The C.A. Lawton Co.
Green Tier Annual Report
September 27, 2013 through December 31, 2013

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INTRODUCTION:

The C.A. Lawton Co. (Calco) is a fifth-generation, family-owned grey and ductile iron foundry located in De Pere, Wisconsin. Calco differentiates itself by offering their customers integrated, value-added services that target simplifying the purchase of complex, large castings.

About the Company

Foundries are among society’s first recyclers. Metal casters take scrapped metal, melt it, and make new, saleable castings for today’s manufacturers. Recycling, along with other sustainable business practices—reuse, reduction, repair, and rejection, easily fit with the management philosophy of Calco.

Calco strives to be a conscientious corporate citizen and a positive member of the community. Calco takes its regulatory responsibilities “Beyond Compliance” by applying best management practices designed to protect storm water runoff, minimize air emissions, and manage waste.

In the recent past, Calco has taken an aggressive approach to energy conservation in its operations. Past energy-saving projects include installation of an energy draw limiter on the melting furnaces, replacement of outdated light fixtures, upgrade of the facilities’ compressed air system, and implementation of “plug method” technology for sand supply transportation.

The company believes in the virtues of sustainability and sensitivity to the environment, while balancing fiscal responsibility and corporate continuity. These continuous efforts are critical to success as a business, employer, and community member.

As a new participant in the Green Tier program, (DNR approval date – September 27, 2013) the company will incorporate an environmental management system (EMS). Through the EMS, Calco hopes to identify areas of improvement in energy and limited resource conservation, leading the company to meet or exceed sound environmental practices in all facets of its operations.
EXECUTIVE SUMMARY:

Being a member of Green Tier has only just begun, since our September acceptance into the program. However, the spirit of Green Tier is consistent with our corporate values of Honesty, Caring, Improving, and Success. Caring and Improving directly address the company’s commitment to its role as a conscientious corporate citizen and community member. As stated on the corporate website, “We care about our fellow stakeholders via safe and compliant operations,” and “We apply our experience, intellect, work ethic, and capital to continually improve our products, services, and processes.”

Environmental stewardship is fundamental in the way Calco runs its business. The company is focused on being an industry leader in sustainability and implementing cutting-edge business practices that respect limited resources. Calco strives to be a positive member of the community, and demonstrates that intent with programs that protect storm water runoff, air emissions, and waste management. Being a Green Tier business conveys that message to stakeholders publicly and recognizably.

The Company aggressively pursues opportunities for improvement, part of which include efforts to minimize the effects of its operations on the environment. The philosophy of management is to actively identify sources of waste; be it energy, materials, labor, space, by-products, efficiency, etc.; and determine how to reduce, reuse, or eliminate that waste. Calco methodically accomplishes this with various preventative maintenance programs, audits by independent entities, and educating its workforce to recognize improvement opportunities.

Prior to Green Tier membership, Calco took steps to improve the sustainability of operations. For example, the two compressed air systems were upgraded with variable-speed drive compressors to maximize energy efficiency and compensate for wide swings in compressed air demand; old halogen light fixtures were replaced with high-efficiency lighting, including certain administrative being equipped with motion-sensor light fixtures to save energy when areas are unoccupied. Other projects include replacement of the scrap metal pre-heater with a more efficient model, installation of an energy-draw limiter for the electric induction furnaces to manage peak energy demand, and utilization of heated
ambient air from the compressor room to heat the shakeout and sand reclamation building of the foundry.

Calco now diverts excess system foundry sand to beneficial reuse projects in nearby communities, where the material is used as sub-base for approved construction projects. Finally, in 2007-2008, the company invested in a combined casting shakeout and sand reclamation system. The new operation significantly reduces fugitive dust generation inside and outside the facility by automating and streamlining a manual process that previously took several operators to perform.

Since our experience as a Green Tier business is limited, Calco is experiencing a “learning curve”. Creating a dynamic EMS requires commitment. Going forward, we recognize the need to define objectives and targets with specific measurables so that we are better able to see results from our efforts.

**EMS AUDIT REPORT:**

The EMS has experienced some trial and error over the past few years and thus is partially in the development stages (again) but is on track to be complete and in place by November 1, 2014. The following activities are complete:

- Environmental Policy
- Environmental Aspects
- Requirements – Legal and Other
- Objectives and Targets
- Organizational Structure & Responsibility
- Emergency Preparedness and Response

The following elements remain:

- Documentation and Operational Control
- Document Control
- Monitoring & Measurements

And the following elements are in-process/continuous:

- Training, Awareness and Competence
- Communication
DESCRIPTION OF PROGRESS:

GREEN TIER OBJECTIVES & TARGETS:

On May 8th The Beyond Environmental Compliance (BEC) Team held its first meeting. The top priority of the team was to identify Objectives and Targets for our Green Tier application. The team set four (4) objectives, as listed below, and began working on them. Calco was accepted into the Green Tier program on September 27, 2013. Progress toward goals is through the end of the calendar year.

OBJECTIVE #1: To reduce the volume of waste foundry system sand and dependence on new sand supply, the BEC team will research the viability of installing a thermo-reclamation unit to supplement the current reclamation system for sand recycling. The team will present their findings to the Executive Team by September 30, 2013.

PROGRESS: BEC Team members (Facilities Superintendent and Compliance Coordinator) researched this option of sand reclamation from an applicability perspective and from a regulatory perspective. The process, which uses heat to remove remaining chemical binder residue from sand grains used to make casting molds, would be appropriate for use at the foundry. A new thermo-reclamation system would require significant capital investment of $750,000 and an overhaul of the casting shakeout and sand reclamation process flow.

