(f)(1)(ix), The Permittee must also provide the hazardous waste residence time in the DOC under Section 63.1211(c) and the NOC under 40 CFR Section 63.1207(j) and 40 CFR Section 63.1210(d).
C. Hearth 1 temperature minimum HRA AWFCO permit condition	no less than____	Compliance with 40 CFR Section 63.1209(j)(1)/(k)(2)
D. Hearth 5 temperature minimum and maximum range HRA permit condition	no less than____	Compliance with 40 CFR Section 63.1209(j)(1)/(k)(2)
E. Minimum afterburner temperature Measure at	no less than___	Compliance with 40 CFR Section 63.1209(j)(1)(i)

exit HRA permit condition		
F. Venturi scrubber differential pressure drop	no greater than	
G. Minimum scrubber flow rate through Venturi/Quench	no less than___	
H. Packed bed pH HRA permit condition	no greater than	
I. Minimum scrubber flow rate through packed bed HRA permit condition	no less than___	
J. Packed bed differential pressure HRA permit condition	no greater than	
K. Venturi scrubber blowdown rate HRA permit condition	no less than	Compliance with 40 CFR Section 63.1209(m)(1)(ii)
L. Minimum WESP secondary voltage 14KVDC HRA permit condition	no less than___	
M. Maximum stack gas flow rate HRA permit condition	no greater than	
N. CO	no greater than	Compliance with 40 CFR Section 63.1209(g)(2)
O. Fan on/off	off	Compliance with 40 CFR Section 63.1209(g)(2)
P. Total hydrocarbons (strip charts) if using this option for CO	no greater than	Compliance with 40 CFR Section 63.1209((a)(1)
Q. Semivolatile metals feed rate	no greater than	Compliance with 40 CFR Section 63.1219 1206(14)(iv) Operating limits . Semivolatile metal operating. Semivolatile metal feedrate limits apply to lead, cadmium, and selenium, combined.
R. Low volatile metals feed rate	no greater than	Compliance with 40 CFR Section 63.1219 1206(14)(iv) Operating

		limits . Low volatile metal operating parameter limits must be established pursuant to 40 CFR Section 63.1209(n), and low volatile metal feedrate limits apply to arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel, combined.
S. Mercury (MTEC) feed rate 12 hour rolling average permit condition	no greater than	
T. Total metals feed rates for all 18 risk metals 12 hour rolling average permit condition	no greater than	
U. Maximum chlorine/chloride feed rate 12 hour rolling average permit condition	no greater than	As per EPA guidance document: Handbook: Guidance on Setting Permit Conditions and Reporting Trial Burn Results (EPA/625/6-89/019), Section 2.1.6
V. Organic feed rate total HRA permit condition	no greater than	Compliance with 40 CFR Section 63.1209(c) and 40 CFR Section 63.1209 (g)(2)
W. Is there one on the Hearth? 1206(c)(4) ESV (Emergency safety vent openings)		

RESPONSE: Siemens developed a Performance Demonstration Test (PDT) Plan that was approved by the Agency. Siemens implemented that plan, and based on successful demonstration of performance, a list of operating parameter limits (OPLs) and automatic waste feed cutoffs (AWFCOs) was developed consistent with the approved plan and the provisions of 40 CFR 63, Subpart EEE (HWC MACT), which was used as guidance for this facility. Most of the items identified in Table D.3.2 are almost identical to those in Table D.3.1. As in Table D.3.1, a number of the items in Table D.3.2 appear to be either incorrect or do not apply. A table of Operating Parameter

Limits (OPLs) and Automatic Waste Feed Cutoffs (AWFCOs) derived from the PDT test has been included in Section D of the Part B Permit Application. This table is consistent with the approved PDT Plan (Appendix V to the Part B Application), the regulations at 40 CFR 63 Subpart EEE, and the information presented in the PDT report (Appendix V to the Part B Application).

The following paragraphs discuss each item from Table D.3.2 above in greater detail. Please note that the commenter has provided a column in the table above labeled "Purpose" for many of the parameters listed. Some of these "purposes" are intended as the basis for establishing permit operating limits and associated automatic waste feed cutoff interlocks, and correspond with appropriate sections of the regulations which were used as guidance for this facility. Others cite portions of the regulations or guidance documents, and/or make statements which are not applicable, or which do not require the establishment of an OPL and/or AWFCO. Other items are listed with no "purpose" identified.

In the responses below, Siemens addresses each item from Table D.3.2, and has provided values which have been established from the PDT as operating parameter limits, and as automatic waste feed cutoff parameters which Siemens expects to have incorporated into its permit. The OPL table which has been added to the Part B Permit Application addresses items which are expected to be permit limits, and also indicates which of those limits is expected to have an associated AWFCO. The HWC MACT regulations list all permit operating limits, and how they are to be established, in section 1209. Regulatory citations for each permit operating limit and AWFCO are provided in the paragraphs below and in the new OPL table in Section D of the Part B Permit Application.

A. Spent carbon feed rate Block hourly rolling average permit condition AWFCO
The maximum spent carbon feed rate has been established as an OPL with an associated AWFCO. The maximum spent carbon feed rate limit is established in accordance with 40 CFR 63.1209(j)(3), and 63.1209(k)(4). While the regulations call for establishing this limit on an hourly rolling average basis using the average of the highest hourly rolling average values from each test run, Siemens preferred a block hour average, and therefore used the average of the test run averages (which is a more conservative value). The limit is 3049 lb/hr, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

B. Residence time 42 minutes operating condition
The item referenced in the table is the solids residence time in the reactivation furnace. The regulations establish a limit on the minimum gas residence time (which is discussed below under Item M, "Maximum stack gas flow rate HRA permit condition"). With regard to the solids residence time, the regulations only state that the facility should document

the hazardous waste residence time (See 40 CFR 63.1206(b)(11)). The regulations do not establish any permit limits or AWFCOs regarding hazardous waste residence time (See 40 CFR 63.1209). For documentation purposes, the hazardous waste residence time is 38 minutes based on the speed of the rabble arms. Although the rabble arm motor has a variable speed drive, the facility has never changed the speed. Calculation of solid residence time are shown in Appendix Ag of the PDT Report (Appendix V of the RCRA Part B Permit Application).

C. Hearth 1 temperature minimum HRA AWFCO permit condition

No temperature limits or permit limits are set for Hearth #1. A minimum temperature Operating Parameter Limit has been established for the afterburner to ensure destruction of organic constituents in accordance with 40 CFR 63.1209(j)(1), and 63.1209(k)(2). See the discussion of Item E "Minimum afterburner temperature Measure at exit HRA permit condition" below. Organic materials are heated and volatilized in the various hearths of the reactivation furnace, but the hearths are not used for combustion or destruction of the organics. The organic vapors are transported to the afterburner where they are thermally oxidized for destruction. Hearth #1 is the top-most hearth and is not fired. For information purposes, typical Hearth #1 temperatures range from 500°F to 1000°F.

D. Hearth 5 temperature minimum and maximum range HRA permit condition

The regulations used as guidance for the PDT do not require establishing either a minimum or a maximum temperature for any of the reactivation furnace hearths. A minimum is not required since the reactivation furnace is not used for organic destruction (only volatilization). The HWC MACT regulations do not require a maximum temperature at all (See 40 CFR 63.1209). During on-site discussions with EPA representatives during the PDT, the issue of minimum and maximum temperatures were brought up, even though the approved PDT Plan does not identify establishment of either as a test objective. In order to proceed with the PDT, Siemens agreed (after strenuous argument to the contrary) that it would operate Hearth #5 at a maximum temperature during the PDT, and would establish a minimum Hearth #5 temperature by other means following the PDT.

In EPA's "Final Technical Support Document for HWC MACT Standards. Volume IV: Compliance with the HWC MACT Standards", published by the U.S. EPA, Office of Solid Waste and Emergency Response, July 1999, the Agency states that while a maximum temperature limit had been established under the RCRA BIF regulations as a means of controlling metals emissions, EPA considers such a limit to no longer be necessary, since review of trial burn data indicates that there is no demonstrated relationship between combustion chamber temperatures and metals emissions. This issue is specifically discussed in Section 6.1.4 of the referenced document, and excerpts are contained in Attachment 1 to these comment responses. Therefore, Siemens is not establishing a Hearth #5 maximum temperature condition.

