SWANA

2009 Waste-to-Energy Excellence Awards Application

City of Tampa Department of Solid Waste & Environmental Program Management & Wheelabrator McKay Bay Inc.

McKay Bay Refuse-to-Energy Facility
2009 WASTE-TO-ENERGY EXCELLENCE AWARD

NOMINATION FORM

Program/Facility Nominated:

McKay Bay Refuse-to-Energy Facility

Contact Person Name & Title: Nancy McCann - Urban Environmental Coordinator

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City, State, Zip/Province, Postal Code: Tampa, FL 33607

Phone #: 813-348-1118 Fax #: 813-348-1156 Email: nancy.mccann@tampagov.net

Nomination submitted by (if different than information listed above):

Name: Tonja M. Brickhouse Phone #: 813-348-1151 Email: tonja.brickhouse@tampagov.net

If selected for an award, how would you like the name of the organization to read on the award (limit of 50 characters)?

Tampa Dept of Solid Waste & Envir. Prgm, Mgt. & Wheelabrator McKay Bay

2009 Applications must be submitted to SWANA no later than Friday, April 3, 2009

*** PLEASE NOTE THAT ENTRY REQUIREMENTS HAVE RECENTLY CHANGED ***

See the attached Entry & Eligibility Requirements sheet for further information

Application Checklist (Please make sure the following items are included in your submittal packet):

- Completed nomination form with signed release statement (this page)
- 1 original hard-copy application binder
- 1 copy of your award submittal on a CD-ROM
- Executive Summary of your nomination (NO more than 200 words)
- At least 2 pictures of your operation (may be included in nomination text)
- Check (made payable to SWANA) for nomination fee (in U.S. dollars)

Please mail all application packages to:

SWANA
ATTN: Technical Programs Department
1100 Wayne Avenue, Suite 700
Silver Spring, MD 20910

Release Statement: I certify that the information provided in this application is accurate and correct to the best of my knowledge. SWANA reserves the right to publish the enclosed information. Nominations become the property of SWANA. My signature gives SWANA the right to reprint or make available for purchase any portion of this submittal.

Signature: [Signature]

Date: 04/03/09
Executive Summary: Tampa’s Renewable Energy Source

The McKay Bay Refuse-to-Energy Facility is owned by the City of Tampa and operated by Wheelabrator McKay Bay Inc. The facility – in operation since 1985 – was constructed at the site of the former Tampa incinerator, which operated from 1967-79. The familiar site has contributed to the continued acceptance of the McKay Bay Facility by the surrounding communities. Centrally located on McKay Bay, the plant has proven to be a compatible land use with the adjacent nature park.

The McKay Bay Transfer Station is adjacent to the facility, providing for backup and waste separation activities.

The performance, environmental compliance, and safety record of the McKay Bay plant are outstanding. In 2003, the facility achieved OSHA Voluntary Protection Program (VPP) Star status – OSHA’s highest safety designation – and has maintained that level since.

The McKay Bay Facility underwent a Clean Air Act retrofit, completed in 2001, while continuing with partial operation. In addition to the environmental components of the retrofit, unique design features were added to the new boilers installed during the retrofit to improve operational performance. Wheelabrator is contractually required to operate the facility under more strict emissions limits than required by the Title V permit.
1. Engineering Design Systems and Technologies

The McKay Bay Facility has four process trains, utilizing mass burn technology. After curbside recycling, the municipal solid waste (MSW) is trucked to the facility, then unloaded into an enclosed tipping floor and, when necessary, pushed with a front-end loader into the refuse pit. Two overhead cranes stack the fuel and charge the four boiler-charging hoppers. The crane control pulpit is located in the control room overlooking the entire pit.

The four combustion trains are identified with the key components as follows:

Each unit has a charging hopper and a feed chute with a hydraulically operated damper with arch-breaking capabilities in the event of a refuse chute plug. (Von Roll, Inc. designed this feed chute and the associated combustion system.) The combustion system is of the reciprocating grate type. Five grate modules with independent hydraulic supply to actuate the reciprocating grates for each of the five modules. Each unit is equipped with an underfire air (primary) fan and an overfire air (secondary) fan. The underfire air directs proportionally into the five combustion or “grate” zones. The overfire air system is split on the front and rear walls, with nozzles positioned to introduce overfire air at the top of the flame profile.

The ram, grate, and air system functions are regulated by a Distributed Control System (DCS). The Bailey System DCS is a distributed process management and control system. Using a series of integrated control stations, the DCS allows monitoring and control of process variables, examples of which are flow rates, temperatures and pressures, according to a control configuration that the system engineer and operator defines.

The refuse journeys through the combustion system, and its heat energy is transferred to steam through the boiler. The boiler unit was designed by DB Riley/Babcock Power, Inc., and operates using natural circulation with a five-pass arrangement, containing super heaters and economizers in the fourth and fifth passes. The steam is piped to a General Electric turbine generator set.

By the time the fuel reaches the fifth zone, only is ash and ferrous and non-ferrous metals remain. This residue, or bottom ash, is moved off the fifth zone grate and into a water-quenched ram ash expeller, designed by TLT Babcock. The ash residue is quenched in these expellers, and pushed out onto a vibrating pan conveyor system, where it is transported to a “scalper” building. There, the large ferrous material (six inches or greater) is extracted from the ash stream.

As the bottom ash enters the grizzly scalper building, the fly ash produced in the combustion process and captured in the Air Pollution Control (APC) equipment is combined with the bottom ash. Drop-out chutes from the facility fly ash conditioners that are positioned over the vibrating pan conveyors. A series of screw and drag conveyors transport the fly ash from the APC equipment to the fly ash conditioners, where this material is conditioned with water for dust control before it is added to the bottom ash. When the residual material leaves the grizzly scalper area, where the large metal objects
are removed. The remaining material (which is the combined bottom ash and fly ash with the small metal objects) is then conveyed up an incline belt conveyor to the facility ash house. The material then moves across a vibrating spreader feeder to a drum magnet, where the smaller ferrous metal is removed. This metal is deposited onto a finger screen, where any ferrous material is combined with the recovered ferrous material from the grizzly scalper. The remaining ash residue is conveyed to a pile that is transported to the county landfill, and used for daily cover.

