

## Audit Updates and Improvements for 2023

Throughout 2022, the British Drilling Association (BDA)'s audit continued to raise the bar with regards to the on-site health and safety of the Land Drilling industry. For 2023 the audit is looking to build on these health and safety improvements and will now look to increase expectations with regards to the quality of information, data and samples obtained by drillers during an audit. Many auditees and employers will already be aware that the audit has been gathering data in this area for the past 18 months. The BDA is confident that there is now sufficient data for the Technical and Standard Committee to clearly identify areas where the quality of drilling data and knowledge is of a lower level than we should be expecting. To this end, these aspects will become measurable parts of the audit, which could, if found to be significantly lacking, lead to non-conformances and non-achievements of audits being recorded.

These quality checks will fall into six areas, with possible minor non-conformances being recorded across any and all of them. These are, as with the health and safety aspects of the audit, all assessed according to existing Standards, Regulations and Guidance. There are no areas which any qualified driller should not be aware of, as all relevant detail should have been covered within their Vocational Qualification assessment, or learned and understood as part of their ongoing continuous professional development. The T&S Committee have decided to initially focus on circa 25 to 30 potential minor non-conformances within the "technical" part of the audit. Allowances will be made where the auditor does not witness any of these aspects during the period of audit, but in general all will be covered.

### How will this be introduced?

During the next six months, auditees will be made aware of any shortcomings in preparation for their next audit, but no one will fail to achieve, no matter how many technical minors are recorded, as has been the case for the last 18 months. From 1<sup>st</sup> September 2023, should any auditee accumulate more than 5 minor technical non-conformances in any single audit, they would record a general non-conformance of the entire audit, and they would fail to achieve audited status. Their audit would then need to be repeated at a later date at repeat cost. The minors can be accrued across all parts, but no-one can non-conform based on any one single aspect.

Drillers are expected to be able to demonstrate all the technical aspects explained below, regardless of specific instructions of the project. For example, if the engineer is labelling samples on the project, we will still expect the driller to be able to competently demonstrate how they would label a sample according to the standards, before handing it to the engineer.

### Measurement

We will expect every driller to have a legible, accurate borehole measuring tape and a working water-level dip meter and use them accordingly.

There are four possible minors in this section:

- MINOR: Lack of borehole measuring tape,
- MINOR: Lack of working water-level dip meter,
- MINOR: Failure to utilise the borehole measuring tape correctly and accurately,
- MINOR: Failure to utilise the water-level drip meter correctly and accurately.

## Record keeping

Logs should be completed for every type of borehole, this includes dynamic sampling, and these must be legible and complete with full information about the borehole. The log should be completed fully in line with BS 5930.

There are two possible minors and one possible major in this section:

- MAJOR: Borehole log not being completed,
- MINOR: Log not being accurately completed in line with BS 5930 (Note: There are potentially 17 things that need to be included),
- MINOR: Log illegible or misleading.

## Sampling

All sampling must be conducted according to BS EN ISO 22475-1 to ensure the highest possible sample quality is obtained and preserved, in the best condition possible. The technical questions will check that samples are placed in the correct containers, liners, boxes, bags tubs etc. They will also check that samples are protected immediately to maintain the sample condition and that the correct sample is being taken in the correct manner regarding the stratum being sampled. We would also expect the driller to know the quality of sample they are being asked to obtain by each sampling method.

There are six possible minors in this section:

- MINOR: Inappropriate sampling method or technique being used for the given strata (or if specified by the engineer, the driller's awareness of whether the method is inappropriate),
- MINOR: Failure to collect samples without risk of contamination,
- MINOR: Failure to collect samples without risk of losing fines (where applicable),
- MINOR: Failure to place samples into appropriate containers and/or sealing them correctly (where applicable),
- MINOR: Failure to adequately protect samples from vibration, shock, heat, coldness and/or temperature changes,
- MINOR: Lack of knowledge of sample class obtainable using their current sampling method.

## Testing

All testing must be conducted to its given Standard and must be recorded correctly on the drilling log. The audit will particularly focus on the Standard Penetration Test and assess the driller's knowledge and application of BS EN ISO 22476. Questions will assess whether self-penetration has been measured and recorded, rod straightness, whether the equipment's certification is in date, the condition of shoes/cones being used, whether spares are available and whether the test is being carried out accurately.

There are five possible minors and one possible major in this section:

- MINOR: Lack of correct roll pins and designated locking pin (where applicable)
- MAJOR: Lack of a valid, in-date energy efficiency certificate
- MINOR: SPT equipment in inappropriate condition (damaged shoes/cones, no spares, incorrect rods being used)
- MINOR: Failure to check straightness of rods
- MINOR: Failure to record straightness of rods
- MINOR: Failure to conduct SPT to 22476-3 requirements (Note: There are potentially eight things that need to be included).

## Labelling

All labelling must be completed as per the given Standard – BS EN ISO 22475-1. This includes more than one means of identification on each sample, the details included on the label and if the label is sufficiently legible.

There will be three possible minors in this section:

- MINOR: Incomplete content on labelling (Note: There are potentially seven things that need to be included),
- MINOR: Failure to ensure samples carry more than one means of identification (i.e. two labels, one inside the container, one outside),
- MINOR: Sample label illegible.

## Installation and/or Reinstatement

Where installs or reinstatement of boreholes are witnessed, or an earlier example of one observed, it is expected that they are completed correctly.

There are three possible minors for installations and seven possible minors for reinstatement in this section:

- MINOR: Failure to complete install according to specification (i.e., correct level, sealed, sufficient filters where required, gas tap fitted where required),
- MINOR: Failure to accurately measure and report depths and levels of installations,
- MINOR: Failure to appropriately protect installation (drainage, security cover, no trip hazard, no surface water ingress),
- MINOR: If backfilled, failure to utilise arisings,
- MINOR: If backfilled, failure to compact arisings,
- MINOR: If grouted, failure to grout from the base of the borehole,
- MINOR: If grouted, failure to utilise suitable grout mixer,
- MINOR: If grouted, failure to monitor and comply with mixing requirements,
- MINOR: Failure to remove all spoil,
- MINOR: Failure to leave borehole area as found (clean, tidy, no waste remaining).

All of the above non-conformances have been witnessed during the last 18 months of audit data collection and hence the need for improvement identified by the BDA Technical and Standards Committee. It is important to note that the audit will not be reducing its focus on health and safety aspects but expanding the audit remit to raise standards for technical aspects as well.

Currently, the above only applies to auditees undertaking a Ground Investigation audit, not Geothermal or Waterwell. However, increased focus on the technical aspects of Geothermal and Waterwell drilling will be addressed, following the implementation of the questions into the GI audit.