

Table A-1: FAFB DWPS Document Review Summary

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-001	Basewide_CSM_2012_AECOM_Fairchild	CSM Document		Yes	AECOM CSM provides an excellent resource from which to update the CSM for FAFB using ESS methods.
FAFB-002	ERPIMS_Dec_2017_Download_FAFB	ERPIMS			
FAFB-003	Final PA_Report_-_Perfluorinated_Compounds_at_FAFB_6.15CH2MHill_FAFB	PA Report		Yes	PA report provides good background on PFAS.PFOA source areas at FAFB.
FAFB-004	2017_Basewide_Well_Inventory_FAFB	Well Data		Yes	Well Inventory
FAFB-005	Basewide_Well_Inventory_-_Well_Inventory_Logs_2.17_Baywest,_URS_FAFB	Well Data		Yes	Well Logs, Boring Logs
FAFB-006	Hydrogeologic_Framework_and_Conceptual_Groundwater_Flow_Model_6.15_GSI,_Carlstad,_Intera,_GeoEngineers_FAFB	GW Data		Yes	Excellent source of hydrological setting
FAFB-007	General_Sewer_Plan_4.5.11_92nd_CES_FAFB	GW Data		No	
FAFB-008	Storm_Water_Pollution_Prevention_Plan_9.15_92nd_CES_FAFB	GW Data		No	
FAFB-009	Revised_Final_Preliminary_Assessment_Report_Fairchild	PA Report		Yes	PA report provides good background on PFAS.PFOA source areas at FAFB.
FAFB-010	Working Copy_Fairchild AFB_20180205	SI Report		Yes	Groundwater Elevations, Cross Section, Drilling Logs
FAFB-011	Fairchild_20170407	GIS Data			
FAFB-012	Fairchild_Shapefiles	GIS Data			
FAFB-013	FairchildAFB_3_1_v0.2.gdb	GIS Data			
FAFB-014	GeoBase Shapefiles	GIS Data			

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-015	GeoData	GIS Data			
FAFB-016	FAFB_Wells	GIS Data			
FAFB-017	ger_ofr90-17_geol_map_spokane_100k	GIS Data			Geologic Maps and Data
FAFB-018	ger_portal_geochronology	GIS Data			
FAFB-019	ger_portal_geophysical_data	GIS Data			
FAFB-020	ger_portal_subsurface_database	GIS Data			
FAFB-021	ger_portal_surface_geology_24k	GIS Data			
FAFB-022	McCollum Well Database	GIS Data			
FAFB-023	SI Sampling Wells	GIS Data			
FAFB-024	Spokane County GIS Data	GIS Data			
FAFB-025	Action Memorandum for a TIME-CRITICAL Removal Action Treatment of PFOS- and PFOA Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington	AFCEC AR	2051	No	
FAFB-026	Remedial Process Optimization Report, Response Complete Justification for Fairchild AFB IRP Sites FT-2 and IS-4	AFCEC AR	2049	No	
FAFB-027	Final Remedial Action Report for Fire Training Area, Site FT-04	AFCEC AR	1942	No	
FAFB-028	Final Analysis of Date Report of Remediation Activities, September 1997 - September 1998, Fire Training Area, Site FT-04	AFCEC AR	1730	No	
FAFB-029	Final Second Five-Year Review Report for Priority 1 and 2 Sites, Fairchild AFB, Washington	AFCEC AR	1988	No	
FAFB-030	Final Phase II Remedial Investigation Report for Site SS-39, Fairchild AFB, Washington	AFCEC AR	1965	Yes	Cross Sections, Boring Logs, Slug Tests

