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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711



November 29, 2013

Kikkoman Foods Inc.
Attn: John Raymond EHS Coordinator
N1365 Six Corners Road
Walworth, WI 53184

Subject: Welcome to Green Tier

Dear John:

Congratulations! We are glad to welcome you into Green Tier. You join a group of companies who are not only committed to superior environmental performance but also to superior economic performance.

In recognizing your past accomplishments and future commitments we promise to work towards promoting and recognizing your facility for taking the lead in environmental protection while assuring economic stability and growth. We are committed to publicizing Kikkoman Foods Inc. as a Green Tier participant on the DNR website. Undoubtedly, there will be other opportunities to bring the attention of your accomplishments to the forefront, and we hope to assist you in any manner possible in doing so as a Green Tier partner.

Bryan Hartsook has been assigned as your single point of contact. He can be reached at 262.574.2129 or at Bryan.Hartsook@wisconsin.gov. Please contact Bryan with any questions concerning communications, required approvals, or technical assistance you may need. For your convenience the attached guidance outlines your benefits and important dates that affect your participation.

On behalf of the Wisconsin Department of Natural Resources, I am proud to extend this welcome to you. We are committed to working with you to build a customized relationship under the Green Tier Program. I am excited to embark on our new relationship and my staff is ready to assist as your business grows.

Sincerely,

/s/ Cathy Stepp

Cathy Stepp
Secretary

Attachments: Green Tier Commitment Outline
 Green Tier Logo Files and Guidance CD

Green Tier Commitment Outline for Kikkoman Foods, Inc. – Walworth WI

Approval Date – November 29, 2013

Commitment Outline Updated: 02-18-2020

The updates since participation started are:

- Change of project coordinator
- Updated general content, format and links

I. Environmental Management Systems (EMS) & Audit Requirements

Your EMS must either be ISO-certified, or you must demonstrate that it is functionally equivalent. For information on how to demonstrate the functional equivalency of your EMS, please see: <https://dnr.wi.gov/files/PDF/pubs/co/CO503.pdf>

You have supplied us with a copy of your ISO 14001 certification, satisfying initial Green Tier EMS requirements.

To maintain good standing with Green Tier EMS requirements:

- A. On or before, **April 1, 2014** and every year after that, you must perform an environmental management system audit. The department recommends that your first audit be completed by a DNR-approved outside environmental auditor.
- B. On or before, **April 1, 2016** and every third year, this audit **must** be completed by a DNR-approved outside EMS auditor. The list of approved auditors can be found at: <https://dnr.wi.gov/topic/GreenTier/Auditors.html>

II. Provide an Annual Report

- A. **Annual Report Due Date** - We have mutually agreed that the deadline for your Green Tier annual report is **April 1, 2014** and annually thereafter. (Please feel free to discuss alternative reporting dates with your Project Coordinator, JenniferA.Birkholz@Wisconsin.gov should your needs change.)
- B. **Reporting on Environmental Performance Commitments:** Your first report should follow the annual report instructions provided below and should provide data on your progress toward meeting your environmental performance commitments laid out in your Green Tier application or your previous year's Green Tier annual report.
- C. **Annually**, you will need to report progress on the commitments that you have made. For more details about annual reports and metrics, see the annual report instructions provided on the website; <https://dnr.wi.gov/topic/GreenTier/ReportInstructions.html>
- D. Please submit Green Tier Annual Reports to: GreenTier@Wisconsin.gov and your Single Point of Contact (SPOC), Bryan.Hartsook@Wisconsin.gov.

III. Work toward Superior Environmental Performance

Implement environmental improvements that aim to achieve Superior Environmental Performance as defined in Green Tier law. This means environmental performance that results in measurable or discernible improvement in the quality of the air, water, land,

or natural resources, or in the protection of the environment, beyond that which is achieved under environmental requirements. More information on Superior Environmental Performance can be found here:

<https://dnr.wi.gov/topic/GreenTier/SuperiorEnvironmentalPerformance.html>

IV. Green Tier - Tier 1 – DNR Commitments

- A. **Single Point of Contact (SPOC):** Your single point of contact or SPOC is your liaison to the department, answering your questions or making connections within DNR or with other experts. Your SPOC is: Bryan Hartsook, Phone 414-263-8512, Cell 414-607-2275, Bryan.Hartsook@Wisconsin.gov

- B. **Green Tier Logo:** Green Tier participants may use the Green Tier logo on stationery, promotional and educational materials related to your facility. Logo files as well as the Green Tier Style Guide with additional guidelines and information are available online at: <https://wi-dnr.widencollective.com/portals/nkc57xuv/GreenTierBranding>. Your Project Coordinator can provide you with the current access code.

