

## EFFECTIVE SAMPLE LABELING

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### ABSTRACT

Ground-water samples collected for hazardous-waste and radiological monitoring have come under strict regulatory and quality assurance requirements as a result of laws such as the Resource Conservation and Recovery Act. To comply with these laws, the labeling system used to identify environmental samples had to be upgraded to ensure proper handling and to protect collection personnel from exposure to sample contaminants and sample preservatives. The sample label now used at the Pacific Northwest Laboratory is a complete sample document. In the event other paperwork on a labeled sample were lost, the necessary information could be found on the label.

### BACKGROUND

Ground-water samples collected by Pacific Northwest Laboratory for hazardous-waste and radiological monitoring have come under strict regulatory and quality assurance requirements as a result of laws such as the Resource Conservation and Recovery Act. Before these laws were in effect, sample collection consisted mainly of filling a single plastic bottle that was then submitted for limited analysis; this was a relatively simple system. To comply with new laws, the labeling system had to be upgraded to ensure proper handling and to protect sampling personnel from exposure to ground-water contaminants and sample preservatives.

### METHODS

Labels are printed monthly, using a computer data base that contains the following information: sample identification, date and time of collection, pump and bottle type, sample size, and special handling requirements. There is also space on the label for the sample collector to sign and date the sample. Special handling requirements are indicated by codes and/or colored dots that can be easily recognized by field personnel.

A typical sample label is shown in Figure 1. Items identified on the label (e.g., size and type of bottle, type of preservative) aid in sample preparation. Identification of sample location, pump type, filtering requirements, and analysis laboratory aid field personnel in proper sample collection and delivery. Analysis codes and handling requirements also provide important

The figure shows a typical ground-water sample label with two sections. The top section is a form with fields for Well name (13), Client code (14), Lab code (15), Sponsor (2), Lab (3/4), Sample Size (11), Bottle (9), Date/Time (16), and Collector (17). The bottom section is a form with fields for Well name (T 6345-0), Client code (X-XX-XXX), Lab code (B), Sample Size (1000 ML), Date/Time (07/01/89), Bottle (PWC), and Collector. A vertical line on the right side of the bottom section indicates low-volume pump use. A 'Filter' field is also present.

1. Well name (e.g., 299-E25-25).
2. Client code - indicates which program is charged for sample collection and analyses.
3. Lab code - indicates which laboratory the sample is sent to for analysis.
4. Potential radioactivity - alerts laboratory that sample may need special handling.
5. Analyses to be performed by the laboratory.
6. Vertical line down the side of the label - indicates low-volume pump to be used for sample collection.
7. "Filter" - indicates sample should be filtered.
8. Initial date for the sampling period.
9. Sampling frequency (e.g., M for monthly, Q for quarterly).
10. Type of bottle used (e.g., PWC, a plastic bottle with a white cap).
11. Sample size (e.g., 150 mL, 1000 mL).
12. Special sample-handling requirements - a letter here indicates that a colored dot should be placed on the label for easy recognition by sample collection personnel. For example, a "G" indicates that nitric acid is added to the bottle as a preservative.
13. A "T" here indicates that purge water from the well should be discharged into a holding tank and not on the ground.
14. Well code used by the laboratory to simplify data reporting.
15. A number following the well code indicates the sample is a replicate (e.g., the first sample would be designated "-0," the second sample "-1," etc.).
16. Date and time of sample collection.
17. Signatures of sample collection personnel.

Figure 1. Typical ground-water sample label.

information to laboratory personnel. Collection date, time, and signature of sample collector are vital for sample identification and quality assurance. The sample label is a complete sample document. In the event other paperwork on a labeled sample were lost, the necessary information could be found on the label.

#### **FUTURE PLANS**

Improvements are being made to the sample control system to produce chain-of-custody and field record forms from the same data base used to produce the labels. This will reduce the time required to prepare forms and minimize errors created when the forms are filled out by hand. Other enhancements being considered include adding bar codes to labels to enable close tracking of samples during collection and analysis and to speed sample processing.

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