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-031	Remedial Action Operations 2004 Report, Sites LF-02 and WP-03	AFCEC AR	1957	Yes	Geologic Logs
FAFB-032	Final Feasibility Study Report, Site SD-37	AFCEC AR	1915	No	
FAFB-033	Draft Feasibility Study Report for Site SS-39, Fairchild AFB, Washington	AFCEC AR	1964	No	
FAFB-034	Draft Remedial Investigation Report for Site SS-39, Fairchild AFB, Washington, Volume 1	AFCEC AR	1977	Yes	Cross Sections, Boring Logs
FAFB-035	Draft Remedial Investigation Report for Site SS-39, Fairchild AFB, Washington, Volume 2. Part 1 of 2	AFCEC AR	1963	No	
FAFB-036	Draft Remedial Investigation Report for Site SS-39, Fairchild AFB, Washington, Volume 2. Part 2 of 2	AFCEC AR	1963	No	
FAFB-037	Final Remedial Investigation Report, Site SD-37, Volume 1	AFCEC AR	1873	Yes	Groundwater Contour maps, Cross Sections
FAFB-038	Final Remedial Investigation Report, Site SD-37, Volume 2	AFCEC AR	1874	Yes	Boring Logs, Well Logs
FAFB-039	Final Remedial Investigation Report, Site SD-37, Volume 3	AFCEC AR	1875	Yes	Slug Tests
FAFB-040	Final Remedial Investigation Report, Site SD-37, Volume 4	AFCEC AR	1876	No	
FAFB-041	Draft Investigative Report for Site WW-1 Groundwater Plume Investigation, Site WP-03	AFCEC AR	280	Yes	Boring Logs, Well Logs, Groundwater Elevations
FAFB-042	Final Focused Remedial Investigation / Feasibility Study Work Plan for Site SS-39	AFCEC AR	272	Yes	Groundwater Contour Map, Cross Sections
FAFB-043	Draft Final Work Plan for Site WW-1 Groundwater Plume Investigation, Site WP-03	AFCEC AR	279	No	
FAFB-044	Focused Remedial Investigation / Feasibility Study Treatability Test Plan for Site SS-39	AFCEC AR	263	No	
FAFB-045	Focused Remedial Investigation / Feasibility Study Work Plan Addendum for Site SS-39	AFCEC AR	264	Yes	Groundwater Contour Map
FAFB-046	Focused Remedial Investigation / Feasibility Study Report for Site SS-39	AFCEC AR	257	No	

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-047	Final Site Investigation Report for Eight Areas of Concern, Sites SW-6 (RW-11) and SW-13 (OT-15), and Orphan Trichloroethene Plumes	AFCEC AR	1577	Yes	Cross Sections, Boring Logs, Contour Maps
FAFB-048	Final Remedial Action Plan for Expanded Bioventing System, Buildings 2034/2035	AFCEC AR	1269	Yes	Cross Sections
FAFB-049	Final Feasibility Study Report for Priority 2a Sites	AFCEC AR	1289	No	
FAFB-050	Final Remedial Investigation Report for Priority 2a Sites	AFCEC AR	1277	No	
FAFB-051	Final Remedial Investigation Report for Priority 2 Sites, Appendices A-N	AFCEC AR	1275	No	
FAFB-052	Draft Final IRP Priority 2b Sites Facilities Summary Report	AFCEC AR	1186	No	
FAFB-053	Final RI Report, Vol I of III, On-Base Priority 1 Sites	AFCEC AR	778	No	
FAFB-054	Final RI Report, Vol II of III, On-Base Priority 1 Sites	AFCEC AR	779	No	
FAFB-055	Final RI Report, Vol III of III, On-Base Priority 1 Sites	AFCEC AR	780	No	
FAFB-056	Base Letter to US EPA Region X Transmitting Response to Comments on Draft Conceptual Site Model/Exposure Pathways Analysis for Priority 2a Sites	AFCEC AR	1687	No	
FAFB-057	EA Engineering, Science, and Technology Letter to Base Concerning Documentation of Well Abandonment - Priority One Sites, Site PS-9 and Basewide Wells	AFCEC AR	1719	No	
FAFB-058	WA Ecology PFAS Interim PFAS Plan - April 2018 - 1804005			Yes	Some information useful to CSM/DWPS but not a primary source.
FAFB-059	Ecology_2017_Survey of Per- and Poly-fluoroalkyl Substances (PFASs) in Rivers and Lakes, 2016			Yes	Excellent source of information for initial assessment of PFOS/PFOA in surface water Washington State including Medical Lake south of FAFB

