

**WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
SOLID AND HAZARDOUS WASTE DIVISION
Operation & Maintenance (Interim Status)**

Part 1- Sampling & Analysis Plan (SAP)		
Result	Section	Inspection Item
		<u>Question</u>
	Chap. 1 265 (265.92)(a)&(e)	Does the SAP include provisions for the measurement of static water elevations in each well prior to purging and/or each sampling event?
	1 265 (265.92)(a)(1)	Does the SAP specify the device to be used for measuring water level elevations?
	1 265 (265.92)(a)(1)&(e)	Does the SAP specify the procedure for measuring water levels?
	1 265 (265.92)(a)	Does the SAP provide for depth measurement to standing water and to well bottom to 0.01 feet?
	1 265 (265.92)(a)(1)	Does the SAP explain whether dedicated or non-dedicated sampling equipment is used and the type of sampling equipment?
	1 265 (265.92)(a)	Does the SAP describe the procedures for well evacuation?
	1 265 (265.15)(b)(1)	Does the SAP include detailed operating, calibrating, and maintenance procedures for each sampling device?
	1 265 (265.92)(a)(1)	Does the SAP provide for dedicated sampling devices for each well or alternately provide for decontamination of sampling devices and the collection of blanks between wells?
	1 265 (265.92)(a)(1)	Does the SAP provide for the collection and containerization of samples in the order of volatilization potential?
	1 265 (265.92)(a)(2)	Does the SAP identify preservation methods and sample containers that will be used?
	1 265 (265.92)(a)(4)	Does the SAP describe procedures for transferring samples to off-site labs? (Chain of Custody procedures)
	1 265 (265.92)(a)(4)	Does the SAP describe a chain of custody program that include the following: use of sample labels, sample seals, field logbooks, chain-of-custody records, sample analysis request sheets, and lab logbooks?
	1 265 (265.92)(a)	Does the SAP include provisions for collection of field, trip, and equipment blanks?
	1 265 (265.15)(b)(1)	Does the SAP include an inventory of sampling equipment and sampling devices used as part of the monitoring program?
	1 265 (265.15)(b)(3)	Does the SAP include decision criteria to be used to replace or repair sampling equipment and/or monitoring wells?

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Part 2 - Operating Record and Well Sampling Evaluation		
Result	Section	Inspection Item
		<u>Question</u>
	Chap. 1 265 (265.94)(a); (265.73)(b)(6)	Does the Operating Record include annual reports of ground water monitoring results including water level for each well and piezometer in the system?
	1 265 (265.15)(b)(1); (265.73)(b)(6)	Does the Operating Record include an inventory of all sampling devices and purging equipment in use at the facility?
	1 265 (265.15)(b)(3); (265.73)(b)(6)	Does the Operating Record include the decision criteria to be used to replace or repair sampling equipment and/or monitoring wells?

