



Plant Equipment List (PEL) Guideline Operating Engineers Program

For plants seeking to be registered in Ontario, the **plant user** (a person or persons in control of a plant as owner, lessee or otherwise, but does not include the operating engineers or operators who operate, control or maintain the plant) or the user's agent (especially if the user is a business) will be required to fill out, sign off and submit an accurate Plant Equipment List (PEL) as a part of the application package. The template for PEL is available on TSSA's website [here](#).

In order for you to fill out the plant equipment list form, you will require a "spreadsheet" software. We recommend using the latest Microsoft Excel software (since the form was created using Microsoft Excel) but you can use other, compatible spreadsheet software to fill out the form.

Function of the PEL

The primary purpose of the PEL is to establish and maintain an accurate record of all regulated equipment at the user's registered plant. This exercise in ownership over the plant's safety data is the crucial first step in demonstrating that a give plant user is truly holding himself/herself accountable for the safety of his/her respective plants.

For alternate path plants, the PEL information is factored into the calculation of your plant's inherent safety risk based on the equipment that exists on site.

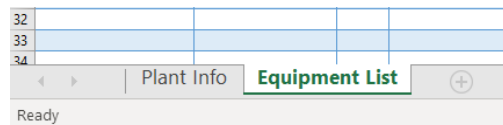
The accuracy of the information is paramount in calculating the plant's safety risk. TSSA requires the plant users to submit and attest that the information is accurate. Providing the wrong information could lead to delays (and even rejections) in the plant's alternate path submission. TSSA requires accurate and complete information.

Who should fill out the PEL?

The most knowledgeable person at the plant who is aware of the specifications of all the equipment on the plant should fill out this form. In an unattended plant, the maintenance personnel who performs maintenance on the equipment can assist the plant user. The majority of information can be obtained in the equipment's operations, service and parts manuals. If you do not have a manual, please contact your equipment manufacturer or your installation contractor.

PEL Overview

The plant equipment list is comprised of two different sheets. The PEL accommodates up to 200 different pieces of regulated equipment. If the number of regulated equipment exceeds the number of cells TSSA has provided, please fill out a separate template, number and label the PEL workbooks, and submit all different files for your applications.






Plant Equipment List (PEL) Guideline Operating Engineers Program

In the current build, the PEL template workbook is divided into two main worksheets: a “Plant Information” sheet and an “Equipment List” sheet. The plant information sheet should contain basic information about your plant. These should match the information you have inputted for your “Application for a Plant Registration” (ARP) form. The ARP form is available [here](#).

The PEL will be used by TSSA to calculate the inherent safety risk of the equipment and to keep inventory of the plant (i.e. all the equipment combined). TSSA expects plant users to provide accurate and complete information to ensure proper calculation of your plant's safety risk.

General tips about the PEL form

- Any cell on the PEL template file with a **blue shade** is for TSSA's use only. Do not write in these cells.
- Any cell on the PEL template file with an **orange shade** is a required field that you must enter.
- Any cell that had been crossed out  is a field that is not applicable for the equipment on that row. Do not enter data in this type of cell as it will be disregarded by TSSA. Additional information may be added in the “Customer Notes” column.
- Most of the information that TSSA requires can be found on the equipment's name plate which is affixed to the equipment.
- If there are no name plates on your equipment, write down the information as it appears on the official equipment documentation (e.g. service manuals). Also, your equipment manufacturer should be able to provide this information if your manual does not contain it.

Plant Information Worksheet

Name	Value
Plant Reg #	
Plant Function	
Site User	
Inspector	
Audit - Original Date	
Audit - Revision Date	
Boiler Summary	
Compressor Summary	
Refrigeration Summary	
Steam Prime Mover Summary	
L.V. Boilers Accumulator - Gal	
L.V. Boilers Economizers - No. of	



Plant Equipment List (PEL) Guideline Operating Engineers Program

L.V. Boilers - Total Gal	
Burner Output Reduced - Boiler No.	
Burner Output - Total Rating Reduced - From	
Burner Output - Total Rating Reduced - To	
Tubes Blocked - Boiler No.	
Number of Tubes Blocked in Each Boiler	
Total Rating Reduced - From	
Total Rating Reduced - To	
Units Interlocked	
Maintenance Program Required for	
Special Conditions	

Definitions of the Columns

Plant Reg # - This cell is for TSSA use only. Do not write in this cell. If you are a new plant, a new registration number will be assigned to you.