- C. **Recognition:** Along with the certificate of recognition, the department will host a [participant web page](#) for easy reference. Participants should provide information and pictures on their environmental efforts to populate the webpage. We will also promote your successes throughout your tenure in Green Tier using a variety of DNR communication channels.

- D. **Project Coordinators:** You should also feel free to contact your Project Coordinator for Green Tier specific information. Project Coordinators provide support to SPOCs and participants providing reminders on Green Tier requirement dates and by promoting a participant's successes. Your project coordinator is: Jenni Birkholz, Phone 608-266-8226, Cell 608-514-2182, JenniferA.Birkholz@Wisconsin.gov

- E. **Minimum Inspection Frequency:** Because you have implemented an EMS, you are entitled to inspections at the lowest frequency permitted by the programs under law. The department will work with you to determine how this will work for you.

- F. **Deferred Civil Action:** You are entitled to Deferred Civil Enforcement as described in statutes (299.83(6m)(d)). If you discover a violation of an existing environmental requirement, you are entitled to protection from any civil penalties that the department might otherwise impose if you:
 - 1. Notify the department
 - 2. Provide a corrective action plan and documentation of your Environmental Management System (EMS) adjustments that ensure the violation will not happen again, and
 - 3. Correct the violations within 90 days

Notice: Collection of this information is authorized under s. 299.83 Wis. Stat. Participation in Green Tier and completion of this form are voluntary. Personal information collected on this form, including such data as your name, address, phone number, etc., will be used in the implementation of Green Tier and will be made broadly available under the Green Tier program. Information will also be made accessible to requesters under Wisconsin's Public Records Law (ss. 19.32 – 19.39, Wis. Stats.). If you need to request confidential treatment of any information in order to protect a trade secret, please contact a DNR representative *prior* to submitting this form. Applications must be considered complete by the DNR in order to be processed. For complete application instructions, see "Green Tier Application Instructions," publication number CO-501.

This application is for... (check one): Tier 1 Tier 2 (attach Letter of Intent to this form)

I. Applicant Information

Contact Name Jon Raymond	Title EHS Coordinator		
Street Address N1365 Six Corners Road	City Walworth	State WI	ZIP Code 53184
Telephone Number 262-275-1617	Fax Number 262-275-1326	E-mail Address jraymond@kikkoman.com	

II. Facility Information

Facility Name Kikkoman Foods, Inc	County Walworth		
Street Address N1365 Six Corners Road, PO Box 69	City Walworth	State WI	ZIP Code 53184
Mailing Address	City	State	ZIP Code

Please provide all DNR Facility Identification numbers (FID #) that apply to the covered facility or activity.

III. Scope of Green Tier Participation (check one)

- This application covers all activities at the facility listed in Section II.
- This application covers all activities at more than one facility. For each facility to be covered under this application provide the information from Section II on a separate page labeled **Attachment 1**.
- This application **does not** cover all activities at every covered facility. Please describe the exact scope of activities and facilities to be covered in the program on a separate page labeled **Attachment 1**.

IV. Environmental Performance

Please provide the following information on a separate page labeled **Attachment 2**. Refer to the *Application Instructions* for definitions of environmental performance and superior environmental performance.

Tier 1 Applicants:

- Describe your past and current environmental performance with respect to each covered facility or activity included in this application. Within this attachment establish a baseline date against which future progress can be measured.
- Describe your future plans for enhancing the environment with respect to the same facilities/activities.

Tier 2 Applicants:

- Provide information demonstrating your record of superior environmental performance. Within this attachment establish a baseline date against which future progress can be measured.
- Describe the measures you propose to take to maintain and improve your superior environmental performance.

V. Environmental Management System (EMS)

- a. Have you implemented an EMS that is certified to the ISO 14001 standard? **Yes** No (circle one)
- b. Have you implemented an EMS that is functionally equivalent to ISO 14001? **Yes** No (circle one)

If you circled "No" for both questions, you are not eligible for Tier 2. Please proceed to Section VI only if you are applying for Tier 1.

