

A Message from the IRIS Program
March 2021

The IRIS Program is committed to producing assessments in a timely and transparent manner. Table 1 describes assessments that are currently in development and their projected deliverable dates. The IRIS Program is providing this information for stakeholders to be aware of upcoming products, and to allow the public and research community an opportunity to communicate relevant research to EPA. Projected dates are based on factors such as size of a chemical's evidence base and staff availability. Nearer-term activities are estimated using Fiscal Year (FY) and Quarters. Milestones that are further out are projected at the FY-level only due to greater uncertainties. While projected dates reflect the IRIS Program's best estimate based on available information, they are subject to change. Changes to these estimates are typically the result of responding to internal, public, and/or peer review comments on the scientific issues unique to each chemical assessment, and the availability of staff with the appropriate expertise to address those issues. The IRIS Program Outlook will be updated at least three times each calendar year (February, June, October). The IRIS assessment of formaldehyde (inhalation) announced as suspended in April 2019 has been recently unsuspending. A public milestone timeline will be added to Table 1 in the June 2021 IRIS Program Outlook update. Additional information regarding other pertinent products and activities is included in Tables 2 and 3.

Table 1. IRIS Assessment Products – March 2021

Current Status	Assessment	Next Anticipated Public Step(s)	Projected Deliverable Date
Post-Peer Review	Ethyl tertiary butyl ether (ETBE) ¹	Step 7: Final	FY21 – Q3
	tert-Butyl Alcohol ¹	Step 7: Final	FY21 – Q3
Draft Development	Arsenic, Inorganic	Step 1: Systematic Review Protocol	Released May 28, 2019. NAS review meeting July 16, 2019
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY23
	Chloroform (Inhalation)	Step 1: IRIS Assessment Plan	Released September 18, 2017. Public Meeting on September 27, 2017
		Step 1: Systematic Review Protocol	Released January 31, 2018
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY22
	Chromium VI	Step 1: Systematic Review Protocol	Released March 15, 2019. Public Science Meeting April 24, 2019
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY22
	Methylmercury	Step 1: IRIS Assessment Plan	Released April 4, 2019. Public Science Meeting May 15, 2019
		Step 1: Systematic Review Protocol	Released May 26, 2020
		Step 4: Public Comment Draft	FY23
		Step 4: External Peer Review	FY24
Polychlorinated Biphenyls (PCBs; noncancer)	Step 1: Systematic Review Protocol	Released on December 19, 2019	
	Step 4: Public Comment Draft	FY24	

Current Status	Assessment	Next Anticipated Public Step(s)	Projected Deliverable Date
		Step 4: External Peer Review	FY24
Draft Development	Perfluorononanoate (PFNA) ¹	Step 1: Systematic Review Protocol	Released on November 8, 2019
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY22
	Perfluorobutyrate (PFBA) ¹	Step 1: Systematic Review Protocol	Released on November 8, 2019
		Step 4: Public Comment Draft	FY21 – Q3
		Step 4: External Peer Review	FY21 – Q4
	Perfluorohexanoic acid (PFHxA) ¹	Step 1: Systematic Review Protocol	Released on November 8, 2019
		Step 4: Public Comment Draft	FY21 – Q4
		Step 4: External Peer Review	FY22
	Perfluorohexane Sulfonic Acid (PFHxS) ¹	Step 1: Systematic Review Protocol	Released on November 8, 2019
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY22
	Perfluorodecanoate (PFDA) ¹	Step 1: Systematic Review Protocol	Released on November 8, 2019
		Step 4: Public Comment Draft	FY22
Step 4: External Peer Review		FY22	
Scoping and Problem Formulation	Inorganic Mercury salts	Step 1: IRIS Assessment Plan	Released October 8, 2019. Public Science Meeting December 5, 2019
		Step 1: Systematic Review Protocol	Released March 11, 2021.
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY23

Current Status	Assessment	Next Anticipated Public Step(s)	Projected Deliverable Date
	Vanadium and Compounds (Oral)	Step 1: IRIS Assessment Plan	Released July 24, 2020. Public Science Meeting August 19, 2020
		Step 1: Systematic Review Protocol	FY21 – Q3
		Step 4: Public Comment Draft	FY22
		Step 4: External Peer Review	FY23
	Vanadium and Compounds (Inhalation)	Step 1: IRIS Assessment Plan	FY21 – Q3
		Step 1: Systematic Review Protocol	TBD
		Step 4: Public Comment Draft	TBD
		Step 4: External Peer Review	TBD

¹ Per- and polyfluoroalkyl Substances (PFAS) assessments under development are in support of [EPA's PFAS Action Plan: https://www.epa.gov/pfas/epas-pfas-action-plan](https://www.epa.gov/pfas/epas-pfas-action-plan). The release of draft PFBA, PFHxA, PFHxS, PFNA, and PFDA assessments for public comment addresses a Priority Action in [EPA's PFAS Action Plan](https://www.epa.gov/pfas/epas-pfas-action-plan).