	1 265 (265.73)(b)(6)	Does the Operating Record include the following records: a) date, exact place and time of sampling/measurement; b) individual (s) who performed sampling/measurements; c) date(s) analyses were performed; d) analytical techniques or methods used; e) results of such analyses?
	1 265 (265.15)(b)(1); (265.73)(b)(6)	Does the Operating Record include calibration and maintenance records?
	1 265 (265.94)(a)(1)	Does the Operating Record include ground water surface elevation records?
	1 265 (265.94)(a)(1); (265.73)(b)(6)	Does the Operating Record include a determination of ground water flow rate and direction(s) in the uppermost aquifer on annual basis?
	1 265 (265.92)(e)	Did the sampling crew follow these procedures: 1) remove locking and protective cap; 2) determine the static water level; and 3) lower an interface probe into the well to detect immiscible layers?
	1 265 (265.92)(e)	Did the sampling crew measure static water levels in the well and well depth prior to purging?
	1 265 (265.91)(c)	Did the sampling crew use a steel tape or electronic device to take depth measurements?
	1 265 (265.91)(c)	Did the sampling crew record depths to +/- 0.01 feet?
	1 265 (265.91)(a)	Are there any of the following problems present with any wells that may affect well integrity: - cracked, corroded, or degraded? -evidence of frost heaving, subsidence, or collision damage? -evidence of biological fouling? -wells show high levels of pH?
	1 265 (265.90)(a); (265.93)(d)(4)	If immiscible samples were collected, were they collected prior to well purging?
	1 265 (265.90)(a); (265.93)(a)	Did the sampling crew lower an interface probe into the well to detect immiscible layers after determining static water level?
	1 265 (265.90)(a); (265.92)(a); (265.93)(d)(4)	Did the sampling crew evacuate high yielding wells so that at least 3 casing volumes were removed? It is recommended to use stabilized field parameters instead of 3 casing volumes.
	1 265 (265.93)(a); (265.92)(a); (265.93)(d)(4)	Did the sampling crew evacuate low yielding wells to dryness prior to sampling? Note: At no time should a well be pumped to dryness if the recharge rate causes the formation water to vigorously cascade down the sides of the screen and cause an accelerated loss of volatiles. Three casing volumes should be purged at a rate that does not cause recharge water to be excessively agitated as long as the water level does not get below the screen.
	1 262 (262.11)	Did the sampling crew collect purge water for storage and analysis or for shipment offsite to a RCRA treatment facility?
	Purge Water Notes:	
	1 265 (265.92)(a)	If non-dedicated samplers are used, were the devices disassembled and thoroughly cleaned between samples?
	1 265 (265.92)(a); (265.93)(d)(4)	If samples were collected for organic analysis, did cleaning procedures include the following steps: 1) non phosphate detergent wash, 2) tap water rinse, 3) pesticide-grade hexane or methanol rinse, 4) acetone rinse, and 5) organic-free reagent water
	1 265 (265.92)(a); (265.93)(d)(4)	If samples were collected for inorganic analysis, did cleaning procedures include the following steps: 1) nonphosphate detergent wash, 2) tap water rinse, 3) dilute (0.1N) hydrochloric or nitric acid rinse, and 4) reagent water equipment rinse.
	1 265 (265.92)(a); (265.93)(d)(4)	Did the sampling crew take trip blanks, field blanks and equipment blanks?
	1 265 (265.92)(a); (265.93)(d)(4)	Did the sampling crew slowly lower the bailer to the well?
	1 265 (265.92)(a); (265.93)(d)(4)	Were the bailer contents transferred to the sample container to minimize agitation and aeration? To prevent aeration and loss of volatiles, a bottom emptying bailer device with a valve needs to be used, that allows the sample to slowly drain from the bailer. Also, VOAs need to be collected in a liquid stream to prevent loss of volatiles.
	1 265 (265.92)(a); (265.93)(d)(4)	Did the sampling crew take care to avoid placing clean sampling equipment, hoses and lines on the ground or other contaminated surfaces prior to well insertion?
	1 265 (265.90)(a); (265.92)(a)	Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters (TEGD, p. 105)?

	1 265 (265.90)(a); (265.92)(a)	Did the sampling crew measure the following parameters in the field: pH, temperature, specific conductance? It is also recommended that DO measurements be taken.
	1 265 (265.90)(a); (265.92)(a)	Did the sampling crew sample background wells before sampling downgradient wells?
	1 265 (265.90)(a); (265.92)(a)	Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for metals analyses samples and glass bottles with fluorocarbon resin-lined caps for organics samples analyses?
	1 265 (265.90)(a); (265.92)(a); 265.93(d)	If the sampling crew used balers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?
	1 265 (265.91)(a)	Has it been determined that silt or sediment have entered the well or piezometer and has accumulated to a depth of one foot, or 20% of the screen length, whichever is less or is there evidence the well or piezometer's yield has significantly decreased or the recovery time has significantly increased?
	1 265 (265.90)(a)	If the sampling crew used dedicated bladder pumps, were the pumps properly operated: -Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained? -Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube? -Was the bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?
	1 265 (265.90)(a); (265.92)(a); (265.93)(d)(iv)	Was the pump flow rate during collection of VOA samples, being maintained at a flow rate less than 0.1 L/min?
	1 265 (265.90)(a); 265.92(a); (265.93)(d)(iv)	Does the sample inlet and outlet tubing remain filled with water to avoid volatiles contacting air (i.e., no bubbles)?
	1 265 (265.90)(a); 265.92(a); (265.93)(d)(iv)	If sample pumps were used, were the pump contents transferred to the sample container to minimize agitation and aeration? VOC samples should be collected at a reduced flow rate, tilting the vial, and allowing the water to gently flow down the inside of the vial.
	1 265 (265.90)(a); 265.92(a); (265.93)(d)(iv)	Was the bladder pump performance rate monitored regularly for dropoff in flow rate and discharge volume per cycle?
	1 265 (265.90)(a); 265.92(a); (265.93)(d)(iv)	Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gas? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?

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