In the boiler, a Selective Non-Catalytic Removal (SNCR) system injects urea and dilution water for the control of nitrous oxides (NOX). The gas path continues through the unit, exiting the furnace. The second and third passes are open passes. The fourth and fifth passes contain the super heaters and economizer banks. The flue gas exits the boilers and then enters a Spray Dryer Absorber (SDA). Activated carbon is injected into the flue gas path for mercury removal at the boiler outlet to the SDA.

At the SDA inlet, the gases pass through a series of chevrons, which evenly distribute flue gas before the introduction of lime slurry in the SDA for acid gas neutralization and removal. The lime slurry is made using wastewater from the facility, which enables the facility to maintain a zero-discharge operating mode regarding contact wastewater.

The gases exit the SDA at the bottom of the scrubber. Where a large hopper collects heavier fly ash particulates, drop out and exit the hopper into a series of screw and drag conveyors. The remaining gases and particulates enter a pulse jet fabric filter. The filter bags have a “tetra tex” coating. The remaining blue gas particulate in the is removed in the filters. A series of compartments with adjoining hoppers and conveyor systems transport the remaining fly ash to the ash conditioners. At the fabric filter outlet, the flue gas is then pulled through an induced draft fan and pushed up the flue, exiting the stack.

As the municipal solid waste is combusted, the heat energy is converted to steam and routed via a common header to a 22.5 MW turbine generator set. The output of the generator supplies plant needs, and the net is exported to the Tampa Electric Company utility grid. Cooling water for the turbine surface condenser and the rest of the plant is supplied by the Howard F. Curren Advanced Wastewater Treatment Plant. Advanced Wastewater Treatment (AWT) water is routed into the facility’s cooling tower, where it is then pumped to the various components that require cooling.

A demineralizer plant supplies boiler make-up water. Three boiler feedwater pumps—two electric and one steam driven, supply the four boilers and the steam-driven pump is taken in and out of service depending upon steam turbine demand.

The balance of plant equipment includes: process and instrument air compressors and dryers, lime silos and slakers, carbon silos and feed systems, urea tank and associated pumping systems, wastewater, dilution water, and pumping systems for these tanks.
2. Environmental Impacts & Regulatory Compliance

Environmental compliance and the health and safety of employees are cornerstones of daily operations of the McKay Bay Facility. A comprehensive retrofit in 2001 to install state-of-the-art pollution-control equipment and combustion controls operates superbly. The result is reliable source of clean, renewable energy that will be operating for the foreseeable future.

The 2001 retrofit was permitted under the National Emissions Guidelines for Municipal Waste Combustors applicable to the retrofit of existing facilities. New pollution-control equipment was designed to exceed the more stringent New Source Performance Standards. Wheelabrator, the facility operator, is contractually required to operate the facility in compliance with the New Source Performance Standards or face monetary penalties from the City of Tampa. Since the retrofit was completed in 2001, the facility has exceeded expectations with no permit violations of any type.

Wheelabrator has achieved compliance with the New Source Performance Standards contractually imposed by the City of Tampa. The City’s goal was to operate as cleanly as possible, with oversized scrubbers and fabric filters that will hopefully be adequate if air-emission regulations are made more stringent in the future. Copies of recent data tests are attached showing actual emissions compared to permit and contractual emission limits.

The facility design routes any process water that has contacted ash into a contained area with a system of U-drains and sumps, which is ultimately used as make-up water for the spray dryer absorber air-pollution system. This design prevents off-site discharge to storm water, surface waters or the city’s wastewater treatment plant.

The facility has operated in full compliance with all permits since the retrofit. Permits include a Solid Waste Operating Permit, a Title V Air Permit, a PSD Air Permit, an NPDES Stormwater Permit, a Stormwater Management Operation Permit and a Wastewater Discharge Permit.

The City has entered into an Inter-local agreement with Hillsborough County that calls for either party to deliver any excess possible waste to either party’s waste-to-energy facility prior to landfiling the waste. This maximizes use of the two waste-to-energy facilities and minimizes landfilling. The City and County have a long history of cooperation in planning solid waste disposal capacity. The City and County also both operate household hazardous waste collection days at various places throughout the area to keep these wastes from out of the municipal waste stream.

The Environmental Protection Commission, which of Hillsborough County local regulatory agency vigorously enforces all environmental regulations in the county. The City of Tampa has also been a leader in the movement to ensure that waste-to-energy is considered a clean, renewable source of power as the state and federal governments develop legislation concerning renewable portfolio standards and carbon credits.
In 2002, the facility began the first full year of operations. Since that time the plant has exceeded all performance guarantees. The following table shows contract guarantees, where applicable, and actual performance parameters for the 2008 processing year:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Guarantees</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refuse Received</td>
<td>310,000 tons</td>
<td>318,225 tons</td>
</tr>
<tr>
<td>Net Electrical Production</td>
<td>370 kWh/ton</td>
<td>504.24 kWh/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95.6%</td>
</tr>
<tr>
<td>Net Electrical Production</td>
<td></td>
<td>161,074 MWH</td>
</tr>
<tr>
<td>Boiler Design Capacity-Heat Input</td>
<td>NA</td>
<td>98.9%</td>
</tr>
<tr>
<td>Boiler Design Capacity-Steam Production</td>
<td>NA</td>
<td>99.5%</td>
</tr>
<tr>
<td>Boiler Design Capacity-Refuse Throughput</td>
<td>NA</td>
<td>92.2%</td>
</tr>
<tr>
<td>Total Ash Produced</td>
<td>NA</td>
<td>84,422 (wet tons)</td>
</tr>
<tr>
<td>Ash Produced</td>
<td>NA</td>
<td>26.5% of waste</td>
</tr>
<tr>
<td>Net Ferrous Metal Recovered</td>
<td>NA</td>
<td>8,342 (tons)</td>
</tr>
<tr>
<td>Ferrous %</td>
<td>NA</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

The boilers were designed for maximum reliability and have exceeded all expectations. The facility has averaged greater than 95 percent overall online availability since the retrofit was completed in 2001. Through the end of FY 2008, the only tube leak at the facility was a pinhole in one tube where a grinder nicked a tube where it was bent around an observation port. No tubes have been replaced since the retrofit.

