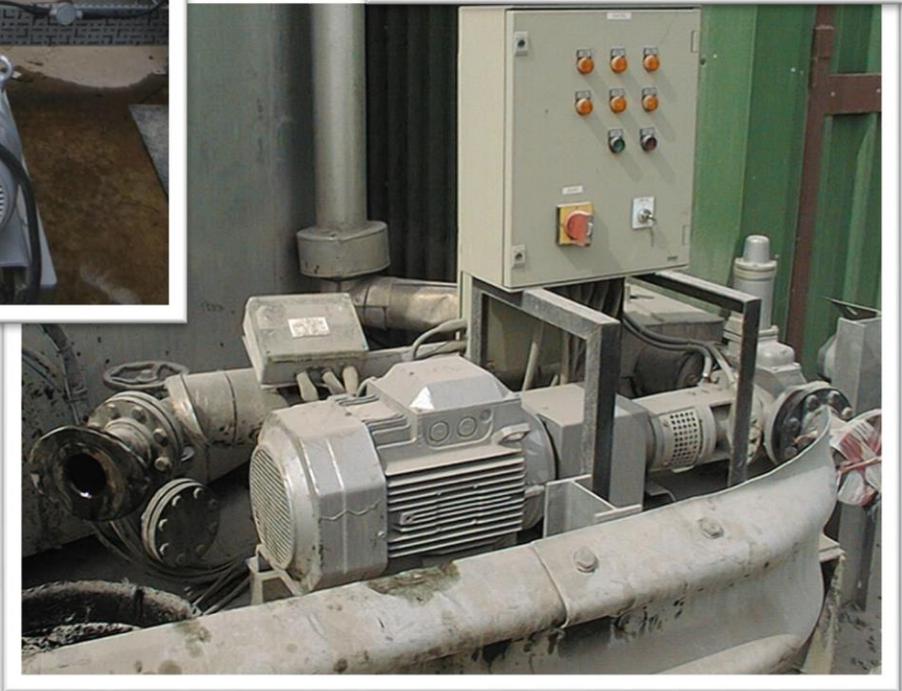


Ground Based Pumps

Introduction

- GBPs are the preferred means of bitumen delivery.
- GBPs:
 - Safety Benefits.
 - Environmental Benefits.
 - Design Considerations.
 - Operation and Maintenance.



GBPs – Safety Benefits

- If correctly installed and well maintained GBPs have the following safety benefits:
 - Elimination of pressure discharge reduces the risk of an uncontrolled release of hot bitumen.
 - The risk of hose, flange connection, joint and other failures are reduced.
 - Elimination of compressed air avoids a bow wave on the surface of the bitumen in the storage tank - particularly important in small horizontal storage tanks.
 - The HLA can be interlocked with the GBP to automatically stop the GBP if the alarm is activated.
 - Reduced chance of accidentally activating the HLA because there is minimal aeration of the bitumen and there is less turbulence in the storage tank.
 - **HOWEVER**, if **NOT** installed correctly there are significant risks.

GBPs – Environmental Benefits

- A GBP significantly reduces the amount of bitumen fume expelled from the vent pipe during the delivery.
- The GBP eliminates the need to use the compressor on the delivery vehicle:
 - Eliminates the compressor noise and exhaust emissions.
 - Reduces the carbon footprint of the delivery.
- Therefore a GBP delivery will have a positive environmental impact over pressure discharge.

GBPs – Design Considerations

- The GBP and all associated equipment must have a thorough HAZard OPerability (HAZOP) assessment during design and installation and must be designed to failsafe.
- To minimise the amount of bitumen in the pipework the GBP should be as close as possible to the delivery flange.
- To facilitate complete clearing of bitumen in the delivery pipework the GBP should be below the level of both the inlet and delivery vehicle flanges.
- It is essential that the GBP and delivery pipework is lagged and trace heated.

GBPs – Operation and Maintenance

- The site induction should include comprehensive instructions on the safe operation of the GBP.
- Clear instructions on the safe operation of the GBP should be at the delivery point.
- The discharge using the GBP must not start until the delivery driver is authorised to do so by the relevant site staff.
- The GBP must be maintained in accordance with the manufacturer's recommendations.

Bitumen Safety Documents

Guidance documents on a range of bitumen safety related subjects can be downloaded free from the Eurobitume website:

- UK Version of the 2018 Guide to Safe Delivery of Bitumen.
- Safety Showers
- Eurobitume Bitumen Burns Card
- Safety Footwear Risk Assessment for Bitumen Delivery Drivers
- Operational considerations for Hot Bitumen Storage Tanks and Off-loading Systems.
- Design and use of Ground Based Pumps (EBUK/MPA document).
- Safe Bitumen Tank Management (EBUK/MPA document).
- Returning Bitumen Storage Tanks to Service.

See also the Energy Institute Model Code of Safe Practice Part 11: Bitumen Safety Code

www.eurobitume.eu

Other Bitumen Toolbox Talks

The following toolbox talks can be downloaded free from the Eurobitume website:

- Bitumen Delivery Driver Induction
- Bitumen Discharge Permit
- Personal Protective Equipment
- Emergency Safety Showers
- Blocked/Partially Blocked Pipelines
- Trace Heating of Bitumen Pipelines
- Emergency Shutdown of Bitumen Delivery Vehicles
- 'Pocket' Guide to the Safe Delivery of Bitumen

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