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Background

As part of the Nebraska Industrial Assessment Center (NIAC) team, the intern assessed four manufactures. These include Cleaver-Brooks at NE which specializes in the integrated boiler, burner, controls solutions for hot water and steam boilers. The second one is Grand Island Waste Water Treatment Plant located at Grand Island, NE. The third one is South Dakota Industries at SD which is involved in manufacturing Equipment and hardware for Hog producer using 304 stainless steel. The fourth and last one is Westin Packaged Meats at NE which is working in the field of processed bacon such as bacon bits, bacon-flavored bacon bits, salad toppers, and related products.

Project Description

As part of these assessments, examples of the recommendations that were prepared include:

- Replacing the 4-ft, T-5 fluorescent bulbs in the main shop with similar 4-ft, T-5 LED bulbs that can significantly reduce the electricity usage and demand.
- Adjusting the variable frequency drive (VFD) on the aeration according to the height of sludge in the basins to reduce wasted air that is currently being supplied.
- Providing an assessment report with 5 recommendations related to installing HVLSA fans, upgrading the facility lighting, reducing the compressed air pressure and adding storage tank, fixing the air leaks in the distribution system, and installing occupancy sensors in the upgraded lighting system.
- Upgrading the five types of lighting equipment, inside and outside of the four different sections of the facility.

Pollution Prevention Benefits

The benefits of the recommendations discussed above are summarized below in Table 1:

Table 1: Recommendations Savings and Benefits

| Recommendation | Annual Energy Savings | Annual Cost Savings | Implementation Cost | Simple Payback |
|-----------------------|------------------------------|----------------------------|----------------------------|-----------------------|
| Upgrade Lighting | 333,616 (kWh) | \$26,635 | \$42,417 | 1.6 (year) |
| Adjust VFD | 430,444 (kWh) | \$21,092 | \$690 | 0.0 (year) |
| Assessment Report | 105,864 (kWh) | \$23,946 | \$52,536 | 2.2 (year) |
| Upgrade Lighting | 175,543 (kWh) | \$12,538 | \$7,282 | 0.58 (year) |