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TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0752	TPA CHANGE NOTICE FORM	Date: September 22, 2016
Document Number, Title, and Revision: **DOE/RL-2016-42,** Sampling and Analysis Plan for KW Pump and Treat System Rebound Study, Rev. 0		Date Document Last Issued: May 2016
Approved Change Notices Against this Document: N/A		
Originator: S.N. Balone		Phone: 509-376-0236

Description of Change:
This change notice adjusts the sampling period as well as updates the sampling frequency for the well network based on data collected through August 31, 2016.

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.*

- Page v, Executive Summary, Line 11 - Change September 2016 to March 2017.
- Page 3-1, Section 3.1 Constituent List and Sampling Frequency, Line 35 - Change September 2016 to March 2017.
- Pages 3-3 through 3-5, Table 3-1, - Reduce monitoring frequency based on current measurements and observations and update table notes.
- Page 3-9, Table 3-2 - Update well attributes for wells 199-K-223 and 199-K-224.
- Page 3-13, Table 3-5 - Reduce monitoring frequency based on current measurements and observations and update table notes.
- Appendix C, page C-2 & C-3, Table C-2 - Update well attributes for wells 199-K-223 and 199-K-224 and update footnotes.

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

Note: Include affected page number(s). v, 3-1, 3-3, 3-4, 3-5, 3-9, 3-13, C-2, C-3

Justification and Impacts of Change:
At the beginning of January 2016, all groundwater monitoring locations associated with the KW pump and treat system exhibited hexavalent chromium concentrations below the 20 µg/L interim remedial action groundwater target concentration. Based on this observation, the KW pump and treat system was shut down May 16, 2016 to initiate a rebound study. At the time, the monitoring period identified in DOE/RL-2016-42 was identified to end September 30, 2016. As of September 1, 2016, the only wells with noticeable increases in hexavalent chromium concentrations are 199-K-205 and 199-K-173. These wells are at or immediately down gradient of the former 183-KW Head house. Concentrations at these locations have increased from approximately 10 µg/L to 40 µg/L over the course of 4 months.

Based on current observations, it is appropriate to continue the KW rebound study with modifications to sampling requirements. The general approach to changes in the rebound sampling is to reduce the sampling and analysis frequency in locations that have not exhibited changes in hexavalent chromium concentration over the past four months, while maintaining sampling frequency in wells that have exhibited change. It is also important to maintain a level of understanding in the distal portions of the plume in case a decision is made to restart the KW pump and treat system in focused areas. Monitoring locations that have exhibited changes in concentration of other analytes (e.g., strontium-90, carbon-14, tritium, nitrate, or trichloroethene) will be modified based on the change in concentration over the preceding 4 month period.

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Approvals:

Michael W. Cline DOE Project Manager	9/29/2016 Date	[X] Approved [ ] Disapproved
EPA Project Manager	9-28-16 Date	[X] Approved [ ] Disapproved
N/A Ecology Project Manager	Date	[ ] Approved [ ] Disapproved

Executive Summary

This document presents a groundwater sampling and analysis plan to support a hexavalent chromium rebound study at the KW pump and treat system located within the 100-KR-4 Groundwater Operable Unit on the Hanford Site.

Groundwater in the area affected by the KW pump and treat system has exhibited hexavalent chromium concentration below the interim remedial action target concentration of 20 μg/L at all monitoring locations since January 2016. This area has been selected for performing a rebound study to assess the completion of the interim remedial action. The pump and treat system will be shut down, the wells configured for groundwater monitoring, and sampling activities will be conducted between May and ~~September 2016~~March 2017. During the course of the study, groundwater conditions and monitoring results will be assessed and a path forward will be identified.

A total of 37 wells and nearby aquifer tubes will be included in the KW pump and treat rebound study sampling activity. All available monitoring locations associated with the KW pump and treat system will be used for sample collection.

