

ISO 14000 Family of Standards for Environmental Management

Darling Ingredients Inc. Alignment Position

North American Operations



The International Organization for Standardization (ISO) 14000 is a family of standards related to environmental management (EM) that exists to help organizations: a) minimize how their operations (processes, etc.) negatively affect the environment (i.e. cause adverse changes to air, water, or land); b) comply with applicable laws, regulations, and other environmentally oriented requirements; and c) continually improve in the above. It is a family of standards much like its predecessor ISO 9000 is the family of standards related to quality management. Both pertain to the process of how a product is produced, rather than the product itself. An EM System (EMS) is defined by ISO as: "... part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, and maintaining the environmental policy." The information provided herein was mostly obtained from the ISO website (Ref: www.iso.org).

Darling Ingredients Inc. (Darling) has a written environmental policy, as part of the Corporate "Environment, Health & Safety (HSE) Policy" published on the company website (Ref: www.darlingii.com).

At Darling Ingredients, we are committed to providing a safe and healthy workplace and limiting the impacts of our operations to the environment. This commitment is in the best interest of our customers, employees, stockholders and the communities in which we operate. We consider it our most basic obligation to comply with not only our company principles regarding HSE, but also all applicable laws and regulations that apply to our operations globally.

The Darling North American operations have not pursued certification under any of the ISO 14000 family of standards due to a lack of incentives/benefits from a regulatory, operational, and/or customer perspective. This white paper summarizes how Darling's environmental management practices align with the subject standards.

The current inventory of the ISO 14000 family of standards are as follows:

- ISO 14001 EMS - Requirements with guidance for use
- ISO 14004 EMS - General guidelines on implementation
- ISO 14005 EMS - Guidelines for a flexible approach to phased implementation
- ISO 14006 EMS - Guidelines for incorporating eco-design

- ISO 14015 EM - Environmental assessment of sites and organizations (EASO)
- ISO 14020 to 14025 Environmental labels and declarations
- ISO 14030 Green Bonds - Environmental performance of nominated projects and assets; discusses post-production environmental assessment
- ISO 14031 EM - Environmental performance evaluation - Guidelines
- ISO 14040 to 14049 EM - Life cycle assessment; discusses pre-production planning and environment goal setting
- ISO 14050 EM - Vocabulary; terms and definitions
- ISO 14062 EM - Integrating environmental aspects into product design and development
- ISO 14063 EM - Environmental communication - Guidelines and examples
- ISO 14064 Greenhouse gases; measuring, quantifying, and reducing greenhouse gas emissions

The ISO 14000 family includes most notably the ISO 14001 standard, which represents the core set of standards used by organizations for designing and implementing an effective EMS. Other standards in the 14000 family give additional guidelines for a good EMS and more specialized standards dealing with specific aspects of EM. The ISO 14000/14001 is based on a voluntary approach to environmental regulation with the key attribute being focused on the organization's environmental policy.

The current revision of the ISO 14001 standard is the 3rd Edition, published in 2015 (hereinafter ISO 14001:2015). The basic principles of ISO 14001:2015 are based on the Plan-Do-Check-Act (PDCA) cycle, where:

- Plan : Establish objectives and processes required
- Do: Implement the processes
- Check: Measure and monitor the processes and report results
- Act: Take action to improve performance of the EMS based on results

The PDCA cycle repeats as a Continual Improvement Process that expects the organization to gradually move away from merely operational environmental measures towards a more strategic approach on how to deal with environmental challenges. In fact, there are no specific requirements of ISO 14001 as to how an organization should go about implementing the standard. Instead, implementation will look for documented evidence that the organization has an effective EMS in place that is operating in line with the standard as described above. The ISO 14001:2015 standard does provide requirements as to what kind of documentation must be provided, but again, the documentation is tuned to the organization needs and environmental policy, and not to the ISO 14001:2015 standard itself. For example, the documentation would show all legal and compliance requirements are being met, environmental objectives have been assessed and set processes (internal, external, outsourced) have been defined, and training requirements to carry out the EMS have been assessed, implemented, and reviewed. (Ref: www.british-assessment.co.uk)

So, it is apparent from the above information that an audit of the EMS is the key to obtaining an ISO 14001:2015 standard certification. An EMS audit is a systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization’s EMS conforms to the criteria of the ISO 14001:2015 standard, and is communicating results to management. There is a plethora of information and checklists available for conducting auditing, including certifications of auditors.