Siemens has agreed with EPA that, even though the reactivation furnace hearths do not provide organic destruction, a minimum temperature in Hearth #5 is a reasonable permit condition to ensure adequate volatilization of organic constituents from the spent carbon feeds. Siemens undertook an extensive review of boiling point data for the specific organic constituents associated with the waste codes accepted at the Parker Facility, and determined that a temperature of 1000°F would ensure volatilization of those constituents, and documented this to EPA in a letter to Mr. Steve Armann, dated September 8, 2004. Siemens understands that this exercise is theoretical, so in order to ensure a reasonable contingency is provided, a minimum Hearth #5 temperature permit limit of 1350°F is being established. This will be implemented as an Operating Parameter Limit, with an associated AWFCO, based on an hourly rolling average. This limit has been included in the OPL table in the Part B Permit Application.

E. Minimum afterburner temperature Measure at exit HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum afterburner temperature limit is established in accordance with 40 CFR 63.1209(j)(1), and 63.1209(k)(2) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 1760°F, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

F. Venturi scrubber differential pressure drop
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum venturi pressure differential limit is established in accordance with 40 CFR 63.1209(m)(1)(i)(A), 63.1209(o)(3)(i), and 63.1209(n)(3) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 18 inches of water column, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

G. Minimum scrubber flow rate through Venturi/Quench
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum quench/venturi liquid flow limit is established in accordance with 40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of either a minimum L/G or a maximum stack gas flow rate and a minimum liquid flow rate. The limit is established as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 75 gpm, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

H. Packed bed pH HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum pH limit is established in accordance with 40 CFR 63.1209(o)(3)(iv) as the average of

the test run averages, and is implemented on an hourly rolling average basis. The limit is 4.4, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

I. Minimum scrubber flow rate through packed bed HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum packed bed liquid flow limit is established in accordance with 40 CFR 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of either a minimum L/G or a maximum stack gas flow rate and a minimum liquid flow rate. The limit is established as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 63 gpm, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

J. Packed bed differential pressure HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum pressure differential limit is established in accordance with 40 CFR 63.1209(o)(3)(ii). The limit is established from manufacturer's information and operating experience, and is implemented on an hourly rolling average basis. The limit is 0.1 inches of water column. This parameter is included in the OPL Table in the Part B Permit Application.

K. Venturi scrubber blowdown rate HRA permit condition
There is no separate blowdown stream from the venturi scrubber. Rather, the venturi scrubber liquid is discharged to the packed bed scrubber, and subsequently, the blowdown from the overall air pollution control system comes from the packed bed scrubber. Accordingly, an Operating Parameter Limit for the packed bed scrubber minimum blowdown flow rate has been established, along with an associated AWFCO. The minimum packed bed scrubber blowdown flow rate limit is established in accordance with 40 CFR 63.1209(m)(1)(i)(B), and 63.1209(n)(3) as the average of the test run averages, and is implemented on an hourly rolling average basis. The limit is 58 gpm, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

L. Minimum WESP secondary voltage 14KVDC HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The minimum WESP secondary voltage limit is established in order to comply with the provisions of 40 CFR 63.1209(m)(1)(iv), and 63.1209(n)(3) which require the establishment of appropriate limits for control devices not specifically addressed in other parts of the regulations. The limit has been established from the average of the minimum hourly rolling averages recorded during each test run, and is implemented on an hourly rolling average basis. The limit is 22 KVDC, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

M. Maximum stack gas flow rate HRA permit condition
This will be an Operating Parameter Limit, with an associated AWFCO. The maximum stack gas flow rate limit is established in accordance with 40 CFR 63.1209(j)(2), 63.1209(k)(3), 63.1209(m)(2), 63.1209(n)(5), and 63.1209(o)(2) as the average of the stack gas flow rate measurements from each test run, and is implemented on an hourly rolling average basis. The limit is 9550 actual cubic feet per minute (acfm), and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

N. CO
This will be an Operating Parameter Limit, with an associated AWFCO. The maximum stack gas CO concentration limit is 100 ppmv, dry basis, corrected to 7% oxygen, and is established to comply with the requirements of 40 CFR 63.1203(a)(5)(i). The limit is implemented on an hourly rolling average basis, and an AWFCO will be triggered if this limit is exceeded. This parameter is included in the OPL Table in the Part B Permit Application.

O. Fan on/off
There are no regulations requiring a permit condition related to the fan being on or off. However, as a practical matter, the carbon reactivation system automatically shuts down if the induced draft fan motor is off. An OPL requiring an automatic waste feed cutoff whenever the induced draft fan motor is "off" has been included in the OPL Table in the Part B Permit Application.

P. Total hydrocarbons (strip charts) if using this option for CO
The facility continuously monitors CO in compliance with the provisions of 40 CFR 63.1203(a)(5)(i). (See the discussion of "Item Q. CO HRA Permit Condition", above). Further, during the DRE testing conducted as part of the Performance Demonstration Test, the facility documented compliance with the hydrocarbon standard of 40 CFR 63.1203(a)(5)(ii). Therefore, in accordance with 40 CFR 653.1203(a)(5)(i), continuous monitoring of total hydrocarbons is not required.

Q. Semivolatile metals feed rate
This will be an Operating Parameter Limit, but will not have an associated AWFCO. Siemens has not set an AWFCO for this parameter because the unit typically operates well below the OPL, and this unit is not strictly a hazardous waste combustor. The maximum semivolatile metal feed rate limit is established in accordance with 40 CFR 63.1209(n)(2), as the average of the semivolatile metal feed rates during each test run, and is implemented on a 12-hour rolling average basis. The limit is 1.0×10^{-1} lb/hr of cadmium and lead, combined. This parameter is included in the OPL Table in the Part B Permit Application.

R. Low volatile metals feed rate
This will be an Operating Parameter Limit, but will not have an associated AWFCO. Siemens has not set an AWFCO for this parameter because the unit typically operates well below the OPL, and this unit is not strictly a hazardous waste combustor. The maximum low volatility metal feed rate limit is established in accordance with 40 CFR 63.1209(n)(2), as the average of the low volatility metal feed rates during each test run, extrapolated upward based on the measured system removal efficiency of the low volatility metals. The limit is implemented on a 12-hour rolling average basis, and is 1.5 lb/hr of chromium, beryllium, and arsenic, combined. This parameter is included in the OPL Table in the Part B Permit Application.

S. Mercury (MTEC) feed rate12 hour rolling average permit condition
This is an Operating Parameter Limit, but will not have an associated AWFCO. Siemens has not set an AWFCO for this parameter because the unit typically operates well below the OPL, and this unit is not strictly a hazardous waste combustor. Due to the low amounts of mercury expected in the spent activated carbon, Siemens has elected to comply with the mercury standard by calculating and complying with a 12-hour rolling average Maximum Theoretical Emission Concentration (MTEC), as described in 40 CFR 63.1209(l)(1)(iii)(D), conservatively assuming no mercury removal across the APC system. The MTEC is complied with as a maximum mercury feed rate limit. This limit has been calculated from the performance test data by using the stack gas flow rate and oxygen concentration, and the maximum allowable stack gas mercury concentration based on the HWC MACT regulations. The feed rate limit is 1.8×10^{-3} lb/hr, and was determined assuming that all mercury is emitted, and is complied with as a maximum 12-hour rolling average mercury feed rate limit. This parameter is included in the OPL Table in the Part B Permit Application.

T. Total metals feed rates for all 18 risk metals 12 hour rolling average permit condition
The risk assessment found no adverse risks associated with the operation of the RF-2 unit, thus no risk-based limits are needed. Further, the lower particulate matter standard in the HWC MACT regulations (which is being complied with for this facility), compared to the RCRA Subpart O incinerator regulations, was established to serve as a surrogate for the non-enumerated HAP metals (those metals other than As, Be, Cd, Cr, Hg, and Pb, for which specific limits are established under 40 CFR 63 Subpart EEE).

In the preamble to the HWC MACT regulations, EPA states:

> *"The particulate matter standard is a necessary, effective, and appropriate surrogate to control nonmercury metal HAPs. The record demonstrates overwhelmingly that when a hazardous waste combustor emits particulate matter, it also emits nonmercury HAP metals as part of that particulate matter, and that when particulate matter is removed from emissions the*

> *nonmercury HAP metals are removed with it.[130] Nonmercury metal HAP emissions are therefore reduced whenever particulate matter emissions are reduced. The particulate matter standard thus is an effective and appropriate surrogate that assures sources are controlling these metal HAP with an appropriate back-end control technology. National Lime v. EPA, 233 F. 3d at 639. The nonenumerated metal HAP are no different than other semivolatile or low volatile metals in that they also will be effectively controlled with a back-end particulate matter air pollution control device."*
>
> *[130] "This statement is equally true for any emitting source, not just hazardous waste combustors. It is well established that semivolatile and low volatile metals exist in solid particulate form at typical air pollution control device operating temperatures. This is supported by 1) known operating temperature ranges of air pollution control devices used by hazardous waste combustors; 2) known metal volatility equilibrium relationships; and 3) extensive technical literature. See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 3.1".*

For these reasons, no additional metal feed rate limits are necessary for the RF-2 unit.

