**Date last modified/updated:** Click here to enter a date. **Internal audit:** Click here to enter a date.

**Who last modified/updated:** Click here to enter text. **Management review:** Click here to enter a date.

**This part of the Navigator Playbook is completed when you have:**

1. **Identified all energy sources that are consumed within the scope and boundaries.**
2. **Made a list of energy uses within the scope and boundaries.**
3. **Identified relevant variables that potentially affect the energy consumption of SEUs and would help create meaningful energy performance indicators (EnPIs) and energy baselines (EnBs). If seeking U.S. DOE 50001 Ready recognition identify relevant variables that potentially affect the energy consumption of the scope and boundaries of your 50001 Ready EnMS.**
4. **Developed and implemented a data collection plan based upon the data needs including the key characteristics of ISO 50001.**
5. **Ensured measurements and metering are conducted accurately and are repeatable.**
6. **Determined appropriate analysis methods and used them to understand and monitor energy use and consumption.**
7. Identify all energy sources that are consumed within the scope and boundaries.
* Electricity
* Natural Gas
* Biodigester Gas
1. Make a list of energy uses within the scope and boundaries.

[x]  We have identified our current energy sources (to be recorded in 50001 Ready Navigator Energy Consumption Tracker)

[x]  Analysis has been carried out on collected data to assess past and present energy use and consumption at the equipment level (to be recorded in 50001 Ready Navigator Energy Consumption Tracker)

Use the 50001 Ready Navigator Energy Consumption Tracker to collect and record this information. This tool is included as part of the 50001 Ready Navigator Playbook. If you are already collecting and storing this information in other ways, indicate below.

[x]  Energy data has been organized and entered into a central location and the data is stored at:

Shared Google Drive Folder – “ISO 50001”

Supervisory Control and Data Acquisition (SCADA) system

[x]  We have identified energy uses associated with energy sources (complete first two columns)

|  |  |  |  |
| --- | --- | --- | --- |
| **Energy Uses** | **Energy source(s) used** | **Factors/persons that affect consumption** | **Large energy user (y/n)** |
| Primary Treatment | Electricity | Flow / Jim Doe | N |
| Aeration | Electricity | Flow, BOD, DO, RT / Jim Doe | Y |
| Anaerobic Digestion | Electricity, Nat Gas | Flow, HDD, CDD / Jane Doe | Y |
| Tertiary Treatment / Disinfection | Electricity | Flow, BOD / Jane Doe | N |
| Pumping / Mixing | Electricity | Flow, MLSS, RT / Jim Doe  | Y |
| HVAC | Electricity / Nat Gas | HDD, CDD, Occupancy / Jill Doe | N |
| Lighting | Electricity | Operating Hours / Jim Doe | N |

1. Identify relevant variables that potentially affect the energy consumption of SEUs and would help create meaningful energy performance indicators (EnPIs) and energy baselines (EnBs).

[x]  We have identified relevant variables that potentially affect the energy consumption of SEUs and would help create meaningful energy performance indicators (EnPIs) and energy baselines (EnBs)

|  |  |
| --- | --- |
| **Relevant Variable** | **Affected SEU(s) or Scope and Boundaries** |
| Flow | All Equipment |
| Biological Oxygen Demand (BOD) | Aeration |
| Heating Degree Days (HDD) | Anaerobic Digestion |
| Cooling Degree Days (CDD) | Anaerobic Digestion |
| Retention Times (RT) | Aeration, mixing, and across treatment processes |
| Dissolved Oxygen (DO) | Aeration |
| MLSS (Mixed Liquor Suspended Solids) | Aeration, pumping |

1. Develop and implement a data collection plan based upon the data needs including the key characteristics of ISO 50001 (see resource for Task 20 Monitoring and Measurement of the EnMS).
2. Ensure measurements and metering are conducted accurately and are repeatable.

[x]  We have established our data needs for our Energy Review

* Required:
	+ Monthly Electricity and Natural Gas Utility Bills
	+ Monthly Flow Readings
	+ Monthly BOD Measurements
	+ Monthly HDD and CDD Measurements
	+ Monthly Dissolved Oxygen Rates
	+ Monthly MLSS Rates

[x]  We have established a process for collecting this data at scheduled intervals

* How Obtained:
	+ Utility Bills – Electricity Bills sent via email to Jane Doe the 1st of every month; Nat Gas Bills sent in mail to facility, usually received by the 5th of every month
	+ Flow Readings – Flow is measured every 30 mins and averaged for each day. At the end of each month, Jim Doe sums all the daily readings up to produce a monthly flow.
	+ BOD Measurements – BOD is measured at the start of each shift by the attending chemical lab personnel, these are collected in the Google Drive Folder under “Chem Lab Measurements”
	+ HDD and CDD Measurements – these are obtained each month from the NOAA website for the Asheville area (<https://w2.weather.gov/climate/xmacis.php?wfo=gsp>)
	+ Dissolved Oxygen: SCADA System
	+ MLSS: SCADA System

[x]  We have identified sources for collecting this data

* Enumerated above.

[x]  We have identified personnel responsible for collecting this data

* Enumerated above.

[x]  Who

* Enumerated above

[x]  We have established this data is from sources that are accurate and repeatable

Method: Quarterly Baseline Comparison and Annual Monitoring Equipment Calibration

1. Determine appropriate analysis methods and use them to understand and monitor energy use and consumption.

[x]  Appropriate analysis methods have been used to understand and monitor energy use and consumption.

Method: Baseline Comparison, Relevant Variable Regression Analysis

Top Management Approval

|  |  |  |
| --- | --- | --- |
| [x]  | Date approved: | 8/15/20 |
| [x]  | Who approved: | John Doe |

Comments

Click here to enter text.