If you circled "Yes" for either question, please provide a copy of the following documents labeled as **Attachment 3**:

- Proof of ISO 14001 certification OR functional equivalence (refer to *Application Instructions* for details)
- Environmental policy statement and scope statement
- Documented objectives and targets for the covered facilities/activities

VI. Public Involvement

Please provide in a separate document labeled **Attachment 4** a list of interested persons whom you know or expect will have a strong interest in your Green Tier application. Tier 2 applicants must provide additional information about interested person involvement in a Letter of Intent. Refer to *Application Instructions* for details.

VII. Enforcement Record

Please review the Enforcement Record requirements described in the *Application Instructions* very carefully, and then check the appropriate box:

All enforcement record requirements relevant to this application are satisfied.

All enforcement record requirements relevant to this application are **not** currently satisfied. A waiver of the enforcement record requirements is requested.

If a waiver is requested, please provide information describing any requirements not met and a justification for the waiver request on a separate page labeled **Attachment 5**. Note that waivers will be granted only in exceptional circumstances.

VIII. Tier 1 Applicant Statement of Commitments

I commit with my signature to the following statements and certify that all information provided in this application is true and correct under penalty of law:

- Implement, within one year of the date of this application, an EMS for each covered facility or activity that is certified to the ISO 14001 standard or is functionally equivalent to ISO 14001 as determined by DNR.
- Conduct annual EMS audits, with every 3rd EMS audit performed by a DNR-approved outside environmental auditor.
- Submit to DNR an annual report on each EMS audit that is in compliance with s. 299.83(6m)(a), Wis. Stats.
- Submit to DNR an annual report on progress towards meeting objectives related to improved environmental performance for aspects regulated under chs. 29 to 31, 160, or 280 to 299, Wis. Stats., unregulated environmental aspects, or voluntary actions to restore, enhance, or preserve natural resources.

Applicant Signature

Date Signed

IX. Tier 2 Applicant Statement of Commitments

I commit with my signature to the following statements and certify that all information provided in this application is true and correct under penalty of law:

- Conduct annual EMS audits performed by a DNR-approved outside environmental auditor.
- Conduct or have another person conduct an annual audit of compliance with environmental requirements that are applicable to the facilities and activities covered under Green Tier.
- Submit to DNR an annual report on each EMS audit that is in compliance with s. 299.83(6m)(a), Wis. Stats.
- Submit to DNR an annual report on each compliance audit that is in compliance with s. 299.83(6m)(a), Wis. Stats.

Applicant Signature

Date Signed

X. For Department Use Only

Date Received	Initials of Reviewer	Status	Date Returned to Applicant for Additional Information	Date Denied	Date Approved

April 30, 2013

Kikkoman Foods Inc. respects the workings of nature and is committed to maintaining a clean, healthy environment as an important part of our business. We are not only dedicated to the production of a highest quality product for our customers, but are diligent in searching for and utilizing environmentally responsible practices for the benefit of the surrounding communities. KFI ensures management and employees are dedicated to the following three commitments: Compliance, Prevention and Continuous Improvement.

Kikkoman Corporation initiated the requirement to have their manufacturing facilities all achieve ISO 14000 certification. In June of 2002, KFI, Walworth, Wisconsin, received the ISO 14000 certification from Perry Johnson Registrars, an accredited auditing firm located in Troy, Michigan. KFI has maintained the ISO 14000 certification.

KFI's first environmental goal is to maintain compliance with all federal, state and local environmental regulations. KFI holds all necessary environmental permits for its Wisconsin manufacturing facility. KFI annual has a third party environmental consulting firm perform an environmental regulation compliance audit. The external regulatory compliance audit is a key component to maintaining compliance with the numerous environmental regulations. A demonstration of KFI's commitment to the environment is the facility holds a synthetic minor air operating permitting. During the process agreed KFI accepted federally enforceable more restrictive air emissions limits on its operation. KFI maintains compliance with this air permit.