U. Maximum chlorine/chloride feed rate 12 hour rolling average permit condition
This will be an Operating Parameter Limit, but will not have an associated AWFCO. Siemens has not set an AWFCO for this parameter because the unit typically operates well below the OPL, and this unit is not strictly a hazardous waste combustor. The maximum total chlorine/chloride feed rate limit is established in accordance with 40 CFR 63.1209(n)(4), and 63.1209(o)(1), as the average of the total chlorine/chloride feed rates during each test run, and is implemented on a 12-hour rolling average basis. The limit is 60 lb/hr. This parameter is included in the OPL Table in the Part B Permit Application.

V. Organic feed rate total HRA permit condition
There are no regulatory requirements for an organics feed rate permit condition. Feed rate limits for total hazardous waste, mercury, semivolatile metals, low volatility metals, and total chlorine/chloride have been established in accordance with the provisions of 40 CFCR 63.1209(j) through (o).

The citation of 40 CFR 63.1209(c) given in the table above requires an analysis of the waste feed that is sufficient to document compliance with the applicable feed rate limits in Section 1209. Those feed rate limits are as described above, and do not include any limits on specific or total organics.

The citation of 40 CFR 63.1209(g)(2) given in the table above, provides the Administrator latitude to impose additional limits on a particular facility if they are necessary to document compliance with the specific emission limits.

The issue of placing a limit on the total organic feed rate to the reactivation furnace has been discussed many times, and Siemens believes that the above citation is being used as an attempt to impose an arbitrary requirement on this facility that is not necessary, is not justified, nor is it a limit that is even placed on hazardous waste incinerators which feed materials that are essentially 100% organic. This facility treats only spent activated carbon, with varying degrees of organic contamination. During the PDT, the facility agreed to add a mixture of organic materials to the spent carbon feed in order to increase the organic loading above typical values, and to generate a suite of potential products of incomplete combustion for purposes of the risk assessment. The risk assessment showed no unacceptable risks; the facility demonstrated compliance with the organic destruction efficiency, total hydrocarbon, and dioxin/furan emission requirements; the facility has established a minimum afterburner temperature limit (with an AWFCO) to ensure continuing organic matter destruction, the facility has established a spent carbon feed rate limit (with an AWFCO); and it continuously monitors the emissions of carbon monoxide (with an AWFCO) as an indicator of good combustion (and proper organic destruction). Given all of these facts, plus the fact that the regulations do not even discuss the need for an organic feed rate limit, there is no need or justification for a limit on organic feed rate.

W. Is there one on the Hearth? 1206(c)(4) ESV (Emergency safety vent openings)
The RF-2 unit does not have an ESV.

COMMENT D3.12: In Section D.5.4, Treatment Effectiveness, quality assurance should extend to the organic, metal and other limiting feed limits as to the quality of the data that determines compliance. Please submit in a revised application a revised Section C that provides a table of sampling and analysis requirements and the Quality Assurance Project Plan (QAPP) that will evaluate the data to determine accurate and representative results.

RESPONSE: Sampling, analysis, QA/QC, and the rationale for the collection and analysis of feed samples are described in the Waste Analysis Plan in Appendix IV of the RCRA Part B Permit Application.

D4 PROCESS SUMMARY:

COMMENT D4.1: Section D, paragraphs D.1.2 and D.2.2: Please remove the reference to the steam from the carbon regeneration discussion, since you informed EPA at our June 7th, 2011 meeting that steam is no longer used in the carbon regeneration process. Please include in your discussion an explanation of how not using steam doesn't change the carbon regeneration process.

RESPONSE: References to the addition of steam into the reactivation furnace have been removed from Section D. It has been found from Siemens product testing, that steam injection was not necessary to meet reactivated carbon product quality requirements.

F. Procedures to Prevent Hazards, Appendix XII Inspection Schedule and Checklists

Each request for information comment or request for submittal should be included in the revised Part B permit application.

COMMENT F1: Please submit an electronic copy and hard copy of the revised inspection checklist.

RESPONSE: The revised inspection checklists are included with the revised Part B Permit Application. Both hard copies and electronic copies of the application will be provided to EPA. Siemens developed the revised inspection checklists during a site visit by the EPA Project Manager (Mr. Mike Zabaneh) in 2011.

COMMENT F2: EPA recommends that the inspection requirements be organized in the following format:

Daily inspection sheet Page __ of ___

Inspection Item	Inspect for…	Inspected y/n/date	Comments

RESPONSE: Siemens has modified its inspections forms and has included these revised forms in the RCRA Part B Permit Application. These forms include all of the requested information.

COMMENT F3: Include in the checklist more detail on how to inspect the following:

- Container Storage Area and the Unloading Pad;
- Alarms;
- Continuous Emissions Monitors (CEMS) and Other Monitoring Equipment;
- Transfer Equipment;
- Piping outside containment;
- Container inspection with 40 CFR Section 264, Subpart CC requirements;
- Tank system inspection with 40 CFR Section 264, Subpart CC requirements, tank liner and corrosion inspection;
- Special inspection requirements for tanks T-9, T-11 and T-12;
- Repair time requirements;
- All Tanks high pressure three-inch diameter pressure relief valves with vacuum breaker;

- Automatic Waste Feed Cut-Off (AWFCO) Systems inspection and operational checks;
- Air emissions control systems inspection, including the baghouse;
- Each closed-vent system inspection (if present);
- The RF-2 furnace system;
- The RF-2 Air Pollution Control Equipment (APCE) and ancillary equipment (pumps, valves, and pipes) inspection;
- External and internal communications inspection;
- Fire control equipment;
- Inventorying the emergency and spill kits inspection schedule;
- First aid cabinet inspection schedule;
- Self-Contained Breathing Apparatus (SCBA) inspection;
- A minimum aisle space of four (4) feet;
- Documentation of Arrangements with owner/operator with type of waste and hazard potential; 40 CFR Section 270.14(b) and 40 CFR Section 264.37;
- Arrange to familiarize local fire department and police with facility; 40 CFR Section 270.14(b) and 40 CFR Section 264.37(a)(1);
- Emergency Response Teams; 40 CFR Section 270.14(b) and 40 CFR Section 264.37(a)(2), (a)(3);
- Local hospitals Arrangements; 40 CFR Section 270.14(b) and 40 CFR Section 264.37(a)(4);
- Prevention procedures, structures, and equipment; 40 CFR Section 270.14;
- Unloading procedures hazards 40 CFR Section; 270.14(b)(8)(i);
- Run on/ run off controls and sampling protocol;
- Water supplies 40 CFR Section; 270.14(b)(8)(iii);
- Equipment and power failure 40 CFR Section; 270.14(b)(8)(iv);
- Prevention and precautions of reaction of ignitable, reactive, and incompatible Waste; 40 CFR Section 270.14(b)(9);

RESPONSE: Siemens has modified its inspections forms and has included these revised forms in the RCRA Part B Permit Application. These forms include all of the requested information pertinent to the inspection checklists. Several of the bullet items above do not pertain to the inspection checklists, but are addressed in Section F of the permit application.

COMMENT F.4: Section F, paragraph F.3.1.1.1, and page F-9, on Carbon Adsorbers: Please revise to include the new procedures that are used for monitoring the Carbon Adsorbers.

RESPONSE: Paragraph F.3.1.1.1 has been modified to address the Method 21 monitoring procedures, which will be used to verify the adequacy of the carbon adsorber change-out schedule.

G. Contingency Plan

Note: The contingency Section G refers directly to Appendix XIII. All numbered paragraphs are from Appendix XIII.

COMMENT G1: Please provide a clear definition of "emergency situation" within the context of the Contingency Plan. The contingency plan states in several sections that the plan will be activated when an event "…constitutes an emergency situation." This description of when the contingency plan will be activated is very vague and should be more clearly defined.

