

**Comments of the Semiconductor Industry Association (SIA)
on the
Advance Notice of Proposed Rulemaking: Addition of Certain Per- and Polyfluoroalkyl
Substances; Community Right-to-Know Toxic Chemical Release Reporting**

84 Fed. Reg. 66,369 (Dec. 4, 2019)

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The Semiconductor Industry Association (SIA) appreciates the opportunity to submit the following comments to the U.S. Environmental Protection Agency's (EPA) Advance Notice of Proposed Rulemaking [ANPRM]: Addition of Certain Per- and Polyfluoroalkyl Substances: Community Right-to-Know Toxic Chemical Release Reporting.

SIA is the trade association representing leading U.S. companies engaged in the design and manufacture of semiconductors. Semiconductors are the fundamental enabling technology of modern electronics that has transformed virtually all aspects of our economy, ranging from information technology, telecommunications, health care, transportation, energy, and national defense. The U.S. is the global leader in the semiconductor industry, and continued U.S. leadership in semiconductor technology is essential to America's continued global economic leadership. More information about SIA and the semiconductor industry is available at www.semiconductors.org.

The manufacture of semiconductors is a complex process requiring the use of specialized chemicals with unique properties, including, in small quantities, certain per- and polyfluorinated substances (PFAS). The semiconductor industry uses these chemicals in highly controlled manufacturing tools which minimize exposure to workers and limit releases to the environment. Viable substitutes for each of these specialized chemicals in semiconductor manufacturing do not currently exist.

SIA's comments on the ANPRM focus on the following topics:

1. Clarifying how EPA will implement section 7321 of the FY2020 National Defense Authorization Act
2. Narrowing the Scope of the ANPRM on active PFAS in U.S. Commerce
3. Applying Statutory Criteria for Additions of PFAS to Toxics Release Inventory.
4. Applying SNUR Exemptions to New TRI Listings.
5. Simplifying TRI Reporting for Downstream PFAS Users.
6. Providing a De Minimis Exemption.
7. Assuring availability of test methods for detecting and identifying PFAS subject to TRI.

1. Clarification of the NDAA on EPA's ANPRM.

Congress recently enacted the PFAS Action Act of 2019 as part of the FY2020 National Defense Authorization Act (FY2020 NDAA). Section 7321 of this Act requires EPA to include numerous PFAS in TRI reporting, with a reporting threshold of 100 pounds, starting in 2020.

The statute “deems to be included” in the Toxics Release Inventory (TRI) several specifically-identified per- and polyfluorinated substances, including perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS).¹ In addition, the NDAA also adds to the TRI reporting requirements “active” chemical substances that are currently subject to two Significant New Use Rules (SNURs).² Additionally, the FY2020 NDAA directs EPA to evaluate for inclusion in the TRI certain other PFAS substances.³ The timing and scope of these new statutory (and potential regulatory) requirements will create tremendous new reporting challenges for entities that manufacture semiconductors in the US and place increased demand on limited Agency resources needed to implement these requirements. These new obligations will not be experienced in non-U.S. facilities; this will place overseas manufacturing operations at a competitive advantage.

The Agency posted on its web-site certain information concerning the NDAA and a list of 160 PFAS the Agency considers as included in the TRI reporting requirements for 2020 on the basis of the legislation. EPA also advised it remains interested in obtaining public comments on the ANPRM.⁴ However, the information posted by the Agency is incomplete with respect to the Agency's plans to implement the NDAA and its interpretation of the obligations that will be incumbent on entities that manufacture process or otherwise use the 160 additional substances identified in EPA's recent release. SIA requests that EPA issue further guidance to the regulated community as soon as possible to clarify how the TRI and PFAS provisions in the FY2020 NDAA will be implemented by EPA and on future regulatory actions to be taken by EPA to implement the NDAA and to close out the ANPRM.

One issue it is important for EPA to address as soon as possible is whether the Agency considers its recently released list of 160 PFAS to be a “complete” list. The Agency has noted on its web-pages that “The names and CASRNs for some of the chemicals listed under [the two SNURs] are subject to a claim of protection from disclosure...[and]...EPA must review any such chemicals before the chemicals are added to the TRI list”⁵ EPA should provide guidance with respect to the timing on when such additions are likely to be made.

¹ The substances added by Congress for 2020 TRI reporting purposes include PFOA, PFOS, the salts associated with PFOA and PFOS, substances known as “GenX,” PFNA, and PFHxS.