KFI waste management practice is to prevent pollution and keep as much waste material out of the landfills as possible. KFI currently has an extensive recycling and reuse program. We track and report our waste based on our fiscal calendar year. Our waste to recycling ratio for FY 2011 was 0.149, FY 2012 was 0.112 and for FY 2013 was 0.093. Our waste materials where ever possible are sold for beneficial reuse as animal feed or bio diesel. We utilize a number of vendors to properly process our other recyclable materials. We recycle plastic bottles, metal cans, plastic drums, plastic pails, plastic banding, stretch wrap, super sacks, cardboard, label paper, nylon cloth, office paper, pallets, scrap metal, and other materials.

KFI tracks energy consumption. This year the facility used 25,336,800 KWH of electricity and 2,388,447 therms of natural gas. We convert these units into metric tons of CO2 and compare our performance to a three year rolling average. This year we did not meet our goal to reduce CO2 annually by 1%. Our performance increased to 106% of plan. We also internally track natural resource usages based on production volume. We strive to reduce water and wastewater volumes. KFI operates groundwater wells. FY 2013 KFI pumped 136,929,637 gallons water and discharged 2,705,730 gallons wastewater. KFI sends 1,500,000 gallons of wastewater offsite for treatment because of incompatibility with the POTW. KFI sends approximately 45,000,000 gallons of clear water under a general WPDES permit to the seepage pond.

Future environmental performance for KFI is to continually improve. KFI annually sets environmental objectives and targets. The objectives and targets align with our environmental policy. Typically KFI set four to six plant wide objectives and targets each year. An example of one objective set for FY 2013 was to reduce packaging material. The target was five or more packaging groups. The outcome was a reduction of 582,000 pounds of cardboard and 56,000 pounds of plastic.

Management holds all departments accountable for achieving the facility's environmental goals. KFI will continue to look for ways to reduce its impact on the environment related to the above mentioned metrics.

KIKKOMAN FOODS, INC.	SECTION 2.0	CORPORATE MANUAL
	2.0 ENVIRONMENTAL POLICY STATEMENT	Page 1 of 1

KIKKOMAN FOODS, INC.

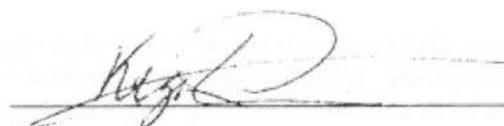
ENVIRONMENTAL POLICY STATEMENT

Kikkoman Foods, Inc. respects the workings of nature and is committed to maintaining a clean, healthy environment as an important part of our business. We are not only dedicated to the production of a high quality product for our customers, but are diligent in searching for and utilizing environmentally responsible practices for the benefit of the surrounding communities. In addition to making this policy available to the public, we will ensure that our management and employees alike adhere to this plan through training and dedication to the following three commitments:

COMPLIANCE - Kikkoman Foods, Inc. will be committed to comply with all applicable federal, state and local environmental legislation and regulations, and with other requirements to which the organization subscribes as related to our Environmental Aspects. We will also establish, observe and communicate our own policies/procedures involving suppliers, contractors and customers in environmental initiatives to further assure compliance.

PREVENTION – Kikkoman Foods, Inc., will show its commitment to the surrounding community by managing its facility and property in an environmentally accountable manner. This includes all on-site activities involved in the production of soy sauce and other related products, manufactured at both Kikkoman Foods, Inc’s Wisconsin and California facilities. We will prevent pollution before it is produced, reduce the use of natural resources, utilize effective waste management and disposal procedures and promote recycling to protect the environment.

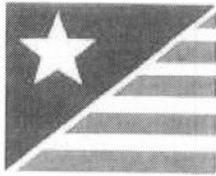
CONTINUAL IMPROVEMENT- Above all, Kikkoman Foods, Inc. will work to improve all efforts to keep in harmony with the environment through identifying and reviewing environmental objectives and targets on a continual basis.



 Kazuo Shimizu
 President and Chief Executive Officer

Approved By	Kazuo Shimizu, Pres / CEO	Issue Number: 0.6
Prepared By	Jon Raymond, Corporate EMR	Issue Date: 02/01/12

CONTROLLED DOCUMENT – UNCONTROLLED IF PRINTED



PERRY JOHNSON REGISTRARS, INC.

Certificate of Registration

*Perry Johnson Registrars, Inc., has assessed
the Environmental Management System of:*

Kikkoman Foods, Inc.

Headquarters - N1365 Six Corners Road, Walworth, WI 53184 United States

(This location is a participant in a multisite registration. See Appendix.)

