Request for Proposals for Professional Engineering Services in connection with OCRRA's Operational Oversight of the Onondaga County Resource Recovery (Waste-to-Energy) Facility

Responses to Questions – September 2, 2010

Deadline for the Submission of Proposals – October 6, 2010 at 4:00 PM

Question: Are previous physical inspection documents available for review?

Answer: Yes, a copy of the most recent Facility inspection report has been included (without roughly 20 pages of photographs). It is, however, important to note that the most recent Facility inspection report does not necessarily define a style that OCRRA is requiring. We are specifically requesting that proposals include sample reports and you will note that Quality of Sample Report(s) is part of the selection criteria.

Question: Can proposers schedule a site visit of the OCRRA WTE Facility during the proposal preparation period?

Answer: OCRRA will try to accommodate site visits, but cannot guarantee them. The Facility will be going into its fall outage period and it is often difficult to schedule tours during that time. Please provide three dates and times to the Designated Contact Person, Ms. Rusty Hunt, and she will respond to your request. If a tour can be scheduled on an alternative date (other than the dates requested), she will provide that information.

Note: There was an erroneous fax number on Page 6 of the RFP. I apologize for any confusion it may have caused. The proper information is listed below.

ONONDAGA COUNTY RESOURCE RECOVERY AGENCY
100 Elwood Davis Road
North Syracuse, NY 13212-4312

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March 29, 2010

Ms. Amy Lawrence
Agency Engineer
Onondaga County Resource Recovery Agency
100 Elwood Davis Road
North Syracuse, New York 13212-4312

Subject: Onondaga County Resource Recovery Facility
February 2010 Site Inspection Report

Dear Ms. Lawrence:

Camp Dresser & McKee (CDM) conducted a visual inspection of the Onondaga County Resource Recovery Facility (Facility) on February 24-25, 2010. The purpose of the site visit was to inspect the internal condition of combustion unit No. 2, which was off line for its scheduled "spring" outage, and to observe the maintenance activities that were being undertaken on this unit during the outage. CDM also used the opportunity to observe the physical condition of the balance of the Facility. Combustion unit Nos. 1 and 3 and the turbine-generator were in normal operation during our inspection as were the ferrous metal and non-ferrous metal recovery systems. Unit No. 3 was off line in late January/early February 2010 for its scheduled "spring" outage and Unit No. 1 is scheduled to be off line in late March 2010 for its scheduled "spring" outage. CDM last inspected the Facility in March 2009.

Overall Facility Condition

Based on our visual observations of equipment, buildings, site conditions and operations during our two-day site inspection and the findings from prior CDM inspections, it is CDM's opinion that the Facility continues to remain in generally good condition after 15 ½ years of continuous operation. This opinion is also supported by the high performance level that continues to be demonstrated by the Facility. The type and level of maintenance that we observed during the Unit No. 2 scheduled outage was consistent with past scheduled outages that CDM has observed at the Facility and our general experience with other similar waste-to-energy facilities.

The most significant issue affecting the Facility continues to be the large amount of air infiltration that is occurring downstream of each boiler and, in particular, across each baghouse. While Covanta has undertaken a significant amount of repair work in this area over the past few years including this year's "spring" scheduled outages, more work needs to be performed as discussed further below.

Summary of Outage Work (Unit No. 2)

The major maintenance activities that were performed on Unit No. 2 during the scheduled outage included:

- Concussive (blast) cleaning of the evaporator (third pass), superheater and economizer sections of the boiler;
- Sandblast cleaning and ultrasonic thickness (UT) testing of boiler tubes in portions of the first pass, second pass, third pass, superheater and economizer sections of the boiler (Photograph Nos. 10, 11, 13 and 16);
- Inconel overlay repairs to the wall tubes in the first pass, second pass and lower third pass of the boiler (Photograph Nos. 3, 4, 8, 9 and 11);
- Replacement of worn protective shields on evaporator and superheater tubes (Photograph Nos. 12 and 13);
- Replacement of several thin tubes in the high temperature (secondary) superheater bank;
- Repairs to the tile refractory and monolithic refractory in the furnace area (Photograph Nos. 1, 3-7);
- Replacement of worn bars along the edge of the feed table (Photograph No. 2);
- Plate repairs, tube sheet replacement and installation of additional stainless steel liner plate in baghouse compartments "B", "D" and "F" (Photograph Nos. 18 and 21);
- Replacement of the bags and cages in baghouse compartments "B", "D" and "F" (Photograph Nos. 19 and 20);
- Various repairs to the feed chute, ash discharger, scrubber hopper, screw conveyors and duct work downstream of the baghouse;
- Replacement of the condensate drain piping on the combustion air preheater;
- Inspection and cleaning of the underfire air fan, overfire air fan and steam coil air preheater; and
- Removal and overhaul of the pressure relief (safety) valves on the steam drum and main steam line (Photograph No. 30).