All ash is handled in enclosed conveyors to eliminate fugitive emissions. After ferrous metals are removed, the ash is used as daily cover at the Southeast County Landfill. The city and Wheelabrator recently signed a contract amendment to install a non-ferrous metal recovery system, which will be operational by the end of the year. The City of Tampa is currently working with Evergreen Recycling to investigate the feasibility of recycling the ash in the cement manufacturing process.
3. Performance

Wheelabrator McKay Bay underwent a facility retrofit from 1999-2001. In 2002, Wheelabrator Technologies (Wheelabrator McKay Bay Inc.) and the City of Tampa, the owner of the facility, entered into a 20-year Operations and Maintenance Agreement.

In October 2001, acceptance testing was performed on all four units over a three-week period, requiring satisfaction of the following criteria:

1. **Reliability** - During a 14-day period, refuse throughput capacity of at least 12,600 tons and no processing downtime caused by the furnace grate or heat recovery system. (At the city’s sole discretion, the city could accept up to eight hours of total downtime, provided the throughput capacity was achieved during the test period.)

2. **Throughput Test Capacity** - During a 7-day period, refuse processed of at least 7,000 tons total with 1,600 tons per combustion line per week.

3. **Net Electricity Generation** - 390kWh/ton

4. **Minimum Steam Production** - 2.40 pounds of steam per pound of processable waste processed per combustion line. Steam at the turbine inlet to meet the conditions of 700°F and 600 psig.

5. **Residue quality** - An unburned carbon content of 4.0% by dry weight as adjusted for the carbon injection system.

6. **Ferrous Recovery Efficiency** - 80% of ferrous greater than 1 inch in diameter.

7. **Air Emissions** - Full compliance with the requirements of the facility air permit except for the fugitive emissions requirements.

8. **Effluent** - Full compliance with the requirements of the facility wastewater discharge permit.

Acceptance testing of the McKay Bay Facility occurred between 01200 hours on Oct. 11, 2001 and 2400 hours on Oct. 31, 2001. The following table lists each test, the test standards, and the test results:
4. Program Planning

The McKay Bay Facility is centrally located on the site of the original Tampa incinerator. No significant changes to the municipal solid waste collection service were necessary to accommodate the implementation of the refuse-to-energy project. An 800-tpd transfer station also exists on-site and provides several benefits. Mixed waste, yard waste, white goods and waste from citizens are deposited at the transfer station. Yard waste and white goods are recycled. Non-processable waste is landfilled, and processable waste is taken to the waste-to-energy facility. This provides a convenient place for residents and vehicles without hydraulic unloading capabilities to dump and keeps these vehicles off the tipping floor at the refuse-to-energy facility. The transfer station also provides an ideal way to dispose of any possible waste that can not be processed at the facility.

The facility accepts special waste, mostly in the form of confidential records and contraband from law enforcement agencies. Provisions are made for customers to bring such waste directly to the tipping floor and the waste is placed directly into the hoppers. Provisions are made for contraband to be placed directly into the charging hoppers by law enforcement personnel. The facility also allows pharmaceutical products to be placed directly into the charging hoppers. The facility receives special waste from several surrounding counties due to the high level of customer service provided at the McKay Bay Facility.

The Guide to Clean Neighborhoods is a publication which provides disposal information on a wide variety of wastes (see attached). This publication received an award of recognition by the Planning Commission of Hillsborough County. Household hazardous wastes are handled at one of several collection days offered throughout the city and county to keep these wastes out of the normal waste stream.
5. Worker Health and Safety

Health and Safety are paramount at the McKay Bay Facility. In 2002, the facility marked three years without a lost-time accident. This is especially significant given the fact that the McKay Bay Facility was an operating facility as well as a construction site during the recent retrofit. Plant personnel have ongoing safety training requirements annually, and operations and maintenance department personnel have weekly safety contact requirements.

The facility’s Safety Committee is a very active employee-controlled committee. In 2002, the safety committee and its various subcommittees prepared an application for the OSHA Voluntary Protection Program (VPP). This employee-driven program exceeds minimum health and safety requirements. It requires total employee buy-in, which enhances the corporate safety culture, as demonstrated by the Safety Committee Mission Statement that was devised in 2002. In 2003, the facility received VPP Star status, the highest level of certification under the OSHA VPP program.

The safety record continues to be outstanding. As of March 2009, the facility has exceeded three years without an OSHA recordable incident and six years without a lost time accident. Following is a summary of the Wheelabrator McKay Bay Safety Committee Mission Statement.

Wheelabrator McKay Bay, Inc. Safety Committee Mission Statement

I. Purpose

Keep all employees informed. All employees need to be kept aware of all activities of the safety committee, whether by memo, safety bulletins/contacts, postings or meetings within their departments. All employees are strongly encouraged to be involved in safety program development, enforcement, resolutions and communication. All employees are encouraged to discuss safety with their supervisors, Safety Committee members, administration and co-workers. Communication on all levels is strongly encouraged.

II. Subcommittees

Established to effectively utilize a cross-section of employees to perform necessary comprehensive health and safety program tasks and analysis of program elements.

