

Tanks

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DWQR Risk Assessment Training
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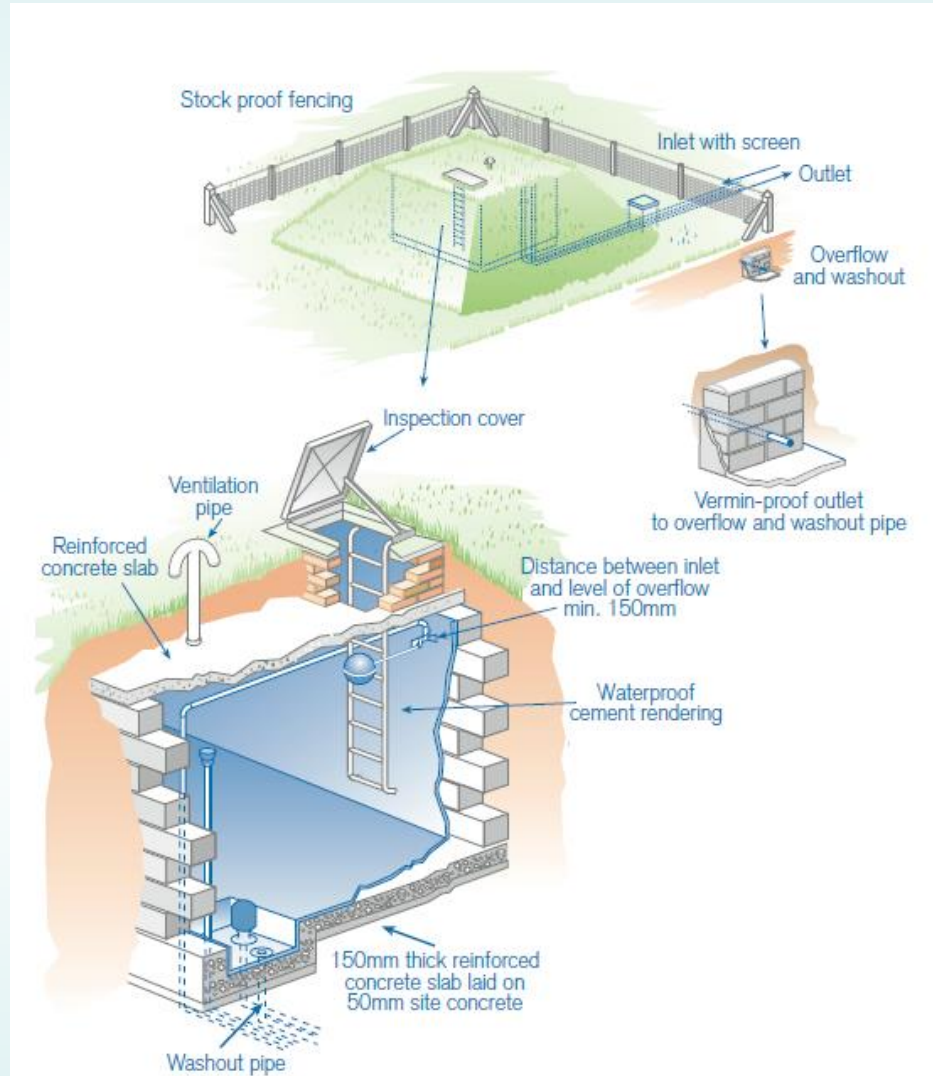


Overview



- Risk assessment covers raw and treated water tanks
- RA can hold as many separate Tank RA's as you need
- Poorly designed / maintained tanks can be a significant risk to water quality
- PWS grant can be used to improve tanks

Tanks - ideally



Tanks - ideally



PWS Tanks - ideally



PWS Tanks – The majority



PWS Tanks – Key points

Structure

- Material sound?
- No cracks or gaps (insects / vermin access)
- Material – appropriate for drinking water?
- Tree roots

Access Points

- Hatches sound and sealed
- Air vents – mesh cover
- Overflows – flaps / mesh

General

- Turnover / stagnation
- Solar heating
- Sampling
- Means to drain

PWS Tanks – Key points

Maintenance

- Inspection
- Structural repairs
- Vegetation / animal holes
- Hatches / vents
 - Seals / mesh intact
- Internal inspection & cleaning
 - Decide on frequency (SW treated water once per 5 yrs)
- Hygiene
- Remember health and safety!