Plant Function – Select the function of the plant from a drop-down menu (e.g. petrochemical, academic, power generation etc.). **This should match the plant function as indicated on your plant registration (PR) form.**

Site User – Write the name of the plant user (defined in O. Reg 219/01 as a “person or persons in control of a plant as owner, lessee or otherwise, but does not include the operating engineers or operators who operate, control or maintain the plant”) as it appears on the plant registration application. **This should match the user information on your plant registration (PR) form.**

Inspector – This cell is for TSSA use only. It will contain the name of the TSSA inspector who inspects your facility.

Audit – Original Date – This cell is for TSSA use only. This cell will contain the original date when the audit of your facility was performed based on our database.

Audit – Revision Date – This cell is for TSSA use only. This cell will contain the last date when the audit of your facility was performed based on our database.

Boiler Summary, Compressor Summary, Refrigeration Summary, Steam Prime Mover Summary – These rows are for TSSA use only. The cells in these rows will contain TSSA’s summary about your equipment after we have reviewed your more detailed inventory.

Other rows colored in yellow (e.g. Units Interlocked, L.V. Boilers - Total Gal) - These rows are for TSSA use only. The cells in these rows will contain information about special conditions that were put into your equipment.



Plant Equipment List (PEL) Guideline Operating Engineers Program

Equipment List Worksheet

- For each regulated equipment that exists on your plant premises, you must enter them on a separate row. You must also fill out all applicable cells on the worksheet in that given row that are shaded in orange.
- For each piece of equipment, go to the next empty row and start by selecting the appropriate technology choice from the drop-down menu in column A. You will then see all mandatory cells for that row shaded orange.
- Below is a sample PEL with some columns partially filled out with a sample device.

1											
2	Technology	Location in Facility	Customer Designator	Manufacturer	Model	Serial Number	Year Built	CRN	Equipment Type	Hermetic (Y/N)	Primary
3	Refrigeration	Boiler Room	Compressor 1	SAMPLE LTD	Compressor-X12	123456	2019				
4	Boilers and Accumulators	Boiler Room	Boiler 1	ONTARIO INC	FM 9133	1-3445-123	2005	CRN-K12345.6	Fire Tube		Gas
5	Compression										
6									Reciprocating		
7									Rotary (Lobe-Vane)	Type	
8									Centrifugal		
9									Screw		

Definitions of the columns

The columns denote each category of information TSSA will be looking for in your application. Please fill out all fields in the row (representing each equipment) as accurately as possible.

- **Technology (Column A)**– Select one of the four categories of regulated technologies for your equipment: boilers & accumulators; compression; refrigeration; and steam prime mover.
- **Location in Facility (Column B)** – Write where the equipment is located in your facility (e.g. basement boiler room, 2nd floor mech room, rooftop).
- **Customer Designator (Column C)** - Write the unique identifier for your equipment at your plant according to your Piping and Instrumentation drawing. If there are no unique identifiers, please create them (e.g. “Boiler 1,” “Compressor 1,” “Boiler 2” etc.) and affix physical labels onto the equipment for easy identification during TSSA’s inspections. The unique identifier should match the physical labels on the equipment.
- **Manufacturer (Column D)** – Write the full name (no abbreviations) of the equipment manufacturer as it appears on the equipment’s nameplate (e.g. ABC Boilers Inc.)
- **Model (Column E)** – Write the full model number of the equipment as it appears on the equipment’s name plate (or official equipment documentation).
- **Serial Number (Column F)** – Write the serial number of the equipment as it appears on the equipment’s name plate (or official equipment documentation).