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FAFB-060	geo_four_lakes			Yes	Geologic map Four Lakes quadrangle with regional X-sections
FAFB-061	geo_airway_heights			Yes	Geologic map airway heights quadrangle with regional X-sections
FAFB-062	golder_2009_geophysical_FS			Yes	Study for evaluating geophysical methods for determining depth to bedrock in West Plains Area east of FAFB. Good information.
FAFB-063	West-Plains-Delineation-of-Aquifer-Zones-within-Basalt-Formations-McCollum-Hamilton-2012			Yes	Great resource with fence diagrams in West Plains region,
FAFB-064	SpokaneWasoils			Yes	Typical Soil Survey document. Provides general background information. Value is in the description and mapping of soils of Spokane County
FAFB-065	Hosterman 1969 - Clay_formation_Latah			Yes	1969 USGS publication on clays in Spokane County. Will supplement soil survey but also provided excellent subsurface geology information.
FAFB-066	Water Quality Fairchild AFB Consumer Confidence Report			Yes	2014 public relations styled document. Not much value to CSM

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FAFB-067	InSAR Evidence for an active shallow thrust fault beneath the city of Spokane Washington, USA			Yes	Good structural geology information relating to faults
FAFB-068	Citywide Capital Improvement, 2018-2023			Yes	Not a great source of information but does provides capital improvement plans to city of Spokane water supply out to 2023.
FAFB-069	Final Proposed Plan for Site SS-39 Fairchild Air Force Base, Washington, June 2009	AFCEC AR	1960	Yes	Site specific information for Site SS-39 at FAFB. TCE plume map.
FAFB-070	Site SS-39 Focused Feasibility Study, Fairchild Air Force Base, Spokane, Washington	AFCEC AR	1966	Yes	Site specific information for Site SS-39 at FAFB. TCE plume map.
FAFB-071	Environmental Restoration Program, Interim Record of Decision, OU5 Site – Spill Site 39 (SS-39) Chlorinated Hydrocarbon Plume Fairchild Air Force Base Washington	AFCEC AR	2050	Yes	Site specific information for Site SS-39 at FAFB. TCE plume map. Monitoring well network information.
FAFB-072	Remedial Investigation Report, Craig Road Landfill (CRL)	AFCEC AR	648	Yes	RI Report Craig LF. Good source of information for this area located east of FAFB,
FAFB-073	Five-Year Review Report, Fairchild Air Force Base	AFCEC AR	1813	Yes	Standard site info typical in a 5-Year review with area of concern updates
FAFB-074	Final Third Five-Year Review Report for Fairchild AFB, Washington	AFCEC AR	1988	Yes	Standard site info typical in a 5-Year review with area of concern updates
FAFB-075	West Plains Geologic Database Project	Access Database			

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FAFB-076	Hydrology of Basalt Aquifers and Depletion of Ground Water In East Central Washington Report	Spokane County			
FAFB-077	West Plains & Lower Hangman Creek Watershed Hydrogeologic Characterization & Monitoring Well Drilling Final Report	Spokane County			
FAFB-078	QAPP for Paleochannel Water Quality Monitoring Study Water Resource Inventory Area 54	Spokane County			
FAFB-079	West Plains Geophysical Orientation Survey Feasability Report	Spokane County			
FAFB-080	West Plains Groundwater Elevation Monitoring and Mapping Report	Spokane County			
FAFB-081	Final DP022 & DP024 UPF-QAPP	Baywest			
FAFB-082	Final DP064 UFP-QAPP	Baywest			
FAFB-083	Final FT004 UFP-QAPP	Baywest			
FAFB-084	Final LF001 UFP-QAPP	Baywest			
FAFB-085	Final LF002 ESD	Baywest			
FAFB-086	Final LF002 QAPP Addendum I	Baywest			
FAFB-087	Final OT017 UFP-QAPP	Baywest			
FAFB-088	Final SD037 DGI and Pilot Study UFP-QAPP Addendum	Baywest			
FAFB-089	Final SR939 UFP-QAPP	Baywest			
FAFB-090	Final SS009 UFP-QAPP	Baywest			
FAFB-091	Final SS018 UFP-QAPP	Baywest			
FAFB-092	Final SS033 UFP-QAPP	Baywest			
FAFB-093	Final SS039 2016 Annual GW Mtr Report	Baywest			
FAFB-094	Final SS039 GW Monitoring Plan UFP-QAPP	Baywest			