The following major subcontractors performed maintenance and/or inspection work during the Unit No. 2 scheduled outage:

- Patent – Scaffolding
- North American Industrial Services (NAIS) – Concussive (blast) cleaning and sandblasting;
- Quality Inspection Services Inc. (QISI) – Ultrasonic thickness (UT) testing;
- Zampell Refractory – Refractory tile and monolithic refractory repairs;
- Frank Lill and Sons – Superheater tube repairs;
- New England Mechanical Overly (NEMO) - Boiler tube overlay repairs;
- F.L. Smidth – Baghouse plate repairs and bag/cage removal and replacement; and
- Zayachek Mechanical (Zaymech) – Feed chute repairs, ash discharger repairs, scrubber hopper repairs, screw conveyor repairs, and baghouse outlet duct and ID fan discharge duct repairs.

Major Repair Needs

During the course of our February 2010 inspection, CDM identified the following major repair needs that we recommend be addressed to maintain the proper operation and maintenance of the Facility. Several of these items have been noted in prior CDM inspection reports.

- *Air Pollution Control (APC) System Air Infiltration* – CDM noted in our August 2008 inspection report that flue gas temperature and oxygen data indicated that a significant amount of ambient air infiltration was occurring across the APC system on all three units due in large part to advanced corrosion, with the baghouses being a primary source. Covanta has undertaken a significant amount of plate repairs to the APC system over the past two years, particularly in the baghouse compartments. During the "spring" 2010 outages, Covanta is lining the upper portion of three compartments on each baghouse with stainless steel and making plate repairs to any holes. New bags and cages are being installed in these compartments as well. Similar repairs were made to the other three compartments on each baghouse during the "spring" 2009 outages.

  Table 1 includes a summary of flue gas oxygen and temperature data collected by CDM during our past three Facility inspections. Based on this data, some progress has been made to reduce the degree of air infiltration but additional work is needed. The flue gas oxygen differential for Unit No. 3, for example, decreased substantially following the

"spring" 2010 outage repairs compared to August 2008 but the temperature differential across the baghouse (49 °F) remains relatively unchanged. Covanta reported that the temperature differential across the Unit No. 2 baghouse following its return to service after the "spring" 2010 outage repairs is approximately 35 °F, which is significantly less than the 54 °F differential observed in March 2009 but still higher than normal. The normal temperature differential across a baghouse is typically 10-15 °F. Note that Covanta was operating with slightly lower baghouse inlet temperatures during CDM's February 2010 inspection because of high process wastewater inventories (i.e., temporarily using more cooling water in the scrubbers).

Table 1
Summary of Flue Gas Oxygen and Temperature
Data Collected During CDM Facility Inspections

Inspection Date	Unit	Flue Gas O_2 Content (%)			Flue Gas Temperature (°F)		
		Scrubber Inlet	Baghouse Outlet	Difference	Baghouse Inlet	Baghouse Outlet	Difference
August 2008	1	8.8	12.7	3.9	283	236	(47)
	2	10.3	13.8	3.5	286	223	(63)
	3	8.9	12.7	3.8	285	242	(43)
March 2009	1	9	13.9	4.9	285	207	(78)
	2*	10.8	13.8	3	283	229	(54)
	3	Offline	Offline	-	Offline	Offline	-
February 2010	1	8.8	12.9	4.1	272	223	(49)
	2	Offline	Offline	-	Offline	Offline	-
	3*	10.3	12.8	2.5	271	222	(49)

*Following completion of "spring" outage repairs.

