



CLEAN GREEN®

Standard for Clean Green Certification

June 4, 2020

1. Scope

1.1 Purpose – The purpose of this standard is to identify and define sustainable laundry Best Management Practices (BMPs) which are used in commercial laundry facilities to reduce their impact on the environment.

1.2 It is recommended that users rely on professional judgment informed by both environmental expertise and specific knowledge of the intended use of the standard. This standard provides instruction on interpretation of the data obtained. Interpretation of the data results in a determination whether a laundry implements enough BMPs to be certified as Clean Green.

1.3 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.4 The users of this standard include laundry professionals and inspectors who possess a broad understanding of environmental issues related to the operations and maintenance of laundry facilities.

2. Referenced Documents

2.1 ASTM Standards

E2107 Standard Practice for Environmental Regulatory Compliance Audits

3. Terminology

3.1 Definitions:

3.1.1 *Best Management Practices, n* - Structural, nonstructural and managerial techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing pollution) while making the optimum use of the firm's resources.

3.1.2 *biological oxygen demand (BOD), n* – indirect measurement of the amount of organic pollution (that can be oxidized biologically) in a sample of water.

3.1.3 *boiler, n* – a closed vessel in which water or other fluid is heated. The heated or vaporized fluid exits the boiler for use in various processes or heating applications.

3.1.4 *detergent, n* – a surfactant or a mixture of surfactants and other chemicals having "cleaning properties in dilute solutions." In common usage, "detergent" refers to a family of compounds that are similar to soap but are less affected by hard water.

3.1.4.1 *dissolved air floatation (DAF), n* – is a water treatment process that clarifies wastewaters (or other waters) by the removal of suspended matter such as oil or solids. The removal is achieved by dissolving air in the water or wastewater under pressure and then

releasing the air at atmospheric pressure in a flotation tank or basin. The released air forms tiny bubbles which adhere to the suspended matter causing the suspended matter to float to the surface of the water where it may then be removed by a skimming device.

3.1.5 *dryer heat recovery (system), n* – is an engineered device which reduces drying times by preheating incoming air with hot exhaust air.

3.1.6 *material safety data sheet, n* – a document that contains information on the potential hazards and how to work safely with a chemical product or compound. Required by OSHA for all ingredients of a product which have been determined to be health hazards and which comprise 1% or greater of the composition of the product, or 0.1% or greater if a carcinogen.

3.1.7 *stack economizer, n* – is an engineered device which captures the “lost or waste heat” from a boiler’s hot stack gas. The heat can then be used in other areas of the facility.

3.1.8 *tunnel washer, n* – is a washer that consists of a long metal tube called a tunnel. The tunnel is made up of pockets. As the linen moves through the pockets, it is exposed to progressively cleaner water and fresher chemicals. Soiled linen continuously goes into one end of the tunnel while clean linen moves continuously out of the other.

3.1.9 *wastewater, n* – is any water that has been adversely affected in quality by human processes or biological influence. It comprises liquid waste discharged by domestic residences, commercial properties, industry, and/or agriculture and can encompass a wide range of potential contaminants and concentrations.

Acronyms:

BMP – best management practice

BOD – biological oxygen demand

DAF – dissolved air flotation

EPA – Environmental Protection Agency

MSDS – Material Safety Data Sheet

OSHA – Occupational Safety and Health Administration

POTW – publicly owned treatment works

VOC – volatile organic compounds

4. Best Management Practices

The implementation or use of the following:

4.1 *Boiler Heat Recovery* – A technology or equipment within a laundry facility that recovers heat produced from the facility’s water boiler system. The technology or equipment must be visible, in use, and designed for the purpose of recovering heat from the boiler system. An example includes: stack economizers which capture the "lost or waste heat" from the boiler's hot stack gas.

4.2 *Direct-fired Hot Water Heating System* – A water heating system that does not use a boiler to create steam but uses direct heat to create on-demand hot water.

4.3 *Completion of Environmental Survey* – The 2015 Industry Sustainability Survey which benchmarks the commercial laundry industry’s success in reducing water and energy demand to process laundry.