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FAFB-095	Final ST010 UFP-QAPP	Baywest			
FAFB-096	Final TU Multisite RI UFP-QAPP	Baywest			
FAFB-097	Final TU502 RI Report	Baywest			
FAFB-098	Final WP003 UFP-QAPP	Baywest			
FAFB-099	Final WP036 UFP-QAPP	Baywest			
FAFB-100	FinalOW058 RI UFP-QAPP	Baywest			
FAFB-101	Final LF002 (SW-8) UFP-QAPP	Baywest			
FAFB-102	Final Weapons Storage AreaRadioactive Disposal Area RW011 UFP-QAPP	Baywest			
FAFB-103	SS039 Final Data Gap UFP-QAPP	Baywest			
FAFB-104	TU503 Final UFP-QAPP	Baywest			
FAFB-105	Final LF001 OES Plan	Baywest			
FAFB-106	Final LF002 OES Plan	Baywest			
FAFB-107	Final LF002 RD-RA Work Plan	Baywest			
FAFB-108	Final SS009 DGI Report	Baywest			
FAFB-109	Final SS033 DGI Report	Baywest			
FAFB-110	Final SS039 Data Gaps Report	Baywest			
FAFB-111	Final ST010 DGI Report	Baywest			
FAFB-112	OWS RI WP UPF-QAPP Final	Baywest			
FAFB-113	Final Design and Remedial Action Plan Source Area Groundwater Extraction and Soil Vapor Extraction, LF002	Bay West	2105	Yes	Groundwater flow, groundwater elevations

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-114	Final SS039 2016 Annual Groundwater Monitoring Report	Bay West	2104	Yes	Groundwater flow, groundwater contours
FAFB-115	Final Remedial Action Operations Report Third Quarter 2017 Part 2 of 3	Bay West	2095.2	Yes	Groundwater elevations
FAFB-116	Final Remedial Action Operations Report Fourth Quarter and Annual 2016 Part 3 of 4	Bay West	2109.3	Yes	Groundwater elevations
FAFB-117	Final Remedial Action Operations Report Fourth Quarter and Annual 2016 Part 2 of 4	Bay West	2109.2	Yes	Groundwater elevation and flow maps,
FAFB-118	Final Remedial Action Operations Report Fourth Quarter and Annual 2016 Part 1 of 4	Bay West	2109.1	Yes	Groundwater elevation and flow maps,
FAFB-119	Final SS039 Interim Remedial Design Work Plan	Bay West	2098	Yes	Geologic Cross Sections, groundwater contour map
FAFB-120	Final Federal Policy - Quality Assurance Project Plan Addendum -I Site LF002 (SW-8)	Bay West	2140	Yes	Geologic Cross Sections, groundwater contour maps
FAFB-121	Final Consolidated Site TU506 Remedial Investigation Work Plan Addendum Uniform Federal Policy Quality Assurance Project Plan	Bay West	2161	Yes	Geologic Cross Sections, groundwater elevations
FAFB-122	Final Consolidated Site TU500 Remedial Investigation Work Plan Addendum Uniform Federal Policy Quality Assurance Project Plan	Bay West	2162	Yes	Geologic Cross Sections, groundwater elevations
FAFB-123	Final Voluntary Cleanup Program Remedial Investigation at TU502 - Facility 2160	Bay West	2152	Yes	Geologic Cross Sections, groundwater contour maps
FAFB-124	Final SS009 Fuel Storage at Wherry Housing Data Gap Investigation Report	Bay West	2153	Yes	Drilling Logs, groundwater contours
FAFB-125	Final Pre-Design Investigation Report Site WP003 (Industrial Wastewater Lagoon System, WW-1) Part 2 of 3	Bay West	2113.2	Yes	Cross Sections, Well Logs
FAFB-126	Final Pre-Design Investigation Report Site WP003 (Industrial Wastewater Lagoon System, WW-1) Part 1 of 3	Bay West	2113.1	Yes	Groundwater elevations, cross sections
FAFB-127	Addendum to Operation and Maintenance Plan For Remediation Systems at Craig Road Landfill, See AR# 577434 for O&M Plan	Bay West	2176	Yes	Groundwater contour maps
FAFB-128	Final Remedial Action Operations Report First Quarter 2018	Bay West	2154	Yes	Groundwater flow maps, well gauging logs
FAFB-129	Final SS039 2017 Annual Groundwater Monitoring Report	Bay West	2166	Yes	groundwater contour maps, cross sections
FAFB-130	Final Remedial Investigation At Munitions Response Site SR939 Machine Gun Range Part 5 of 5	Bay West	2178	Yes	drilling logs
FAFB-131	Final Remedial Investigation At Munitions Response Site SR939 Machine Gun Range Part 4 of 5	Bay West	2178	Yes	drilling logs
FAFB-132	Final Remedial Action Operations Report Second Quarter 2018	Bay West	2177	Yes	Groundwater elevations

