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0065655H

TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0818	TPA CHANGE NOTICE FORM	Date: May 10, 2018

Document Number, Title, and Revision:
DOE/RL-2010-72, Sampling and Analysis Plan for Remediation Wells in the 200-ZP-1 Operable Unit, Revision 2

Date Document Last Issued: June 2014

1227311

Approved Change Notices Against this Document: TPA-CN-641, -0758, and -0794

Originator: Kathy Leonard

Phone: 373-6375

Description of Change:
Table 3-1 is modified for two wells to remove the requirement to perform split-spoon sampling and adds additional water sampling.

M.W. Cline (DOE) and E. Laija (Lead Regulatory Agency) agree that the proposed change modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

The following changes to be made:

- An additional row has been added to Table 3-1 to provide sampling information for wells YJ-33/C9878 and YJ-34/C9880. The sampling information does not include split-spoon sampling in the vadose zone for biofouling sampling and analysis. It does include taking 3 water samples for each well at 240 ft bgs, 340, ft bgs, and 410 ft bgs.

Deleted text is denoted by ~~strikeout~~ and new text is denoted by double underline.

Note: Include affected page number(s): 3-2, 3-3, 3-4

Justification and Impacts of Change:
This change exempts the vadose zone sampling and analyses requirements for slime forming bacteria testing (capable of well fouling) during the drilling of 200-ZP-1 injection wells YJ-33/C9878 and YJ-34/C9880 that is to begin in April 2018. It also adds water sampling for purposes of biofouling analysis for both wells.

At the time TPA-CN-0794 was approved against this document for two new additional wells, it was uncertain if biofouling sampling and analysis would be needed in these wells since the results from the earlier sampling were not yet available. At this time, the results from the biofouling analyses performed in wells YJ-29/C9561, YJ-30/C95565, and YJ-32/C9563 are available and the conclusion is that slime forming bacteria in the soil formation is driving the fouling, not solely the "quality" of water leaving the 200 West P&T. The data also indicate limited spatial variation in the population of slime forming bacteria in the soil formation.

With this information, there is no longer a need to run biofouling analyses on soil samples from wells YJ-33/C9878 and YJ-34/C9880 in the vaodse zone.

Approvals:

DOE Project Manager	5/10/2018 Date	[X] Approved [ ] Disapproved
EPA Project Manager	5/14/2018 Date	[X] Approved [ ] Disapproved
N/A Ecology Project Manager	Date	[ ] Approved [ ] Disapproved

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Table 3-1. Well Sample/Measurement Locations and Depth

Sampling Location	Vadose Zone Sampling Depth, Frequency, and Analysis (ft bgs)	Aquifer Sampling Depth, Frequency, and Analysis (ft bgs)	
		Water Samples	Soil Samples (Sediment) Below Water Table[a]
YE-11, YE-13, YE-14, YE-17, YE-20, YJ-1, YJ-2, YJ-3, YJ-7, YJ-8, YJ-9, YJ-10, YJ-12, YJ-14, YJ-15, YJ-16, YJ-17, YJ-23, MW-1, MW-7, MW-2, MW-3, MW-8, and MW-6	**Ground surface to water table at each of the new wells:** During drilling, archive grab samples for geological purposes will be collected every 5 ft and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings.	**During drilling, water samples to be collected (in accordance with Section 3.5.6) as follows:** at 20 ft intervals throughout aquifer, unless visual observation in aquifer material change by the field geologist calls for 10 ft intervals for further clarification: • Carbon tetrachloride for quick-turnaround samples[b] • Table 1-2 constituents at standard turnaround time • Field screening parameters (temperature, pH, dissolved oxygen, specific conductance, and NTU)	**During drilling, soil samples to be collected:** • Every 5 ft, grab archive samples will be collected and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings • Every 20 ft, in correlation with aquifer water samples, grab two composite soil samples in pint jars from drill cuttings over the 20 ft interval for field screening grain-size (sieve) analysis
YJ-24 and YJ-25	**Ground surface to water table at each of the new wells:** During drilling, archive grab samples for geological purposes will be collected every 5 ft and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings.	**During drilling, water samples to be collected (in accordance with Section 3.5.6) as follows:** one sample just below the water table, one sample at about the middle of the aquifer (~390 ft bgs), and one sample just above the Ringold lower mud unit. Each sample will be analyzed for volatile organic compounds only.	**During drilling, soil samples to be collected:** • Every 5 ft, grab archive samples will be collected and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings • Every 20 ft, in correlation with aquifer water samples, grab two composite soil samples in pint jars from drill cuttings over the 20 ft interval for field screening grain-size (sieve) analysis
YJ-29, YJ-30, and YJ-32~~, YJ-33, and YJ-34~~	**Ground surface to water table at each of the new wells during drilling:** • Split-spoon samples for analytical purposes will be collected at about 80 ft bgs, 140 ft bgs, and 200 ft bgs. Samples to be analyzed for Table 1-2 biofouling constituents at quick turnaround times[c].	**During drilling, water samples to be collected (in accordance with Section 3.5.6) as follows:** five samples at 240 ft bgs, 260 ft bgs, 290 ft bgs, 340 ft bgs and 410 ft bgs and one sample collected 10 ft below the Ringold lower mud unit (if present), unless visual observation in aquifer material change by the field geologist calls for additional sampling for further clarification:	**During drilling, soil samples to be collected:** • Split-spoon samples for analytical purposes will be collected at about 240 ft bgs, 340 ft bgs, and 410 ft bgs. Samples to be analyzed for Table 1-2 biofouling constituents at quick turnaround times[c]. • Every 5 ft, grab archive samples will be collected and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings. • Every 20 ft, in correlation with aquifer water samples, grab two composite soil samples in pint jars from drill

