**Drilling fluids**

**Why are drilling fluids used?**

Drilling fluids are used when drilling wells for gas and waterbores, as well as in sealing of wells that are no longer in use.

Also known as mud or drill mud, the fluid’s functions include:

- clearing rock fragments and drill cuttings from beneath the drill bit and carrying them to the surface
- carrying information about the structure and composition of the well through data collected by pulses in the fluid that are measured during the drilling process
- providing a barrier for well control by stopping underground fluids and gases from flowing into the well and coming to the surface
- keeping the newly drilled bore hole open until steel casing is installed
- cooling and lubricating the drill’s rotating parts.

Arrow chooses drilling fluids that do not harm the environment when used with appropriate practices and safeguards.

**What drilling fluids are used by Arrow?**

Arrow uses the most basic water-based drilling fluids. The mixture uses recycled water from existing coal seams.

Two to three per cent of potassium chloride is added to prevent underground clay from swelling. Trace amounts of disinfectant (biocide) are added to prevent bacterial build up in the hole.

Arrow’s water based muds do not contain any synthetic polymers.

Arrow uses the following chemicals and products:

- Clay stabilisers
- Potassium chloride
- Cement additive
- Bentonite
- Calcium sulphate
- Disinfectant
- Biocide
- Foaming agent
- Anionic surfactant (similar to detergent)

**How does Arrow manage drilling fluids?**

Arrow manages drilling fluids across their life cycle, from production through to final disposal including transport, storage and usage. Arrow maintains safety data sheets (SDS – previously known as material safety data sheets) for every chemical purchased and used in our operations. Regular audits ensure all chemicals are handled and stored in accordance with regulatory safety requirements.

Arrow has standard operating procedures (SOP) for all chemical operations including transport, storage and handling. Every drilling contractor also has a safety representative to ensure chemicals are handled in accordance with the SDS and SOP.

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