North and West Queensland weather event February 2019—carcass disposal

Appendix 1—Locations (information as at 14 February 2019)

Overview

The general guidelines on the disposal of carcasses need to be applied within the context of local conditions, particularly in regards to the soils types being suitable to contain liquid leachate and having an adequate separation between the disposal pit base and underlying groundwater that may be used as a resource.

Particular location characteristics

All flooded locations are by their nature low-lying and silty-clayey soils, which implies reasonable soils for containment of leachate in construction pits. This can be assessed locally by digging test pits and local information on the depth to groundwater may be available from landholders from knowledge about resource uses such as bores and windmills. However, characteristics of unusual sites should be assessed on a case-by-case basis.

Cloncurry

Around the township of Cloncurry existing borehole soil stratigraphy and water table data suggest that the aquifers in use are similar in nature, as follows:

- depth to aquifer generally deep ranging from about 15–40 metres
- aquifer confined or semi-confined with static water levels rising under hydrostatic pressure to about 10–15 metres below ground
- the aquifer being in porous strata including granite, dolerite and limestone overlain by various impervious units of rock, clays and silty soils.

Overall surface soils and strata appear suitable for small disposal pits with no risk to groundwater.

Julia Creek

Around the township of Julia Creek there are few bores, probably due to the depth of the water table, which is about 300 metres. Existing borehole soil stratigraphy and water table data suggest the aquifers in use are the same strata, or similar in nature, as follows:

- thick layers of variable clayey surface soils to about 25 metres
- depth to useful aquifer generally deep at about 300 metres. Upper minor aquifer at about 10 metres in yellow clay noted as salty and probably unconfined and unusable for supply in flow and quality. Mid-level poor production aquifer at about 120 metres in sandstone unit.
- aquifer confined or semi-confined with static water levels probably rising under hydrostatic pressure but no static water levels recorded. Temperature of water of 52°C and moderate salt content indicates a confined, artesian source for main water supply
- the aquifer being in porous strata including sandstone overlain by various impervious units of rock, shale and clays.

Overall surface soils and strata appear suitable for small disposal pits with no risk to groundwater.

Hughenden

Around the township of Hughenden there are bores that tap both a deeper artesian aquifer and shallower bores in an unconfined aquifer in sandy alluvium. Existing borehole soil stratigraphy and water table data suggests the aquifers in use are similar in nature, as follows:

- variable surface layers of clay and shales to about 18–20 metres—more sandy lenses closer to the river
- unconfined aquifer at 7–12 metres in sandy strata in some places closer to the river in alluvium mostly north of the river—aquifer may be in use
- deeper aquifer in use at 175–183 metres—static water level at 84 metres below ground indicating artesian pressure from a confined aquifer.

Caution needs to be exercised for disposal close to larger watercourses due to the presence of sandy porous layers from buried alluvium in paleo-channels.

Overall surface soils and strata appear suitable for small disposal pits with no risk to groundwater away from the river.

Richmond

Around the township of Richmond, there are few bores probably due to the depth to the water table of about 220–300 metres in layered sandstone and mudstone strata. Existing borehole soil stratigraphy and water table data suggest that the aquifers in use are similar in nature, as follows:

- thick layers of variable clayey surface soils to 13–30 metres
- depth to useful aquifer generally deep at about 300 metres in sandstone—static water levels of 30–50 metres and water temperature of 40°C suggest an artesian source
- aquifer confined with static water levels probably rising under hydrostatic pressure
- the aquifer being in porous strata including sandstone overlain by various impervious units of rock, shale and clays.

Overall surface soils and strata appear suitable for small disposal pits with no risk to groundwater.

Winton

Carcasses are known to be distributed widely across Winton Shire with no significant hazards from carcasses close to the township so nominal locations across the shire have been assessed for soil conditions.

Winton Shire (N)—Wirilla area

- Thick layers of variable clayey surface soils to 20 metres.
- Depth to shallow aquifer from 20–40 metres in places and others deeper at about 100–270 metres in shale, sandstones and siltstones.
- Aquifer confined by overlying impervious strata with static water levels probably rising under hydrostatic pressure especially in the deeper aquifers.

Winton Shire (S)—Opalton area

- Surface soils variable according to location with clay, sand, shale and rock.
- Some shallow aquifers in use in shallow unconfined aquifers at 10–15 meters with a deeper semi confined aquifer at 20–60 metres in sandstone and gravel beds in places. Other very deep aquifers at about 1,000 metres likely to be artesian.