4.4 *Wastewater Heat Recovery* – A technology or equipment within a laundry facility that recovers heat present in the facility’s wastewater. The technology or equipment must be visible, in use, and designed for the purpose of recovering heat present in the wastewater. Examples include: “shell and tube” or “plate” heat exchangers which capture the “lost or waste heat” from the wastewater.

4.5 *Wastewater Pre-treatment, Mechanical Solids Removal* – A technology or equipment within a laundry facility which pretreats more than 50% of the total wastewater before being discharged to the sanitary sewer utilizing mechanical solids removal. The technology or equipment must be visible, in use, and designed for the purpose of filtering out suspended solids (e.g., lint solids) from the wastewater and the associated oil & grease and biological oxygen demand (BOD) that is removed with the solids. Examples include: shaker screens or rotary drum screens.

4.6 *Wastewater Pre-treatment, Advanced Treatment Technologies* – A technology or equipment within a laundry facility which pretreats more than 50% of the total wastewater before being discharged to the sanitary sewer utilizing a mechanical and/or chemical means of advanced treatment. The technology or equipment must be visible, in use, and designed for the purpose of removing emulsified oil & grease from the wastewater along with suspended solids, BOD, metals and toxic organics. Examples include: dissolved air flotation (DAF) systems, and filtration systems (micro-, ultra-, nano-).

4.7 *Water Reuse Technology* – A technology or equipment within a laundry facility which reuses, reclaims or recycles water. The technology or equipment must be visible, in use, and designed for the purpose of reusing, reclaiming or recycling water. Examples include: water reuse systems that capture and reuse final rinses drained from washers; water recycling or reclamation systems that capture and recycle treated wastewater; and special washers (e.g., tunnel washers) that use the same water more than once for washing linen.

4.8 *Alternative Energy* – Solar or geothermal technology that clearly provides a minimum of 10% (individually or in combination) of the electrical energy used in the laundry.

4.9 *Dryer Heat Recovery* – A technology or equipment within a laundry facility which reduces drying times by preheating incoming air with hot exhaust air.

4.10 *Energy audit* – An energy audit conducted by a third-party independent contractor to ascertain areas where a laundry facility may save energy by implementing recommendations made by the auditing organization. Audits must be conducted at least once every three years.

4.11 *Energy Efficient Lighting and/or Skylights*– Low energy lighting and/or skylights within a laundry facility which clearly provide more than 50% of the laundry’s lighting. The lighting and/or skylights must be visible and in use. The lighting must be certified as compliant with the EPA’s Energy Star program or other equivalent programs.

4.12 *Fleet Vehicle Route Optimization* – The use of software or technologies to maximize the efficiency of routes driven by fleet vehicles in order to minimize fuel usage and exhaust emissions.

4.13 *Fleet Vehicles - Alternative Fuels* – Facilities must have at least 15 percent of their fleet vehicles equipped to run on alternative fuels, e.g. propane.

4.14 *Energy Efficient Low Temperature Detergents* – Detergents that are effective in eliminating pathogenic bacteria at low wash temperatures (21°C instead of 60-71°C).

4.15 *Preventative Boiler or Direct-fired Hot Water Heating System Maintenance* – Maintenance of the boiler or direct-fired hot water heating systems as prescribed by the manufacturer or appropriate regulatory requirement to ensure maximum efficiency of the system. The facility must provide documentation of the prescribed maintenance schedule from the manufacturer or appropriate regulatory requirement. Records must also be kept of when preventative maintenance was conducted and the name, address, phone number, and contact person of the organization doing the preventative maintenance.

4.16 *Recycling Programs* – Qualified waste recycling programs within a laundry facility. Examples include; hanger recycling, cardboard and paper recycling, bottles and cans recycling, electronic waste recycling, and waste oil recycling. The facility must have at least three of the above recycling programs in place, and they must be able to demonstrate that these programs are being utilized on a consistent basis.

4.17 *Spill Prevention Plan or Slug Discharge Control Plan* – A written plan which is in place and describes procedures to prevent the spill or release of hazardous substances into the environment (spill prevention plan) or discharge of a non-routine, episodic nature (slug discharge plan).

