Sludge Drying Beds

Indawo lapho komiswa khona udaka
Indawu yokomisa udaka
Indzawo lapho kumiswa khona ludzaka
Matamo a o omisa seretse
Tula ya go omisa seretse
Tulo tša so omisa leraga
Ndhawu laha ku omisiwaka ndzhope
Fhethu ha u omisa matope
Slykdroogbeddings
The purpose of the sludge drying beds

Sludge drying beds are provided to allow surplus sludge that is withdrawn from the process to dry for easier handling. Sludge drying relies on an underground drainage system as well as sunshine. Liquid from the underdrains should be returned to the sewage treatment process for further treatment.

- Wet sludge pumped from the anaerobic digesters
- Dry sludge ready for removal
- Underdrain returns liquid to process
- Inlet from anaerobic digester
- Splash slab
- Drying bed not in use

The operator makes sure that the sludge is wasted to the recommended depth of 300 mm

The operator must make sure that the sludge drying beds are not filled to the brim
The operator checks that splash slabs are in place to ensure that the underdrain filter media is not disturbed.

The operator sprinkles lime on the wet sludge to discourage flies.

Flow from the underdrainage system:

- Clear flow: The operator checks that the media is filtering clear liquid, by inspecting the flow from the underdrainage system.
- Not clear: The operator reports to the supervisor if the flow from the underdrainage system is not clear.
- No flow: The operator reports to the supervisor if there is no flow from the underdrainage system from a wet sludge drying bed.

Notes: .................................................................
The operator should remove the dried sludge from the drying beds to make space for wasting sludge from the anaerobic digester.

If the dry sludge in the drying beds gets wet again, there might be no beds to waste sludge from the anaerobic digester.

The operator removes the dried sludge, taking care not to disturb the top sand layer on the drying bed.

The operator calls the supervisor in case the top media layers has been disturbed.

The different layers of sand, gravel and stone in the bed:

- 100 mm Fine river sand
- 50 mm Pea gravel
- 75-125 mm Stone

DO NOT disturb the bottom layers when removing the dried sludge.
The operator puts the dried sludge in a designated area for composting.

The operator dispose of the dried sludge in an excavated trench. The sludge is then covered with a layer of soil (see page 8).

The operator can also dispose of the dried sludge in an incinerator.

Disposal of the dried sludge

The operator is responsible for the general upkeep around the sludge drying beds.
Indawo yoku hlwengisa ephezulu
Indawu yokucoca ephakamileyo
Indzawo lephezulu yekuhlobisa
Tulo ea ho hloekisa metsi e e hodingoana
Tulo ya go phepafatsa e godingwana
Karolo ya go hlwekiša e godingwana
Xiphemu xa ku tengisa xa xiyimo xa lehenhla
Fhethu ha nthu hu no tanziwa hone madi
Tersière behandeling
The purpose of the tertiary treatment process

Usually tertiary treatment at a sewage works involves a series of ponds, wetlands or reed beds that are installed to provide a degree of “polishing” of the treated effluent discharged from the mechanical treatment process. This is particularly important in the event of mechanical failure in the upstream process or during extended power failures.

The tertiary treatment process

- Maturation ponds
- Weir points
- Reed beds

Work procedure:

- The operator must check that there is a minimum of 500 mm freeboard (space between the embankment and the water level).
- The operator removes any vegetation, plastic bags or dead birds from the inlet and outlet weir points. Dead animals and birds should be reported to the supervisor.
The operator observes unusual odours and reports to the supervisor.

The operator checks the colour of the water, and if not greenish in appearance, reports to the supervisor.

The operator removes any floating debris from the surface and disposes of the debris at the inlet with the screenings (see page 8).

Notes:

PROTECT WATER SOURCES
Pump Stations, Electrical Boards, Store Room 13

Indawo yamapompo, indawo lapha kulawulwa khona ugezi & indawo lapho kubekwa khona imphahla
Isitishi sokupompa amanzi, ulawulondawo yombane & indlu yokucina
Indzawo yemhpompi, indzawo lapho kulawulwa khona gezi & indzawo yekubeka timphahla
Tulo eo dipompo, tulo ho laoloang motlakase & ntlo ya ho bolokela
Tulo ya dipompo, tulo fa go laolwang motlakase & tulo ya polokelo
Tulo ya dipompo, taolong ya motlakatse & ntlo ya bobolokelo
Xitixi laha ku pomperiwaka kona, laha ku lawuriwaka kona ghezi & yindlu ya vuhlayselo
Ho no dzula bommbo, ho no langulwa mudagasi & fhethu ha u vhulungela
Pompstasies, elektriese verspreidingsborde, stoorkamer
The purpose of the pump stations and electrical boards

**Pump stations** are provided in situations where the flow of waste water into and out of a sewage works under gravity (unassisted natural flow) is not possible.

**Electrical control boards** are necessary to ensure that the correct power is supplied to each mechanical item and to protect equipment from damage by lightning. Electrical control panels also provide information on the operation of mechanical equipment.
The operator takes regular readings

The operator calls the supervisor when there is a flashing orange light on the board. This is an indication that a pump has tripped.

The amp-meter reading must not be higher than the marked line on the meter. If the reading is higher, switch OFF the pump and call the supervisor.

The hour meter shows the time that the pump has been working.

ON/OFF-switch

The operator records the various readings on the board.

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The operator records the various readings on the board.
The operator notes that all the pumps are switched on, but that one of the pumps switches on/off at irregular intervals. This might be an indication that there is an obstruction in the pump. He switches the pump off at the emergency button and then goes to the electrical board. The operator switches the pump off at the appropriate switch.

The operator reports this to the supervisor. The operator removes any obstruction from the non-return valve or a pipe bend.

Notes

Pump Stations, Electrical Boards, Store Room 13
The operator notes that there is excessive water leaking from the gland or pipe connections (not the normal slow drip from the gland).

The operator reports all leaks to the supervisor.

The operator notes that the pump is overheating and making a noise. He calls the supervisor.

If there is no flow, it is usually an indication of a blockage.

The operator and supervisor make sure that there is flow at the inlet and discharge at the outlet.
The operator checks that the water from the leaks runs down the sloped floor towards the drainage sump. The drainage sump pump removes the water to avoid flooding inside.

The operator makes sure that the drainage sump pump is operational. If it is not operational the drainage sump pump and the entire pump station can be flooded.

Call the supervisor in case of any emergency.

The operator cleans the floor with clean water.

Waste water is usually collected in a sump. The operator checks that the sump does not overflow and checks the level control installation.

The operator hoses and cleans the level control installation.
The operator cleans the sump and collects any debris. The debris is disposed of with the screenable material at the inlet (see page 8).

Safety tip - No eating near the equipment

Do not leave any food stuffs in the pump station room

Contaminated food can lead to illness

The operator washes before eating

The operator eats in the designated area
The operator must not wear any loose clothing near the pumps. Operators must button up any loose clothing near mechanical equipment. Accidents might happen and injuries might occur.

**Safety tip - No loose clothing near the equipment**

**Safety tip - Store room**

Always keep the store room neat and tidy. An untidy store room can lead to injury.

**Notes**

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