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Project/File: 193708980.100.005

Hylton Jackson, Environmental Specialist
Iowa Department of Natural Resources
Contaminated Sites Section
502 E. 9th Street
Des Moines, IA 50319

Reference: USEPA Hydrological Review of the Final Remediation Action Implementation Work Plan

Dear Mr. Jackson:

On behalf of our client Rockwell Collins, Inc. (Rockwell Collins), Stantec Consulting Services Inc. (Stantec) has prepared this letter to respond to comments provided by the United States Environmental Protection Agency (USEPA) in a Hydrogeological Review of the Final Remedial Action Implementation Work Plan, Revision Number 3 memorandum dated March 2, 2023 (Review). The Review, which the Iowa Department of Natural Resources (IDNR) provided to Stantec on March 23, 2023, focuses on Final Remedial Action Implementation Work Plan Addendum Revision No. 3 (RAIWP) Quality Assurance Project Plan, which was revised to incorporate per- and polyfluoroalkyl substances (PFAS) monitoring and submitted to IDNR and USEPA on October 24, 2022. IDNR indicated no further comments beyond those in the Review. In this letter, Review comments are presented in italic font and Rockwell Collins responses are provided below each comment.

1) ***Pg x. Project/Task Organization:*** *paragraph one, I believe this document should be referenced as the "October 2022 per- and polyfluoroalkyl Substances (PFAS) Groundwater Sampling Work Plan" not "September 2022 Per- and…." Like is currently listed in the document.*

The document date referenced on page x will be updated from September 2022 to October 2022.

2) ***Pg. 1-1. 1 Introduction:*** *Same comment as above regarding document name.*

The document date referenced on page 1-1 will be updated from September 2022 to October 2022.

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3) ***Section 3.1.1.5 Deadlines:*** *I could not locate the scheduled outline. Recommend including the scheduled outline or more specific directions to locate said outline.*

Schedules for current Remedial Action activities are documented and/or proposed for IDNR approval in site-related work plans, reports (e.g., Annual Groundwater Monitoring Reports), and correspondence.

Section 3.1.1.5 Deadlines will be revised to read, "*Performance of the RAWP and RAWP Addenda activities will commence following receipt of IDNR and USEPA written approval of the RAWP, subsequent RAWP Addenda, and this QAPP, and will proceed in accordance with schedules outlined in the RAWP, RAWP Addenda, and applicable reports and regulatory correspondence*."

4) ***Section 3.1.2.1.4.1 Population of Interest:*** *I believe it should be Table 2-1 not 3-1 in the first paragraph. Please review and revise if necessary.*

The table referenced in Section 3.1.2.1.4.1 will be revised from Table 3-1 to Table 2-1.

5) ***Section 3.1.2.2.4.1 Population of Interest:*** *Same as above.*

The table referenced in Section 3.1.2.2.4.1 will be revised from Table 3-1 to Table 2-1.

6) Section 3.1.2.5.5.2 Action Levels

Following the EPA's hierarchy of toxicity values used in Superfund risk assessments (OSWER Directive 9285.7-53), the RSLs are based on toxicity values and under CERCLA RSLs should be used to determine if further investigation is warranted. The IDNR Screening level appears to be following the 2019 Interim Recommendations to Address Groundwater Contaminated with PFOA and PFOS (OLEM Directive No. 9283.1-47) which lists the screening level of 40 ppt for both PFOA and PFOS. In the guidance it is recommended to use a HQ of 0.1 for screening for PFOA and PFOS. Based on this information, the recommended action levels are from the November 2022 Tap Water RSL. The current RSL value for PFOA is 6 ng/L and for PFOS it is 4 ng/L.

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In Section 3.1.2.5.3.4, actions levels will be revised to be USEPA risk-based Regional Screening Levels for Resident Tapwater based on a target cancer risk of 1E-06 and target noncancer hazard index of 0.1 (Tapwater [0.1] RSLs). The insertion of "(0.1)" was used for differentiation from Tapwater RSLs defined in Section 3.1.2.4.3.4 for 1,4-dioxane, which are based on a target noncancer hazard index of 1.

In Section 3.1.2.5.5.2 and other sections that include an action level, the phrase "screening level" will be revised to "Tapwater (0.1) RSL".

7) Section 3.1.2.5.7.3 Sample locations

a. The text states "groundwater samples will be collected from former disposal area monitoring wells identified for PFAS analysis in Table 3-2 of this QAPP." The wells listed for PFAS analysis in Table 3-2 are MW-1A and MW-3A. Based on Figure 1 provided in the QAPP, MW-2A is located in the extent of the disposal cap. Recommendation is to also sample MW-2A for PFAS.