The benefit of this process over the current attrition reclamation process would be the extension of sand life, which translates into reduced raw material demand. Both of these benefits translate to reduced costs, and reduced demand on natural resources, without compromising end product quality.

A current risk for this type of system is from a regulatory perspective. The concern lies with the interpretation of the thermo-reclamation process and whether or not it would meet the definition of a dryer or calciner. EPA Region V has interpreted the thermo-reclamation process equipment to qualify (Subpart UUU (40 CFR Part 60)), per AFS (American Foundry Society) legal representatives. Air emissions permitting and reporting requirements are significant with Calco’s existing air permit. Adding uncertain additional burden to the construction
permit application process and future reporting requirements may not offset savings of switching processes.

The Objective has been completed. Installing a thermo-reclamation sand process has been tabled, until business justifies the up-grade and uncertainty about its regulatory impact is clarified.

OBJECTIVE #2: To improve the environment and encourage a thriving natural habitat surrounding our facilities, we will make intelligent landscaping improvements by identifying and installing native trees and plants that are sustainable in our local ecosystem by the end of spring, 2014.

PROGRESS: As of December 31, 2013, the team discussed options available to improve the environment surrounding the facilities. Due to the winter season, progress on this objective was limited to brainstorming ideas for the spring. Some of the ideas under consideration include installing a variety of bird and bat houses, consulting a landscaper for identifying native trees and landscape proposal, and discussion of source alternatives for native trees.

Calco has long-term plans to expand the foundry facility. Related to those plans is the need to remove the berm along the north and west perimeter of the foundry property. The team/company needs to evaluate beneficial reuse opportunities for the material, as well as developing a plan to stabilize the remaining land.

OBJECTIVE #3: To save energy used to operate the compressed air system in production, the team will develop a management system to be implemented in all operations to minimize air leaks. Related to compressed air management, the team will investigate slow start options to reduce peak demand and battery-operated drills as an alternative to pneumatic drills. The program will be implemented by December 31, 2013.

PROGRESS: A team member from the maintenance department collected information about slow start compressed air systems and shared the information with the team. Calco currently has variable speed compressor systems in the foundry and in the machine shop to help manage fluctuations in compressed air
demand. Slow start options were too expensive at this time to justify the financial investment for the limited benefit. Team members decided to educate employees about the cost of compressed air leaks, how to prevent them, and how to fix them. In addition, a third party will perform an audit of the compressed air system annually.

Exploring battery-operated tools (drills) for the casting cleaning area has been a slower and more difficult process than anticipated. A separate group lead by the cleaning room supervisor and the foundry superintendent is exploring the viability of battery-powered tools for casting cleaning needs. The cleaning room operators have tested equipment several manufacturers, but have found the battery-powered tools to lack in performance. The separate team continues to work with suppliers to find tools that meet our needs.

**OBJECTIVE #4:** To improve energy efficiency for facility heating, the BEC team will explore options to recycle heated air through makeup air unit upgrades and/or heat exchanger/heat recovery for the foundry roof vents. In addition, the team will look at energy efficient options to preheat scrap metal. The team will provide its findings to the Executive Team by September 30, 2014.

**PROGRESS:** The purpose behind this objective is to decrease heating/natural gas costs at the foundry. Significant heated air is lost through the seven (7) roof vents and open overhead doors when moving materials. The roof vents play a critical role in exhausting particulate and volatile organic compounds, which impacts air quality for workers in the foundry. These contaminants also make it difficult to find a cost effective solution to recycling heated air.

After further investigation, recycling heated air back into the foundry is not a feasible option. Factors contributing to this infeasibility include incorporating air filtration systems for particulate and volatile organic compounds, extensive duct work, and a load study for the roof capacity. Until other economic air recirculation systems are developed, The C.A. Lawton Co. will implement other methods of cost containment, such as closing the roof vents over the weekend and shutdown periods when the building is vacant, install remote control door openers on material handling equipment to limit the time that overhead doors are open, and seal holes and leaks in the building.
SUSTAINABILITY METRICS:

See attached chart.

LOOKING AHEAD:

Calco’s commitment to sustainable business practices in its operations remains a priority. New areas to explore for potential opportunities include transportation options for employees, environmentally specific collaboration with key material suppliers, and increased stakeholder involvement. As a member of Green Tier, The C.A. Lawton Co. will reach out to other members to exchange ideas and projects. Together, we can continue to make an impact on protecting our limited resources, while maintaining viable businesses in our communities and in Wisconsin.

CONCLUSION:

The C.A. Lawton Co. is honored to be the first Green Tier foundry in Wisconsin. Even though our participation has been limited, our short experience has been valuable. We have pursued our objectives, recognized our limitations, and given direction to future projects.

We learned that thermo-reclamation is a viable option for our operations, but requires significant capital investment and regulatory clarification. We have plans to provide a thriving outdoor habitat for the local ecosystem with landscaping improvements. Through training and outside audits of our compressed air system, we have increased leak awareness and reduced costs associated with unchecked air system leaks. Finally, by exploring the possible methods of recycling heat lost through the foundry roof vents, we discovered ancillary issues that need to be addressed before undertaking such a project.

In 2014, Calco will continue with implementing an EMS, defining new objectives for the future, and communicating our accomplishments to our stakeholders and community. The BEC Team will draw upon the experience of other Green Tier member companies and DNR point of contact to enrich our Green Tier experience.