ID	File Name	Data Source	AR #	Document Relevant to CSM	Review Results / Comments
FAFB-133	Final Site Inspection Of Aqueous Film Forming Foam (AFFF) Release Areas Part 1 of 7	AMEC Foster Wheeler	2175	Yes	PFC Final SI
FAFB-134	Final 2Q 2018 RA-O Report	Bay West	96	Yes	Groundwater elevations
FAFB-135	Final SS039 2017 Annual GW Mtr Report	Bay West	93	Yes	Cross Sections, Groundwater contour maps
FAFB-136	Final LF002 RD-RA Work Plan	Bay West	68	Yes	Groundwater Contour maps
FAFB-137	Final 4Q 2016 RA-O Report	Bay West	69	Yes	Groundwater contour maps
FAFB-138	Final SS039 2016 Annual GW Mtr Report	Bay West	70	Yes	Groundwater contour maps
FAFB-139	Final Q3 2017 RA-O Report	Bay West	72	Yes	Well gauging logs, groundwate maps
FAFB-140	Final SS039 Interim Design Work Plan	Bay West	73	Yes	Cross sections
FAFB-141	Final LF002 QAPP Addemdum-I	Bay West	74	Yes	Cross sections
FAFB-142	Final SS009 DGI Report	Bay West	81	Yes	Drilling logs
FAFB-143	Final TU502 RI Report	Bay West	82	Yes	Cross Sections, Groundwater contour maps, Boring Logs, Well Guaging logs
FAFB-144	Final WP003 PDI Report	Bay West	83	Yes	Groundwater Elevations, Cross Sections
FAFB-145	Final TU500 RI WP Addend URP-QAPP	Bay West	84	Yes	Cross Sections, Groundwater elevation map
FAFB-146	Final TU506 RI WP Addend UFP-QAPP	Bay West	85	Yes	Cross Sections, Groundwater elevation map
FAFB-147	Final 1Q 2018 RA-O Report	Bay West	86	Yes	Groundwaer flow direction map, well guaging info,
FAFB-148	LF002 O&M Plan Addendum	Bay West	92	Yes	Groundwater contour maps