Table 3-2 will be updated to include sampling of monitoring well MW-2A, in addition to monitoring wells MW-1A and MW-3A.

b. Based on the current sampling plan, there is no considerations for collecting an upgradient groundwater background sample for PFAS. Without a background groundwater PFAS sample, it will not be possible to completely determine if the Ralston site is a potential source of potential PFAS continuation. Considerations should be made to collect a background groundwater PFAS sample.

Current monitoring well locations do not provide a background location for the shallow alluvial aquifer. The need for a background monitoring location to assess potential source will be evaluated based on results of the initial PFAS monitoring.

8) Section 4.2.2 Monitoring and Purging

The 2021 Annual Remedial Action Activity Report prepared by Stantec states "Total depths of monitoring wells were not measured during the 2021 monitoring events due to installation

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of dedicated bladder pumps in each of the wells." Based on this information all monitoring wells have existing dedicated pumps and tubing. There is no discussion in the QAPP if existing bladder pumps and tubing are PFAS free or if potential PFAS detections are attributable to the dedicated sampling equipment. Section 4.2.2 describes two pump systems which may be deployed if PFAS compounds are not detected in the groundwater samples. There is no discussion in Section 4.2.2 regarding which pump system may be deployed if PFAS compounds are detected in the groundwater samples. Recommendation is to revise and include discussion if the dedicated pumps are PFAS free. Additionally, revise and provide clarification for equipment which may be used if PFAS is detected in groundwater samples.

For clarity, the second paragraph of Section 4.2.2 Monitoring and Purging will be revised as shown in the following image.

Bladder pumps with dedicated bladders and tubing will be used to purge and sample monitoring wells, if feasible. The bladder pumps present in monitoring wells MW-1A, MW-2A, MW-3A and MW-4A are QED SamplePro pumps, which reportedly should not contribute to PFAS detections. The tubing on these pumps will be replaced with high density polyethylene tubing also not expected to contribute to PFAS detections. If the monitoring network is expanded beyond these four monitoring wells, and the existing groundwater pumps cannot be ruled out as not potentially contributing to PFAS detections~~However, materials in existing dedicated and new bladder pump systems have the potential to contribute PFAS to collected groundwater samples. Due to well specific complications of replacing existing bladder pump systems, initial PFAS monitoring will use existing dedicated bladder pump systems. If groundwater sample results indicate that an existing dedicated bladder pump system is contributing appreciable PFAS concentrations to groundwater samples~~~~For PFAS monitoring~~, one or more of following pump systems will be used to purge and sample monitoring wells:

- ~~Existing dedicated bladder pumps if PFAS compounds are not detected in collected groundwater samples;~~
- Existing dedicated bladder pumps with the following modifications:
  - Replacement of polytetrafluoroethylene (PTFE)-lined polyethylene tubing with high-density polyethylene (HDPE) tubing,
  - Removal of PTFE-thread tape from tubing connections and replacement with Loctite 55 thread, if needed,
  - Replacement of fluoropolymer-containing o-rings with ethylene propylene diene monomer (EPDM) o-rings for the inlet and outlet tubing housings,
  - Replacement of fluoropolymer-containing check balls with acetal check balls for the inlet and outlet tubing housings, and
  - Replacement of PTFE bladders with non-fluoropolymer bladders;
- New dedicated or portable bladder pump systems, such as a QED SamplePro pump, if PFAS compounds are not detected in ~~collected~~ groundwater samples collected with the pumps;
- New dedicated or portable bladder pump systems with HDPE tubing and fluoropolymer-free thread tape, o-rings and check valves for the inlet and outlet tubing housings, and bladders;
- Peristaltic pumps with silicone and HDPE tubing;
- Delrin® or stainless-steel inertial pumps with HDPE tubing; and
- Any other pump system presented to and approved by IDNR.

9) Section 4.5 Analytical Methods

a. The QAPP identified the Modified EPA Method 537 for sample analysis. The methodology contains proprietary content which cannot be reproduced or validated by the EPA. Thus, these laboratory results may not be comparable to data analyzed by other laboratories or during future sampling events. Per a conversation with Linda Gaines (EPA, OLEM), for groundwater and surface water the EPA has a final, multi-laboratory verified method in SW-846 8327. Additionally for sediment samples, Draft EPA Method 1633 has been developed but is not finalized. Therefore, recommendation is to use method SW-846 8327 for analysis of groundwater and surface water samples and use Draft EPA Method 1633 for analysis of sediment samples.

