



Direct Assistance Program

New York State Pollution Prevention Institute (NYS P2I) partners with industry

to improve production processes, enhance recycling and reuse and reduce the use of hazardous materials

Energy Reduction from Improved Pipeline Insulation

Client

NOCO Energy's Tonawanda Intermodal Terminal is located on 80 acres with a total product storage capacity of over 45 million gallons of various petroleum products in nearly 80 tanks on site. Products include asphalt, heavy oils, distillate, gasoline and bio-fuels. The terminal provides services such as vessel loading/unloading, pipeline receipt, rail tank car loading/unloading and tank truck weighing.

Opportunity Area

This "Energy & Environment" (E2) project calculated the energy losses associated with heating the pipeline in its current state compared to losses should the pipeline insulation be improved. The differences in these energy losses result in the calculated energy savings through decreased natural gas usage and associated preventable air emissions.

Objectives

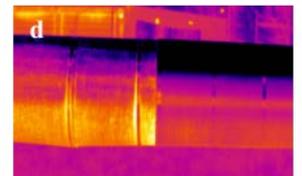
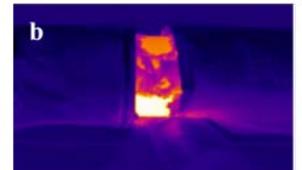
A reduction in the combustion of natural gas will directly result in the reduction of air emissions. Natural gas fired heaters are used to maintain the temperature of the asphalt product as it is pumped from supply barges on the Niagara River through the transfer pipe to the storage tanks on NOCO's site along Grand Island Boulevard in Tonawanda.

Work Performed

This project evaluated the thermal energy lost during transportation of asphalt through a portion of the pipeline due to compromised or missing insulation around the transport pipelines. The potential natural gas savings were calculated based on reduced heat loss if the insulation was replaced along the transport pipeline. Preventing heat loss will provide a corresponding reduction in natural gas use and air emissions.

Results

NYS P2I conducted an energy assessment of NOCO's asphalt transfer pipe from the barge dock to roadside in Tonawanda, NY. Nearly half of NOCO's asphalt pipe was bare or poorly insulated from where it is unloaded at the dock, to where the new "well-insulated" section begins near the road. With surface temperatures of the steel pipes for asphalt and oil nearing 300°F and 400°F respectively, a large path for energy loss is created. Actual calculations for energy and emissions savings based on the installation of the new insulation on 124 feet of the transfer pipeline shows a potential avoided thermal energy loss, including boiler efficiency, of approximately 1,785 MMBTU/year and a reduction of 210,325 pounds/year of various air emissions, of which 210,152 pounds are considered greenhouse gas emissions or 95 Metric Tons of CO₂Eq.



a.) Image of bare pipe;
b.) Thermal image of bare pipe
c.) Image of new insulation with aluminum jacket;
d.) Thermal image of intersection of old and new insulation