RESPONSE: The language in the Contingency Plan is consistent with the language of 40 CFR 264.51(b) and 40 CFR 264.52(a). The Contingency Plan states in Section 1.0 that it is designed to minimize hazards to human health or the environment in the event of fires, explosions, or unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents to air, soil, or surface water. The provisions of the plan will be carried out immediately whenever such an emergency occurs which could threaten human health or the environment. Verbiage has been added to the introductory paragraph of the Contingency Plan indicating that such situations are referred to as "emergency situations" throughout the plan.

Appendix XIII: Contingency Plan:

COMMENT G2: Please submit a revised application that includes more description details in the following sections:

- 7.0 EMERGENCY RESPONSE PROCEDURES
- 7.2 RELEASES OF HAZARDOUS WASTE
- 7.2.1 RELEASE OF TOXIC EMISSIONS
- 7.2.2.1 WITHIN CONTAINMENT AREA
- 7.2.2.2 OUTSIDE CONTAINMENT AREA
- 7.2.3.1 WITHIN CONTAINMENT AREA
- 7.2.3.2 OUTSIDE CONTAINMENT AREA

RESPONSE: The Contingency Plan has been extensively reviewed and addresses the requirements of the regulations. The plan has been tailored to meet the specific needs of this facility which exclusively treats spent activated carbon, and does not receive flammable liquids, corrosive, or reactive wastes. Siemens believes that the Contingency Plan contains the appropriate level of detail for this facility. Throughout this document, Siemens has responded to specific comments.

COMMENT G3: Please submit in paragraphs 5.2.3 and 5.2.4, a more defined criteria for how the Emergency Coordinator will determine any impact on receptors outside the facility based on the type of emergency from Appendices B and C. For example, if the air pollution control devices stop working, define/determine the impact on downwind receptors. There are at least 42 minutes after the Automatic Waste Feed Cut Off (AWFCO) before waste leaves the treatment unit.

RESPONSE: The Contingency Plan designates an Emergency Coordinator who is experienced in the operations of the facility, understands the potential health and environmental impacts of materials handled at the facility, and who is capable of making a decision regarding the potential for impacts that would warrant implementation of the Contingency Plan. The plan itself cannot address how to evaluate every situation that could arise.

The example given in the comment, concerning failure of the APC equipment and a subsequent AWFCO, would not constitute an "emergency situation" and would not be expected to trigger implementation of the Contingency Plan. The example situation is quite unrealistic, in that a complete failure of the air pollution control system is highly unlikely since the system is comprised of multiple unit operations. A degradation of performance in any one part of that system will result in an automatic stoppage of waste feed to eliminate the source of emissions, while the remaining components of the system remain operational to minimize emissions of any residual wastes remaining in the system during the 38 minute residence time. The Emergency Coordinator will be aware of how these systems work and able to assess the situation and understand that this does not constitute an emergency or threat of significant impact.

COMMENT G4: Paragraphs 5.2.1 and 6.4 state that: to immediately notify all personnel at the facility via the public address system, alarm system or other direct means (need details), especially if the public address system is not operational.

These sections show that details were planned to be added but inadvertently left out. Please submit a revised application with these details.

RESPONSE: The following information has been added to the Contingency Plan in Section 5.2.1. This material was already included in Section 6.4.

> *"When hazardous waste is being handled, all employees involved the these activities have immediate access to an internal alarm, or emergency device, either directly or through visual or voice contact with another employee. Communication devices include portable radios, and the site telephone/paging systems located throughout the facility. Employees typically work in pairs when handling hazardous waste."*

COMMENT G5: Types of waste are provided in Table 2-1, as required in new guidance. Please compare this list with the Part A list to verify it matches.

RESPONSE: The list of wastes has been compared with the list in Part A and in other parts of the permit application for consistency.

COMMENT G6: In paragraphs 5.2.3 and 5.3.4, please submit a more detailed definition criteria for when the facility and the public should be evacuated. Include evacuation routes for the public when/if they are required to be evacuated.

RESPONSE: The decision to evacuate the public, and the routes to be used are decisions to be made by the local emergency authorities. It would be inappropriate for Siemens to assume how these decisions would be made.

COMMENT G7: Please include a post emergency evaluation. After an emergency, the emergency plan should be evaluated to determine the root cause for the emergency, what didn't work well in the contingency plan (and amend the contingency plan as needed) and what went well.

RESPONSE: Section 3.2 of the Contingency Plan states that the plan will be amended if the plan fails during an emergency. This implies that an assessment of the plan's implementation will take place following an emergency situation. While it may be a useful management tool to perform a root cause analysis and to assess how well the plan worked in any given situation, Siemens is not aware of any regulatory requirement for this type of evaluation.

COMMENT G8: Section 7.2.1(5) bullets, Section 8.2 and Appendix B and C of the Contingency Plan should include actions for air emissions releases and fugitive air emissions. Any time air emissions are detected either visibly, by odor or by monitoring, a mask should be donned before attempts are made to identify or correct the release. Paragraph 7.2.1 should tie air emissions closely to the Startup Shutdown and Malfunction Plan (SSMP) that is required by 40 CFR Section 63, Subpart EEE. Please submit more details including actions to meet these requirements, concerning air emissions risks during Contingency Plan initiation.

RESPONSE: The Contingency Plan and the SSMP are completely separate documents. While it is possible that a malfunction could potentially be the cause of an emergency situation that may lead to implementation of the Contingency Plan, that is

not likely the case. Each plan has specific requirements for implementation, reporting, and recordkeeping, and will be adhered to accordingly.

COMMENT G9: Please revise paragraph 5.2.6, providing more detail concerning storage, treatment, and disposal of released materials.

RESPONSE: Specific handling of materials resulting from an emergency situation is highly dependent on the type of emergency situation and the types and quantities of materials generated. An example of how materials may be temporarily contained and stored has been added to paragraph 5.2.6.

COMMENT G10: In paragraph 5.2.7, Siemens states that the facility does not accept incompatible waste. Please submit a description of the requirements that determine acceptable kinds of cleanup materials that could be used.

RESPONSE: Paragraph 5.2.7 has been rewritten to be more clear and to include examples of the types of materials that are appropriate to use in responding to an emergency situation at the facility.

COMMENT G11: Please submit more detail on equipment decontamination as described in paragraph 6.6. The contingency plan Appendix B does specify decontamination of equipment, but not enough information is provided on how it is done. Details of this equipment decontamination should be included in this section.

RESPONSE: Additional information on appropriate decontamination agents and procedures has been added to paragraph 6.6.

COMMENT G12: Please submit more detail on the Automatic Waste Feed Cut Off (AWFCO) functions that are supposed to be in place to meet the requirements of 40 CFR Section 270.14(b)(7) and 40 CFR Section 264.196(a).

RESPONSE: The AWFCO system is described in Section D of the Part B Permit Application. Its function is not part of the Contingency Plan, but is used to stop the feed of hazardous wastes to the carbon reactivation furnace if permit operating conditions deviate from established limits. The specific regulatory citations given do not appear to have any relevance to either the AWFCO system or to the Contingency Plan.

COMMENT G13: Appendix B of the Contingency Plan mentions washing all material to the sump. However, in some cases there may be solid items that may be present. Please discuss the contingency plans for removal of non–liquid contaminated waste.

RESPONSE: Appendix B has been modified to indicate that hosing down an area is to be performed after removal of solids.

COMMENT G14: Please provide more detail in Appendix B of the Contingency Plan on repair of the secondary containment if/when it is damaged and how long before repairs will be completed.

RESPONSE: Repair of damaged secondary containment is not an emergency situation, nor is it associated with the Contingency Plan. This is handled in routine inspections and maintenance activities at the facility. Section 9.4 of the Contingency Plan discusses secondary containment systems as related to releases.

COMMENT G15: Paragraph 6.3 states that the emergency equipment kits "MAY contain the following:" Please submit a revised application demonstrating that each emergency equipment kit has a specific list of required items. Please also include an inspection item in Section F for the contents of each emergency equipment kit.

RESPONSE: Paragraph 6.3 has been modified to indicate the minimum inventory in the spill kit. The monthly inspection checklist includes checking the inventory of the spill control equipment.

COMMENT G16: Please document arrangements made with local police agencies, fire departments, hospitals and emergency response teams. The arrangements and contact personnel in the application are from 1993 and 2004. These agreements are too old and need to be updated. If the person in charge changes, the agreement should change in accordance with 40 CFR Section 270.42.