A. Lock Out Tag Out /Confined Space Subcommittee

1. Review the LOTO and Confined Space procedures quarterly
2. Review LOTO and Confined Space permits monthly for accuracy and completeness
3. Ensure that each LOTO template has a detailed procedure
4. Ensure that LOTO and Confined Space templates are accurate
5. Monitor compliance with the LOTO and Confined Space procedures
6. Report status to the Safety Committee monthly
B. Hazard Communication
   1. Review the Hazcom procedure quarterly
   2. Perform annual chemical inventory
      a. Use current chemical inventory as guide
      b. Inspect all areas of the plant where chemicals are stored or in use
      c. Compare findings against written inventory
      d. Update inventory
      e. Assure a MSDS is on file for each chemical on site
   3. Report status to the Safety Committee monthly

C. Job Hazard Analysis
   1. Prioritize need for JHAs
   2. Convert JHAs to new form
   3. Draft new JHAs and present for review

D. Accident/Near Miss Investigation
   1. Investigate all incidents
   2. Determine root cause of each incident
   3. Recommend corrective and/or preventative action

E. Plant Walk Down/Corrective Action
   1. Perform full plant walk down at least quarterly
   2. Document deficiencies
   3. Prioritize need for corrective action
   4. Track each corrective action to completion
   5. Perform focused inspections at least monthly
      a. Examples are power tools, electric cords, grating and handrail integrity, etc.
   6. Report status to the Safety Committee monthly

F. Internal Audits
   1. Perform focused inspections for compliance with OSHA requirements and facility-specific procedures
   2. Track findings to completion

G. Contractor Safety
   1. Monitor contractors for compliance with facility policies and procedure
   2. Perform contractor safety orientations in the absence of the EHS director
   3. Report to Safety Committee monthly

H. Personal Protective Equipment
1. Review PPE procedure quarterly
2. Discuss PPE needs with employees
3. Determine need for revisions to PPE procedure
4. Assure PPE listed in the procedure is available
5. Monitor compliance with the PPE procedure for employees and contractors

6. Report status to the Safety Committee monthly

III. Membership requirements/criteria:

A. At least one representative from every department will be a member of the committee on an annual rotating basis. Representatives will be selected by lead personnel from the following departments: Administration, Operations, Maintenance, E&I, Support Services, Warehouse.

B. The representative must relay all information to his or her department after each meeting and ask for input before each meeting.

IV. Meeting frequency:

A. Meetings shall be scheduled so as to qualify for OSHA VPP Star
B. A monthly main meeting will be held to address committee business.
C. A bi-weekly meeting will be held as warranted to address priority issues.
D. Dates and times for all meetings will be decided in advance and posted conspicuously for all employees to be aware.

V. Attendance requirements

A. A mandatory 90 percent attendance for all members to maintain good standing; for the shift supervisor position, the on-duty supervisor should attend.
B. At least half of main committee membership must be present for a quorum. A quorum is required for any new regulation/procedure to be voted in.
C. Should any member need to be absent, a substitute must be provided. This substitute must meet all member requirements/criteria.
D. Extenuating circumstances for absences will be handled on a case-by-case basis, and agreed upon by vote of a quorum.

VI. Chair selection and criteria

The chairperson of the committee will rotate on an annual basis and will be nominated and voted in by the quorum of the committee. Nominations and elections shall not be during the same meeting, but can occur in consecutive meetings.

B. Until the first nominations and elections are determined, the EHS director shall serve as committee chair and shall also do so in the absence of the committee chair.
C. The chair shall be in attendance for 95 percent of all meetings and will arrange with the EHS director to assume the duties if he cannot attend.

VII. Member rotation

A. The committee members shall rotate on an annual basis, with half of the committee rotating at the same time to assure completion of tasks. The half-rotation shall occur every six months.

VIII. Goals

A. Conduct a safety walk down/inspection prior to each meeting of the committee
B. Involve every employee at the facility in safety
C. Encourage and implement follow-up measures for all safety issues
D. Communicate within departments and plant-wide all goals and actions
E. Post all activities of the committee conspicuously so all facility employees will be aware of action

IX. Action plans

A. Make a schedule for Job Hazard Analysis reviews
B. Corrective actions for safety issues and effective follow-up
C. Safety work order reviews
D. Prevention measures for near misses
E. Anonymous reporting system for all employees to report any safety concerns along with conspicuously posted follow-up and feedback for every employee to be aware of. An employee suggestion box will be established.
F. Create a specific safety bulletin board
G. Revise and update this mission statement on an annual basis or more often if deemed necessary by a quorum of members

H. Provide all facility employees with a copy of the committee mission statement
6. Economics and Cost Effectiveness

The City of Tampa, in looking at options other than waste-to-energy, reviewed landfill disposal vs. a retrofit of the McKay Bay Refuse-to-Energy Facility. The City’s analysis considered the possibility of the plant ceasing operation 2000 and the site becoming a transfer station in 2001.

Approximately $40 million current debt service remained on the facility, and approximately $3 million would have been required for demolition and clean-up. with another $15 million for conversion to a transfer-station configuration. There would have $8 million would be repaved to Tampa Electric Company for terminating the Small Power Production Agreement, requiring a $75 million bond issue to cover refinancing, plus the repair, conversion and repayment costs.

At that time cost approximate 40-per-ton hauling, landfill and disposal. There was also a $5 per ton O&M fee for operation of the transfer station. as well as the cost associated with upgrading the transfer station to handle 310,000 tons per year. Using this data for the basis of the analysis it was shown that the total cost to retrofit the McKay Bay facility for 20 years of operation would be $430 million. The total landfill operation option over 20 years would have cost $520 million. The difference in Net Present Value (NPV) was approximately $250 million for the retrofit option vs. $305 million for the landfill operation. The city’s analysis clearly indicated that the retrofit option of the Waste-to-Energy Facility had a distinct economic advantage over converting to a total landfill operation.

Since the retrofit was completed in 2001, the tipping fee has increased to $71 per ton. and should remain stable for several years. The facility has greatly improved availability and electric output due to the retrofit, which has resulted in an additional power sales agreement with the local utility worth about $1.2 million per year above and beyond the approximate $8 million in annual electric revenues from the original Small Power Production Agreement.
7. Utilization of Equipment/Systems and Technologies

The McKay Bay Facility is a mass burn facility. The plant has four identical processing units, each designed to process 250 tons per day. Section 1 describes the design of the facility: this section will be used to describe how the design is used to our benefit. Having four smaller units instead of two or three larger units has allowed for much steadier performance characteristics for the facility as a whole. This has been advantageous to The City of Tampa.