In the 2022 QAPP, Modified EPA Method 537 was identified for aqueous sample analysis for alignment with the anticipated use of EPA Method 537 by IDNR and analytical capabilities of the State Hygienic Laboratory for statewide PFAS testing. However, the March 3, 2023, Summary of PFAS Testing of Public Water Supplies (Tiers 1-3) indicates that IDNR used EPA Method 533 for statewide testing of raw and treated water samples.

In the QAPP, the analytical method for aqueous samples will be revised from Modified EPA Method 537 to EPA Draft Method 1633 (EPA 1633). Analytical laboratories approved for this project offer PFAS analysis by EPA 1633 but not SW-846 8327 and anticipate that EPA 1633 will be used to monitor and regulate PFAS in nearly all matrices and regulatory programs except drinking water. EPA 1633, like EPA Method 533, employs isotope dilution, which provides additional quality control at low levels, along with liquid chromatography/tandem mass spectrometry (LC/MS/MS), and incorporates current best practices for PFAS analysis. SW-846 8327 is an LC/MS/MS method that does not use isotope dilution.

Sediment sample collection is not identified in the QAPP as an input of the data quality objective for answering the question "Are PFAS present in groundwater".

10) Section 4.2.5 Surface Water Sample Collection

a. This section does not describe where in the water column the surface water sample will be collected. The 2021 Technical Report "Assessing the Potential for Bias in PFAS Concentrations during Groundwater and Surface Water Sampling" (SERDP Project ER19-1205) states "PFAS have been shown to accumulate in surface water foam that forms on the surface waters due to presence of dissolved organic carbon. The inclusion of surface water

foam in surface water samples can therefore potentially bias sample results high relative to PFAS concentrations in bulk surface water." Recommendation is to collect surface water samples from the air and surface water interface and to collect the bulk surface water sample beneath the liquid surface. To collect the bulk surface water sample, the lid should not be removed until the sampling container is underwater to prevent potential surface water foam entering the sampling container.

Currently, surface water sample collection is not scheduled for PFAS or other parameter monitoring at the site. However, Section 4.2.5 will be revised as shown in the image below to support hypothetical future PFAS surface water sampling activities.

4.2.5 Surface Water Sample Collection

Surface water samples will be collected from each location by Field Staff standing in the creek facing upstream and placing the open mouth of a new unpreserved laboratory-supplied container in the upstream direction to fill the container and below the water surface, if creek depth allows. This procedure will keep any sediment released by walking in the creek downstream of the sampling zone from entering the sample. If surface water samples are collected for PFAS monitoring, a pair of samples will be collected at each location to assess bias of PFAS accumulation in surface water foam; one sample will be collected at the air-water interface and one bulk sample will be collected below the air-water interface. To collect the bulk water sample, the container lid will be removed and replaced while the container is submerged to prevent collection of water at the air-water interface. Water will be carefully poured from the filled container into labeled, laboratory-supplied jars containing the appropriate analytical method preservative.

11) Section 6.1.1.2 Analytical Data Review

a. Paragraph 2, "Error! Reference Source not found" should be revised.

In paragraph 2 of Section 6.1.1.2, the cross-reference will be fixed to reference Section 3.2.

12) Table 3-6 Field Sample Quality Control Summary

a. It is unclear if constituents of concerns means PFAS and VOCs field samples will be collected. It appears that only a PFAS Field Blank will be collected for Quality Control (QC). QC samples for PFAS need to be consistent with the SOPs included in Appendix B. If some Quality Control samples will not be collected consistent with the SOPs in Appendix B, rational for not collecting the QC sample needs to be provided in the QAPP. Recommend revising

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table 3-6 to remove the ambiguity of constituents of concern and explicitly state which Quality Control samples will be collected for PFAS and VOCs.

Site groundwater constituents of concern (COCs) are listed in Table 2-1 and are comprised of five VOCs. For clarification, a footnote identifying site COCs will be added to Table 3-6. The SOP in Appendix B describes several types of QC samples but only specifies required collection of equipment blanks. However, Table 3-6 will be further revised to include PFAS as an analysis scheduled for equipment blank, trip blank, field duplicate sample, and matrix spike/matrix spike duplicate quality control sample collection.

a. *ng/L not defined in table notes. Please define.*

This comment appears to refer to Table 3-1 instead of Table 3-6. A definition of ng/L will be added to Table 3-1.

If the provided responses are acceptable to IDNR and USEPA, Stantec will update and submit the revised QAPP to IDNR and USEPA for approval and signature, as applicable. Rockwell Collins will await completion of the QAPP prior to initiating PFAS sampling activities.

Please feel free to contact me if you have any questions or require additional information.

Sincerely,

STANTEC CONSULTING SERVICES INC.

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/lmd:khw:srv

cc: John Wolski, Representing Rockwell Collins
Lauren Murphy, USEPA