3 Groundwater Sampling Program

This chapter describes the Cr(VI) rebound groundwater sampling and analysis activity for the KW pump and treat affected area which consists of a monitoring well network, parameters used as indicators of groundwater contamination, parameters establishing groundwater quality, and sampling and analysis protocols. The monitoring program presented herein is intended to specifically apply to the Cr(VI) rebound study conducted in the vicinity of the KW pump and treat system over a duration of several months.

Groundwater monitoring in the 100-KR-4 Groundwater OU is currently specified in DOE/RL-2006-52. New wells for extraction, injection, or monitoring purposes added to the 100-KR-4 interim action are installed in accordance with DOE/RL-2013-36, *100-KR-4 Groundwater Operable Unit Well Installation Sampling and Analysis Plan*, through well-specific addenda (i.e., DOE/RL-2013-36-ADD1, *100-KR-4 Groundwater Operable Unit Well Installation Sampling and Analysis Plan Addendum 1: 199-K-202, 199-K-205, 199-K-206, and 199-K-220*; DOE/RL-2013-36-ADD2, *100-KR-4 Groundwater Operable Unit New Well Installation Sampling and Analysis Plan Addendum 2: 199-K-203, 199-K-204, 199-K-207, 199-K-208, 199-K-209, 199-K-210, 199-K-211, and 199-K-212*; and DOE/RL-2013-36-ADD3, *100-KR-4 Groundwater Operable Unit New Well Installation Sampling and Analysis Plan Addendum 3: 199-K-223, 199-K-224, 199-K-225, and 199-K-226*), which also provide the proposed sampling schedules. Changes in the monitoring schedule or analytes will be made through Tri-Party Agreement (Ecology et al., 1989) change notices or revision to this SAP.

3.1 Constituent List and Sampling Frequency

Table 3-1 presents the selected monitoring locations (i.e., wells and aquifer tubes), parameters analyzed, and sampling frequency for sampling during the KW pump and treat rebound study. Specific contaminant measurements identified to support the KW pump and treat rebound study are Cr(VI) in groundwater, along with measurement of the co-contaminants nitrate, trichloroethene, tritium, strontium-90, and carbon-14. Additional measurements include aquifer physical properties (i.e., pH, specific conductance, temperature, and dissolved oxygen) and major ions for geochemical evaluation (i.e., calcium, magnesium, sodium, potassium, chloride, bicarbonate, sulfate).

Groundwater samples will be collected on a schedule based on the relative proximity of monitoring locations to the apparent secondary source areas, with the monitoring locations within the source areas being sampled most frequently (e.g., every other week) and locations more distant from the source areas sampled less frequently (e.g., monthly, bi-monthly, quarterly). Groundwater elevation will be measured manually during each groundwater sampling event; existing AWLN stations will remain in service and will record hourly groundwater elevation measurements. The rebound study sampling is anticipated to begin after a planned shutdown of the KW pump and treat system in May 2016. The rebound sampling will continue through ~~September 2016~~March 2017. In August 2016, the sampling data will be evaluated and a decision made regarding the need to restart the pump and treat system or to continue sampling.

Table 3-1. Monitoring Well Network for the KW Pump and Treat Rebound Study, Target Analytes, and Monitoring Frequency