*(Hereinafter called the Organization) and hereby declares that
Organization is in conformance with:*

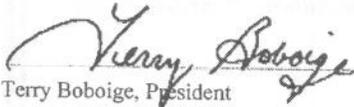
ISO 14001:2004

This Registration is in respect to the following scope of supply:

***Production of Soy Sauce, Less Sodium Soy Sauce, Teriyaki and
Other Related Products, including Dehydrated Soy Sauce***

Such products shall be manufactured by the Organization at, or such processes or services shall be offered at or from, only the address given above. This Registration is granted subject to the system rules governing the Registration referred to above, and the Organization hereby covenants with the Assessment body duty to observe and comply with the said rules.

For PJR:


Terry Boboige, President

Perry Johnson Registrars, Inc. (PJR)
755 West Big Beaver Road, Suite 1340
Troy, Michigan 48084
(248) 358-3388



PERRY JOHNSON
REGISTRARS, INC.

The validity of this certificate is dependent upon ongoing surveillance and fulfillment of required sampling of sites.

Effective Date:
July 1, 2011

Expiration Date:
June 30, 2014

Certificate No.:
C2011-01359



PERRY JOHNSON REGISTRARS, INC.

Appendix

*Kikkoman Foods, Inc.
Headquarters - N1365 Six Corners Road,
Walworth, WI 53184 United States*

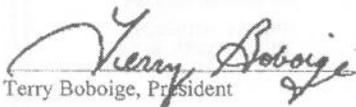
*C2011-01359
ISO 14001:2004*

*Kikkoman Foods, Inc.
1000 Glenn Drive,
Folsom, CA 95630 United States*

*C2011-01359-001
ISO 14001:2004*

*Production of Soy Sauce, Less Sodium Soy Sauce, Teriyaki and Other Related Products, including Dehydrated Soy
Sauce*

For PJR:


Terry Boboige, President

Page 1 of 1

Perry Johnson Registrars, Inc. (PJR)
755 West Big Beaver Road, Suite 1340
Troy, Michigan 48084
(248) 358-3388

The validity of this certificate is dependent upon ongoing surveillance and fulfillment of required sampling of sites.

OBJECTIVES & TARGETS FOR FISCAL YEAR 2014 (April 13 - March 14)

KIKKOMAN FOODS, INC - WI PLANT

<u>POLICY</u>	<u>OBJECTIVE</u>	<u>TARGET</u>
<u>Prevention</u>	Achieve WDNR Green Tier Certification	Achieve Green Tier certification by the WDNR before December 2013
	Reduce CO Water Shipped Off Site	Reduce CO water volume shipped off site by 3% compared to volume shipped during FY 2013
	Reduce CO2 Emission	Reduce CO ₂ emission by 1% to three year rolling average of natural gas and electricity Metric Tons
	Reduce Waste Water Discharge To Process Sewer	Discharge 10% Less wastewater than FY 2011 over next 3 years. (FY2014 - year 3)

* Koji, Brine, Moromi, Soy Sauce, and other sauces
Environmental impact = water or soil impact outside of plant

OBJECTIVES & TARGETS FOR FISCAL YEAR 2013 (April 12 - March 13)

KIKKOMAN FOODS, INC - WI PLANT

<u>POLICY</u>	<u>OBJECTIVE</u>	<u>TARGET</u>
<u>Prevention</u>	Reduce Waste to Landfill	Each Department implement two projects from 4Rs - (refuse,recycle,reuse or reduce)
	Reduce Packaging Materials	5 or More Projects
	Reduce Spills to Environment	Complete installation of standardizing tank containment by December 2012
	Reduce CO2 Emission	Reduce CO ₂ emission by 1% to three year rolling average of natural gas and electricity Metric Tons
	Reduce Waste Water Discharge To Process Sewer	Discharge 10% Less wastewater than FY 2011 over next 3 years. (FY2013 - year 2)

* Koji, Brine, Moromi, Soy Sauce, and other sauces
Environmental impact = water or soil impact outside of plant