Table A-2: Primary Data Gaps Identified for Potential DWPS Addressment

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
1	Northwest PFAS Area	The fate and transport of PFAS in groundwater to and from this area is uncertain, including the following inter-related items: - What is groundwater flow direction near these homes? - What is groundwater flow direction between the northern base boundary and the impacted homes? - Are PFAS impacts and groundwater flow directions immediately to the east and southeast of the impacted homes related to a perched groundwater system within paleochannel on north part of Base (SS-39 plume)? - If so, how/where does impacted water enter basalt where drinking water wells are screened (from the paleochannel and/or from down well annulus), or via lateral migration within the Wanapum Basalt Aquifer? - Is groundwater flow direction in this area affected by the St. Joe Fault? - Does the current pumping at the homes provide hydraulic containment of the PFAS plume in this area, or will the number of homes impacted by PFAS in this area expand in the future? - If the source is from on-Base, what pumping locations/rates would be needed for hydraulic containment at the fence line, and will such pumping impact water levels at residences?	Very few water level measurements are available off-Base (limited to regional studies and static water levels recorded during drilling).	No new data collection anticipated. Five new MWs are planned across highway from main gate, but new data (stratigraphy, water level, and water quality data) not likely available from the new wells until mid-2019. We will utilize the limited water level data off-Base from regional studies, historical water level data on-Base, improved understanding of stratigraphy (based on existing data) by developing updated cross-sections (and 3-D visuals as needed), and consideration of PFAS constituents as a tracer. These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	Yes
			Vertical distribution of transmissivity and PFAS poorly defined, between units (alluvium and Basalt A) and within individual wells with long screens or open intervals.			
			Paleochannel configuration not fully defined.			

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
			High degree of uncertainty in values for hydraulic conductivity and extraction rates to use for modeling hydraulic containment provided by residential wells, and for porosity which is included in calculations of groundwater velocity to evaluate plume expansion potential. High degree of uncertainty in values for hydraulic conductivity to use for modeling hydraulic containment provided by pumping from alluvium near fence line, and for porosity which is included in calculations of groundwater velocity.	Review pertinent hydraulic property information near northern base boundary (if any) from existing documents, including recent reports from PBR contractor website not yet reviewed. Augment with parameter value information from regional studies and historic yield estimates from drilling records. Apply parameter values in conjunction with updated stratigraphic interpretation (e.g., paleochannel configuration, connectivity of alluvium/basalt, etc.) discussed above. For evaluating combined capture of residential wells, estimate likely extraction rates (gallons per day) from a typical residential well based on regional studies.	Use parameter values in calculations/models to evaluate potential for plume expansion and/or degree of hydraulic containment provided by specific pumping scenarios.	Yes

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
2	East PFAS Area	The extent, fate and transport of PFAS in groundwater to and from this area is uncertain, including the following inter-related items:- What is groundwater flow direction near these homes?- What is groundwater flow direction between the eastern Base boundary and the impacted homes?- Are the PFAS impacts off-base primarily due to groundwater transport from the base, surface water transport from the base in No Name Creek that infiltrated off-base, or both?- Preliminary analysis last year suggested non-impacted wells between base boundary and impacted wells was due to surface casing seal – is this consistent with a more detailed look at localized stratigraphy and updated evaluation of likely horizontal/vertical contaminant transport patterns?- Groundwater PFAS impacts in this area are not delineated immediately to the east (there are non-detects further to the east) - are there potential drinking water wells not currently impacted that the PFAS plume may expand to?- Does the Airway Heights paleochannel extend this far south, and result in PFAS transport from this area to the north towards impacted wells in South Airway Heights?- If so, is there also groundwater flow to that paleochannel from the east, limiting potential eastward expansion of PFAS plume in this area? Is there additional contribution to a commingled plume from sources to the east?- If primary on-going source is believed to be from on-Base, what pumping locations/rates would be needed for hydraulic containment at the fence line, and will such pumping impact water levels at residences?	Very few water level measurements available off-Base (limited to regional studies and static water levels recorded during drilling)	No new data collection anticipated. We will utilize the limited water level data off-Base from regional studies, historical water level data on-Base, improved understanding of stratigraphy (based on existing data) by developing updated cross-sections (and 3-D visuals as needed), and consideration of PFAS constituents as a tracer. These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	Yes
			Vertical distribution of transmissivity and PFAS concentration poorly defined, between units (alluvium and Basalt A) and within individual wells with long screens or open intervals			
			Paleochannel configuration not fully defined	Review pertinent hydraulic property information near eastern base boundary (if any) from existing documents, including recent reports from PBR contractor website not yet reviewed. Augment with parameter value information from regional studies and historic yield estimates from drilling records. Apply parameter values in conjunction with updated stratigraphic interpretation (e.g., paleochannel	Use parameter values in calculations/models to evaluate potential for plume expansion and/or degree of hydraulic containment provided by specific pumping scenarios.	Yes
			High degree of uncertainty in values for hydraulic conductivity to use for modeling hydraulic containment provided by pumping from alluvium near fence line, and for porosity which is included in calculations of groundwater velocity.			