RESPONSE: The response agency agreements documented in the Part B Permit Application are currently in place. None of those agreements have an expiration date. The agreements have been made between the facility and specific organizations (fire department, hospital, etc.); not individuals within those organizations. Siemens cannot be responsible for knowing when or if personnel changes are made within the organizations with whom cooperative agreements have been made. For this reason, each response agency agreement is addressed to the person who was in charge at the time the agreement was made, with specific language also referencing that person's successor. While the agreements currently in place are believed to be adequate,

Siemens is undertaking an effort to update the response agreements, and will include these in the Facility Operating Record if and when such updated agreements are obtained.

COMMENT G17: In paragraph 9.2, please include a list of things that require an amendment to the contingency plan. For example, the Part B application should require amendment to the contingency plan any time the facility begins accepting a new waste stream that changes or adds to the list of on-site and accepted wastes.

RESPONSE: The wording of paragraph 9.2 is consistent with the language of 40 CFR 264.54 regarding the list of things that require an amendment to the Contingency Plan. If the facility accepts a new waste with a Waste Code not included in the Part A, then an amendment of the Permit Application is required. If such new waste would also materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or change the response necessary in an emergency (as stated in paragraph 9.2) then the Contingency Plan would also need to be amended.

ENCLOSURE

Response to Request for Information and Comments on the February 2007 Permit Application Submittal for Siemens Water Technologies

I. Closure Plan for Carbon Reactivation Unit RF-1 and Cost Estimate

COMMENT I1: Please submit a revised Closure Plan for RF-1 along with a letter stating that the RF-1 is not currently and will not in the future be operational and that it will be closed in accordance with the final approved Closure Plan upon direction from US EPA.

RESPONSE: The RCRA Part B Permit Application has been revised to include separate closure plans for RF-1 and for the overall facility (including RF-2). A paragraph describing that RF-1 is not currently and will not in the future be operational, has been added. Siemens may implement closure of RF-1 separately or in combination with full or partial closure of RF-2.

COMMENT I2: Please submit an updated, revised third party cost estimate to close the RF-1 unit (including the 4-hearth furnace, associated ancillary equipment to the hearth furnace not currently in use and planned for closure), and associated air pollution control equipment and related ancillary equipment that is not currently in use and it is planned for closure.

The revised cost estimate needs to reflect third party costs to address the issues described below, under Justification, and include up-to-date costs for dismantling the RF-1 unit, associated RF-1 unit ancillary equipment and air pollution control equipment (together with its ancillary equipment). Updated third party costs shall also be included in the cost estimate for transportation and disposal or transportation to a metal recycler as applicable. Inflation and other necessary cost adjustments need to be appropriately reflected in the revised cost estimate.

RESPONSE: The RCRA Part B Permit Application has been revised to include separate closure plans and closure cost estimates for RF-1 and for the remainder of the RCRA facility. Siemens may implement closure of RF-1 separately or in combination with full or partial closure of RF-2 and the remainder of the facility.

COMMENT I3: Please include the closure of the RF-1 unit in the facility-wide closure plan.

Justification: Closure of the RF-1 unit will be covered under the permit and not separate from this action. The closure of the RF-1 unit can either be added to the facility-wide closure plan or Siemens may submit a separate revised closure plan for the RF-1 unit. US EPA is also requesting the facility-wide closure plan be revised. Preliminary comments on the RF-1 unit closure plan are presented below:

a. The Closure Cost Estimate shown in Attachment 3 of the RF-1 Closure Plan for RF-1 is too low. For example, the cost estimate in Attachment 3 of the RF-1 closure plan has the "Shipment of Ancillary Equipment Offsite as Scrap Metal" for a total cost of "$0". This needs to be replaced by an actual estimated cost and included in a revised closure plan.

b. The closure plan needs to include sampling of soil, ground water, and adjacent surface water to confirm that any releases that may have occurred in the past have not impacted the environment and that certification of a clean closure is feasible.

c. Closure confirmatory sampling needs to be analyzed for the entire suite of contaminants (e.g. VOCs, SVOCs, metals) in the analytical methods to be used for analysis of samples that will be collected as part of the closure work.

d. Given the uncertainties associated with the potential for contamination underneath the pad, tank containment structures, and integrity of structures beneath the pad, the closure plan needs to establish post closure cleanup goals (e.g. USEPA PRGs [industrial or residential as appropriate] or risk-based via risk assessment evaluation). The costs to achieve the post closure cleanup goals need to be accounted for in the revised closure cost estimate as part of the contingencies for the cost estimate so that adequate financial assurance can be budgeted for closure of the unit.

e. A sampling and analysis plan for closure of the RF-1 unit should be included in accordance with 40 CFR 264.111.

RESPONSE: The RCRA Part B Permit Application has been revised to include separate closure plans for RF-1 and for the remainder of the RCRA facility. Siemens may implement closure of RF-1 separately or in combination with full or partial closure of RF-2 and the remainder of the facility. The Facility Closure Plan has been modified to address each of these issues. A Sampling and Analysis Plan and associated Quality Assurance Project Plan, applicable to both closure plans, have been developed, and is included in Appendix XVII.

Facility Wide and RF-2 Unit Closure Plan and Cost Estimate

COMMENT I4: Please submit a revised Facility-Wide Closure Plan.

RESPONSE: The RCRA Part B Permit Application has been revised to include separate closure plans for RF-1 and for the remainder of the RCRA facility. Siemens may implement closure of RF-1 separately or in combination with full or partial closure of RF-2 and the remainder of the facility.

COMMENT I5: Please submit an updated, revised third part cost estimate to close the entire facility.

The revised cost estimate needs to reflect third party costs to address the issues described below, under Justification, and include up-to-date costs for dismantling the facility. In particular, the costs for the RF-2 hearth furnace, associated RF-2 unit ancillary equipment and air pollution control equipment (together with its ancillary equipment) need to be revised. Updated third party costs shall also be included in the cost estimate for transportation and disposal or transportation to a metal recycler as applicable. Inflation and other necessary cost adjustments need to be appropriately reflected in the revised cost estimate.

Justification: The facility-wide closure plan needs to be revised in accordance with 40 CFR Part 264 Subpart G. Below are preliminary comments on the facility-wide closure plan (including the RF-2 unit):

a. US EPA has reviewed the closure cost estimate and it does not account for sampling that US EPA believes is necessary to properly close the facility and the waste management units.

b. The closure plan needs to include sampling of soil, groundwater, and adjacent surface water to confirm that any releases that may have occurred in the past have not impacted the environment and that certification of a clean closure is feasible.

c. Closure confirmatory samples need to be analyzed for the entire suite of RCRA wastes received by the facility (e.g. VOC, SVOC, metals, etc.) in the analytical methods that will be used to analyze the samples to be collected as part of the closure work.

d. Given the uncertainties associated with the potential for contamination underneath the pad, tank containment structures, and integrity of structures beneath the pad, the closure plan needs to establish post closure cleanup goals (e.g., US EPA PRGs). The costs to achieve these cleanup goals needs to be accounted for in the revised closure cost estimate as part of the contingencies for the cost estimate so that adequate financial assurance can be budgeted for closure of the unit.

e. Justification needs to be provided for background samples and the location of these samples needs to be clearly identified in the closure plan.

f. Please include a figure(s) summarizing the sampling locations for closure including the background sampling locations. The figure(s) should identify the closure standard(s) that will be applied at the facility to compare the closure sampling results and determine if clean closure is feasible.

RESPONSE: The RCRA Part B Permit Application has been revised to include separate closure plans and closure cost estimates for RF-1 and for the remainder of the RCRA facility. Siemens may implement closure of RF-1 separately or in combination with full or partial closure of RF-2 and the remainder of the facility. The Facility Closure Plan has been modified to address each of these issues.

Financial Assurance Documents

COMMENT I6: Please submit updated financial assurance documents demonstrating compliance with the financial assurance requirements for interim status facilities. After you have submitted an updated, revised third party cost estimate, please amend the existing financial assurance documents (currently a Letter of Credit in the amount of $ 559,739 from BNP Paribas) to reflect the new cost estimate to close the entire facility.

RESPONSE: A new financial assurance document has been included with the revised permit application. This document was submitted to EPA on February 22, 2012.

COMMENT I7: Please coordinate directly with Olaf Hansen, financial assurance officer, 415-972-3328, to begin discussion and arrangement for your financial assurance for the final permit under 40 CFR Section 264.143.

RESPONSE: The financial assurance documentation has been finalized and is included with the revised permit application. The document was submitted to EPA on February 22, 2012.