Objectives & Targets: Objectives and Targets List

Find List All Add Entry Overdue Delete

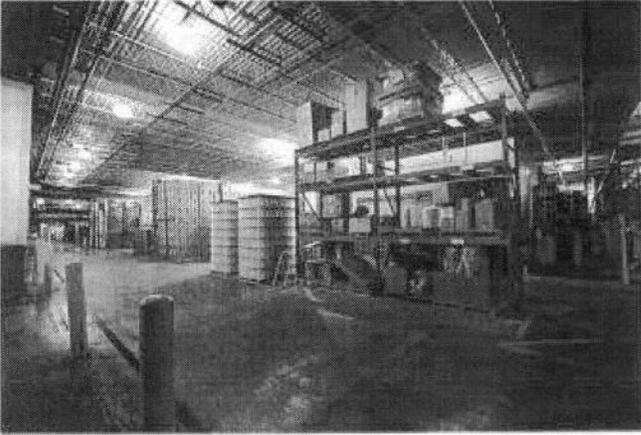
Exit

Record No.	Location	Objective	Target	Person Responsible	Target Date	Completion Date	Select
00045	KFI-WI	Reduce CO2 emissions	Reduce CO2 emissions by 1% to three year rolling average of natural gas and electricity - metric tons	Raymond, Jon	Sunday, March 31, 2013	Sunday, March 31, 2013	
00046	KFI-WI	Reduce waste water to discharge to process sewer	Discharge 10% less wastewater than FY 2011 over next three years (FY2013 year 2)	Raymond, Jon	Sunday, March 31, 2013	Friday, March 29, 2013	
00042	KFI-WI	Reduce Waste to Landfill	Implement projects from 4Rs - refuse, recycle, reuse or reduce	Raymond, Jon	Sunday, March 31, 2013	Friday, March 29, 2013	
00043	KFI-WI	Reduce Packaging Materials	5 or more projects	Raymond, Jon	Sunday, March 31, 2013	Wednesday, March 27, 2013	
00044	KFI-WI	Reduce spills to the environment	Complete installation of standardizing tank containemnt by December 2012	Raymond, Jon	Sunday, March 31, 2013	Monday, November 19, 2012	
00034	KFI-WI	Reduce Product Spills	Reduce spill of environmental impact to 2 or less.	Raymond, Jon	Saturday, March 31, 2012	Saturday, March 31, 2012	
00035	KFI-WI	Reduce Packaging Material	4 or more projects	Raymond, Jon	Saturday, March 31, 2012	Saturday, March 31, 2012	
00036	KFI-WI	Reduce water Usage	reduce water usage by 2% compared to FY 2011 volume. Water 4.43 m3/KL soy sauce	Raymond, Jon	Saturday, March 31, 2012	Saturday, March 31, 2012	
00037	KFI-WI	Reduce CO2 Emission	Reduce CO2 emission by 1% or 274 metric tons of CO2 as compared to three year rolling average of natural gas and electricity.	Raymond, Jon	Saturday, March 31, 2012	Saturday, March 31, 2012	
00038	KFI-WI	Reduce wastewater discharge to process sewer	Discharge 10% less wastewater than FY 2011 over next three years	Raymond, Jon	Saturday, March 31, 2012	Saturday, March 31, 2012	
00027	KFI-WI	Increase production efficiency	One or more actions taken in each department	Raymond, Jon	Thursday, March 31, 2011	Thursday, March 31, 2011	
00028	KFI-WI	Reduce product spills	Less than 6 spills Liquid - Volume/spill < 800 gal/spill Solid - Volume/spill < 1850 lbs/spill	Raymond, Jon	Thursday, March 31, 2011	Thursday, March 31, 2011	
00029	KFI-WI	Reduce Packaging Materials	3 or more projects	Raymond, Jon	Thursday, March 31, 2011	Thursday, March 31, 2011	
00030	KFI-WI	Reduce Natural Resources Usage	Use less natura; resources than FY 2010 WATER-less than 4.05 m3/KL of Soy Sauce ELECTRIC-less than 209.4 KWH/KL of Soy Sauce	Raymond, Jon	Thursday, March 31, 2011	Thursday, March 31, 2011	
00023	KFI-WI	Reduce natural resource usage	Use less natural resources than FY2009- Water 4.3.146 Gal/Gal Soy Sauce Electricity 0.8020 KWH/Gal Soy Sauce Natural Gas 0.0808 Therms/Gal of Soy ...	Raymond, Jon	Wednesday, March 31, 2010	Wednesday, March 31, 2010	



SYLVANIA Lighting Services – Manufacturing/Warehouse Retrofit Case Study

BEFORE



AFTER



Case Study Overview:

- Kikkoman Foods, Inc.
- Manufacturing, Warehouse and Office space.
- Metal Halide & T12 retrofit to T5's.
- Retrofitted 3,100 lighting fixtures.