As noted previously by CDM, operating with a high air infiltration rate for an extended period of time can lead to several problems including: (i) accelerated corrosion of the carbon steel ductwork, scrubber and baghouse; (ii) increased ID fan power consumption due to higher pressure drops across the baghouse caused by both higher air flow rates as well as potential condensation of water vapor which can "blind" the bags; (iii) increased potential for ash hopper plugs particularly during cold weather; (iv) potential reduction in the throughput capacity of the unit; and (v) potential reduction in net energy production as a result of decreased throughput and/or increased ID fan power consumption. Throughput capacity can be affected if the total air flow through the ID fan is such that the proper draft can no longer be maintained in the furnace to operate the unit at full load. In this case the boiler load and throughput would need to be decreased to provide the required furnace draft.

CDM has discussed other potential points of air infiltration in the baghouse area with Covanta including expansion joints. Each baghouse compartment, for example, has two expansion joints for a total of 12 expansion joints per baghouse. Fabric expansion joints are used at the inlet and outlet of each compartment and can allow air to infiltrate if they are torn. The condition of the screw conveyor covers and rotary valves are also important since they are intended to provide an air seal at the baghouse ash hopper outlets and can allow air to infiltrate if they are not sealing properly. Covanta reported that it did not find any problems with the baghouse expansion joints, screw conveyor covers or rotary valves on Unit No. 2 during its "spring" 2010 outage.

- *Stack Shell* – Water appears to be weeping through cracks/pores in the concrete stack shell and running down the outside surface (Photograph No. 22). During cold weather the water forms ice on the outside of the stack, as was the case during CDM's February 2010 inspection, and posses a potential overhead safety hazard. The water also poses the potential for corrosion of the stack rebar and spalling of the concrete. The source of the water inside the stack may be cracks in the stack roof drain line that runs down interior wall and/or flue gas leaks from the individual flues located inside the shell. The interior of the stack shell could not be inspected during CDM's February 2010 site visit since the area around the stack was cordoned off with red tape due to ice that had accumulated on the stack shell. The exact source of the water inside the stack shell should be investigated and appropriate repairs made. If the stack flues are leaking flue gas, this would be consistent with advanced corrosion of the ductwork caused by operating at low baghouse outlet temperatures due to excessive air infiltration as discussed in the previous paragraphs.

- *Refuse Receiving Building Floor Surface* – The center section of the concrete tipping floor has deteriorated further since CDM's March 2009 inspection. Spalled areas several inches deep now exist along the entire width of the floor which creates an uneven floor surface and poses a potential trip hazard to the truck drivers when they are outside their vehicles (Photograph No. 34). Several repairs were made since CDM's March 2009 inspection but these patches have not held up well. More extensive repairs are needed.

- *Scrubber and Baghouse Hopper Heaters* – CDM has reported in the past that the heaters on the scrubber and baghouse ash hoppers were not fully functional. These heaters were intended to maintain the ash hopper metal temperature well above the dew point temperature to reduce the rate of corrosion and also to prevent the ash from sticking as a result of condensation. The ash hopper heating systems on all three units have been totally out of service since at least our March 2009 inspection. The unavailability of these heaters may be contributing to increased hopper corrosion and more frequent ash hopper plugs. CDM recommends that ash hopper heater systems be returned to a fully functional condition.

- *Feed Chute Cooling Water Jackets* – CDM noted again that the water boxes on all three feed chutes were empty indicating that the cooling water jackets were not watertight. Operating the feed chutes for extended periods without cooling water leads to overheating and warping of the feed chute. Warping of the feed chute can increase the likelihood for feed chute plugs which can cause an increase in carbon monoxide emissions if the air seal is lost. Severe warping of the feed chute can result in the need to replace the entire feed chute which could increase downtime. Covanta reported that the feed chute on Unit No. 3 was repaired during its "spring" 2010 scheduled outage and that the cooling water had not been restored as of CDM's inspection. Covanta also reported that the Unit No. 2 feed chute would be repaired during the current scheduled outage and the Unit No. 1 feed chute would be repaired during its upcoming "spring" 2010 scheduled outage.

Other Repair Needs

CDM identified the following additional repair needs during our February 2010 inspection which we recommend be addressed by Covanta in a timely manner. Several of these items were reportedly corrected by Covanta prior to the end of the Unit No. 2 scheduled outage as discussed below.

