



MAST LANDING PUMP STATION PILOT REPORT—FREEPORT, ME

43 SOUTH FREEPORT ROAD FREEPORT, MAINE
MAST LANDING PUMP STATION 137 BOW STREET,
FREEPORT, ME

BACKGROUND:

The Mast Landing Pump Station located at 137 Bow Street, Freeport, Maine, is a 6-foot diameter wet well with one submersible pump. A Fats, Oils & Grease (FOG) blanket accumulates at the top of the influent at approximately 1-foot (1') every 4 weeks.

The normal operating procedures are to:

- Remove the FOG blanket with a vacuum truck monthly. If vacuum truck unavailable then:
- Clean the well with a water jet weekly beginning on week 4
 - Prevents FOG hardening (crusting) on the walls
 - Allows for proper float cable operation

SCOPE & TRIAL OBJECTIVES

The pilot commenced on January 25, 2017 and ended on February 27, 2017.

The primary objective of the trial was to demonstrate the Vapex Radical Odor System significantly decreases the accumulation of Fats, Oils and Grease at Mast Landing Pump Station. The other objective was to appraise Freeport personnel's interaction with the Vapex unit specifically in operation and maintenance.

TRIAL METHODOLOGY

A Vapex NANO with two HV nozzles was used for the trial. Prior to starting the trial, the FOG was removed from the well using a vacuum truck. The procedures below outline the installation of the unit:

- The NANO was placed in the vault
- PVC piping was routed from the vault to the well.
- Water and oxidant tubing was routed through the PVC piping from the unit to the nozzle to protect from freezing.
- The nozzles were attached to the PVC piping
- The nozzles were placed a few feet above the high water line. This was done to ensure quick oxidation of the FOG.
- Unit was energized.

DATA COLLECTION

Data collection comprised of taking pictures periodically to assess the buildup of FOG as the trial progressed. A sample of the FOG layer was taken prior to cleaning the well. This sample was sent to a laboratory for FOG characterization.

RESULTS

Jon McCabe of Freeport WWTP notified Vapex that during the duration of the pilot, the weekly water jet

cleaning was not performed because the walls and cables did not have FOG buildup.

Five days after the trial commenced on January 30, it was noted, the buildup of the FOG would have been typically greater and the water surface would have been seen in the well. According to Mr. McCabe the FOG layer would have been 1 to 2 inches thick after cleaning the well.

On February 16, twenty-two days after pilot commencement, Mr. McCabe stated that the walls were clean as were the cables and ladder. He noted that the water surface is seen. Without treatment, the entire well would have been covered up with a FOG blanket that would be between 6 inches and 10 inches.

On 2/27/17, the final day of the pilot, it was clear that buildup did not occur. In addition to the significant decrease in FOG buildup, Mr. McCabe stated he could not smell odors in the well.

After the trial FOG started to reform. By the third day after concluding of the trial, the FOG growth was clearly noticeable.

CONCLUSIONS & RECOMMENDATIONS

The pilot unit performed as expected and significantly decreased the accumulation of FOG above the water line. Additionally, the second objective was also achieved – Mr. McCabe did not encounter any issues operating or maintaining the machine and found the technology to be straightforward and easy to operate and maintain.

In a permanent installation, Vapex recommends the nozzles to be placed 180° away from each other and both nozzles slightly angled to one side to create a circular motion in the air. This will allow for more efficient oxidizing the FOG.

Overall, the pilot was successful and met the objectives set at the outset of the pilot.



PRE-TRIAL: ONE MONTH FOG BUILDUP 1/25/2017



VAPEX TRIAL: ONE MONTH RESULTS 2/27/2017



POST-TRIAL: THREE DAYS AFTER PILOT ENDED
3/2/2017