				Contaminants of Concern							Groundwater Geochemistry (All Filtered Aliquots)							Groundwater Properties						
Location Name	Well ID	Plant ID	Location Type	Hexavalent Chromium (Filtered Aliquot)	Total Chromium (Filtered and Unfiltered)	Nitrate	Carbon-14	Strontium-90	Tritium	Trichloroethene	Calcium	Potassium	Magnesium	Sodium	Sulfate	Chloride	Bicarbonate	Dissolved Oxygen	Temperature	Turbidity	pH	Oxidation-Reduction Potential	Specific Conductance	Water-Level Measurement
199-K-106A	A9842	N/A	Groundwater well, C-14 source area	~~BiW~~M	~~BiM~~ 2x	~~BiW~~ M	~~BiW~~ M	~~BiM~~ 2x	~~BiW~~ M	M2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-107A	A9843	N/A	Groundwater well, Sr-90 source area	~~BiW~~M	~~BiM~~ 2x	2x	2x	~~BiW~~ M	~~BiW~~ M	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-108A	A9844	N/A	Groundwater well, peripheral Cr(VI) plume	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-132	C4670	WE1	Converted extraction well, High C-14 plume area	BiW	BiM	BiW	BiW	~~BiM~~ 2x	~~BiW~~ BiM	M	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-137	C5112	WE8	Converted extraction well, Cr(VI) source area	~~BiW~~M	~~M~~2x	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	a
199-K-138	C5113	WE2	Converted extraction well, distal Cr(VI) plume area	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-139	C5114	WE3	Converted extraction well, distal Cr(VI) plume, Sr-90 plume	BiM	BiM	2x	2x	BiM	BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-140	C5115	WE4	Converted extraction well, distal Cr(VI) plume.	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-158	C5484	WJ1	Converted injection well	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-165	C6451	WE7	Converted extraction well, Cr(VI) source area	~~BiW~~M	M	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	a
199-K-166	C6452	WE6	Converted extraction well, Cr(VI) peripheral plume	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-168	C6454	WE5	Converted extraction well, Cr(VI) plume, deep screen	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-173	C7016	WE10	Converted extraction well, Cr(VI) source area	BiW	M	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	a
199-K-174	C7061	WJ3	Converted injection well	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-175	C7062	WJ4	Converted injection well	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-183	C7683	N/A	Groundwater well, peripheral Cr(VI) plume	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-184	C7684	N/A	Groundwater well, peripheral Cr(VI) plume	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-185	C7685	N/A	Groundwater well, peripheral Cr(VI) plume, distal C-14 plume	~~BiM~~M	BiM	M	M	~~BiM~~ 2x	M	M	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-196	C7696	WE9	Converted extraction well, distal Cr(VI) plume	BiM	BiM	2x	2x	2x	2x	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a

Table 3-1. Monitoring Well Network for the KW Pump and Treat Rebound Study, Target Analytes, and Monitoring Frequency

				Contaminants of Concern							Groundwater Geochemistry (All Filtered Aliquots)							Groundwater Properties						
Location Name	Well ID	Plant ID	Location Type	Hexavalent Chromium (Filtered Aliquot)	Total Chromium (Filtered and Unfiltered)	Nitrate	Carbon-14	Strontium-90	Tritium	Trichloroethene	Calcium	Potassium	Magnesium	Sodium	Sulfate	Chloride	Bicarbonate	Dissolved Oxygen	Temperature	Turbidity	pH	Oxidation-Reduction Potential	Specific Conductance	Water-Level Measurement
199-K-204	C8291	N/A	Groundwater well, peripheral Cr(VI) plume, peripheral C-14 plume	~~BiW~~M	BiM	~~BiW~~ M	~~BiW~~ M	~~M~~2x	~~BiW~~ BiM	M	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-205	C8292	WE11	Converted extraction well, Cr(VI) source area	BiW	M	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	a
199-K-206	C8293	WJ2	Converted injection well	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-31	A4656	N/A	Groundwater well, distal plume bounding	BiM	BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	AWLN[a]
199-K-34	A4660	N/A	Groundwater well, distal Cr(VI) plume, Sr-90 plume	~~BiW~~M	BiM	~~BiW~~ M	~~BiW~~ M	~~BiW~~ M	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
199-K-223[b]	C9595	N/A	Planned groundwater well, Cr(VI) source area	BiW	M	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	~~AWLN[a]~~a
199-K-224[b]	C9596	N/A	Planned groundwater well, Cr(VI) source area	BiW	M	2x	2x	2x	2x	2x	BiM	BiM	BiM	BiM	BiM	BiM	BiM	a	a	a	a	a	a	~~AWLN[a]~~a
17-D	B8161	N/A	Aquifer tube, distal Cr(VI) and C-14 plume boundary	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
17-M	B8162	N/A	Aquifer tube, distal Cr(VI) and C-14 plume boundary	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
AT-K-1-D[a]	C4339	N/A	Aquifer tube, distal Cr(VI) boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
AT-K-1-M[a]	C4340	N/A	Aquifer tube, distal Cr(VI) boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
AT-K-1-S[a]	C4341	N/A	Aquifer tube, distal Cr(VI) boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C6236	C6236	N/A	Aquifer tube, distal Cr(VI) boundary	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C6237	C6237	N/A	Aquifer tube, distal Cr(VI) boundary	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C6238	C6238	N/A	Aquifer tube, distal Cr(VI) boundary	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C7641	C7641	N/A	Aquifer tube, distal Cr(VI) and C-14 plume boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C7642	C7642	N/A	Aquifer tube, distal Cr(VI) and C-14 plume boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a
C7643	C7643	N/A	Aquifer tube, distal Cr(VI) and C-14 plume boundary	~~2x~~BiM	~~2x~~ BiM	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	a	a	a	a	a	a	a