- *Stack Aircraft Warning Lights* - Two of the four white strobe lights at the top of the stack were not operating and should be repaired.

- *Boiler No. 1 Drum Level Indicator* – The upper flange for the level indicator at the south end of the steam drum was leaking a significant amount of steam and the area around the drum was cordoned off with red tape for safety purpose (Photograph No. 17). Covanta reported that the leak was repaired several days after CDM's inspection.

- *Lime Slurry Piping* – The insulation and lagging was missing from a 5 foot section of the lime slurry piping on the northeast side of the Unit No. 2 scrubber and the lagging on the side of the Unit No. 2 scrubber and on top of the Unit No. 2 baghouse was coated with a significant amount of lime slurry (Photograph No. 29). Covanta reported that the leak in this slurry piping was repaired during the Unit No. 2 scheduled outage and the spilled lime would also be cleaned up.

- *Unit No. 1 Primary Superheater Hopper Dump Valve* – The Plattco dump valve was inoperable and stuck in the open position (Photograph No. 15)). Covanta reported that this valve is scheduled to be repaired during the upcoming "spring" scheduled outage for Unit No. 1.

- *Unit No. 2 Primary Superheater Hopper Dump Valve* – The cast piece inside the Plattco dump valve was cracked/broken (Photograph No. 14). Covanta reported that the cast piece was replaced during the Unit No. 2 scheduled outage.

- *Unit No. 2 Feed Table* – The bars at the edge of the Unit No. 2 feed table were heavily worn/damaged and in need of replacement (Photograph No. 2). Covanta reported that these bars were replaced during the Unit No. 2 scheduled outage.

- *Carbon Silo* – There was a significant amount of powdered carbon on the floor and on top of components inside the upper level of the carbon silo (metering area). Covanta reported that the carbon is leaking from a tear in the expansion joint located at the base of the silo and that they plan to repair the expansion joint during the April 2010 total plant outage.

- *Closed Cooling Water Heat Exchanger* – The No. 3 fan on the closed cooling water heat exchanger was making a very high pitched sound and the fan blade was oscillating excessively. The unusual noise and oscillation suggests that the fan bearing may need to be replaced. Covanta reported that they plan to repair this fan during the April 2010 total plant outage.

- *Fly Ash Screw Conveyor* - The drive on the cross-tie screw conveyor on the Unit No. 1 baghouse was oscillating excessively suggesting a possible bent screw and/or bad hanger bearings (Photograph No. 24). Covanta reported that they planned to inspect the condition of this conveyor during the Unit No. 1 scheduled outage in March 2010.

- *Jockey Pump* – The jockey pump located inside the fire pump house and designed to maintain a set water pressure in the fire lines was cycling on and off at approximately 30 second intervals (Photograph No 31). The local pressure gauge downstream of the jockey pump showed a slow loss of line pressure between cycles (from approximately 150 psi to 145 psi at which time the pump turned on as designed) suggesting a small leak in the fire system. The floor area beneath the local pressure gauge was damp but no dripping water was observed. Covanta investigated this issue following CDM's inspection and reported that the cycling of the jockey pump was due to a sticking check valve and that this problem has been corrected.

- *Boiler No. 1 Economizer Sootblower* – Sootblower G9B-22 was observed to be leaking a significant amount of steam when it was operating (Photograph No. 28). The source of this leak should be investigated and appropriate repairs made.

- *Instrument Air Compressor Nos. 1 and 2* – A significant amount of oil was observed on the floor around both instrument air compressors Nos. 1 and 2 (Photograph No. 32). The sources of these leaks should be investigated, appropriate repairs made and the leaked oil cleaned up.

- *Eddy Current Separator Screen* – The vibrating screen that precedes the eddy current separator was largely plugged with ash and other debris (Photograph No. 26). Covanta

reported that this screen is normally cleaned on a regular basis by the operators and was cleaned following CDM's inspection.

- *Residue Storage Building Siding* – The siding on the west wall of the residue storage building was damaged due to residue being stacked above the top of the concrete push wall, which caused the siding to be pushed outward (Photograph No. 35). A small amount of residue had leaked onto the ground surface outside the building as a result. The damaged siding should be repaired and the leaked residue cleaned up.