Questions

DTK1	Is there a risk of treated water reservoirs or tanks being constructed of unsuitable material?	Tanks should be constructed from materials that are appropriate for use with drinking water, and ideally are approved as such. Inappropriate materials can fail structurally, or leach substances into the water that can be harmful or give the water an unpleasant taste. Tanks that have previously been used for another purpose can contain residue from whatever was in them before, and this can contaminate the supply.	4
DTK2	Is there a risk of microbial contamination in the vicinity?	This is similar to microbial risks in general catchment. Consider both activities such as slurry spreading and storage such as septic tanks. Consider integrity of the tank structure and accessibility of inspection chambers. Inspection chambers must be adequately protected by fences that are of appropriate height, material and robustness.	5
DTK3	Is there a risk of chemical contamination in the vicinity?	This is similar to chemical risks in general catchment. Consider both activities such as pesticide/fertiliser use and storage of fuels/oils. Consider integrity of the tank structure and particularly the inspection chambers.	4
DTK4	Is there a risk of low turnover of water?	<p>The size of the tank should be proportional to demand. Water which remains standing for any length of time in a holding structure will deteriorate to varying degrees depending on the conditions it is exposed to. The level of the water within the reservoir/tank should therefore rise and fall at intervals throughout each day, facilitating the constant input of fresh water to the structure.</p> <p>As a guide in raw water storage tanks, the water should be turned over (replenished due to use) every 7 days to avoid taste and odour issues and microbial or biofilm growth. Ask the owner to what extent the water is used on a daily basis and whether the capacity matches the demand, i.e. if the tank is too small then there may be a risk of insufficiency or if the tank is too large water may stand for long periods due to low demand.</p>	4
DTK5	Is there a risk of excessive solar heating of water?	The tank should be designed to avoid excessive heating of water that could encourage microbiological activity. Metal or dark coloured tanks that are above ground can be particularly vulnerable to this.	4
DTK6	Is there a risk of ingress of microbiological or chemical contamination, including rain or surface water through covers or tank structure?	Structural cracks and other defects in the roof and sides of the reservoir/tank provide a route of contamination, notably microbiological, via water ingress/rain. The reservoir/tank should be in a good general state of repair. Inspect its condition, looking for points of ingress and weakness, paying particular attention to the roof condition, and areas of notable deterioration or decay, which pose a future risk should the structure come under stress. Where possible, carry out internal inspections to determine any points of ingress or potential points of ingress. Flooding the roof during inspections will highlight areas requiring remediation. Any reports from contracted inspections should be consulted to assist with the assessment.	5

Questions

DTK7	Is the integrity of the reservoir suitably robust against damage by weather or animals?	The overall structure of the reservoir should be fit for purpose at all times to ensure any risk to its integrity is not compromised. Consider its position and robustness (including the material it is made of) in terms of its exposure to adverse weather in a worse case scenario and livestock within its vicinity.	4
DTK8	Are there any unprotected or inadequately protected access covers, overflows and/or vents?	Access covers, overflows and air vents present potential routes of ingress of water and other materials, which pose a risk of microbiological contamination and poor aesthetic quality. Vents and overflows should be checked to ensure adequate protective mesh is in place to prevent access of vermin and other wildlife, and ingress of general debris (leaves, insects, soil etc). Entry/access covers should be of a robust material, watertight and in a state of good general repair. There should be seals around the opening to the reservoir/tank that are in a sound state of repair (i.e. not in a state of decay, absent or do not provide an adequate seal against ingress).	4
DTK9	Is there a risk of vandalism of storage tanks?	Tanks should be adequately protected against the risk of intentional damage. Covers and access points must be securely locked when not in use and access to these points controlled. Check that the owner has records of all key owners. The reservoir/tank should be suitably robust in structure in a secure location.	3
DTK10	Is there a risk of deliberate contamination of treated water and unauthorised access?	Reservoirs should be adequately protected against the risk of intentional damage. Covers and access points must be securely locked when not in use and access to these points controlled. Check that the owner has records of all key owners. The reservoir/tank should be suitably robust in structure in a secure location. All tanks must be insulated against solar heat gain or freezing. Inspection chambers must be adequately protected by fences that are of appropriate height, material and robustness.	4
DTK11	Is there a risk from lack of regular maintenance and cleaning (with appropriate records)?	Verbal assurance from the owner that a reservoir is regularly cleaned/maintained is not evidence in itself that the action is undertaken or that the frequency is appropriate. Examine any available records, such as log books and/or supporting documentation such as contractual work receipts as evidence. In addition, look for physical signs that covers and access points are in regular use for this purpose. Annual cleaning is recommended for a surface water supply and frequency for other sources should be determined as appropriate, based on water quality history and the current risk assessment. Note that this question is not applicable to temporary installations/events.	4
DTK12	Could it be difficult to obtain a representative sample of stored water?	Tanks are often difficult to obtain representative samples from. Ideally access should be good or a tap identified that is close to the outlet of the tank.	3