Table 3-1. Monitoring Well Network for the KW Pump and Treat Rebound Study, Target Analytes, and Monitoring Frequency

				Contaminants of Concern							Groundwater Geochemistry (All Filtered Aliquots)							Groundwater Properties						
Location Name	Well ID	Plant ID	Location Type	Hexavalent Chromium (Filtered Aliquot)	Total Chromium (Filtered and Unfiltered)	Nitrate	Carbon-14	Strontium-90	Tritium	Trichloroethene	Calcium	Potassium	Magnesium	Sodium	Sulfate	Chloride	Bicarbonate	Dissolved Oxygen	Temperature	Turbidity	pH	Oxidation-Reduction Potential	Specific Conductance	Water-Level Measurement

a. Groundwater properties and water levels will be measured during every well trip. Water level at aquifer tube locations will be derived from Columbia River stage elevation.

~~b. Drilling for identified wells is planned to start May 25th, 2016. Sampling will commence once the well is constructed.~~

~~c. Aquifer tubes AT-K-1-D, AT-K-1-M, and AT-K-1-S are configured for sampling during both high and low river stages. Sampling will be conducted in June and September 2016.~~

AWLN = automated water-level network

C-14 = carbon-14

Cr(VI) = hexavalent chromium

ID = identification

N/A = not applicable

Sr-90 = strontium-90

Monitoring frequency legend:

2x = During the initial KW pump and treat rebound study, two sampling events will occur at the identified location for the given contaminant. The study begins May 30 and ends September 30; aquifer tubes should be sampled during early and late September 2016. Wells identified for 2x sampling should be sampled in June and September. The rebound study continues starting October 1, 2016 and end March 31, 2017. All locations identified for 2x sampling should be sampled November 2016 and February 2017.

BiM = Contaminant will be sampled every other month, starting in June (sample in June, August, ~~and~~ September, October, and December) 2016, and February 2017).

BiW = Contaminant will be sampled every other week starting May 30, with last weekly sampling event the week of ~~September 22, 2016~~March 31, 2017.

M = Contaminant will be sampled on a monthly basis starting in June 2016.

