GPT Environmental Management Services

Flapstopper Case Study

Summary

Following a Liquid Pollution Risk Assessment conducted for a major electricity distributor we were asked to design a system for preventing oil spills escaping site. We designed and installed a bespoke flapstopper system which included:

- Drain alterations
- A baffle system to capture oil
- An oil probe to allow automatic activation
- A solar powered reverse flapstopper valve
- Numerous manual, automatic and remote activation methods

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Design

During a Liquid Pollution Risk Assessment we identified an unacceptable pollution risk posed by oil storage on site with insufficient control measures installed to provide tertiary containment. We explored the options of installing an interceptor or a bespoke flapstopper system to sufficiently mitigate the risk.

The evaluation concluded that installing an interceptor was not a viable due to site constraints.

We put a proposal together to install a flapstopper with automatic activation from an oil probe.

Install

Due to the complexities of the site there was a substantial amount of enabling works required to install the system.

We firstly needed to install a new manhole chamber in which the flapstopper, and associated infrastructure, could be housed.

The new chamber was 150cmØ and had a baffle system and oil probe installed within it. The size of the chamber facilitated laminar flow within the chamber which allowed oil to float to the surface before it passed under the baffles.

In order to effectively position the oil probe an efficacy test was conducted using polystyrene to simulate an oil spill, this allowed us to identify the ideal position for the oil probe. The oil probe was installed in the chamber and linked to the flapstopper to automatically activate in the presence of oil.

A reverse valve was manufactured to permit installation on the outlet of the chamber, this allowed the flapstopper to be situated downstream of the baffle system, preventing any oil escaping site.

Due to site complexities we installed a solar powered system as running power to the flapstopper would have been problematic.

The flapstopper was linked to several activation points throughout the site allowing manual activation from all high risk areas and the sites main office.

Following the installation we conducted training with relevant site personnel, provided a bespoke user manual for the system and a bespoke set of instructions on all call points.