- *Refuse Receiving Building Roof Drain* – The PVC roof drain pipe in the southeast corner of the tipping floor adjacent to the non-ferrous metal storage bunker was leaking water inside the building (as evidenced by the ice on the floor in this area) and the pipe was broken where it penetrates the south wall as a result of freezing (Photograph No. 36). The damaged section(s) of the piping should be replaced.

- *Process Wastewater Sump* – The water level in the process wastewater sump was high and a small amount of water was observed to be overflowing onto the roadway despite the use of a wood chip berm (Photograph No. 33). Covanta reported that the basin level was extremely high at the time of CDM's inspection because they had just drained several waterwalls on the Unit No. 2 boiler to support outage activities and the basin level returned to normal shortly after CDM's inspection. Covanta should consider the use of an additional mobile storage tank during outage events if they expect the process wastewater inventory to potentially exceed the available onsite storage capacity.

Completed Facility Repairs

CDM observed that the following repair needs identified in prior CDM inspection reports had been addressed by Covanta since our last inspection in March 2009.

- *Residue Building Grating* – The damaged grating on the top landing for the stairs that run alongside the eddy current separator inside the residue storage building that CDM observed during our March 2009 inspection had been repaired.

- *Inclined Belt Conveyor Gallery* – The heavily corroded section of walkway grating at the top of the inclined belt conveyor gallery that CDM observed during our March 2009 inspection had been repaired.

- *Ash Dischargers No. 3* – The rear wall of the inlet section of the Unit No. 3 ash discharger, which CDM observed was in poor condition during prior inspections, had been reinforced with new steel plate and support gussets. Covanta reported that similar repairs are planned for the Unit No. 1 ash discharger during its scheduled outage in March 2010. The inlet section of the Unit No. 2 ash discharger had previously been reinforced.

- *Residue Storage Building Floor Surface* – The heavily worn sections of the concrete floor inside the residue storage building were repaired and protective steel plate was added to portions of the bunker walls.

Completed Facility Improvements

CDM noted that the following capital improvements had been made to the Facility since our last inspection in March 2009.

- Installation of a new access platform on the east side of the grizzly scalper (Photograph No. 25).

- Replaced the condensate drain piping on the Unit No. 3 combustion air preheater (Photograph No. 23). Replacement of the insulation and lagging remains to be completed.

Other Operational Observations

The following additional observations were made by CDM during our February 2010 inspection.

- *Refuse Inventory* - The quantity of refuse in the storage pit at the time of CDM's February 2010 inspection was relatively low due to lower than normal waste generation. The inventory level was slightly above the tipping floor elevation toward the rear of all bays and slightly below the tipping floor elevation toward the front of the refuse pit. During CDM's inspection, all of the tipping bays were open, waste deliveries were flowing normally and there were no truck waiting lines.

  Waste deliveries to the Facility during calendar year 2009 were approximately 8 percent less than calendar year 2008 and further decreases have been observed during the first two months of calendar year 2010. The continued downward trend in waste generation has been observed nationwide and is related in large part to the overall poor economic conditions. The reduction in waste deliveries to the Facility impacts revenues to both OCRRA and Covanta and has also resulted in the need to operate one or more of the combustion units at reduced load and/or shut down one of the units depending on the available waste inventory. While unavoidable at times, the cycling of combustion units on and off adds additional wear and tear to the units. OCRRA and Covanta are actively investigating additional sources of supplement waste from non-municipal sources within Onondaga County to fill some of the unused Facility capacity.

- *Odor Control* – The control of odors at the Facility remains good. Effective control continues to be maintained by drawing air from the receiving building and refuse storage pit for use as combustion air in the three units. No odors were detected outside the Facility during our inspection despite the availability of only two combustion units.

Please contact me at (617) 452-6379 should you have any questions concerning the findings from our February 2010 inspection.

Very truly yours,

Anthony M. LoRe Jr.

Anthony M. LoRe Jr., P.E., BCEE
Principal Engineer
Camp Dresser & McKee

cc: Tom Rhoads, OCRRA
Bob Kukenberger, CDM
Paul Stoller, CDM

Onondaga County Resource Recovery Facility
CDM Inspection Photographs
February 24-25, 2010