The facility was constructed in 1985 with four units. By keeping the same number of units during the retrofit, we were able to permit the rebuild of the existing plant as an air-pollution upgrade instead of a new facility. This greatly simplified the time and effort required obtaining environmental permits.

The facility has been rebuilt two times, but each time it has been impossible to enlarge the waste storage pit without demolishing the entire facility. As a result the pit is not as large as desired to smoothly accommodate the peaks and valleys of the waste deliveries. The facility schedules 12 maintenance outages per year. The impact of each outage is minimized by increasing the throughput of the remaining three units so the facility maintains about 85 percent throughput during an outage. This minimizes the need to send waste to the landfill during each outage, and reduces the time each truck waits to dump to a minimum during an outage. Having such consistent facility performance has given the City of Tampa the confidence to make a higher capacity commitment in our power sales contract than would otherwise be possible with a facility consisting of two or three units.

Operational advantages in having frequent maintenance outages, as shown by the excellent availability statistics at the McKay Bay Facility. Average availability has exceeded 95 percent since the retrofit. Frequent outages result in fewer surprises during the outage, quicker outages and very few forced outages between scheduled outages.
8. Community Relations Programs

Wheelabrator McKay Bay Inc. has an extensive community relations program. Wheelabrator’s approach to community relations is one of a true public/private partnership, where the company becomes a leading corporate citizen that strives to make its host community’s better places. Wheelabrator has a comprehensive and well-funded community relations program at the McKay Bay Facility, where it contributes to the host community’s civic, educational, environmental, and charitable well-being. As a matter of principle, Wheelabrator actively supports the communities in which its employees work and live.

Wheelabrator works diligently to completely integrate its facilities into the host communities. Tampa enjoys a range of benefits as a result of the pride taken by Wheelabrator in being a good corporate citizen. Wheelabrator is not only a corporate neighbor, but its employees are members of the communities served by the facility. Wheelabrator is proud to show the facility to public and private guests, and each year sponsors many tours.

The City and Wheelabrator often receive compliments about the appearance and cleanliness of the McKay Bay Facility. For example, see e-mail from Walt Stevenson of EPA, who visited the site with only 30 minutes notice to the plant manager.

There are many dimensions to Wheelabrator’s community relations program in Tampa. Please see the following public relations fact sheet highlighting civic/community activities, educational activities, environmental activities and charitable contributions.

- **Public education programs:** Wheelabrator sponsors ongoing public awareness programs that include production and distribution of written and multi-media information that describes the facility and its benefits. We also make presentations to local groups.
- **School partnerships:** Wheelabrator is very active in working with DeSoto Elementary School and Stewart V. Garland Middle School in Tampa.
- **Environmental awareness:** Wheelabrator is a longtime supporter of the local Audubon Society, and is active in the Mayor’s local clean-up activities.
- **Charitable contributions:** Wheelabrator supports charitable organizations within the host community that are important to the local citizenry, including the American Red Cross, United Way, American Heart Association and the Boys & Girls Club of Tampa Bay.
- **Civic organizations:** Wheelabrator supports the Tampa Police Department’s initiatives in the community.

Appearance and Aesthetics

Wheelabrator takes great pride in maintaining the facility, yard and vehicles in a clean and litter-free condition. As a matter of policy, litter around the facility is removed at
least daily, and at times when deliveries are greater than normal, litter pick-up is more frequent. The loader operator maintains the appearance and order on the tipping floor and the general vicinity of the receiving building and facility. Plant staff sweep facility roads in order to maintain a clean and neat appearance.

The facility has a temporary labor force on-site most days that is charged with maintaining the cleanliness of the facility and vehicles. Regular landscaping is performed at the site, and the fenced perimeter is monitored and kept clean of litter by plant staff. The enclosed tipping area is beneficial in keeping debris enclosed and out of the surrounding area. Company vehicles are maintained each day with routine maintenance procedures and washed down to maintain a clean appearance.
Nancy McCann - McKay Bay Facility

From: Nancy McCann
To: McCann, Nancy
Subject: McKay Bay Facility

Forwarded by Walt Stevenson/RTP/USEPA/US on 04/01/2009 10:46 AM

To: Nancy.McCann@ci.tampa.fl.us

Subject: Re: McKay Bay Facility (Document link: Walt Stevenson USEPA)

Nancy

I hope you are doing well. By this note I wanted to reiterate my appreciation for the tour of the McKay Bay MWC facility during the NAWTEC-13 conference, and my comment at the end of the tour that the facility (including both the MWC units and the plant grounds) appeared to me to be exceptionally well maintained and operated.

take care

Walt
PUBLIC RELATIONS

Civic/Community Activities
Tampa Bay Women's Crisis Center
Tampa Bay Firefighters
National Fire Safety Council - Fire Safety Education
Fraternal Order of Police, Tampa Lodge #27
City of Tampa Dept. Solid Waste Annual Road-E-0
Mayors Beautification Program

Educational Activities
DeSoto Elementary
City of Tampa Black History Month
Hillsborough Education Foundation Science & Engineering Fair
Stewart V. Garland Middle School
Tools 4 Schools (A Gift for Teaching)

Environmental Activities
Audubon of Florida
Keep Hillsborough County Beautiful, Inc.
Mayor's River Clean-up

Charitable Contributions
United Way
American Red Cross
American Heart Association
ARC
Kids Wish Network
Boys & Girls Club of Tampa Bay
9. Innovation and Creativity

Unique design features associated with the units installed during the retrofit to improve the boilers’ performance include:

Flue gases, upon leaving the unit’s furnace, flow down an empty second pass and up an empty third pass. In the third pass, the boiler width increases from 11 feet to 19 feet. This increase in area in this third pass significantly reduces the velocity of the flue gases before exiting the third pass and flowing down the fourth pass through the primary superheater platens. known as Superheaters 1 and 2. These superheater platens produce the lowest temperature steam in the superheater pass. This, along with the lower velocities, significantly reduces fireside erosion and corrosion, as well as reducing fouling on the tube surfaces.