Benefits:

- Reduced energy usage from 2,744,196 kWh to 1,517,334 kWh per year.
- Retrofit to T5's saved energy cost of over \$97,000 annually.
- Utility rebates received \$67,000.

Environmental:

- One year after the retrofit Kikkoman's has reduced its impact on the environment by saving:
 - 8,248 lbs of sulfur dioxide.
 - 2.3 million lbs of carbon dioxide.
- Pollution equivalent to removing 131 cars from the road.

OSRAM SYLVANIA HELPS KIKKOMAN SAVE MONEY, ENVIRONMENT

Soy sauce producer retrofits its first American plant with energy efficient lighting

SITUATION:

One of the world's oldest branded companies, Kikkoman, has grown from its humble beginnings in the 17th century to become the leading producer of soy sauce in the world, and a major international provider of food and beverage products. The company attributes its success to the widespread popularity and versatility of its original product, naturally brewed Kikkoman Soy Sauce. Established in the U.S. in June 1972, Kikkoman Foods, Inc. has become more than just a manufacturer of food products. Throughout its existence, Kikkoman has embraced a commitment to its local communities and to environmental protection, becoming a leader in the concept of corporate citizenship and responsibility.



SYLVANIA Lighting Services – Manufacturing/Warehouse Retrofit Case Study

As part of this commitment, Kikkoman established the need to reduce energy consumption at its Walworth, Wisconsin plant, Kikkoman Foods, Inc. – the company's first soy sauce production facility in the United States. Part of this pledge for energy efficiency called for Kikkoman to upgrade its dated lighting systems at the plant. The goals of this retrofit would not only be energy reduction, but also a reduction in maintenance costs, an improved overall lighting quality, and as a result, an improved facility appearance.

“All of us at Kikkoman were thrilled with SYLVANIA Lighting Services’ retrofit of our Walworth, Wisconsin soy sauce plant,”

**Jere Marheine
Electrical Engineering supervisor
Kikkoman Foods, Inc.**

RETROFIT:

To accomplish these goals, Kikkoman Foods, Inc. (KFI) turned to SYLVANIA Lighting Services (SLS), a subsidiary of OSRAM SYLVANIA and the industry leader in lighting service and maintenance with 40 years of experience.

“SLS was designed to take an all-encompassing approach to finding the perfect solution(s) to our clients’ lighting needs. Kikkoman was looking for a way to both reduce energy costs and limit their impact on the environment. We took a 360-degree look at the issues and were able to find an extremely effective and extremely affordable solution,” Mike Pavlovich, executive account representative for SYLVANIA Lighting Services, said.

SLS experts first examined and assessed the Kikkoman facilities, determining that the 400-watt (W) metal halide lamps and the T12 linear fluorescent lamps in place could easily be retrofitted with SYLVANIA’s more energy-efficient PENTRON® ECO® T5 Linear Fluorescent Lamps and OCTRON® F032 ECOLOGIC® T8 Linear Fluorescent Lamps. This seemingly minor change would allow for a phenomenal reduction in electrical energy usage, reduced maintenance costs, and an improved quality of the overall lighting and facility appearance.

“Based on Kikkoman’s goals, the ECOLOGIC T5’s and T8’s were the only logical choices for us to use,” Gene Scholler, service supervisor for SYLVANIA Lighting Services, said.

SYLVANIA Lighting Services – Manufacturing/Warehouse Retrofit Case Study

"The ECOLOGIC line was designed as a thorough approach to reducing the environmental impact of SYLVANIA's processes, packaging, and products. The T5's and T8's installed use welded lamp bases, lead-free solders in those bases, lead-free glass, and contain a low mercury-content. They are high performance, high efficacy, and long-lasting products that align perfectly with Kikkoman's financially and environmentally-responsible lighting vision."

Beginning the project in late 2007, the SLS team retrofitted 3,000 lighting fixtures both inside and outside the Kikkoman Walworth, Wisconsin plant. The end results were astounding.