5. Inspection Checklist

5.1 Best Management Practices point allocation system and certification requirements.

Clean Green certification requires a facility to implement enough Best Management Practices (BMPs) such that enough points (Table 1) are accumulated to meet the requirements established in Table 3 or Table 4 below. The total BMP points required depends on whether a facility meets the water and energy standards in Table 2. Sixty points from Tier 1 BMPs are required for certification whether the water and energy standards are met or not. If the water and energy standards are met, 40 additional BMP points are required from either the remaining Tier 1 BMPs or Tier 2 BMPs. If the water and energy standards are not met, 70 additional BMP points are required.

Table 1

	Implemented? (Circle)	Points
Tier 1 BMPs		
Boiler Heat Recovery or Direct-fired Hot Water Heater	Y N	20
Completion of Environmental Survey	Y N	20
Wastewater Heat Recovery	Y N	20
Wastewater Pre-treatment, Mechanical Solids Removal	Y N	20
Wastewater Pre-treatment, Advanced Treatment Technologies	Y N	20
Water Reuse Technology	Y N	20

Tier 2 BMPs		
Alternative Energy, Solar or Geothermal	Y N	10
Dryer Heat Recovery	Y N	10
Energy audit (every 3-years)	Y N	10
Energy efficient lighting or skylights	Y N	10
Fleet Vehicle Route Optimization	Y N	10
Fleet vehicles - alternative fuels (at least 15%)	Y N	10
Low temperature detergents	Y N	10
Preventative Maintenance (boiler or direct-fired hot water heater)	Y N	10
Recycling Program	Y N	10
Spill Prevention Plan or Slug Discharge Control Plan	Y N	10

Table 2

Water and Energy Standards

	> 5MM pounds annual Production	≤ 5MM pounds annual production
Water Standard	≤ 2.6 gal/lb.	≤ 3.2 gal/lb.
Energy Standard	≤ 3,000 BTU's/lb.	≤ 3,700 BTU's/lb.

Table 3

**BMP Point Requirements for Clean Green Certification If
Water and Energy Standards Are Met**

Minimum Tier 1 BMP Points	Tier 1 or Tier 2 BMP Points	TOTAL
60	40	100

Table 4

**BMP Point Requirements for Clean Green Certification If
Water and Energy Standards Are Not Met**

Minimum Tier 1 BMP Points	Tier 1 or Tier 2 BMP Points	TOTAL
60	70	130

Other Requirements for Clean Green Certification

1. Initial certification will be by a paper audit.
2. This is a company-wide certification program.
 - a. All of a company's eligible plants must submit documents for certification. (See (c) and (d) for exemptions to this requirement).
 - b. To be certified, a company with 10 or more plants must have 90% of their submitting plants meet the BMP point requirements in Table 3 or Table 4.

Companies with less than 10 plants must have at least 75% of their submitting plants meet the BMP point requirements.

- c. New acquisitions are exempt from applying for certification for three years from the date of acquisition.
 - d. Facilities with cleanrooms are exempt from applying for certification until water and energy standards can be developed for them.
3. Physical inspections – After initial certification based on a paper audit, 10% of a company’s plants will have a physical inspection over a three-year period.
 4. Each certification interval will be for a three-year period.

6. Procedure

6.1 The user of this standard will utilize Table 1 in Section 5.1 to evaluate the implementation of the Best Management Practices described in Section 4. It will be at the discretion of the inspector to determine if the laundry facility has implemented the required BMP.

6.2 BMPs must be clearly demonstrated by the laundry facility through written documents or by visual evidence.

6.3 For certification, laundry facilities must receive a total score of 100 or 130 points based on the certification scoring system for BMPs established in Section 5.1, Table 3 or Table 4, respectively.

6.4 Safety procedures for physical inspections of a laundry facility will follow the safety procedures outlined in ASTM Practice E2107-06.

6.5 The user is cautioned to review each question and the comments associated with each question. Unique characteristics of a Best Management Practice implemented may affect interpretation of the use.

6.6 Depending on the particular Best Management Practice implementation, additional questions may be necessary. The user of this practice may choose to ask additional questions regarding a BMP as applicable.

6.7 “N/A” may be indicated where questions request information that is not applicable or not available, or both.