Table 2. Upcoming IRIS Non-Assessment Products and Activities

Product or Activity	Next Anticipated Public Step(s)	Projected Deliverable Date
ORD Staff Handbook for Developing IRIS Assessments (“IRIS Handbook”)	Public Comment	Released November 9, 2020
	External Peer Review	First National Academy of Science, Engineering and Medicine Public Meeting February 11, 2021
Vanadium and Compounds (Inhalation) – IRIS Assessment Plan (IAP)	Public Meeting	FY21 – Q3
NAS Workshop - Advances Made During Application of Artificial Intelligence and Open Data Practices in Chemical Hazard Assessment	Public Workshop	FY21 – Q4
NAS Workshop - Triangulation of Evidence in Environmental Epidemiology	Public Workshop	FY21 – Q4
PCB Mixtures/Modelling and Tool Workshop	Public Workshop	FY22

Table 3. Select Publications Related to IRIS Assessment Activities

Assessment	Citation	Publication Date
Polychlorinated Biphenyls (PCBs; noncancer)	Weitekamp, C.A., Phillips, L.J., Carlson, L.M., DeLuca, N.M., Cohen Hubal, E.A., Lehmann, G.M. (2021). A state-of-the-science review of polychlorinated biphenyl exposures at background levels: Relative contributions of exposure routes, <i>Science of the Total Environment</i> , 776(1). 145912. https://doi.org/10.1016/j.scitotenv.2021.145912	Published February 18, 2021
Polychlorinated Biphenyls (PCBs; noncancer)	Christensen, K., Carlson, L.M., Lehmann, G.M. (2020). The role of epidemiology studies in human health risk assessment of polychlorinated biphenyls. <i>Environmental Research</i> , 194, 110662. https://doi.org/10.1016/j.envres.2020.110662	Published December 30, 2020
Inorganic Arsenic	Allen, B., Shao, K., Hobbie, K., Mendez Jr., W., Lee, J.S., Cote, I., Druwe, I.L., Gift, J.S., Davis, J.A. (2020). Bayesian hierarchical dose-response meta-analysis of epidemiological studies: Modeling and target population prediction methods. <i>Environment International</i> , 145, 106111. https://doi.org/10.1016/j.envint.2020.106111	Published December 2020
Inorganic Arsenic	Hobbie, K., Shao, K., Henning, C., Mendez Jr., W., Lee, J.S., Cote, I., Druwe, I.L., Davis, J.A., Gift, J.S. (2020). Use of study-specific MOE-like estimates to	Published November 2020

Assessment	Citation	Publication Date
	prioritize health effects from chemical exposure for analysis in human health assessments. Environment International, 144, 105986. https://doi.org/10.1016/j.envint.2020.105986	
Inorganic Arsenic	Mendez Jr., W., Shao, K., Lee, J.S., Cote, I., Druwe, I.L., Davis, J.A., Gift, J.S. (2020). Model averaging methods for the evaluation of dose-response model uncertainty when assessing the suitability of studies for estimating risk. Environment International, 143, 105857. https://doi.org/10.1016/j.envint.2020.105857	Published October 2020
Inorganic Arsenic	Allen, B., Shao, K., Hobbie, K., Mendez Jr., W., Lee, J.S., Cote, I., Druwe, I.L., Gift, J.S., Davis, J.A. (2020). Systematic dose-response of environmental epidemiologic studies; Dose and Response pre-analysis. Environment International, 142, 105810. https://doi.org/10.1016/j.envint.2020.105810	Published September 2020
Methylmercury	Wells, E.M. Kopylev, L., Nachman, R. Radke, E.G., Segal, D. (2020). Seafood, wine, rice, vegetables and other food items associated with mercury biomarkers among seafood and non-seafood consumers: NHANES 2011-2012. Journal of Exposure Science and Environmental Epidemiology, 30(3). 10.1038/s41370-020-0206-6	Published February 3, 2020