SEDIMENT SAMPLING

UES Information SHEET 07 JUNE 05

Background

Sedimentation on the base of a service reservoir is an issue, as the clean frequency (normally 5 years) depends to some extent on the depth and type of sediment. A significant thickness is susceptible to disturbance and 'pick up' into the outlet flow. The nature of the sediment may be a water quality concern.

Sediment samples can identify problems that could have an impact on water quality e.g. deleterious material or stagnation occurring in the sediment.

Where 'carryover' from the treatment process is occurring, some knowledge of the nature and the thickness of the sedimentation can assist in refining the treatment process.

Methodology

ROV sediment sampling and thickness measurements have the advantage that real time images are constantly fed to the pilot, so that representative locations can be selected visually.

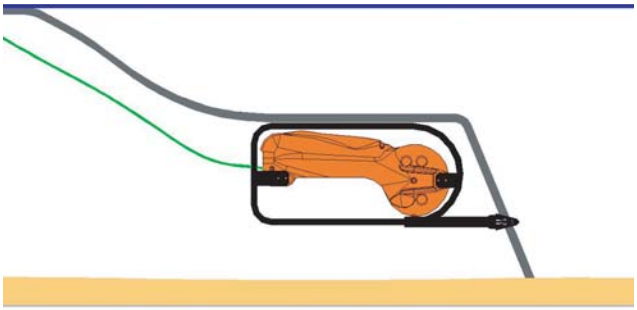
The depth of sediment is assessed using a gauging rod mounted on the ROV.

Sonar positioning fixes the actual location of samples and depth measurements.

Sediment sampling uses two basic methods:-

- Pumped sampling
  the quickest and lowest cost / sample
- Syringe sampling
  higher quality - no exposure to air

Sediment sampling will generally be carried out as part of a work package, to keep costs to a minimum.



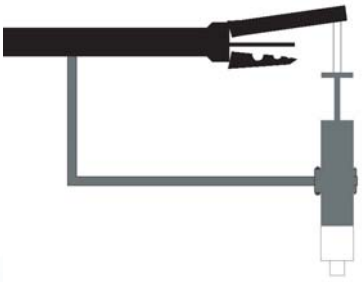
Pumped sampling

Using a peristaltic pump and a hose attached to the ROV, sediment samples are extracted from pre-selected locations and pumped to sterile sampling containers on the surface. (A peristaltic pump is used, as the sample does not come into contact with working parts of the pump).

The pump is left running between samples to flush the hose. The ROV moves the sampling nozzle about in the sample area to ensure that sediment is continuously being pumped while the sample is being collected on the surface. The sterile containers are sealed and sent for testing. This method is simple and easy, enabling numerous samples to be collected relatively quickly.

Syringe sampling

Using a large bore syringe mounted in a modified manipulator arm of the ROV, individual samples can be taken. The sample is stored in the syringe barrel used for the extraction, so the sample can be delivered for analysis without any secondary handling or exposure to air. Where more than one sample is required the syringe barrel is replaced and the ROV redeployed to a different location.



Budget Price Guide: *(ex. VAT)*

£500 per S.R./ tank - assuming works carried out as part of general work package

Principal Benefits:

- Provides definitive data - to assist in 'clean - don't clean decision making
- Identifies potential contamination problems - before it affects water quaity
- Identifies treatment process 'carry over' - assists with process optimation

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