Table 3-2. Attributes for Wells in the KW Pump and Treat Rebound Study Network

Monitoring Location Name	Construction Date	Easting[a]	Northing[a]	Ground Surface Elevation[b] (m amsl)	Top of Screen (m [ft] bgs)	Bottom of Screen (m [ft] bgs)	Depth to Water (m [ft] bgs)	Depth to Water Date
199-K-204	10/22/2014	568648.34	146572.85	142.476	19.0 (62.2)	47.9 (157.2)	22.8 (74.9)	Aug. 2014
199-K-205	2/3/2014	568845.67	146090.86	148.034	24.4 (80.1)	54.9 (180.1)	26.5 (87.1)	Sept. 2013
199-K-206	3/31/2014	568734.33	146049.54	150.207	24.5 (80.3)	54.9 (180.3)	29.1 (95.6)	Feb. 2014
199-K-223[c]	~~TBD~~9/8/2016	568781.31	146145.49	~~TBD~~144.6	~~TBD~~21.9 (72.0)	~~TBD~~52.4 (172.0)	~~TBD~~24.0 (78.7)	~~TBD~~Sept. 2016
199-K-224[c]	~~TBD~~8/24/2016	568734.73	146205.99	~~TBD~~145.7	~~TBD~~23.9 (78.3)	~~TBD~~54.3 (178.3)	~~TBD~~25.4 (83.4)	~~TBD~~Aug. 2016
17-D	10/10/1997	568480.00	146895.93	--	--	--	--	--
17-M	10/10/1997	568480.00	146895.93	--	--	--	--	--
AT-K-1-D	2/3/2004	568327.31	146807.11	--	--	--	--	--
AT-K-1-M	2/3/2004	568325.50	146806.94	--	--	--	--	--
AT-K-1-S	2/3/2004	568324.62	146805.78	--	--	--	--	--
C6236	8/24/2008	568031.67	146606.75	--	--	--	--	--
C6237	8/24/2008	568031.5	146603.73	--	--	--	--	--
C6238	8/24/2008	568033.65	146604.18	--	--	--	--	--
C7641	3/31/2010	568489.16	146934.31	--	--	--	--	--
C7642	3/31/2010	568490.69	146936.42	--	--	--	--	--
C7643	4/1/2010	568494.19	146939.5	--	--	--	--	--

a. Coordinates are in NAD83, *North American Datum of 1983*.

b. Elevations are in NAVD88, *North American Vertical Datum of 1988*.

c. Well construction information is based on daily reports and subject to change. ~~Identified location has not been drilled.~~

-- = data are not applicable due to monitoring location type.

amsl = above mean sea level

bgs = below ground surface

Table 3-5. KW Pump and Treat Rebound Study Wells for Vertical Sampling

Well Name	Well ID	Plant ID	Screen Size (in.)	Slot Size (in.)	Screened Interval (m [ft] bgs)	Sample Frequency	Sample Depths	Analyte
199-K-137	C5112	WE8	6	0.03	15 – 30 (50 – 100)	~~BiW~~[a]M	0.6 m (2 ft) below estimated WL 29 m (95 ft) bgs	Cr(VI)
199-K-165	C6451	WE7	6	0.02	17 – 50.6 (56 – 166)	~~BiW~~[a]M	0.6 m (2 ft) below estimated WL 35 m (115 ft) bgs 47 m (155 ft) bgs	Cr(VI)
199-K-173	C7016	WE10	6	0.02	19 – 37.5 (63 – 123)	~~BiW~~[a]M	0.6 m (2 ft) below estimated WL 30 m (100 ft) bgs	Cr(VI)
199-K-205	C8292	WE11	6	0.04	24.4 – 54.9 (80.1 - 180.1)	BiW[a]	0.6 m (2 ft) below estimated WL 41 m (135 ft) bgs 51.8 m (170 ft) bgs	Cr(VI)
199-K-223[b]	C9595	N/A	6	0.04	~~TBD (30 m [100 ft] screen~~ 21.9 – 52.4 (72.0 – 172.0)	BiW[a]	0.6 m (2 ft) below estimated WL ~~TBD~~41 m (135 ft) bgs ~~TBD~~52 m (170 ft) bgs	Cr(VI)
199-K-224[b]	C9596	N/A	6	TBD	~~TBD (30 m [100 ft] screen)~~ 23.9 – 54.3 (78.3 – 178.3)	BiW[a]	0.6 m (2 ft) below estimated WL ~~TBD~~40 m (130 ft) bgs ~~TBD~~53 m (175 ft) bgs	Cr(VI)

a. Identified wells will have vertical sampling at the depths specified on alternate weeks.

b. Well construction information is based on daily reports and subject to change.

