

## Guidance for Completing the Groundwater Sampling Log (Form FD 9000-24) for Chapter 62-770, F.A.C.

### GENERAL INFORMATION

- 1) Site Name: The FDEP facility name listed in the work order or task assignment should be used; if non-program, the FDEP facility name listed in the Storage Tank Contamination Monitoring (STCM) database should be used. The same name must be entered on the Chain of Custody record along with the FDEP facility ID number.
- 2) Site Location: The address listed in the work order or task assignment should be used; if non-program, the address listed in the Storage Tank Contamination Monitoring (STCM) database should be used. The address may be entered on the Chain of Custody record.
- 3) Well No.: The designation used on the facility map must be entered.
- 4) Sample ID: Although most consultants repeat the information listed under Well No., the Sample ID must be unique to each container and must link it to the specific sampling location and date. The designation must match the one entered on the Field ID No. area of the Chain of Custody record.
- 5) Date: This should be the date on which the well was sampled, and must be identical to the date entered on the Chain of Custody record.

### PURGING DATA

- 1) Well Diameter (inches): This datum must match the information provided with the well construction log and summarized on the applicable summary table. If any discrepancy is identified, it must be described in the Remarks area.
- 2) Tubing Diameter (inches): The diameter of the tubing used for the purging and sampling must be listed.
- 3) Well Screen Interval Depth: These data must match the information on the applicable summary table. If the length of the screened interval is not known, the total depth of the well must be listed for the second datum. If the total depth is unknown, purge assuming a total depth similar to that of other on-site wells, sample the well and then sound the well to determine the total depth.
- 4) Static Depth to Water (feet) [FS 2211, section 3]: For wells completed at grade, the measurement must be made from the north side of the well casing unless there is a survey mark at a different location. For wells completed above grade, the measurement must be made from the north side of the stickup unless there is a survey mark at a different location.

- 5) Purge Pump Type or Bailer: The applicable Purging Equipment Code must be used (use of bailers requires prior FDEP approval).
- 6) Conventional (Well Volume) Purge [FS 2212, sections 2.3 and 2.5; see also FS 2213, sections 1.2 and 1.3]: This option is applicable for all wells. The pump or intake tubing must be placed in the top two feet of the water column unless an electric submersible pump is used and it is necessary to maintain a sufficient amount of water column above the pump motor, in which case the pump may be placed in the upper part of the water column but kept as close as possible to the water table (Standard Operating Procedures PCS-005, section A.2). The volume of water in the well must be determined using the Well Volume Purge formula provided. If this option is used, the Equipment Volume Purge formula should not be filled out. **Note:** Per Standard Operating Procedures PCS-005, section B.3, if a water-table well has the screen fully submerged and authorization was provided by the FDEP to sample the well, it must be purged and sampled as if the screen is only partially submerged (the equipment volume option described in FS 2212, section 2.4 is not applicable).
- 7) Minimized (Equipment Volume) Purge [FS 2212, section 2.4; see also FS 2213, section 1.1.1]: This minimized purge option is applicable only for wells designed with a fully submerged screen that is no more than 10 feet long. The pump or intake tubing must be placed in the middle of the screened interval. The volume of the pump, associated tubing and flow container (if used) must be determined using the Equipment Volume Purge formula provided. If this option is used, the Well Volume Purge formula should not be filled out.
- 8) Initial Pump or Tubing Depth in Well (feet): For well volume purge, a good rule of thumb is to place the pump or tubing approximately two feet below the water table; if drawdown is minimized as required there will not be any need to lower it during purging. However, if an electric submersible pump is used and it is necessary to maintain a sufficient amount of water column above the pump motor, the pump may be placed in the upper part of the water column but kept as close as possible to the water table (Standard Operating Procedures PCS-005, section A.2).
- 9) Final Pump or Tubing Depth in Well (feet): This field must be filled out as applicable, even if it is the same as for item 8.
- 10) Purging Initiated at; Purging Ended at: Military time preferred. If central standard time, the Remarks area may be used to reflect that information.
- 11) Total Volume Purged (gallons): This field must be filled out at the end of the purge. Per Standard Operating Procedures PCS-005, section A.1, unless authorized by the BPSS a

maximum of five well volumes may be purged even if parameter stabilization has not been achieved.

12) Time: The time listed on the first row should be the time at which measurement of stabilization parameters commenced. Pursuant to FS 2212, sections 2.3 and 2.5 for well volume purge, that will be after the water level stabilized and one well volume was purged; pursuant to FS 2212, section 2.4 for equipment volume purge, that will be after the water level stabilized and a minimum of one volume of the pump, associated tubing and flow container (if used) was purged. If section 2.3 is followed, at least 1/4 well volume must be purged between subsequent measurements; if section 2.4 or 2.5 is followed, subsequent measurements must be performed no sooner than two minutes apart.

13) Volume Purged (gallons): The volume listed on the first row must be the volume purged prior to the first measurement of the stabilization parameters, and subsequent values must reflect the volume purged since each previous measurement.

14) Cumulative Volume Purged (gallons): Values on this column should reflect the running total of the individual values listed on the previous column. The last value must be entered in the Total Volume Purged cell.

15) Purge Rate (gpm): This rate should be kept constant once the water level stabilizes, and may be the fastest rate that will not produce drawdown of the water table.

16) Depth to Water (feet): Measurements must be made prior to obtaining each set of stabilization parameters.

17) pH (standard units); Temperature (degree Celsius); Specific Conductance; Dissolved Oxygen; Turbidity: These data must be recorded as applicable, remembering to circle the units of the values listed for Conductance and D.O.

18) Color; Odor: Must be recorded as applicable. Samplers are not expected to smell the sample, just to indicate any odor that is detected incidentally.