Tube spacing was increased significantly. This is a huge factor in controlling fouling. The platen superheaters are spaced 12 inches on center, while the high temperature superheaters are spaced 8 inches on center. With rappers for cleaning the superheater platens, and rotary sootblowers for the high temperature or secondary superheaters, the heating surfaces stay cleaner than expected for the four-month boiler runs between scheduled outages.

The design and placement of the heating surfaces has lent to an ongoing experiment with boiler cleaning. Early on, it was decided that water washing the tube passes would not be the cleaning method used on the new units at Wheelabrator McKay Bay. It was decided that water would be kept off of the tube surfaces to see if that, along with the design features of the unit, would help in the rate of corrosion on the fireside.

Online high temperature concussion blasting is done in the fourth and fifth passes, where the superheaters and economizers are located, before the boilers are brought offline for an outage. Also, when the boiler is offline and cooled down. offline blasting is done in any areas that are still in need of additional cleaning. Lines 3 and 4 are into their eighth year of operation, and annual U.T. profiling shows little noticeable tube surface loss throughout the units.

The lack of any noticeable corrosion on tube surfaces is impressive, resulting in immediate payback in the reduction of personnel hours required for clean-up after a boiler cleaning. Personnel hours and clean-up have been traditionally large items with boiler washes. Concussion blasting, as a cleaning method, has allowed us to move the material through the unit in its dry form, eliminating costly clean-up after traditional boiler washes.
April 1, 2009

Howard McKnight
Wheelabrator McKay Bay, Inc.
107 North 34th St
Tampa, FL 33605

Dear Mr. McKnight:

We are pleased to write this letter in support of Wheelabrator McKay Bay, Inc.’s nomination for a 2009 SWANA Award. Wheelabrator has been an avid supporter of the Mayor’s Beautification Program for many years, providing thousands of dollars annually through sponsorship of our programs. Through their generous support key initiatives such as the Annual Hillsborough River Cleanup have been able to expand, having a greater reach within the Tampa Bay community each year.

The Mayor’s Beautification Program is an independent, non-governmental not-for-profit organization dedicated to building communities that value and contribute to Tampa Bay’s natural outdoor environment by helping to improve and beautify public areas, parks, and streetscapes. We meet this mission with the help of thousands of donors, volunteers, and supporters.

We value Wheelabrator McKay Bay’s commitment to our organization and our community and therefore wholeheartedly support their SWANA Award nomination. If I can be of assistance, please feel free to contact me at (813) 221-8733 or via email at Raina.ONeil@mbptree.org.

Sincerely,

Raina O’Neil
Development Director
April 1, 2009

To Whom It May Concern:

Wheelabrator Technologies has been an active business partner of Stewart Middle Magnet School for several years. They have provided support for groups of students to participant at the Environmental Symposium. Various staff members from Wheelabrator have aided our students in conducting research on a variety of environmental issues and presented their findings at these symposiums. Through the efforts and support from Wheelabrator, our school has started a paper recycling project where students collect and empty paper bins two to three times a week.

Each year students from Stewart Middle Magnet School put together a Clean-Up Day along the river that flows behind our school. Wheelabrator is gracious enough to send workers to help and pay for the dumpster rental as well as provide a light breakfast and lunch for the students. Wheelabrator is sponsoring a hole at a golf tournament that will take place later this month. The money that has been provided through their efforts has allowed us to purchase many different technologies that enhances student learning.

Wheelabrator has participated in various activities throughout the past three years to educate our students on environmental issues. The most notable one was the Mission to the Moon. In groups, students and adults worked together to develop scale models of buildings that could support human life on the moon. With the help of Wheelabrator, students learned about the needs of recycling, plant growth, water storage, and other necessities. As a NASA affiliated school, this project was a test model for others.

We are encouraged by the continuing support of Wheelabrator and look forward to the many more projects that together we can accomplish. If you have any questions, please contact my office (813) 233-2283.

Sincerely,

Baretta Wilson
Principal
To: All Employees at Mc Kay Bay

From: Kent Baughn, CIH – Manager, Safety and Health

Three Years Without an OSHA Recordable and More Than Six Years Without Days Away, Restricted or Transferred (DART) Incident

On January 12, 2009 Wheelabrator Mc Kay Bay reached a milestone that few plants have. The employees worked safely for three years without having an OSHA recordable incident. January 16, 2009 also marked another milestone where you exceeded a six-year mark for working without having a DART. WOW!! This is an outstanding accomplishment and I thank you for your hard work and constant focus on safety!!

Wheelabrator Mc Kay Bay is one of the safest workplaces in the country. and OSHA acknowledged that when they first awarded you their most prestigious honor for exemplary workplace safety back in 9/5/03, a VPP Star!! You further demonstrated your Star qualities by successfully completing your VPP re-certification 2/23/07. OSHA VPP certification has been earned by fewer than 2100 workplaces out of the more 7 million regulated by OSHA. You are unquestionably among the elite!!

You not only demonstrated to OSHA, but also to the rest of Wheelabrator that the systems you put in place to manage your safety programs are effective and continue to be so! Safety is not a priority for you it is a core value! The safety culture present at Mc Kay Bay runs deep with everyone and has had an impact on the overall operation of the facility with good communication, strong teamwork, and operational excellence!!! These are qualities you all should be very proud of!!

Your continued accomplishments have you recognized as a safety leader within the company!! Your day-in and day-out commitment to working safely on purpose will keep Wheelabrator Mc Kay Bay as one of the safest workplaces in the country and ensure that every single person leaves work every day in the same condition they arrived!

Thank you very much for achieving this, yet another, significant milestone and working Safely on Purpose!!
Guide To Clean Neighborhoods

The City of Tampa Department of Solid Waste & Environmental Program Management realizes that from time to time you have items to dispose of that require special attention. This residential guide will help you to easily and properly dispose of them. This page contains information about WHERE to dispose of most items: Household chemicals, yard waste and disposable household trash. Inside, you will find an alphabetical listing by item and the location where it may be disposed of.

Where should I dispose of my HOUSEHOLD CHEMICALS?

