**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 the facilities, equipment, systems, and processes that can have significant impact on energy performance.**
2. **Incorporated consideration of energy opportunities and operational controls in design projects.**
3. **Included results of energy performance considerations in specification, design, and procurement activities, where applicable.**
4. **Retained records of the results of design activities related to energy performance.**
5. Identify the facilities, equipment, systems, and processes that can have significant impact on energy performance:

|  |  |  |
| --- | --- | --- |
|  | Facilities, equipment, systems and processes have been identified | Any design project that can have an annual energy impact of greater than or equal to +/-10% of the total facility annual energy is considered to have a significant impact on energy performance. |

For the energy uses associated with those mentioned above, the following items have been identified:

|  |  |  |
| --- | --- | --- |
|  | Management and operation of SEUs. | Each SEU has an identified personnel responsible. (Task 9) |
|  | Achievement of energy objectives, targets and action plans. | We have defined relevant objectives and targets for these SEUs and wrote action plans for improvement opportunities. (Tasks 12, 13) |
|  | EnPIs identified. | In addition to flow-based metrics, we have EnPIs based on weather and BOD for each energy source. (Task 11) |

1. Incorporate consideration of energy opportunities and operational controls in design projects:

|  |  |  |
| --- | --- | --- |
|  | Energy opportunities and operational controls have been incorporated into design, renovation, and modification efforts. | Process Engineers work in tandem with Energy Team to ensure any alterations to the process or newly designed processes are thoroughly vetted and that energy considerations have been included in the review. Where applicable, lifetime energy costs are compared to determine ideal process designs. |
|  | We have ensured that design projects include an operational control  strategy to make sure that anticipated savings are achieved. | Facility and Process engineers work with design engineers to ensure that improvements to operational controls are considered as part of design. |

Energy performance improvement considerations:

|  |  |  |
| --- | --- | --- |
|  | Potential energy performance improvements have been considered. | Every process design proposal sent to top management contains a section detailing all energy considerations and (if applicable) lifetime energy estimates. |
|  | Necessary operational controls have been identified. | Operational controls are required to be detailed as part of any process design proposal. |
|  | Management of energy performance impacts on designs. | Facilities and Maintenance Engineers review design proposals to ensure these goals are included and addressed sufficiently. |

When evaluating opportunities for improving energy performance, the following items have been considered:

|  |  |  |
| --- | --- | --- |
|  | How will existing infrastructure and processes be modified? | Considered. |
|  | What can be changed to improve energy consumption over time? | Considered. |
|  | What is the right energy source for the application? | Considered. |
|  | What are the technological options? | Considered. |
|  | What operational controls are needed to achieve and sustain energy performance? | Considered. |

*The worksheet below can be useful in identifying and evaluating energy performance improvement opportunities and operational controls in design activities.*

Worksheet for Energy Considerations in Design

**Purpose**: To help the user identify and consider energy performance improvement opportunities and operational control in the design of new, modified and renovated facilities, equipment, systems and processes that can have a significant impact on energy performance.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **This design effort is related to: (Check all that apply)**  New facility(ies)  New equipment, systems or processes  Renovated or modified facility(ies)  Renovated or modified equipment, systems or processes  Significant energy uses and associated controls  Objectives, targets and action plans  Energy performance improvement  Maintenance of the energy systems  **Describe the Project:**  Switching over from Coarse-Bubble to Fine-Bubble Diffusers in Aeration Tanks | | | | | | |
| **Prepared by:** James Doe | | | | | | **Date:**  11/1/2020 |
| **Identify the facilities, equipment, systems and processes involved in this design effort that can significantly impact energy performance** (energy efficiency, use and consumption) | **What is the current energy source?** | **Is there another energy source option?** | **What are some technology and other options for improving energy performance?** | **Are new or additional operational controls needed?** (specify) | **Who is responsible for the design?** | **What improvements can be expected?**  (Examples: energy savings; maintenance cost savings; environmental impact reduction) |
| Aeration System | Electricity | No | Fine-Bubble Diffusers will allow blowers to be run more efficiently. | No – existing Dissolved Oxygen Controls are still applicable. | James Doe and Jack Doe | Decreased Electrical Energy Usage; Decreased Greenhouse Gas Emissions; |

1. Include results of energy performance considerations in specification, design, and procurement activities, where applicable:

|  |  |  |
| --- | --- | --- |
|  | Energy performance considerations detailed in the ‘Worksheet for Energy  Considerations in Design’ (above) have been incorporated into our specifications, designs and procurement activities. | Correct, this is documented as part of the energy considerations in process design modifications. |

|  |  |  |
| --- | --- | --- |
|  | We have ensured that new energy efficient technology is specified, applied, and used correctly in order to avoid misapplications | Procurement team works directly in conjunction with the Energy Team to ensure that the appropriate energy efficient equipment is being purchased. |
|  | We have assigned roles and responsibilities to qualified personnel. | Roles and responsibilities are detailed in worksheet above. |

1. Retain records of the results of design activities related to energy performance:

|  |  |  |
| --- | --- | --- |
|  | We continually maintain a record of the results of design activities and have recorded this data in a central location. | All design activities and energy considerations are documented and saved in the company’s shared Google Drive. |

The documentation we maintain includes:

|  |  |  |
| --- | --- | --- |
|  | Completed checklists | Included. |
|  | Meeting minutes | Included. |
|  | Design drawings | Included. |
|  | Purchasing specifications | Included. |
|  | Project records | Included. |
|  | Lifetime Energy Estimates | Included. |

Top Management Approval

|  |  |  |
| --- | --- | --- |
|  | Date approved: | 11/10/20 |
|  | Who approved: | Jimmy Doe |

Comments

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