The audit elements of ISO 14001:2015 are depicted below (note, 1.0, 2.0, and 3.0 are organizational descriptions, statement of environmental policy, and other general information).

The 14001:2015 Element Cycle



As stated above, the Darling North American operations are not ISO 14000/14001:2015 certified, nor does the Darling North American operations in any way claim to be; however, Darling believes its current business and operational practices, with its established EMS, closely align with the standard. The following list of items provides an example basis for this argument:

- Darling employs a staff of qualified professionals as its Environmental Affairs Department (EAD) for North America. These professionals hold engineering and science major degrees, often graduate degrees; and some of the staff are registered professional engineers. The

EAD is responsible for development and execution of practices to guide and support active compliance and improved environmental performance by the facility operations.

- Darling North American operations utilize a 3rd party computer software program called “Compliance Tracker” (CT). The CT system is an interactive program that includes inputs of all facility responsible personnel, all tasks required by regulatory rule and permit, and action dates; where the CT system automatically messages (email) users the task requirement, when do, and continues to message until the task is completed. As part of the program, the EAD reviews all rule and permits for actionable requirements as a task and inputs these tasks into the CT system; and these reviews are then verified by another EAD staff member as a rollout “audit”. Completions of tasks by the facility are verified by the EAD via review of incoming documentation and confirmation in the CT system before the task is closed. There are thousands of tasks in the CT system. This CT system drives the compliance of rule and permits with very high probability, provides documentation of compliance, and provides continuous improvement for affected users.
- The EAD staff is very familiar with facility operations and makes often and routine visits to the facilities for review and making sure facility management is comfortable with environmental responsibilities. EAD staff conduct mini-“audits” called Compliance Assistance Visits (CAVs), where findings from the CAV are discussed with facility management and actionable items developed to correct findings, with follow-up to ensure the items are completed.
- Facility management performs a quarterly management environmental inspection (QMEI) that is documented on a QMEI form. The QMEI includes actionable tasks required by certain air, water, and waste regulatory programs. as well as other environmental attributes. Facility management also performs other periodic inspections/assessments as determined by regulation or EAD to influence compliance or facility environmental improvement.
- The use of high carbon fuels (coal, heavy fuel oils) in many boilers at locations across the eastern U.S. has been transitioned to natural gas over the last 15 years, to where, there are currently no uses of these high carbon fuels (they are allowed by many permits as hedge fuels but have not been used since transitioning to natural gas). This was done primarily for operational purposes at high capital cost to Darling for installations of natural gas pipelines and combustion equipment. The environmental improvements that occurred were significant reduction of criteria pollutant and greenhouse gas (GHG) air emissions.
- Numerous anaerobic wastewater treatment processes have been contained (covered) for the collection of high methane gases for subsequent destruction by combustion. This was done primarily as odor mitigation efforts. The environmental improvements that occurred were significant improvement in anaerobic digestion performance and reduction of GHG air emissions.
- Although many locations have RCRA identification numbers left from previous needs for hazardous waste disposals, the numbers are now mostly moot. All locations in North America are Very Small Quantity Generators status, where many used to be higher

classifications. This was accomplished through improvement practices to reduce generation of hazardous wastes.

- Residuals reported under CERCLA Section 313 Form R have decreased over the years due to improved operational practices.
- Storm water discharge quality from operational locations has improved significantly over the last 10 years due to operational practices, implementation of improved Best Management Practices (BMPs), and management of BMPs including routine facility management inspections.
- Process air emissions have been improved with deployment of better wet scrubbing and thermal oxidation technologies. This was done primarily as odor mitigation efforts at high capital cost to Darling. The environmental improvements that occurred were significant reduction of criteria pollutant and GHG air emissions.
- Wastewater treatment performance has improved with deployment of better state-of-art technologies. This was done primarily to meet demands of facility loadings. The environmental improvements that occurred were significant reduction in energy demand, operating costs, and final nitrogen nutrient emissions.

The ISO 14001:2015 standard, as discussed above, would require qualitative and quantitative documentations of the above examples to demonstrate the improvements and continuous improvements. For these items, and other of the many items not shown above that Darling engages in as part of environmental stewardship, there have never been the need for a comprehensive roll-up of all the data. There has been a significant data roll-up as part of the recent Sustainability platform that the organization has developed, and, each facility's environmental permits (for construction and operations) for air and water would all include detailed discussions of emissions quantification and improvements.

In closing, although the Darling North American operations are not ISO 14001:2015 certified, Darling's practices closely align with the requirements of the standard.