- Paint Supplies
- Automotive Supplies
- Garden Supplies
- Used Motor Oil
- Batteries
- Fuel and Fuel Oil
- Pool Chemicals
- Household Cleaners
- Thermometers and Thermostats
- Fluorescent Bulbs
- Batteries
- Thermometers and Thermostats

These are examples of wastes that should NOT be mixed with regular household trash, poured down the drain, in the sewer system, or on the ground. Please bring them to one of the HOUSEHOLD CHEMICAL COLLECTION CENTERS for proper disposal or recycling. NOTE: COMMERCIALLY GENERATED WASTES WILL NOT BE ACCEPTED. For safe transportation information or Household Chemical Collection Center dates and locations, please call the Department of Solid Waste & Environmental Program Management at 348-1111.

Where Can I Take My Trash and Yard Waste for Disposal?

McKay Bay Transfer Station • 712 South 34th Street (South of Adamo Drive) • Phone: 242-5320

Hours:
Monday, Tuesday, Thursday, Friday: 7:00am - 5:30pm  •  Wednesday, Saturday: 8:00am - 4:30pm  •  Closed: Sunday

Items Accepted FREE OF CHARGE (SEE NOTE):

- Appliances (2 per visit)
- Furniture & Mattresses
- Telescions (2 per visit)
- Tires (4 per visit)
- Yard Waste (no stumps over 100 lbs. or limbs over 4 ft. in length)

Items Accepted With a CASH FEE (SEE NOTE):

- Commercial Waste
- Items Delivered in Commercial Vehicles
- Large Quantities of items that appear to come from a Commercial Establishment.
- Construction debris such as: bricks, tile, concrete, plywood, roofing material, plaster, cabinets, doors, windows, etc.
- Household Garbage
- Mixed loads of free and chargeable items
- Carpet

Manhattan Brush Site • 7215 South Manhattan Ave. (2 1/2 blocks south of Interbay) Phone: 348-1111 weekdays • 832-1208 Saturdays

April 1 - September 30  •  October 1 - March 31
Monday thru Saturday: 8:00am - 6:00pm  •  Monday thru Saturday: 8:00am - 5:30pm
Sunday: Closed  •  Sunday: Closed
Closed: Holidays  •  Closed: Holidays

Items Accepted FREE OF CHARGE (SEE NOTE):

- Only Yard Waste is accepted at this site (no stumps over 100 lbs. or limbs over 4 ft. in length).

NOTE: CERTAIN ITEMS are accepted at the McKay Bay Transfer Station, YARD WASTE AND CARDBOARD IS ONLY accepted at the Manhattan Brush Site FREE OF CHARGE. You must bring a current City of Tampa Utility Bill which includes residential garbage charges, and proof that you reside at the address listed on the bill (such as a driver’s license) for free disposal. The McKay Bay Scalehouse Supervisor will make the final decision on questionable loads.

Printed on recycled paper / February 2009

Guide to Clean Neighborhoods

Residential guidelines to help with disposing of items needing special attention

City of Tampa

Telephone Numbers

You Should Know...

Department of Solid Waste & Environmental Program Management

Special pickup, residential, commercial, yard waste and recycling services

Office of Environmental Coordination

S.W.E.E.P.
(Solid Waste Enhanced Environment Program) Information

McKay Bay Transfer Station

Manhattan

348-1111 weekdays
832-1208 Saturdays

Department of Code Enforcement

274-5545
How Should I Dispose of These Household Items?

**ANTIFREEZE:** Dispose of at your local Household Chemical Collection Center.

**APPLIANCES:** Free curbside pickup may be arranged by calling the Department of Solid Waste & Environmental Program Management at 348-1126. You may also dispose of two appliances per visit, free of charge at the McKay Bay Transfer Station.

**ASBESTOS SHINGLES:** May ONLY be disposed of at permitted locations. Call the Office of Environmental Coordination at 348-1157 for disposal information.

**AUTO BATTERIES:** Contain LEAD and ACID and SHOULD NOT be thrown in the trash. Recycle your old auto battery where you purchase a new one, or take it to your local Household Chemical Collection Center.

**BUTTON BATTERIES:** Small (watch or camera type) batteries may contain MERCURY and SHOULD NOT be thrown in the trash. They should be recycled (with rechargeable Ni-Cad batteries) at your local Household Chemical Collection Center.

**BRAKE FLUID:** Dispose of at your local Household Chemical Collection Center.

**COMPUTERS AND COMPUTER MONITORS:** Call the Office of Environmental Coordination at 348-1157 for disposal information, or dispose of at your local Household Chemical Collection Center.

**CONSTRUCTION DEBRIS:** Bricks, tile, concrete, plywood, plaster, roofing materials, etc. will NOT be picked up with your regular trash. Curbside pickup may be arranged by calling the Department of Solid Waste & Environmental Program Management at 348-1111. There will be a charge for this service. You may also dispose of them at the McKay Bay Transfer Station. There will be a charge for these items.

**DEAD ANIMALS:** Contact the Department of Solid Waste & Environmental Program Management at 348-1126 to arrange for free pickup.

**DIESEL FUELS:** Dispose of at your local Household Chemical Collection Center.

**DRAIN CLEANER:** Dispose of at your local Household Chemical Collection Center.

**FLUORESCENT BULBS:** Contain MERCURY and SHOULD NOT be thrown in the trash. They should be recycled at your local Household Chemical Collection Center.

**FUEL OIL TANKS:** Curbside pickup of EMPTY tanks may be arranged by calling the Department of Solid Waste & Environmental Program Management at 348-1111. There will be a charge for this service. Contact the Office of Environmental Coordination at 348-1157 for fuel disposal information.

**FURNITURE POLISH:** Dispose of at your local Household Chemical Collection Center.

**FURNITURE AND MATTRESSES:** Curbside pickup may be arranged by calling the Department of Solid Waste & Environmental Program Management at 348-1111. There will be a charge for this service. You may also dispose of them free of charge at the McKay Bay Transfer Station.