J. SECTION J SOLID WASTE MANAGEMENT UNITS

General and Outstanding Questions:

The following general questions should be addressed in a revised Part B permit application. Some of the questions below pertain to the fact that some of the RF-1 systems were used in the construction of the RF-2 systems. Please clarify this in the revised Part B.

COMMENT J1: Do we have any pre-occupancy sample results? This will become important at the time closure to determine background levels. Please provide more discussion on the results and include the report.

RESPONSE: No pre-occupancy samples were collected.

COMMENT J2: Hopper Air Pollution Control Equipment Piping and Baghouse
What materials are used for the hoppers construction?

RESPONSE: Mild steel.

COMMENT J3: Recycled Motive Water Storage Tank, T–9
Please clarify when the tank went into service. Please clarify what material the tank is made of.

- 316 series stainless steel or 300- series stainless steel.
- 1996 to present or August 1992 to present

RESPONSE: The existing T-9 tank went into service in 1996. The material of construction is 316 stainless steel. The T-9 recycle water tank that was in service from 1992 to 1996 was constructed of mild steel. Both tanks were located in the same area.

COMMENT J4: Rainwater, Dewatering Screw, and Motive Water Storage Tank, T–12
Has this tank been removed from operation? The dates the tank was in service need to be included in the Part B.

RESPONSE: Tank T-12 was removed from service approximately 10 years ago (~2002). The tank was in service from 1992 until approximately 2002.

COMMENT J5: Bermed Containment in Process Area
EPA is currently evaluating the adequacy of the containment provided by the spent carbon transfer area containment pad and the bermed containment area under the spent carbon slurry storage tanks. Verify that the spent carbon transfer area containment pad and the bermed containment area under the spent carbon slurry storage tanks are still connected. Define the total capacity considering displacement for equipment and containers within the berm.

RESPONSE: Based on the Consent Agreement reached with EPA in 2006, the spent carbon storage tanks were required to have their own containment. The spent carbon storage tank containment and the spent carbon transfer area are not connected. Containment volume calculations for the hazardous waste tank systems are presented in Appendix IX of the Part B Permit Application.

COMMENT J6: Slurry Transfer Inclined Plate Settler Tank. This tank is purportedly used to remove suspended solids from the scrubber water. Please better define the origin of wastewaters managed in this tank and include this information in the Part B application.

RESPONSE: The Inclined Plate Settler Tank was removed from service in approximately 1993. The only waters managed in this tank were scrubber water from RF-1.

COMMENT J7: Please change the title of Section J to: Solid Waste Management Units (SWMUs), Hazardous Waste Management Areas (HWMUs) and Areas of Concern (AOCs)

RESPONSE: The title of Section has been changed accordingly.

COMMENT J8: Please divide up the HWMUs, SWMUs and AOC into separate tables as shown in the tables below.

RESPONSE: Separate tables for the HWMUs, SWMUs, and AOCs have been placed into Section J. Siemens used the tables provided by EPA and has edited those tables as needed to eliminate duplicate items and to reflect site conditions or to make corrections. Specific changes made to the tables include:

HWMUs

1. Item #16 (RF-2 dewatering screw) was removed since it is already included under Item #1 (RF-2 and Associated Equipment).
2. Item #19 (Carbon adsorber WS-1) capacity was corrected.
3. Item #22 (Carbon adsorber PV-50) was removed since it is the same as PV1000 in Item #18.

SWMUs

1. Item #6 (Wastewater storage tank T-11) was removed since it is duplicate of Item #7.
2. Item #12 (New Facility Discharge Piping System) was removed since it is already included in the list of HWMUs.

3. Item #13 (Bermed containment in process area) was removed since it is a duplication of Item #1.
4. Item #15 (Sump by unloading hopper H-1) was removed since it is a duplication of Item #2.
5. Item #16 (Wastewater conveyance piping to wastewater treatment tank) was removed since it is already included in the list of HWMUs.

AOCs

AOCs were consolidated based on the specific "areas of concern" rather than being listed based on specific incidents or observations, which appear to have been used s the basis for assigning item numbers in EPA's table. The primary modifications were made to eliminate duplicate identification of the same area to be sampled at closure. References have been made in the table to specific sampling locations identified in the Closure Plan which address the areas of concern.

1. Item #2 through Item #6 (spill areas) were removed as these areas have been adequately cleaned up.
2. Item #8 resulted in the addition of a sampling location to the Closure Plan
3. Item #11 (Downwind area of facility) was removed since risk assessment did not indicate this as an area of concern.
4. Item #12 was removed since the area around H-1 is already addressed in Item #9.
5. Item #13 was removed since the area around H-1 is already addressed in Item #9.
6. Item #14 was removed since the areas around H-1 and H-2 are already addressed in Item #9 and Item #10.
7. Item #15 was removed since the area around the hoppers I covered in Item #9 and the risk assessment did not indicated downwind locations as areas of concern.
8. Item #17 was removed since the spent carbon warehouse is addressed in Item #16.
9. Item #18 was removed since the spent carbon warehouse is addressed in Item #16.
10. Item #19 was removed since the spent carbon transfer area is addressed in Item #8.
11. Item #20 was removed since sampling of residue serves no purpose. Tanks will be decontaminated as necessary at closure.
12. Item #22 was eliminated the furnace feed systems are addressed in Item #21.
13. Item #24 was eliminated since sampling of residue serves no purpose. Tanks will be decontaminated as necessary at closure. Also, the area served by WS-1 is addressed in Item #9.
14. Item #26 was removed since annual VOC sampling indicates that this is not an area of concern.

15. Item #32 was removed since closure sampling in the area of WS-1 is addressed in other items.
16. Item #33 was removed since closure sampling in the area of WS-2 is addressed in the other items.
17. Item #34 was removed since closure sampling in the area or WS-3 and T-18 are addressed in other items.
18. Item #35 was removed since closure sampling in the area of PV-50 is addressed in other items.

COMMENT J9: Please provide more information on any cleanup that was performed in response to any equipment spills?

RESPONSE: There have been four reportable spills for which cleanup was performed. Information regarding these cleanups is summarized in Section J.2 of the Part B Permit Application. Detailed information is available in the facility operating record.

COMMENT J10: Please provide a map of the location of the HWMUs, the SWMUs and the AOCs. Please add sampling for these locations in the Closure Plans, if those areas are not scheduled for sampling in the Closure Plans already.

RESPONSE: A series of facility drawings showing the location of HWMUs, SWMUs, and AOCs has been included in Section J of the revised Part B Permit Application. Sampling locations identified in the Closure Plan have been selected with the location of HWMUs, SWMUs, and AOCs in mind, and were selected in cooperation with the EPA Project Manager (Mike Zabaneh).

COMMENT J11: Please submit a Field Sampling Plan for spill/release sampling and confirmation sampling after any cleanup.

RESPONSE: It is almost impossible to develop a meaningful Field Sampling Plan that would be applicable to numerous scenarios. Siemens will develop a specific Field Sampling Plan to address any necessary investigation following the cleanup of a spill/release. Siemens will use the EPA document “Sampling and Analysis Plan Guidance and Template, Version 2, R9QA/002.1, April, 2000” as guidance for developing such a Field Sampling Plan.

TABLE J-1
HAZARDOUS WASTE MANAGEMENT UNIT IDENTIFICATION

No,	HWMU Type/ Designation	Location	General Dimensions and Structural Description	Date Unit was First Operated	Identification of Wastes Managed in Unit	Releases from Unit
1	Spent carbon Reactivation furnace, RF-1 and Associated Equipment (Dewater screw, Weigh Belt) Spent carbon Reactivation furnace RF-1 (shut down in 1996); CEMS moved to RF-2, and RF-1 stack removed at shutdown (mild steel, 155 ft, inside diameter 1 ft)	South of RF-2	Furnace shell – carbon steel; internal firebrick lining and block insulation; hearths and furnace roof constructed with firebrick; furnace roof is comprised of firebrick backed with block insulation and castable insulation; bottom hearth is insulated with block insulation and castable insulation	1992-1996	Spent activated carbon. See Part A Application for list of applicable waste codes	None
2	Spent carbon reactivation furnace RF-2 and Associated Equipment (Dewater Screw, Weigh Belt)	East of warehouse	Furnace shell – carbon steel; internally lined with firebrick and block insulation; hearths and furnace roof constructed with firebrick; furnace roof is comprised of firebrick backed with block insulation and castable insulation; bottom hearth is insulated with block insulation and castable insulation; continuously seal welded internally to assure an air-tight assembly	1996 to present	Spent activated carbon. See Part A Application for list of applicable waste codes	None
3 RF–1 Air pollution control equipment						