#### SAMPLING DATA

1) Sampled by (print) / Affiliation; Sampler(s) Signature(s): The name(s) of the sampler(s) and their affiliation must be printed legibly. If two people participated in the sampling event and each sampled a set of wells, it is acceptable for each to sign the sampling log of the well(s) he or she sampled, but both samplers must sign the Chain of Custody record. If both participated in the sampling of every well, both must sign the sampling log and the Chain of Custody record even if one only provided minor assistance to the other.

- 2) Sampling Initiated at; Sampling Ended at: The same format used for item 10 of the "Purging Data" section must be used. The second datum is the sampling time to be entered on the Chain of Custody record. **Note:** Sampling must be initiated a maximum of six hours after purging ended [FS 2212, section 4.1; see also section 4.2].
- 3) Pump or Tubing Depth in Well (feet): If a well volume purge is performed, the pump or intake tubing must be within two feet of the depth to water recorded at the end of the purging unless an electric submersible pump is used and it is necessary to maintain a sufficient amount of water column above the pump motor, in which case the pump may be placed in the upper part of the water column but kept as close as possible to the water table (Standard Operating Procedures PCS-005, section A.2); if equipment volume purge is performed, the pump or intake tubing must be in the middle of the screened interval.
- 4) Tubing Material Code: The information must be filled out as applicable. Use of low density polyethylene is not recommended.
- 5) Field-filtered: This option is applicable only when trying to determine whether filtering may eliminate metals which may cause fouling of remediation equipment. That is, filtered samples may not be used to demonstrate that Cleanup Target Levels are not exceeded.
- 6) Field Decontamination (pump and tubing): Down-hole pumps must be decontaminated. The tubing usually is discarded, but it may be decontaminated except for the short length (one foot or less [FS 2213, section 2.1.1 and FS 2221, section 1]) of silicone tubing located in the peristaltic pump head, which must be discarded and replaced.
- 7) Duplicate: Duplicates are no longer required for petroleum cleanup work.
- 8) Sample Container Specification (Sample ID Code; Number of Containers; Material Code; Volume): The containers usually are provided by the laboratory. Commonly used containers are 1 L amber glass bottles with Teflon-lined caps for PAHs and TRPHs, 40 mL clear glass septum vials for VOCs, and 500 mL plastic bottles for metals.
- 9) Sample Preservation (Preservative Used; Total Volume Added in Field; Final pH): The Total Volume Added in Field and Final pH columns must be completed only if a chemical preservative is added in the field (all samples must be preserved with wet ice). Sample containers usually are pre-preserved at the laboratory when applicable: vials for VOCs (except for EDB) may be preserved with hydrochloric acid, which extends the holding time from 7 to 14 days (vials for EDB analysis should not be preserved); bottles for PAH analysis are not preserved; bottles for TRPH analysis are preserved with sulfuric acid or hydrochloric acid; and containers for metal analysis are preserved with nitric acid. The Preservative Used column must list all chemical preservatives added by the laboratory and any chemical preservatives

added in the field [see FD 5000, section 2.12], and the information (plus that for cases where only ice was used) must be entered also on the Preservatives area of the Chain of Custody record.

10) Intended Analysis and/or Method: A separate row must be used for each analyte or group of analytes, and the analyte or group of analytes (e.g., BTEX/MTBE, PAHs, Lead, TDS) and the corresponding method number or name (e.g., 8260, 8270, 6010, SM 2540C) must be entered here and on the Analyses Requested area of the Chain of Custody record (if a State-funded site, the Preapproval Sampling Parameter Table should be used as reference).

11) Sampling Equipment Code: Applicable codes must be selected from the list included below on the log.

12) Sample Pump Flow Rate (mL per minute): The maximum sampling flow rate for VOCs is 100 mL/ minute [FS 2221, sections 1.1.1.6, 1.1.2.7 and 1.1.2.8]; there is no limit for other analytes.

#### NOTES AND RECOMMENDATIONS

**Note:** Only the fields Site Name, Site Location, Well No., Well Diameter, Well Screen Interval Depth, and Intended Analysis and/or Method may be filled out in advance at the office.

**Note:** The form must be completed legibly in permanent ink. Any errors must be corrected with a single line through the mistake so that it is still legible, then writing the correct information and initialing the correction. Originals or copies of the logs filled out in the field must be provided with the reports.

**Note:** If using a peristaltic pump, the length of the tubing attached to the intake side of the pump should be enough to contain the 120 mL required to fill three VOC vials (if the tubing is placed within the screened interval, once it is withdrawn from the well it cannot be re-inserted in the well [FS 2221, sections 1.1.1 and 1.1.2]). When the samples are obtained from the top two feet of the water column of a vertical extent well (a well designed with a fully submerged screen), the tubing may be reinserted in the well if necessary [FS 2221, sections 1.1.1.7 and 1.1.2.9].

**Note:** If using a submersible pump or bladder pump. VOCs must be collected first, then other organics such as PAHs and TRPHs, and lastly inorganics such as metals. If using a peristaltic pump, VOCs must be collected last [FS 2221, sections 1.1.1 and 1.1.2].

**Note:** Equipment calibrations must be performed pursuant to FT 1000 and calibration logs must be provided with bracketed (pre- and post-sampling) calibration results.

**Recommendation:** If a well to be sampled was sampled before, it is advisable to make use of the available information, especially of purging rates and whether the well purged dry.

**Recommendation:** The facility map should be used to locate the wells to be sampled, and an initial inspection of each well must be performed, as described in FS 2211, section 2.

**Recommendation:** For State-funded work, it is advisable to use the Preapproval Sampling Parameter Table to make sure that the correct wells are sampled for the appropriate analyte or group of analytes.