Plant Equipment List (PEL) Guideline Operating Engineers Program

- **Year Built (Column G)** - Write the year of the equipment’s build as it appears on the equipment’s name plate (or official equipment documentation). This applies the following selections:
 - All boiler and accumulator equipment
 - Refrigeration equipment where the Equipment Type (Column I) selection is “Pressure Vessel”. (Note that the Year Built cell for this selection choice will not show as Orange to indicate mandatory, however this data is still mandatory for this selection.)
- **Canadian Registration Number (CRN) (Column H)** – Write the unique Canadian Registration Number (CRN) associated with your equipment as it appears on the equipment’s name plate.
- **Equipment Type (Column I)** – Select the appropriate equipment type that best describes this equipment from the drop-down menu.
- **Hermetic (Refrigeration equipment only) (Column J)** – Select “yes” or “no” to denote if your equipment is using hermetic refrigerant compressor or not.
- **Fuel Type (Boiler equipment only) (Column K, L, M)** – Select the appropriate fuel type associated with your equipment from the drop-down menu. If the equipment uses more than one fuel type indicate the secondary (or even a tertiary) fuel used under “Secondary” column (column K) and “Tertiary” column (column L) respectively.

Primary	Secondary	Tertiary
Gas	Liquid	None

- **Material Type (Column N)** - Select the appropriate working fluid (or “material type”) used by your equipment from the drop-down menu.
- **System Design (Column O)** - Select the appropriate system design from the drop-down menu. Below are definitions of the system design categories. If you are still unclear, please consult CSA B52 standard.
 - **Direct system** — a system in which the evaporator or condenser of the refrigeration system is in direct contact with air or other substances to be cooled or heated.
 - **Indirect system** — a system where secondary coolant that is cooled or heated by a refrigeration system is circulated to the air or other substance to be cooled or heated (Clause 4.3.1.3 of CSA B52).
 - **Self-contained system** — a complete factory-made and factory-tested system, in a suitable frame or enclosure, that is fabricated and shipped in one or more sections and does not have any refrigerant containing parts connected in the field other than by companion or block valves.



Plant Equipment List (PEL) Guideline Operating Engineers Program

- **Modular plant** — a “rack-mounted” refrigeration plant design consisting of stacked individual “modules” containing a condenser, compressor, receiver, dryer, sight glass, dual pressure control and other appropriate components all enclosed within a single housing.
- **Built-up plant** — a refrigeration plant where equipment (including, compressors, condensers, receivers, evaporators and associated controls) are site assembled as independent non-packaged units
- **Charge (Column P)** – Write the numerical value of the estimated “charge” of your equipment. For boilers, this will be the estimated operational water volume (in imperial gallons). For compressors, this will be the estimated volume of air that is supplied by your air compressor measured in CFM (cubic feet per minute). For refrigeration equipment, this will be the estimated volume of refrigerant in the system in pounds.
- **Voltage (Column Q)**– Write the operating line voltage of the equipment as it appears on the equipment’s name plate (or official equipment documentation).
- **Power (Columns R and S)** – Depending on the information available to you, enter power as either Horsepower (Column R) or BTU/HR (Column S), but not both.
 - **HP (Horsepower) (Column R)** – Write the power capacity of your equipment as measured in boiler horsepower (for boilers) or brake horsepower for compressors or refrigeration compressors. For steam prime movers, write the input brake horsepower.
 - **BTU/HR (Boilers only) (Column S)** – Write the boiler’s power output in BTU (British Thermal Unit) per hour as it appears on the equipment’s name plate (or official equipment documentation).
- **PSI / Operating Pressure (Column T)** – Write the operating pressure of the equipment (i.e. actual pressure of the equipment as set by the safety valve) as opposed to the maximum allowable operating pressure (MAWP). Please do not enter anything in this column if you are planning to enter information on Column U (Operating Temperature).
- **Temp (°C) / Operating Temperature (Column U)** – Write the operating temperature (as opposed to the rated maximum) of the equipment as measured in the Celsius scale. Please do not enter anything in this column if you are planning to enter information on Column T (Operating Pressure).
- **Guarded Controls (Column V)** – Select if the equipment is guarded (i.e. has fail-safe devices that safely limit operation of the device and has an alert system), select “Y” (Yes) from the drop-down menu. If the equipment is not guarded, select “N” (No).
- **SV Date (Column W)** – Please write down the last time safety valves were serviced on this equipment starting with the year, month and day (YYYY-MM-DD).
- **Install Date (Column X)** – If your equipment has an ammonia receiver or a heat exchanger installed, write down the installation date of the receiver in YYYY-MM-DD format.