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
				configuration, connectivity of alluvium/basalt, etc.) discussed above.		
3	South Airway Heights	The fate and transport of PFAS in groundwater to and from this area is uncertain, including the following inter-related items:- Is there a potential hydraulic connection from the East PFAS Area to this area via the Airway Heights paleochannel that resulted in these impacts, or are the PFAS impacts in South Airway Heights due to PFAS sources related to the former WWTP and/or Craig Road Landfill?- Does groundwater flow to the Airway Heights paleochannel (located just east of Craig Road) from both the east and the west, which would limit the potential expansion of this PFAS plume to the east?- If groundwater flow is to the Airway Heights paleochannel from the east, are there other sources of PFAS to the east/southeast, potentially including Spokane International Airport, that commingle with potential Base-related PFAS impacts?- Is there a potential hydraulic connection via the Airway Heights paleochannel from the impacted groundwater in this area to impacted groundwater in North Airway Heights?- How does the paleochannel impact groundwater flow and PFAS transport between Alluvium and Basalt? - Are there are there potential drinking water wells not currently impacted to the north, northeast, or east that the PFAS plume may expand to?- How is groundwater flow and PFAS contaminant transport impacted by water supply pumping at nearby Airway Heights Municipal Well #9 which will be turned back on in summer months after the treatment system is completed?	Very few water level measurements available off-Base (limited to regional studies and static water levels recorded in driller logs)	No new data collection anticipated. New MWs are planned near Craig Road Landfill, but new data (stratigraphy, water level, and water quality data) not likely available from the new wells until mid-2019. These wells are being installed under a different contract and by a different contractor. We will utilize the limited water level data off-Base from regional studies, improved understanding of stratigraphy (based on existing data) by developing updated cross-sections (and 3-D visuals as needed), and consideration of PFAS as a tracer. These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	Yes
			Vertical distribution of transmissivity and PFAS poorly defined, between units (alluvium and Basalt A) and within individual wells with long screens or open intervals			
			Paleochannel configuration not fully defined			

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
			Hydraulic conductivity value and flow rates to use for evaluation of potential impacts to flow system in this area due pumping versus non-pumping conditions at Municipal Well #9. Porosity values which are included in calculations of groundwater velocity.	Review pertinent hydraulic property information associated with Airway Heights municipal wells from existing documents. Augment with parameter value information from regional studies. Apply parameter values in conjunction with updated stratigraphic interpretation (e.g., paleochannel configuration, connectivity of alluvium/basalt, etc.) discussed above.	Use parameter values in calculations/models to evaluate potential for plume expansion and/or degree of hydraulic containment provided by specific pumping scenarios.	Yes
4	North Airway Heights (Western Portion)	The fate and transport of PFAS in groundwater to and from this area is uncertain, including the following inter-related items: - Is a paleochannel near the northern Base boundary (SS-39 Plume) connected to a paleochannel in the western portion of North Airway Heights that would provide a subsurface transport mechanism for groundwater impacted by PFAS from the Base to impacted drinking water wells near Deno Road (west of railroad tracks)? - How does the paleochannel impact groundwater flow and PFAS transport between Alluvium and Basalt? - Are there are there potential drinking water wells not currently impacted to the northeast the PFAS plume may expand to? - What is the potential for discharge of PFAS to Deep Creek?	Very few water level measurements available off-Base (limited to regional studies and driller logs)	No new data collection anticipated. Five new MWs are planned across highway from main gate, but new data (stratigraphy, water level, and water quality data) not likely available from the new wells until mid-2019. We will utilize the limited water level data off-Base from regional studies, historical water level data on-Base, improved understanding of stratigraphy (based on existing data) by developing updated cross-sections (and 3-D visuals as needed), and consideration of PFAS as a tracer. These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	Yes
			Vertical distribution of PFAS poorly defined, between units (alluvium and Basalt A) and within individual wells with long screens or open intervals			
			Paleochannel configuration not fully defined			
			There is a potential pathway to this area from the Main Gate area where there are no PFAS samples			

