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Specified Engineering Works

Fire Water Retention Storage



David

NRGE LTD ON BEHALF OF TIMOLEAGUE AGRIGEN LTD (P0986-01)

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Introduction

On behalf of our client Timoleague Agri Gen Ltd and following an independent fire consultant concluding that Fire Retention was not required from the EPA Fire Risk Assessment as the overall fire water runoff risk was rated at R0-No Risk. I herein provide a SEW proposal in line with condition 3.3 and schedule D on fire water retention storage following the EPA determination that fire water retention was required due to the proximity of the site to the SAC. All works will be supervised by a competent person and will be always present during the relevant works in accordance with condition 3.3.2.

The fire Risk management program prepared by Enviorguide in accordance with condition 3.20.2 calculated a total fire water collection capacity required based on the EPA Fire Risk guidance of 230m³ and the licensee proposes to install 230 cubes open concrete tank plus 200mm for freeboard located at the south-eastern corner of the facility as shown on site plan (Attachment 1).

Table 1: Firewater retention capacity Calculations

Firewater Calculations	Area/Volume	Capacity (m ³)
Storage Tank		10
Hose-Reel Tank		2
3 x Fire Appliances	2000 <u>litres</u>	6
1 x Fire Service Water Tanker		10
Total Impervious Surface area (completed and scheduled concrete works)	3187m ²	
10 year 24-hour (63.3mm)	0.063m	202
Total Firewater Collection Capacity required		230m³

Upon agreement by the Agency on this proposal, the licensee proposes to install the tank immediately with contractors just waiting on the green light.

Tank Design /Info

The tank will be partially installed over and underground due to the gradient fall in the proposed area. The design of the FWR tank will be in line with section 6.3.1 Design standards of the above referenced guidance with the tank been constructed to British standards Institute: BS 8007: Code of practice for the design of concrete structures for retaining aqueous liquid. In the event of fire all fire water will be gravity fed to the tank due

to the gradient of the site Please see attached Fire Water Retention Tank Specification section 3.6

Please refer to Site plan 11-02 FW Retention where the location of the valve is marked with a blue arrow.

The shut off valve mechanism will be activated by a Break Glass Unit located in the office.

Integrity of the Tank

The integrity of this tank will be carried out in accordance with Storage and Transfer of Materials for Scheduled Activities 2004 and due to the size of the tank, it is impracticable to carry out a test that will require an inordinate amount of water to be drawn from site supply. Therefore, a visual assessment will be carried out by a suitable qualified engineer.

Initial conversations with the Agency by the licensee had referred to installing leak detection points on the tank but it was decided that this was not warranted as the tank will always remain empty for the sole purpose of only been used in the event of a fire.

Operation of the KAS system

The automatic control philosophy is as follows

The system consists of a self-contained compressed air reservoir a solenoid valve with a battery pack and manual valves in a control cabinet and an inflatable insert on the manhole outlet pipe.

A solenoid valve Normally Closed DC coil with a battery pack to always keep power to it.

A signal to break the power to the solenoid and inflate the pipe stopper in a fire event.

This will activate the solenoid to release the air from the Air tank to inflate the Pipe Stopper.

The system uses compressed air to operate the system however there is a manual valve which can be turned to manually inflate the Pipe Stopper in the event of an electrical outage as seen in below photo 1.

Manual startup:



1. Activation inside the air-station:
Switch the lever-valve (open). Move the brass-bar on top of the bottle to the left.

Photo 1: Manual Brass valve

Once inflated either automatically or manually it can only be deflated by manually opening a vent valve at the control panel it is ready to be reused again as it simply just acts like a balloon from a kid's party.

The lampe Kas GB system is a fully automated system (Primary) which also has a brass manual lever (Secondary) attached inside the air station unit as seen from photo 1 above in the event of a power outage and the licensee proposes to use a Drain stop in the event the primary and Secondary completely fail. The drain stop will be manually inserted into the pipe.



Photo 2: Drain Stop

Warranty Period/Maintenance requirement of KAS System

The below screen shot is from the manufacturer of the KAS system regarding the warranty and maintenance of the unit.

Dear Sirs,

we have KAS systems that we installed in 1994, they are still in operation.
Our material from which the base unit is made has a proven life span of more than 40 years.
In principle, the warranty period in Germany is 2 years.
We recommend regular maintenance to all our customers at least every 12 months.

We hope that this information is helpful to you.

With best regards
LAMPE GmbH
Petra Kieczka

Stormwater Discharge Management

All stormwater from paved surfacing areas is directed by the gradients of the yard to a surface channel onto a Grit trap channel and oil interceptor prior to entry to the watercourse from the site.

In the event of a fire at the facility the licensee is proposing to install the LAMPE Sewer sealing system KAS (Attachment 2) which will be a fully automatic diversion system shutting off the discharge to the local watercourse and ensure compliance with condition 3.20.3 by means of a break glass unit located in the office. (Please refer to Blue Arrow on Site plan for exact location of diversion system). All water used by the fire service and any accumulated rainwater will then be diverted to a containment system comprising of an open concrete tank.

The proposed sealing system is an inflatable bladder which fills the outlet pipe from MH. Fire water will not be generated until the Fire Service have come to site by alarm call from site operations staff that are notified by alarm or Message. One of the company's officers resides 200m away from the facility with others within 15 minutes from the site. In the unlikely event of a fire

A pump sump will be installed to facilitate keeping the tank dry/empty from rainwater.
(Attachment 3)

Initial discussions with the EPA involved installing a second tank (quarantine tank) to future proof the business however It has been decided at Management level that the quarantine tank will not be installed as financial resources are required on other key elements of the operation.

Conclusion

Upon approval by the Agency and once construction is completed the licensee will complete a construction quality assurance validation report in accordance with condition 3.3.3 and will upload to EDEN for Review.

Attachments

1. Site Plan 11-02 FW Retention
2. LAMPE Sewer Sealing System KAS
3. Tank Details 11-03 FW Retention
4. Fire Water Retention Tank Specification