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		Water Samples	Soil Samples (Sediment) Below Water Table[a]
	• Archive grab samples for geological purposes will be collected every 5 ft and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings.	• Carbon tetrachloride for quick-turnaround samples[b] • Table 1-2 constituents at standard turnaround time • Field screening parameters (temperature, pH, dissolved oxygen, specific conductance, and NTU) Following construction and development of each well, one water sample will be collected and analyzed for Table 1-2 post development constituents at standard turnaround times to provide baseline concentrations for each constituent.	cuttings over the 20 ft interval for field screening grain-size (sieve) analysis.
YJ-31			**During drilling, soil samples to be collected:** • Every 5 ft, grab archive samples will be collected and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings. • Every 20 ft, in correlation with aquifer water samples, grab two composite soil samples in pint jars from drill cuttings over the 20 ft interval for field screening grain-size (sieve) analysis.
YJ-33 and YJ-34	**Ground surface to water table at each of the new wells during drilling:** • Archive grab samples for geological purposes will be collected every 5 ft and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings.	**During drilling, water samples to be collected (in accordance with Section 3.5.6) as follows:** Three water samples at 240 ft bgs, 340 ft bgs and 410 ft bgs for biofouling analysis for constituents in Table 1-2 at quick turnaround times [c] (1 L containers). Five samples at 240 ft bgs, 260 ft bgs, 290 ft bgs, 340 ft bgs and 410 ft bgs and one sample collected 10 ft below the Ringold lower mud unit (if present), unless visual observation in aquifer material change by	**During drilling, soil samples to be collected:** • Split-spoon samples for analytical purposes will be collected at about 240 ft bgs, 340 ft bgs, and 410 ft bgs. Samples to be analyzed for Table 1-2 biofouling constituents at quick turnaround times[c]. • Every 5 ft, grab archive samples will be collected and where lithology changes occur in one-pint jar and a chip tray from the drill cuttings. Every 20 ft, in correlation with aquifer water samples, grab two composite soil samples in pint jars from drill cuttings over the 20 ft interval for field screening grain-size (sieve) analysis.

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Sampling Location	Vadose Zone Sampling Depth, Frequency, and Analysis (ft bgs)	Aquifer Sampling Depth, Frequency, and Analysis (ft bgs)	
		Water Samples	Soil Samples (Sediment) Below Water Table[a]
		the field geologist calls for additional sampling for further clarification: • Carbon tetrachloride for quick-turnaround samples[b] • Table 1-2 constituents at standard turnaround time • Field screening parameters (temperature, pH, dissolved oxygen, specific conductance, and NTU) Following construction and development of each well, one water sample will be collected and analyzed for Table 1-2 post development constituents at standard turnaround times to provide baseline concentrations for each constituent.	

a. If field screening instruments indicate radiological contamination above background at a given interval, grab two additional pint jar samples. Send one pint jar for 24-hour turnaround gamma-energy analysis and one additional jar for testing based on the gamma-energy analysis results (as determined by the groundwater remediation manager).

b. If samples have elevated organic concentrations, an "E" flag may be applied to the data due to a lack of time for dilutions and re-runs on a quick-turnaround time. The standard turnaround time sample will account for dilutions and re-runs, as applicable.

c. Samples not used will be archived until a decision about needs for any additional sampling associated with injection well performance are determined then disposed in accordance with Section 3.6.

bgs = below ground surface
YE = extraction wells
YJ = injection wells
NTU = nephelometric turbidity unit