	Afterburner	RF-1 structure	Refractory lined steel	1992 to 1996		None
	Venturi scrubber	RF-1 structure	Hastelloy C	1992 to 1996		None
	Packed bed scrubber	RF-1 structure	Fiberglass	1992 to 1996		None
	Emissions stack with CEMS system	RF-1 structure	Mild steel	1992 to 1996		None
	RF–2 Air pollution control equipment	Determine if the RF-1 APCD is the same material as the RF-2				None
	Afterburner	RF-2 structure	Refractory lined steel cylinder chamber	1996 to present		None
	Venturi scrubber	RF-2 structure	Hastelloy C	1996 to present		None
	Packed bed scrubber	RF-2 structure	Fiberglass	1996 to present		None
	Wet electrostatic precipitator	RF-2 structure	Fiberglass/Algxn	1996 to present		None
	Induced draft fan and emissions stack with CEMS	RF-2 structure	Fiberglass surrounded by a mild steel shell	1996 to present		None
4	Spent carbon unloading hopper H1	North end of facility on containment	5000 lb capacity; mild steel	1996 to present		
5	Spent carbon unloading hopper H2	Inside warehouse facing east wall	500 lb capacity; mild steel	August 1992 to present		
6	Hopper air pollution control equipment piping and baghouse	North end of facility on containment and inside warehouse facing east wall	material	1992 to present		
7	Spent carbon slurry and recycle water transfer system	East of the warehouse on containment	4” pipes hopper to tank; 3” pipes T-tank to furnace feed tank; 300-series SS	1992 to present		
8	Spent carbon	Inside	80 ft by 80 ft	1992 to		

	storage warehouse	warehouse	concrete/ metal	present		
9	Spent carbon slurry storage tank, T–1	East of warehouse on containment	8319 gal design capacity	Used tank (1956); 1992 to present		
10	Spent carbon slurry storage tank, T–2	East of warehouse on containment	8319 gal design capacity	Used tank (1956); 1992 to present		
11	Spent carbon slurry storage tank, T–5	East of warehouse on containment	8319 gal design capacity	Used tank (1956); 1992 to present		
12	Spent carbon slurry storage tank, T–6	East of warehouse on containment	8319 gal design capacity	Used tank (1956); 1992 to present		
13	Furnace Feed System Tank T-8 and Ancillary Equipment	RF–1 Structure	905 gal 300 series SS	August 1992 to 1996		
Furnace Feed System						
14	T-18 and Ancillary Equipment	RF-2 structure	5000 gal 300-series SS	July 1996 to present		
15	Dewatering screw and weigh belt conveyor	RF-2 Structure	Length 17 ft; diameter of the screw 8 in	1996 to present		
16	Wastewater conveyance piping to wastewater treatment tank	East of RF-2 structure	3” PVC piping	August 1992		
17	Spent carbon storage warehouse barrel washer	Next to H-2 in warehouse	2 ft by 3 ft 300 series stainless steel	1998 to present		
18	Carbon adsorber - PV1000	North of Containment Pad for Storage Tanks	1000 lb carbon capacity; mild steel. New canisters substituted.	August 1992		
19	Carbon adsorber WS-1	Beside spent carbon storage tank	1000 lb carbon capacity Mild steel	1992 to present		
20	Carbon adsorber WS-2	Beside T-9	5000 lb carbon capacity Fiberglass	1992 to present		
21	Carbon	Beside RF–2	1000 lb carbon	1996 to		

	adsorber WS-3		capacity Mild steel	present		
22	Carbon adsorber PV-50	Beside T-12	1000 lb carbon capacity Mild steel or fiberglass	New canisters substituted from inventory; not always the same		
23	Slurry transfer inclined plate settler tank	Adjacent to the venturi scrubber	Mild steel	1992 to 1994 or 1995		
24	Scrubber recycle settler tank	Tank on RF-1 *The exact location of this unit must be determined.*	Mild steel	1992 to 1996		
25	Filter press	Next to scrubber system for RF-1	Mild steel with polypropylene plates	1992 to 1994		
26	New Facility Discharge Piping System	New piping bypasses Lift Station to POTW	3" PVC	February 1996		

TABLE J-2.
SOLID WASTE MANAGEMENT UNIT IDENTIFICATION

No.	SWMU Type/Designation	Location	General Dimensions and Structural Description	Date Unit was First Operated	ID of Wastes Managed In Unit	Releases from Unit
1	Bermed containment in process area	East of Warehouse	Approx 180' x 55'; concrete	August 1992		
2	Sump by H-1	South of H-1	3'-4" square; concrete	July 1996		
3	Sump by storage tank, T–9	East of warehouse in between T-9 and RF-2	3'-4" square sump; Udrain 30' long x 16"wide; concrete	August 1992 to present		
~~4~~	Recycled motive water storage tank, T–9	East of warehouse on containment	10,500 gal 316 series stainless steel	1996 to present		
5	Rainwater, dewatering screw, and motive water	East of warehouse on containment	25,080 gal Mild steel	1992 to present Has *This*		

	storage tank, T–12			*tank has been removed from operation. The date needs to be determined.* August 1992 to present		
6	Wastewater storage tank, T–11	East of the warehouse and south of RF -2	Approx. 20,000 gal; 10 ft outside diameter 20 ft height Fiberglass			
7	Wastewater storage tank, T–11 System	East of the warehouse and south of RF -2	10' Dia x 20' H; Approx 12,000 gal fiberglass Please resolve the capacity	August 1992		
8	Sump by cooling screw under Venturi scrubber tank	East of warehouse beside RF-2	3'-4" square; concrete	July 1996 to present		
9	RF–2 scrubber water equalization tank, T-19	Under RF-2 Structure	Approx. 1000 gal Fiberglass	July 1996 to present		
10	Hazardous waste debris bin	North of warehouse on containment by H-1	20 cubic yards Mild steel	August 1992 to present		
11	Spent carbon storage warehouse grated trenches and sump	Warehouse in containment area	Trench 3 ft, 4 in square sump U-drain 50 ft long, 16 in wide; cross drain sections 40 ft long 16 in wide Concrete	1992 to present (constructed from 1992 to 1996)		
12	New Facility Discharge Piping System	New piping bypasses Lift Station to POTW	3" PVC	February 1996		
13	Bermed containment in process area	East of Warehouse	3938 ft^3 or 29,455 gal; approx. 180 ft by 56 ft Concrete	1992 to present		

14	Hopper containment pad	Outside H-1 structure	Approx 60' x 44'; concrete	July 1996		
15	Sump by unloading hopper H-1	North corner on containment	3 ft, 4 in square Sump Concrete	1996 to present		
	WWTP	Inside warehouse	Fiberglass, mild steel modular water treatment system. Separate containment.	October 2003		
16	Wastewater conveyance piping to wastewater treatment tank	East of RF-2 structure	3 in piping PVC	1996 to present		
17	Wastewater lift station and piping system (old and new)	At the end of access road to plant. Old piping from Tank T-11 to the Lift Station; new piping bypasses Lift Station to POTW	Approx. height 15 ft; outside diameter 5 ft Lift Station: mild steel/316 stainless steel/fiberglass Old piping system either PVC or ductile iron; new (1996) piping system PVC Old piping from Tank T-11 to the Lift Station Approx 15' H x 5" Dia; mild steel, SS, and fiberglass. Ductile iron Piping	1992 to 1996; new piping 1996 to present		
18	Spent carbon unloading/transfer area containment pad	North area of facility	2002 ft^3 or 14,969 gallons (gal); approx. 44 ft by 152 ft	August 1992 to present		