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
5	North Airway Heights (Eastern Portion)	Specific to PFAS impacts close to concrete water tank in eastern portion of North Airway Heights:- What was likely extent of infiltration area for water released from the tank to ground surface?- Are there potential PFAS sources other than the concrete water tank that resulted in impacted drinking water wells near the tank? (This relates to groundwater flow direction near the tank which is uncertain).- Could PFAS impacts near the water tank be due to groundwater transport from South Airway Heights within the Airway Heights paleochannel?- What is the potential for discharge of PFAS to Deep Creek?	Detailed topographic evaluation in vicinity of tank	Tehama will look into availability of high-resolution topography information near the water tank (and to the north).	Will improve understanding of direction of potential PFAS transport vi surface flow from historical water releases at the tank.	Yes
			Very few water level measurements available off-Base (limited to regional studies and static water levels reported in driller logs)	No new data collection anticipated. We will utilize the limited water level data off-Base from regional studies, historical water level data on-Base, improved understanding of stratigraphy (based on existing data) by developing updated cross-sections (and 3-D visuals as needed), and consideration of PFAS as a tracer. These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	These combined efforts will improve the understanding of paleochannel configuration, identify to the extent possible how/where groundwater is transferred between alluvium and basalt, and allow for an estimate of likely groundwater flow direction in critical areas.	Yes
			Vertical distribution of transmissivity and PFAS poorly defined, between units (alluvium and Basalt A) and within individual wells with long screens or open intervals			
			Paleochannel configuration not fully defined			
6	Off Base Areas with No PFAS Sampling	Potential for there to be PFAS impacts to groundwater (now or in the future) in areas where no PFAS samples are available	No PFAS samples in some areas	After other CSM elements have been refined based on all efforts described above, the most likely areas where PFAS impacts may occur (currently or in the future) will be identified.	Additional well installation and sampling would help to delineate PFAS impacts in groundwater, but this sampling would likely occur in a later project phase (RI).	Yes
7	On-Base Supply Well No 2	Could the on-Base groundwater flow directions result in impacts to Supply Well No. 2 in the future, and would pumping this well on a sustained basis add to this risk?	Hydraulic conductivity value and extraction rates to use for modeling capture of Supply Well No 2. Porosity values which are included in calculations of groundwater velocity.	Review pertinent hydraulic property information near the well (if any) from existing documents. Augment with parameter value information from regional studies. Apply parameter values in conjunction with updated stratigraphic interpretation discussed above.	Use parameter values in calculations/models to evaluate potential for plume expansion and/or degree of hydraulic containment provided by specific pumping scenarios.	Yes

Data Gap #	Category	Current CSM Limitations	Key Data Gaps	How to be addressed in DWPS	Benefit	Appropriate for DWPS
8	South/Southwest of B-52 Crash	Uncertainty in groundwater flow direction and potential for PFAS transport in groundwater to the south/southwest of the B-52 crash site	No PFAS samples to the south/southwest	No new data collection anticipated within DWPS. Evaluate existing water level information in conjunction with updated stratigraphic interpretation to determine likelihood of potential PFAS transport to south/southwest.	Determine likelihood of potential PFAS transport to south/southwest.	Yes