**GASOLINE AND KEROSENE:** Dispose of at your local Household Chemical Collection Center.

**HOUSEHOLD BATTERIES:** Non-Rechargeable (Alkaline) batteries may be disposed of with your regular trash. Rechargeable (Ni-Cad) batteries contain TOXIC METALS and MAY NOT be thrown in the trash. Call 1-800-8-BATTERY for the location of a Rechargeable Battery drop-off center in your area or recycle at your local Household Chemical Collection Center.

**MEDICINES:** Do not flush down toilet. Call the Office of Environmental Coordination at (813) 348-1157 for disposal information.

**MOTOR OIL:** Many automotive parts stores accept used motor oil for recycling. Call 1-800-741-4337 for the Public Used Oil Acceptor in your area or recycle at your local Household Chemical Collection Center.

**NEEDLES AND SYRINGES:** SHOULD NOT be thrown in the trash. Call the Hillsborough County Public Health Department at 307-8509 for information on the Bay Area Sharps Disposal Program.

**OIL FILTERS:** May be disposed of in the trash after they have been thoroughly drained.

**OVEN CLEANER:** Dispose of at your local Household Chemical Collection Center.

**PAINT CANS (EMPTY):** May be disposed of with your regular trash if the paint is dry and the paint lids are removed.

**PAINT, STAIN AND VARNISH:** Recycle at your local Household Chemical Collection Center.

**PESTICIDES, INSECTICIDES AND POISONS:** Dispose of at your local Household Chemical Collection Center.

**POOL CHEMICALS:** Dispose of at your local Household Chemical Collection Center.

**PROPANE TANKS:** Will NOT be picked up with your regular trash. Call the Office of Environmental Coordination at 348-1157 for disposal information.

**RECHARGEABLE BATTERIES:** Rechargeable (Ni-Cad) batteries contain TOXIC METALS and MAY NOT be thrown in the trash. Call 1-800-8-BATTERY for the location of a Rechargeable Battery drop-off center in your area or recycle at your local Household Chemical Collection Center.

**SHELLS:** May be disposed of at your local Household Chemical Collection Center.

**SPRAY CANS (EMPTY):** Dispose of empty cans with your regular trash.

**SPRAY CANS (FULL):** Dispose of at your local Household Chemical Collection Center.

**TELEVISIONS:** Call the Office of Environmental Coordination at 348-1157 for disposal information, or dispose of at your local Household Chemical Collection Center.

**THERMOMETERS AND THERMOSTATS:** May contain MERCURY and SHOULD NOT be thrown in the trash. They should be placed in an airtight container (ziplock bag) and taken to your local Household Chemical Collection Center. Care should be taken not to spill the mercury.

**THINNERS AND TURPENTINE:** Dispose of at your local Household Chemical Collection Center.

**TIRES:** Up to FOUR tires may be placed at the curb for pickup with your regular trash. For more tires, call the Department of Solid Waste & Environmental Program Management at 348-1111 to arrange for pickup. There will be a charge for this service. You may also dispose of up to four tires per visit, free of charge at the McKay Bay Transfer Station.

**YARD WASTE:** Trash such as tree trimmings and small limbs must be cut into lengths of 4 ft. or less and tied in bundles not to exceed 50 lbs. Leaves and tree or shrubbery clippings can be placed in bags of at least 1 1/2 mil thickness or refuse cans, but may not protrude from the top of the can. All containerized and bundled trash will be removed the same day as household garbage at no extra charge. (Note: Areas with yard waste recycling have a separate yard waste collection).
Wheelabrator McKay Bay Inc.

Located in Tampa, Florida, the Wheelabrator McKay Bay waste-to-energy facility provides dependable, environmentally safe disposal of municipal solid waste for the City of Tampa, Florida while generating clean electricity for sale to the local utility. The McKay Bay facility processes up to 1,000 tons per day of municipal solid waste.

The process used in McKay Bay is a form of recycling and is simple. Incoming trucks deliver trash to an enclosed reception area and dump the refuse into a concrete receiving pit. From this area, overhead cranes transfer trash into one of the four boilers' feed hoppers. Inside each boiler, an inclined, reciprocating, metal grate slowly moves the refuse through the combustion process, where temperatures exceed 2500°F, in order to allow complete combustion to occur. Air to feed the combustion process is drawn from the refuse receiving building, sustaining a negative pressure there. This negative pressure prevents any "garbage" odors or dust from escaping into the outside environment.

Surrounding the grate systems are large utility-type power boilers designed to recover the thermal energy released during the combustion process. This energy is recovered in the form of high-pressure steam that is converted into electrical energy in the turbine generator. At full capacity, this 22,000 kilowatt plant can generate 18,000 kilowatts of electrical energy for sale to Tampa Electric Company. This is the equivalent of supplying all of the electrical needs of 16,000 homes.

Emissions from the combustion process are controlled using state-of-the-art spray dryer absorbers, also known as dry scrubbers, to control acid gases, heavy metals, and organic pollutants; fabric filter baghouses to collect particulate matter; selective non-catalytic reduction systems to control ozone-forming nitrogen oxides; and activated carbon to control mercury and trace organic emissions. These control systems thoroughly clean emissions to meet all local, state and federal environmental standards.

After the garbage is completely processed, the remaining ferrous metals are separated from the residue. As a result of the combustion and metals recovery processes, the volume of incoming garbage is reduced by more than 90%.

Wheelabrator Technologies Inc. companies provide reliable, long-term trash disposal for hundreds of communities through this and fifteen additional facilities located in Connecticut, Florida, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Washington. Wheelabrator's first waste-to-energy plant, located in Saugus, Massachusetts, has been in continuous operation since 1975.

With outstanding financial, technical and operating strengths, Wheelabrator has firmly established its leadership role in conserving our nation's resources, preserving the environment and making available new sources of energy.

Wheelabrator Technologies Inc. is a unit of Waste Management, the industry's leading provider of comprehensive waste management services.

Wheelabrator McKay Bay Inc.
107 North 34th Street
Tampa, FL 33605

For tours please call: 813-248-1457
April 1, 2009

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Principal