TABLE J-3
AREAS OF CONCERN

No.	AOC Type/Designation/Location	General Dimensions	Date Occurred/ Discovered	Management Requirements at Closure
1	AOC 1 is the land surrounding the spent carbon unloading and transfer area, where carbon dust/particulate deposition may have occurred prior to paving.		1994 inspection report	Core sampling
2	AOC 2 is the area where a spill from a tank truck occurred. Spill occurred from a truck on site containing recycle water from plant that was used to slurry hazardous spent carbon in the treatment process plant. Accidental discharge of recycle water onto the soil just outside the main gate of the plant.	Approximately 100 gallons were released to the soil. Fifty-six drums of impacted rocks and soil were excavated	Sept 26, 1998	Sample area
3	Facility Lift Station Overflow Reportable quantity Reported to NRC, CRIT, LEPC Overflow caused by a power outage. The facility needs an alternate source of power.		Nov 10, 1994	Sample area
4	Facility Lift Station Overflow Reportable quantity Reported to NRC, CRIT, LEPC Overflow caused by a power outage Westates installed the gravity piping system to replace the lift station. Determine when this new system was installed.) The facility needs an alternate source of power.		April 17, 1995	Sample area if different from AOC #3.
5	Reportable quantity Reported to NRC, CRIT, LEPC Facility discharge line to POTW was accidentally cut by SW Gas contractor relocating natural gas line		Feb 15, 1996	Sample area
6	Spill of recycle water from a trailer. Reportable quantity Reported to NRC, CRIT, LEPC trailer outside the facility gate		Sept 26, 1998	Sample area
7	The concrete containment pad did not appear to be free of cracks or gaps.		In January 2002 inspection	Core sampling of containment
8	**Receiving Pad/Area** of containerized carbon waste, prior to sampling and transport to storage area		unknown	Sample pad. If history of cracks, core sample

9	Hopper H-1 Loading/Unloading Area			Core/soil samples
10	Hopper H-2 Loading/Unloading Area			Core/soil samples
11	Downwind area of facility			Due to numerous issues with dust control, WS systems' control, and fugitive emissions, sampling in grid patterns downwind of the facility will be required for closure.
12	Water accumulation" that had come in contact with benzene-contaminated spent carbon had occurred outside of unloading hopper H-1.		February 1, 1996	This water accumulation occurred within the containment pad. Samples will be required around the Hoppers
13	On three occasions the carbon adsorption canister was not hooked to the hoppers. Hopper H-1, roofed, three-sided structure with rubber strips on the fourth side that surrounds the unloading hopper. Unknown length of time of emissions.		Sept 21, 2000 Dec 18, 2000 Mar 9, 2001).	Sample at canister hook up and canister discharge area. See AOC #10. Sampling also required around the discharge area of the canisters.
14	potential for release of hazardous carbon particulates during unloading of drums and bulk loads hoppers H-1 and H-2 unloading areas baghouses located at ground level between the two hoppers.		*Inspection Report* for February 1994	See AOC #13. The efficiency of the VOC and particulate control system has not been documented except indirectly through daily inspection of the system to verify proper operation

				of the system as designed.
15	**Hopper Air Pollution Control Equipment**			Sample area around where the WS system exhausted. Previously only monitored for benzene. Other contaminants may have been exhausted to atmosphere prior to benzene breakthrough. Monitoring for change-out schedule will be required.
16	**Spent Carbon Storage Warehouse** Hazardous spent carbon was observed on the floor, although the floor had been recently washed down. The spill was inside the containment area, and may be indicative of sloppy unloading of spent carbon into hopper H-2.		EPA's October 1993 inspection,	Sample grid for containment area. Focus on area around Hopper H-2.
17	**Spent Carbon Storage Warehouse** A vent scrub tank in the hazardous waste storage area of the warehouse did not have a bottom plug.		February 1996	See AOC #16
18	**Spent Carbon Storage Warehouse** leaking drum		September 8, 2000	See AOC #16
19	**Spent Carbon Transfer Area Containment Pad containing a less than 90 day Baker tank** The concrete containment pad had several cracks. The area used to unload containerized and bulk spent carbon Incidental accumulations of washdown water are allowed to evaporate off of the containment pad.		1993	Core and chip sampling required on and under pad.
20	**Spent Carbon Slurry Storage Tank System** Several instances in which the carbon in WS-1 was not replaced within specified time periods [see (WS-1) for details]. Unknown whether releases have			See AOC #13 Sample any residue on top of all tanks. Routine inspections should also

	occurred through the pressure relief valves, which would release tank gases directly to the air.			occur to determine if residue has collected.
21	**Furnace Feed Systems** RF-1 was observed emitting fugitive emissions from the top of the dewatering screw. Other inspection logs also indicated vapor emissions from above the dewatering screw on August 1, 1993 on August 3, 1993.		August 1, August 3 and October of 1993	See AOC #10
22	**Furnace Feed Systems** A shallow pan containing residual leaky valve drip material was observed on one level of the reactivation furnace structure accumulated over a period of weeks.		Dec, 1998	Sampling required on and around RF structure
23	**Recycled Motive Water Storage Tank T-9** The recycled water pump located next to Tank T-9 was found to be leaking at the packing, which seals the pump shaft. The leak in the potable water line used for cooling and flushing.		February 1994	Sampling underneath the containment pad has been specified in the Closure Plan
24	**Recycled Motive Water Storage Tank T-9** Several instances in which the carbon in WS-1 was not replaced within specified time periods. Also, it is unknown whether releases have occurred through the pressure relief valves, which would release tank gases directly to the air.			See AOC #13 Sample any residue on top of all tanks. Routine inspections should also occur to determine if residue has collected.
25	**Rainwater, Dewatering Screw, and Motive Water Storage Tank T-12** The tank has a pressure relief valve, which is attached via a pipe to a carbon adsorber (for breathing). Carbon adsorber WS-1 controls the emissions from Tank T-12, including potential benzene emissions. several instances when the carbon in WS-1 was not replaced within specified time periods. Unknown whether releases have occurred through the pressure relief valves, which would release tank gases directly to the air.			
26	**Wastewater Storage Tank T-11**			See AOC #10

	Tank T-11 vents directly to the atmosphere			
27	**Spent Carbon Storage Warehouse Barrel Washer** The barrel washer is located in the Spent Carbon Storage Warehouse next to hopper H-2 And drains to a nearby grated trench, which flows to the sump system. No description of this barrel washer is provided. The concern here is about splashing of rinse water. Is there a splash wall?			Sample splash area and splash wall if they exist. Sample the drain path to the trench/sump
28	**Bermed Containment In Process Area** Cracks have been repaired and sealed by filling them in with a polyresin, Sikadur 35®. However, in a January 2002 inspection, EPA inspectors found recurring cracks.		January 2002	Core and chip sampling required on and under pad.
29	**Sump By Unloading Hopper H-1** The sump is located adjacent to the unloading hopper H-1, at the north corner in the containment area.			Sample the drain path to the trench/sump
30	**Sump By Storage Tank T-9** Located east of the spent carbon storage warehouse between Tank T-9 and RF-2 within a containment area. Metal-grated concrete trenches in the containment area collect any spilled process water and rainwater that then drains into this in-ground, square concrete sump.			Sample the drain path to the trench/sump
31	**Carbon Adsorber WS-1** Carbon adsorber canister WS-1 is located beside the spent carbon storage tanks, east of the warehouse on a containment pad. The spent carbon storage tanks (T-1, T-2, T-5, and T-6) and the recycle water tanks (T-9 and T-12) are attached to the WS-1 adsorber The review of the carbon replacement log revealed that the carbon unit (WS-1) was changed out late.		March 15, 2000 March 13, 2000. July 9, 1996 to August 22, 1996	See AOC #13
32	**Carbon Adsorber WS-1** A cracked hose was identified at the top of the WS-1 carbon canister.		1996	See AOC #13
33	**Carbon Adsorber WS-2** On three occasions carbon adsorption canister WS-2 was not hooked to the hoppers. The facility records did not		September 21, 2000 December 18, 2000 March 9, 2001	See AOC #13

	indicate how long the hoppers were unhooked during these incidents or whether unloading occurred during this time.			
34	**Carbon Adsorber WS-3 for T-18** late change out for a recorded 2 times		December 3, 1997 January 12, 1998	See AOC #13
35	**Carbon Adsorber PV-50** The carbon adsorber PV50 is part of the process wastewater treatment system with piping to Tank T-11. The canister is located adjacent to Tank T-12 (SWMU 17), the motive water and rainwater collection tank. It is used periodically to filter recycle/motive water from tank T-12 before discharging to Tank T-11, then to the POTW. The canister is not always connected to Tank T-12; it is only connected when waters are discharged from T-12 to T-11. *Is the above information true? Determine if the filter is designed to release to the air, or only for release of filtered liquids to Tank T-11.)* *Determine if it is only a temporary connection or if any leaks or spills have occurred during its use.*			See AOC #13

P. EXPOSURE INFROMATION:

COMMENT P.1: Section P, paragraph P.1: Please update this section from the pre-Comprehensive Performance Test (CPT) to post-CPT, because the CPT test and the Human Health Risk Assessment have been completed and finalized. Please include a discussion of the findings of the HHRA in this section.

RESPONSE: Section P has been updated based on the completion of the Performance Demonstration Test and the Risk Assessment.