Plant Equipment List (PEL) Guideline Operating Engineers Program

- **Customer Notes (Column Y)** – If there are any other information you would like to write down for TSSA that you believe is important for either the Chief Officer of TSSA or the inspector, please write them down here (e.g. extra descriptions about the equipment, additions, important technical specification of the equipment not covered by the categories in the worksheet).

TSSA-Only Columns

	TSSA use only			
Calculated KW	TSSA Plant Code	TSSA Status	TSSA Seal #	TSSA Notes

You do not need to adjust any of these columns as they are mostly for use by TSSA's inspectors and operating engineer's program administrative staff.

- **Calculated KW (Automatically Calculated) (Column Y)** – Do not write in this cell. This cell is automatically calculated.
- **Plant Code (TSSA's Classification) (Column Z)** – Do not write in this cell. TSSA will classify and assign appropriate codes for your plant.
- **Status (TSSA's Classification) (Column AA)** – Do not write in this cell. TSSA's inspectors will determine the status of the equipment (active, inactive or sealed) during the verification inspection.
- **Seal # (TSSA's Classification) (Column AB)** - Do not write in this cell. TSSA's inspectors will write the unique identifier of the seal if the equipment has been sealed by TSSA.
- **TSSA Notes (Column AC)** – Do not write in this cell. This cell exists to allow TSSA's inspectors will note any other important details about your equipment during their inspections.



Plant Equipment List (PEL) Guideline Operating Engineers Program

APPENDIX A: Sample Boiler Plate

Manufacturer (Column D)

Model (Column E)

Serial Number (Column F)

Year Built (Column G)

CRN (Column)

Fuel Type (Column K, L)

MODEL NUMBER

MANUFACTURER'S SERIAL NUMBER

YEAR & MONTH ASSEMBLED AND TESTED 95/03

INSPECTOR

MAXIMUM ALLOWABLE WORKING PRESSURE PSI

HEATING SURFACE AREA SQ. FT.

YEAR BUILT 19

DESIGN TEMPERATURE °F

RATED STEAMING CAPACITY LB/H

MANUFACTURER'S SERIAL NUMBER

CRN ON 5

Max. Input: x 1,000 BTU/Hr.

Min. Input: x 1,000 BTU/Hr.

Fuel Type: GAS OIL

Max. Manifold Press.: " W.C.

Min. Gas Inlet Press.: " W.C. PSIG

Oil Nozzle Size: U.S. Gal./Hr.

Semi-Solid - Oil Nozzle Angle: 60"

Top 40" - Sides/Rear 18"

Front 48" - Flue Pipe 40"

(For use on Non-Combustible Floors)

Electrical Rating: Phase/ V/ 60Hz/ A

Fan Motor Output: Phase/ V/ 60Hz/ HP

Feed Water Pump Phase/ V/ 60Hz/ HP

Oil Pump: Phase/ V/ 60Hz/ HP

Total Current of Motors: A. Others A

Min. Circuit Ampacity: A.

Max. Rating of The Circuit Protective Device A

Here are sample boiler plates on a boiler in case you do not know what a boiler plate looks like. Some regulated equipment has more than one of these plates, as per the photos on the left.

These plates should be attached to your equipment at a relatively visible place. While a boiler plate may not contain all the necessary information to fill out your PEL, much of the information required for the PEL form can be found on it.

If your boiler plate is damaged or if you cannot find one, please consult your equipment's manual or your installation contractor.