Draft Final UFP-QAPP Addendum Des Moines ANG Remedial Investigation for Per- and Polyfluoroalkyl Substances, Sioux City and Des Moines, Iowa August 2024								
Document Prepared by: EA					**Prime Contract No.:** W9128F18D0026		**Task Order No.:** W9128F23F0215	
Comments Submitted By: Iowa DNR					6200 Park Ave Ste 200		Des Moines, IA 50321	
Point of Contact: Matt Graesch					**Tele:** 515-250-1923		**E-Mail:** matthew.graesch@dnr.iowa.gov	
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1	18		WS#10		Underlying the surficial glacial outwash deposits, bedrock in the area consists of Pennsylvanian-age shale of the Des Moines Group.	Pertaining to the first-encountered bedrock below the airport, "Des Moines" is not a formal Group in stratigraphic nomenclature for the Pennsylvanian. The bedrock below the site is Cherokee Group of the Desmoinesian Stage.		Agree. The text will be revised as follows: "Underlying the surficial glacial outwash deposits, bedrock in the area consists of ~~Pennsylvanian-age~~ *Cherokee Group deposits of the Desmoinesian Stage*."
2	19		WS#10		The Des Moines ANG Base is connected to the City of Des Moines public water supply. The PA Report (BB&E, Inc. [BB&E] 2016) and 2001 Environmental Baseline Survey (ANG 2001) reports did not identify any	A well belonging to the City of Des Moines (well #7727031) is a Jordan well (>2000' deep) used for artificial aquifer storage (ASR), and is not a water supply or primary drinking water well. Water collected and used by the Des Moines Waterworks for supply to the city is entirely surface water, or extremely		The first paragraph of the Existing Wells/Drinking Water Receptors section of Worksheet #10 will be revised as follows: "Public water well IA7727031 is *used for artificial aquifer storage, and is not a water supply or primary drinking water well. Water collected and used by the Des Moines Waterworks for supply to the city is entirely*

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					drinking water wells located on-base. One public water well (IA7727031) is located approximately 2,000 ft southwest of the installation and is hydrologically downgradient. Public water well IA7727031 is currently in use by Des Moines Water Works, and sources its water from nearby surface water. The well serves approximately 245,000 people, and has previously experienced high levels of lead, nitrate, and coliform (EPA 2024). The current operational status of	shallow groundwater under the immediate influence of surface water. Please revise to reflect the reliance of the main water plant in Des Moines on surface water from the Raccoon River. Noted issues with nitrates and coliform are related to the surface water sources of the city and not to well 7727031.		*surface water from the Raccoon River, or extremely shallow groundwater under the immediate influence of surface water.* ~~Currently in use by~~ Des Moines Water Works~~ and sources its water from nearby surface water. The well~~ serves approximately ~~245,000~~ 600,000 people, and has previously experienced high levels of lead, nitrate, and coliform in the water supply (EPA 2024). ~~The current operational status of the well was not able to be determined during the Environmental Baseline Survey (ANG 2001).~~

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					the well was not able to be determined during the Environmental Baseline Survey (ANG 2001).			
3	19		WS#10		The well serves approximately 245,000 people,	In the report, the noted population served is 245,000 people. The Des Moines Waterworks serves approximately 600,000 customers.		The number of customers served by the Des Moines Waterworks will be revised from 245,000 people to 600,000 people.
4	25					Well 7727031 is noted as a possible receptor for PFAS migrating offsite. While this may be technically true, the most significant receptor related to drinking water (the intake gallery at Waterworks Park) is not listed as a receptor. This intake gallery is the most important source of raw		The fourth and fifth sentences of the fourth paragraph of the Pathway Analysis section of Worksheet #10 will be revised as follows: "The nearest off-base drinking water well (IA7727031) is located approximately 2,000 ft southwest of the installation and is hydrologically downgradient;

