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TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0744	TPA CHANGE NOTICE FORM	Date: September 14, 2016

Document Number, Title, and Revision:	Date Document Last Issued:
DOE/RL-2006-75, Supplement to the 100-HR-3 and 100-KR-4 Remedial Design Report and Remedial Action Workplan for the Expansion of the 100-KR-4 Pump and Treat System, Rev. 1 0079375	September 30, 2008

Approved Change Notices Against this Document: TPA-CN-250, TPA-CN-273, TPA-CN-359, TPA-CN-505, and TPA-CN-674

Originator: S.N. Balone	Phone: 376-0236

Description of Change:
This change notice adds 5 extraction wells, one monitoring well, and realigns 2 monitoring wells to the KR4 and KX pump and treat systems.

Michael W. Cline (**DOE**) and Rod Lobos (**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.*

Added text is denoted by double underline. Deleted text is denoted by ~~strikethrough~~.

Note: Include affected page number(s) NA

Justification and Impacts of Change:
Remediation process optimization is an ongoing process that is used to evaluate active remediation systems with the overall objective of identifying design or operations modifications to improve remedy performance. This evaluation occurs on a yearly basis and identifies potential changes to the existing pump and treat systems. Based on this process, specific document revisions to incorporate ongoing RPO activities are as follows:

- Section 1.3, "Modifications to the 100-KR-4 Pump-and-Treat Network Since 1997." - Update KR4 and KX well list table to add 5 new extraction wells (199-K-208, 199-K-210, 199-K-212, 199-K-220, and 199-K-225), one new monitoring well (199-K-226), and realign 2 monitoring wells (199-K-181 as extraction; 199-K-124A as injection). Bullets added to break out modifications made in a given calendar year. Specific changes are included in Attachment 1.
- Table 5-1, and Table A-2, "100-KR-4 Pump-and-Treat Monitoring Schedule." - Added wells 199-K-208, 199-K-210, 199-K-212, 199-K-220, 199-K-225, and 199-K-226 to tables and adjusted updated table to reflect the change in purpose for wells 199-K-124A and 199-K-181 as updated in Attachment 2.

Approvals:

DOE Project Manager	Date 9/12/2016	[X] Approved [ ] Disapproved
EPA Project Manager	Date 9-15-16	[X] Approved [ ] Disapproved
NA Ecology Project Manager	Date	[ ] Approved [ ] Disapproved

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ATTACHMENT 1
RDR/RAWP, DOE/RL-2006-75, Rev. 1
Update Well List in Section 1-3

KR4 AND KX WELLS		
Extraction Wells	**Injection Wells**	**Monitoring /Performance Wells**
199-K-113	199-K-121A	199-K-11
199-K-114A	199-K-122A	199-K-18
199-K-115A	199-K-123A	199-K-19
199-K-116A	199-K-124A	199-K-20
199-K-120A	199-K-128	199-K-21
199-K-127	199-K-143	199-K-22
199-K-129	199-K-156	199-K-23
199-K-130	199-K-159	199-K-32A
199-K-131	199-K-160	199-K-32B
199-K-141	199-K-164	199-K-36
199-K-144	199-K-169	199-K-37
199-K-145	199-K-170	199-K-110A
199-K-146	199-K-172	199-K-111A
199-K-147	199-K-179	199-K-119A
199-K-148	199-K-180	~~199-K-124A~~
199-K-152		199-K-125A
199-K-153		199-K-126
199-K-154		199-K-142
199-K-161		199-K-149
199-K-162		199-K-150
199-K-163		199-K-151
199-K-171		199-K-157
199-K-178		~~199-K-181~~
199-K-181		199-K-197
199-K-182		199-K-226
199-K-198		
199-K-199		
199-K-208		
199-K-210		
199-K-212		
199-K-220		
199-K-225		

- CY2013 – Convert monitoring well 199-K-181to an extraction well for the KX P&T to enhance downgradient capture of Cr(VI) plume near the 105-KE Reactor.
- CY2014 – Three new extraction wells were connected to the KX P&T system. Extraction wells 199-K-210 and 199-K-212 were added to improve river protection by enhancing capture of the Cr(VI) plume in the near-river vicinity downgradient of the 105-KE Reactor (199-K-210), and along the 116-K-2 Trench (199-K-212). Extraction well 199-K-220 was installed near the 183-KE Head House to provide mass removal from that source area.
- CY2015 – Well 199-K-208 was connected to the KX P&T system as an extraction well to improve river protection by enhancing Cr(VI) plume capture in the near-river area downgradient of the 105-KE Reactor, as well as to improve mass removal. Also, monitoring well 199-K-124A was realigned to the KR4 P&T system as an injection well to enhance plume capture.
- Through September 30, 2016 – New extraction well 199-K-225, was connected to the KX P&T to improve mass removal downgradient of the 183-KE Head House; New monitoring well 199-K-226 is planned to become an extraction well during fiscal year 2017 to enhance mass removal of Cr(VI) down gradient of the 105-KE Reactor. Current injection well 199-K-179 was realigned from KR4 to the KX P&T system to increase potential throughput of the KX P&T system. Also, KR4 extraction well 199-K-144 was realigned to the KX P&T system.