Caution should be exercised when excavating near waterways for larger disposal pits when encountering sandy porous layers that may connect to beneficial uses of the connected shallow aquifer locally. Local information on nearby bores and wells may be useful. Otherwise, seek local site specific information.

Winton Shire (E)—Bonnie Downs/Lucella area
Limited information from borelogs on surface strata, variable from clays to mudstones and siltstones. Aquifers at 30–40 metres generally saline with few in use. Risks to aquifers probably low but local information should be sought on the occurrence of local, shallow, unconfined aquifers in use.

Winton Shire (W)—Middleton/Lille area
Limited bores in use in the area as shown on database records but there may be local use of unconfined aquifers especially close to infiltration zones such as adjacent to water course.

- Surface soils variable include clay lenses, sandy clays and sandstones.
- Aquifers generally deep to very deep at 60 metres to 700+ metres under significant artesian pressure.

Caution should be exercised when excavating near waterways for larger disposal pits when encountering sandy porous layers that may connect to beneficial uses of the connected shallow aquifer locally. Local information on nearby bores and wells may be useful. Otherwise, seek local site-specific information.

Diamantina—Dagworth area (SSE of Kynuna)

Very few bores shown as in use with aquifers where present very deep 800m to 1,000m under significant artesian pressure bringing water (hot) close to the ground surface. Clay and shale surface strata to significant depths. Risk to artesian aquifers very low due to depth, confinement by upper impervious layers and outward water pressure.

Karumba—Gulf Country

Groundwater bores and wells are limited in number and mainly located around the coastal fringe in shallow paleo-channel sandy sediments from buried riverine sediments.

- Shallow unconfined aquifers at about 6–8 metres.
- Highly variable overlying sediment layers likely with sand, shell grit, clays and silts.
- Deeper saline artesian aquifer at about 130 metres in sandy shale under confining shale and rock layers.

Sedimentary strata at any one location is likely to be highly variably over short distances due to the past variation in channel positions and sediment deposition that are now covered in more recent material. Test pits will be the only reliable way to determine the suitability of soils for disposal pits. Information should be sought about the proximity of local wells and bores.

Normanton—Gulf Country

Limited information on bores and aquifers. Shallow aquifer in sand at 10–12 metres very salty. Deeper aquifer at 65–70 metres in mudstones probably low yield, not in use. Surface strata likely to be locally variable between clays, silty sands, silty clays and gravel.

Several bores close to township on south-west side at the landfill site probably for leachate monitoring only with saline groundwater noted at about 15 metres. South-west of the township (~30 km) deep

and very deep brackish aquifers occur at about 70 metres and 600 metres in shale and sandstone respectively.

Surface sedimentary strata at any one location is likely to be highly variably over short distances due to the past variation in channel positions and sediment deposition associated with the Norman River that are now covered in more recent material. Test pits will be the only reliable way to determine the suitability of soils for disposal pits. Information should be sought about the proximity of local wells and bores.

Burketown

Burke Shire—Burketown South/Yarrum

Very few bores shown as in use with aquifers where present very deep at about 600 metres in sandstone strata under significant artesian pressure bringing water close to the ground surface. Surface alluvial soils with clay to significant depths likely. Local variation in surface soils likely depending on proximity to waterways and drainage lines.

Burke Shire—Floraville/Millar Creek

Limited information on bores and aquifers. Shallow aquifers at about 18m in shale and deeper saline artesian aquifer at about 580 metres in sandstone. Surface soils variable alluvial silty and sandy to sandy clay and clay.

Burke Shire—Augustus Downs/Planet Creek

Very limited information on bores and aquifers. West side of river black soils, sand, shale and clay variable surface strata. Shallow aquifers likely at 15–20 metres with brackish to saline deep artesian aquifer in sandstone at about 330–400 metres under confining shale, sandstone and other rock strata. East of the river an artesian aquifer occurs at about 500 metres with a shallower aquifer at about 45 metres.

Local variation in surface soils is likely depending on proximity to waterways and drainage lines.

Carpentaria Shire— Neumayer Valley

No bores logged for the immediate vicinity. Likely to be similar to the western section of Augustus Downs with a deep artesian aquifer plus shallow unconfined aquifers around 20m, especially adjacent infiltration zones near waterways. Surface soils likely to be variable.

For other locations not listed

Information for other urban locations not listed above can be readily produced.

Requests for this information should be sent to the Local Disaster Management Group for progression to Department of Environment and Science.

Required information will need to include GPS coordinates or a Real Property Description i.e. Lot on Plan.

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The information provided in this fact sheet has been developed with specific consideration to the situation arising from the 2019 floods in North and West Queensland.