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						water for the city. The Des Moines Waterworks is listed as a plant that uses groundwater; in actuality, the plant uses surface water, and water drawn from the immediate influence of the Raccoon River, and should be considered a surface water facility.		*however, the current use of this well is for artificial aquifer storage, and it is not a water supply or primary drinking water well.* ~~The Des Moines Water Works operates a downgradient drinking water treatment plant that utilizes groundwater, which is approximately six miles west-southwest of the installation (L.D. McMullen Water Treatment Plant at Maffitt Reservoir).~~" The following will be added to the end of the fifth paragraph of the Pathway Analysis section of Worksheet #10: "…stormwater drainages/ditches discharge off-base to Frink Creek and ultimately the Raccoon River, which are surface water features that likely contain fish and other plants/animals that may be

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								consumed by humans. The intake gallery at Water Works Park in Des Moines draws surface water from the Raccoon River, and extremely shallow groundwater under the immediate influence of the River, and is the most important source of raw water for the city. The water is then treated at the Des Moines Waterworks Fleur Drive plant prior to distribution."
5	26		WS#10		Current and future off-site (outside of the installation boundary) residential and recreational receptors (e.g. hunters, fishermen, or hikers utilizing Frink Creek and/or the Raccoon River) may come into contact with PFAS-	Frink Creek and the Raccoon River should be listed as drinking water receptors and not solely as recreational/biological receptors since both are important sources of drinking water for the city, and are influenced by run-off from the airport.		Residential receptors will be removed from paragraph four of the Receptors section of Worksheet #10 and the following will be added as the fifth paragraph of the Receptors section of Worksheet #10: "*Current and future off-site residential and commercial receptors are served by the City of Des Moines Water Works,*

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					impacted surface water/sediment via ingestion or dermal contact. Current and future off-base residential and recreational receptors have incomplete pathways for airborne soil, surface soil, and subsurface soil, and potentially complete pathways for surface water and sediment and shallow groundwater.			*which utilizes surface water from the Raccoon River, and shallow groundwater under the immediate influence of surface water from the River, as a significant raw water source via the intake gallery at Water Works Park in Des Moines. As a result, members of the public who consume the drinking water in Des Moines have a potentially complete pathway for exposure to surface water and associated shallow groundwater containing PFAS."*
6			WS#10 Receptors			When considering pathways and receptors for this investigation, priority should be given to run-off and surface water pathways since they are		See response to #5.

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						significantly more likely to impact drinking water sources than groundwater pathways.		
7	29		WS#11		The downgradient extent of PFAS impacts may be off installation property and is expected to extend to the southwest.	Step 4 notes that "The downgradient extent of PFAS impacts may be off installation property and is expected to extend to the southwest." Iowa DNR believes that local groundwater flow is unlikely to convey water laterally to any significant extent based on the geology of unconsolidated sediments present, and that surface water and run-off are likely to be the most significant means by which PFAS might leave the installation. Impacts to the southwest are likely to be		The third sentence of Step 4 in Worksheet #11 will be revised as follows: "The downgradient extent of PFAS impacts may be off installation property, ~~and is expected to~~ *particularly to the north/northeast and east along surface water drainages (Frink and Yeader Creeks)*. ~~extend to the southwest.~~"

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						minimal to non-existent, while extant data show clear impacts to the north/northeast and east along surface water drainages (Frink and Yeader Creeks). Receptors of significance exist in the Frink and Yeader Creek drainages, while few or no significant receptors exist to the southwest.		
8	30		WS#11		If surface water/sediment result exceeds SL(s), then collect additional samples downgradient of the original sample location until delineation is achieved. Please note that delineation of surface water and	Rights of Entry (ROE) should not be an impediment to sampling surface waters downgradient of the facility boundaries. The areas in question are largely public property and access can be obtained via public roads or bicycle trails. Iowa DNR can help obtain any desired access, or provide access		The following language will be added as the fourth sentence in the first bullet of the Surface Water/Sediment section of Worksheet #11: *"Obtaining ROE will be supported by USACE and Iowa Department of Natural Resources to ensure delineation of PFAS in surface*

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					sediment may be limited due to access and impacts cannot be identified beyond the installation boundary without ROE. Without ROE, impacts can only be identified to the boundary.	points for downgradient surface water sampling.		*water and sediment to the greatest extent possible."*
END								

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1. Please enter the name of the organization submitting the comment in the field adjacent to "Comments submitted by."
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   C – Critical. Non-concurrence in draft will result if concern is not satisfactorily addressed.
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