~~b. Drilling for identified wells is planned to start May 25th, 2016. Sampling will commence once the well is constructed. Sample depths will be determined based on sample results collected during drilling.~~

bgs = below ground surface
Cr(VI) = hexavalent chromium
ID = identification
N/A = not applicable
TBD = to be determined
WL = water level

Table C-2. Sampling Interval Information for Wells Within the KW Pump and Treat Rebound Study Area

Well or Aquifer Tube Name	Hydrogeologic Unit Monitored	Reference Elevation (m)	Elevation Top of Open Interval (m)	Elevation Bottom of Open Interval (m)	Open Interval Length (m)	Water-Level Elevation (m)	Water-Level Date
199-K-108A	TU	142.77	121.64	115.43	6.20	119.58	3/01/2016
199-K-132	TU	135.96	120.71	113.09	7.62	Ext	N/A*
199-K-137	UU	142.40	127.16	111.92	15.24	Ext	N/A*
199-K-138	TU	134.22	119.48	108.82	10.67	Ext	N/A*
199-K-139	TU	142.81	123.42	112.75	10.67	Ext	N/A*
199-K-140	TU	142.56	123.36	112.69	10.67	Ext	N/A*
199-K-158	UU	145.50	126.57	112.86	13.72	Inj	N/A*
199-K-165	U	145.46	128.39	94.86	33.53	Ext	N/A*
199-K-166	U	144.54	124.43	93.95	30.48	Ext	N/A*
199-K-168	LU	142.59	111.91	93.69	18.22	Ext	N/A*
199-K-173	U	145.63	126.42	108.14	18.29	Ext	N/A*
199-K-174	U	148.19	127.43	109.14	18.29	Inj	N/A*
199-K-175	U	152.47	126.89	108.61	18.29	Inj	N/A*
199-K-183	U	140.33	126.00	107.72	18.29	119.96	03/01/2016
199-K-184	LU	142.84	106.94	93.22	13.72	119.54	02/05/2016
199-K-185	U	134.62	122.88	93.93	28.96	118.96	03/01/2016
199-K-196	U	133.96	122.98	94.03	28.95	Ext	N/A*
199-K-204	U	142.48	123.52	94.56	28.95	Inj	N/A*
199-K-205	U	148.03	123.62	93.13	30.48	Ext	N/A*
199-K-206	U	150.21	125.75	95.26	30.48	Inj	N/A*
199-K-223[a]	~~TBD~~ U	~~TBD~~ 144.6	~~TBD~~ 122.66	~~TBD~~ 92.19	~~TBD~~ 30.48	~~TBD~~ 120.61	~~N/A*~~ 9/8/2016
199-K-224[a]	~~TBD~~ U	~~TBD~~ 145.7	~~TBD~~ 121.85	~~TBD~~ 91.37	~~TBD~~ 30.48	~~TBD~~ 120.32	~~N/A*~~ 8/24/2016
17-D	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
17-M	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
AT-K-1-D	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
AT-K-1-M	N/A	(-)	(-)	(-)	(-)	(-)	N/A*

Table C-2. Sampling Interval Information for Wells Within the KW Pump and Treat Rebound Study Area

Well or Aquifer Tube Name	Hydrogeologic Unit Monitored	Reference Elevation (m)	Elevation Top of Open Interval (m)	Elevation Bottom of Open Interval (m)	Open Interval Length (m)	Water-Level Elevation (m)	Water-Level Date
AT-K-1-S	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C6236	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C6237	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C6238	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C7641	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C7642	N/A	(-)	(-)	(-)	(-)	(-)	N/A*
C7643	N/A	(-)	(-)	(-)	(-)	(-)	N/A*

Notes:

a – Information is based on daily reports and subject to change.

*	=	static water level not available
(-)	=	data are not applicable due to monitoring location type
Ext	=	pump and treat extraction well; water level is dynamic during operation
Inj	=	pump and treat injection well; water level is dynamic during operation
LU	=	lower unconfined
N/A	=	not applicable
TBD	=	to be determined; well is not yet constructed
TU	=	top of unconfined
U	=	undifferentiated unconfined
UU	=	upper unconfined