ATTACHMENT 2
RDR/RAWP, DOE/RL-2006-75, Rev. 1
Updated Table 5-1 and Table A-2

100-KR-4 OU Monitoring Schedule for Combined KR-4 and KX Pump and Treat Systems. (4 pages)

Sample Group	System Pre-Startup (Baseline)[e]			System Start Up[d]			System Operation		
	Water Level	Cr[b,c]	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]
Extraction/Compliance Wells									
199-K-113A	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-114A	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-115A	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-116A	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-120A	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-127	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-129	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-130	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-131	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-144	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-145	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-146	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-147	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-148	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-152	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-161	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-162	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-171	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-178	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-181	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-182	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-198	T	X	X	T	W/Q	SA	T	M/SA	SA

100-KR-4 OU Monitoring Schedule for Combined KR-4 and KX Pump and Treat Systems. (4 pages)

Sample Group	System Pre-Startup (Baseline)[e]			System Start Up[d]			System Operation		
	Water Level	Cr[b,c]	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]
199-K-199	T	X	X	T	W/Q	SA	T	M/SA	SA
199-K-208	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-210	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-212	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-220	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-225	--	--	--	T	W/Q	SA	T	M/SA	SA
Compliance Wells [f]									
199-K-18	--	--	--	T	--/Q	SA	T	--/Q	SA
199-K-19	--	--	--	T	--/Q	SA	T	--/Q	SA
199-K-20	--	--	--	T	--/Q	SA	T	--/Q	SA
199-K-32A	--	--	--	T	--/Q	SA	T	--/Q	SA
199-K-119A	--	--	--	T	--/Q	SA	T	--/Q	SA
199-K-125A	--	--	--	T	--/Q	SA	T	--/Q	SA
~~199-K-181~~	~~--~~	~~--~~	~~--~~	~~T~~	~~--/Q~~	~~SA~~	~~T~~	~~--/Q~~	~~SA~~
Extraction Wells									
199-K-141	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-153	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-154	--	--	--	T	W/Q	SA	T	M/SA	SA
199-K-163	--	--	--	T	W/Q	SA	T	M/SA	SA
Injection Wells									
199-K-121A	--	--	--	T	--	--	T	--	--
199-K-122A	--	--	--	T	--	--	T	--	--
199-K-123A	--	--	--	T	--	--	T	--	--
199-K-124A	--	--	--	T	--	--	T	--	--
199-K-128	--	--	--	T	--	--	T	--	--

100-KR-4 OU Monitoring Schedule for Combined KR-4 and KX Pump and Treat Systems. (4 pages)

Sample Group	System Pre-Startup (Baseline)[e]			System Start Up[d]			System Operation		
	Water Level	Cr[b,c]	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]
199-K-143	--	--	--	T	--	--	T	--	--
199-K-156	--	--	--	T	--	--	T	--	--
199-K-159	--	--	--	T	--	--	T	--	--
199-K-160	--	--	--	T	--	--	T	--	--
199-K-164	--	--	--	T	--	--	T	--	--
199-K-169	--	--	--	T	--	--	T	--	--
199-K-170	--	--	--	T	--	--	T	--	--
199-K-172	--	--	--	T	--	--	T	--	--
199-K-179	T	X	X	T	--	--	T	--	--
199-K-180	T	X	X	T	--	--	T	--	--
Performance Wells [f]									
199-K-19	--	--	--	T	--/SA	A	T	--/SA	A
199-K-21	--	--	--	T	--/SA	A	T	--/SA	A
199-K-22	--	--	--	T	--/SA	A	T	--/SA	A
199-K-32A	--	--	--	T	--/SA	A	T	--/SA	A
199-K-37	--	--	--	T	--/SA	SA	T	--/SA	SA
199-K-111A	--	--	--	T	--/SA	SA	T	--/SA	SA
~~199-K-124A~~	~~--~~	~~--~~	~~--~~	~~T~~	~~--/SA~~	~~SA~~	~~T~~	~~--/SA~~	~~SA~~
199-K-149	--	--	--	T	--/M	M	T	--/SA	SA
199-K-150	--	--	--	T	--/M	M	T	--/SA	SA
199-K-151	--	--	--	T	--/SA	A	T	--/SA	A
199-K-157	--	--	--	T	--/SA	SA	T	--/SA	SA
199-K-197	T	X	X	T	--/SA	SA	T	--/SA	SA
199-K-226	--	--	--	T	--/SA	SA	T	--/SA	SA
Treatment System									
Influent	--	--	--	--	W/SA	SA	--	M/SA	SA

100-KR-4 OU Monitoring Schedule for Combined KR-4 and KX Pump and Treat Systems. (4 pages)

Sample Group	System Pre-Startup (Baseline)[e]			System Start Up[d]			System Operation		
	Water Level	Cr[b,c]	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]	Water Level	Cr[b,c] Field/ Laboratory	Co-Contaminants and Target Analytes [a,c]
Effluent	--	--	--	--	W/SA	SA	--	M/SA	SA

[a] Co-contaminants, in accordance with the *Declaration of the Record of Decision for the 100-HR-3 and 100-KR-4 Operable Units at the Hanford Site (Interim Remedial Actions)* (EPA et al. 1996), are strontium-90 and tritium. Nitrate, carbon-14 and technetium-99 are target analytes.

[b] Groundwater samples associated with routine pump-and-treat operations are analyzed for hexavalent chromium by operators using a Hach® (registered trademark of the Hach Company, Loveland, Colorado) kit. All other samples are analyzed at the Waste Sampling and Characterization Facility (WSCF) using U.S. Environmental Protection Agency (EPA) Method 7196.

[c] Specific conductance, temperature, pH, turbidity, and dissolved oxygen will be measured for all laboratory samples.

[d] Startup duration is approximately 5 months and consists of Acceptance and Operational Testing. Estimated start February, 2010.

[e] System Pre-startup includes construction activities up to start of Acceptance Testing

[f] Except for new wells, System Start-Up sampling requirements for compliance and performance wells are specified only to insure that System Operation samples are maintained during Phase 2 realignment activities.

A = annual M = monthly Q = quarterly SA = semi-annually

T = hourly transducer or Tape During Sampling W = weekly X = one-time event Y = vertical profiling using Solinst™ sampler or similar.