From an energy standpoint, the retrofit was successful in reducing the plant's lighting load by 45-percent from 2,744,196 kWh to a mere 1,517,334 kWh per year. Financially speaking, the change from 400W metal halides to the energy-efficient lamps is anticipated to result in a yearly savings of over \$97,000.

On the maintenance end, SYLVANIA's handling of recycling and disposal of lighting products, as well as of lighting maintenance, and a minimized spare-parts inventory as a result of using longer-lasting lamps, further offered over \$10,000 in savings each year.

In addition, the retrofit drastically improved the quality of the plant's overall lighting. The new lamps limited glare, reduced dust and dirt accumulation, offered higher overall Foot Candles throughout the facility, and improved general lighting control.

As a result, the facility's appearance improved dramatically, making it not only appealing from an energy vantage, but also from an aesthetic one.

Most importantly, however, Kikkoman was able to achieve its overall corporate goal of reducing its impact on the environment. Only one year after its upgrade, Kikkoman saved nearly 8,248 lbs. of sulfur dioxide (the main contributor to acid rain) and nearly 2.3 million lbs. of carbon dioxide (a contributor to climate change) from being emitted into the environment. This reduction in pollution is equivalent to removing 131 cars from the road. Further, Kikkoman has received utility rebates over \$67,000 for taking the initiative and successfully "greening" the plant's lighting system.

"All of us at Kikkoman were thrilled with SYLVANIA Lighting Services' retrofit of our Walworth, Wisconsin soy sauce plant," Jere Marheine, electrical engineering supervisor for Kikkoman Foods, Inc., said.

"We wanted to do something that would offer us not only financial benefits but would also allow us to help defend and protect the environment from needless waste. Using SYLVANIA's ECOLOGIC line of T5 and T8 linear fluorescent lamps was a fantastic way of turning our vision into a reality," Marheine said.

SYLVANIA Lighting Services – Manufacturing/Warehouse Retrofit Case Study

In the end, SYLVANIA's lighting retrofit of Kikkoman Foods Inc.'s Walworth, Wisconsin plant saved the soy sauce company over \$97,000 in energy costs in just the first year. The project is expected to pay for itself in less than three years, while creating a major reduction in energy and maintenance costs, a better quality of lighting at the plant, which allows for a better-looking facility, and a way for Kikkoman to further improve upon its admirable corporate commitment to preserving the global environment.

SUMMARY:

LOCATION: Kikkoman Foods, Inc. Plant in Walworth, Wisconsin

PRODUCTS: Existing 400W metal halide lamps were replaced with new fixtures, employing PENTRON ECO T5 Linear Fluorescent Lamps. Existing F40T12 and F96T12/HO were replaced with SYLVANIA OCTRON FO32/XPS/ECO T8 Linear Fluorescent Lamps.

About Kikkoman Foods Inc.:

Since 1957, KIKKOMAN SALES USA, INC., the marketing company for Kikkoman products to the retail, foodservice and food manufacturing industries, has expanded from its corporate headquarters in San Francisco, California, to six regional sales offices. Our production facilities, Kikkoman Foods, Inc., in Walworth, Wisconsin, and Folsom, California, produce soy sauce and other convenient Asian-style sauces for distribution in the United States and Canada. Kikkoman's 10 distribution centers and two plants ensure availability of consistently fresh products. Visit www.kikkomanusa.com for more information.

About OSRAM SYLVANIA:

OSRAM SYLVANIA is a leader in lighting solutions and specialty products that feature innovative design and energy saving technology. The company sells products for homes, businesses and vehicles primarily under the SYLVANIA brand name, and also under the OSRAM brand. Headquartered in Danvers, Mass., OSRAM SYLVANIA is the North American operation of OSRAM GmbH, a wholly owned subsidiary of Siemens AG. For more information, visit www.sylvania.com.

ABOUT SYLVANIA LIGHTING SERVICES:

SYLVANIA LIGHTING SERVICES (SLS) is the industry leader in turnkey energy management programs for interior and exterior lighting systems as well as preventive maintenance programs. With over 35 years of experience, the company provides dedicated lighting design capabilities, the best delivery of services, access to new energy-efficient lighting products, and a computer-routed national service fleet. SLS offers customers a single point of contact for all of their lighting needs, including recycling. A subsidiary of OSRAM SYLVANIA, SLS is a national company and is headquartered in Danvers, Massachusetts. For more information, please refer to our website at: www.sylvania.com/sls.

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