² Specifically, the SNURs codified at 40 CFR §§ 721.9582 and 721.10536.

³ For any PFAS chemicals not listed currently, listing must occur when EPA has set a toxicity value for the substance, has issued a Significant New Use Rule (SNUR) for the substance, added the substance to an existing SNUR, or added the substance to the TSCA Inventory as an active chemical substance. NDAA § 7321(c)(1)(A).

⁴ <https://www.epa.gov/toxics-release-inventory-tri-program/addition-certain-pfas-tri-national-defense-authorization-act>.

⁵ <https://www.epa.gov/toxics-release-inventory-tri-program/addition-certain-pfas-tri-national-defense-authorization-act>.

A second, and perhaps more important clarification the Agency should provide as soon as possible is how EPA intends to deal with the provision of the SNUR codified at 40 CFR 721.10536 which identifies substances that are within the scope of that rule not by using specific chemical names or CAS Registry Numbers, but by using 5 different generic chemical formulation descriptions.⁶ Because the NDAA provides that all “active substances” that are subject to that SNUR are deemed to be subject to TRI Reporting, the Agency needs to advise the regulated community whether the list the Agency has published of 160 PFAS can be considered complete and inclusive of all of the “active” substance on the Inventory that fall within the five formulaic descriptions in 721.10536(b).

Given the need for EPA to provide such additional clarifications in the very near term, SIA believes the Agency should announce that it will focus its limited resources on its efforts to clarify and reasonably implement the PFAS requirements in the NDAA mandate and specifically determine that the EPA will not pursue the efforts described in the ANPRM that could lead to including additional PFAS in the TRI reporting requirements for 2020. It is clear from the foregoing that there is considerable need for EPA to clarify the scope of the NDAA additions to the TRI and address the need for further guidance. SIA believes it is unclear what additional value would be obtained by EPA receiving, processing and responding to comments on the ANPRM, much less considering further any additional requirements for reporting of even more PFAS molecules. EPA should take time now to announce publicly its intent to withdraw the ANPRM and focus on the NDAA-driven requirements. Stakeholders should be provided sufficient time to acclimate to newly implemented TRI reporting requirements before the Agency should even begin the process of determining whether additional PFAS should be added to those included in the NDAA.

2. EPA Should Provide Clarity on How and In What Manner the Active PFAS in U.S. Commerce Will be Evaluated under the NDAA’s Forward-Looking Provisions

The ANPRM states that there are approximately 600 PFAS currently manufactured or used in the United States. The NDAA requires EPA to continue to assess PFAS substances for “inclusion following assessment” beyond the 160 EPA has initially identified for TRI listings.⁷ Without regard to whether EPA intends to proceed with the ANPRM, the Agency should clarify for the regulated community the approach it will take when implementing the “inclusion following assessment” approach required by the NDAA and which substances will be under consideration. The NDAA includes a very broad description of EPA’s obligations and directs it to consider for purposes of this requirement “perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances not described in subsection (b)(1).” To focus its efforts and enable the regulated community to provide meaningful input, the Agency should issue guidance clarifying which of the 600 plus substances EPA considers to be in scope of the “inclusion following assessment” processes.

⁶ The terms of 40 C.F.R. § 721.10536(b) include the following long-chain perfluoroalkyl carboxylate chemical substances, where $5 < n < 21$ or $6 < m < 21$:

- i. $\text{CF}_3(\text{CF}_2)_n\text{-COO-M}$, where $M = \text{H}$ or any other group where a formal dissociation can be made;
- ii. $\text{CF}_3(\text{CF}_2)_n\text{-CH} = \text{CH}_2$;
- iii. $\text{CF}_3(\text{CF}_2)_n\text{-C}(\text{=O})\text{-X}$, where X is any chemical moiety;
- iv. $\text{CF}_3(\text{CF}_2)_m\text{-CH}_2\text{-X}$, where X is any chemical moiety; and

$\text{CF}_3(\text{CF}_2)_m\text{-Y-X}$, where $Y = \text{non-S, non-N heteroatom}$ and where X is any chemical moiety.

⁷ See §2332(c).

The ANPRM requests information from the regulated community concerning which PFAS to be included in TRI reporting, recommendations for potential thresholds for reporting, and the criteria for making these determinations. Unfortunately, however, the ANPRM provided only an imprecise, generic definition of PFAS, and arguably is no longer relevant in light of the NDAA's new forward-looking requirements. The notice states:

PFAS are synthetic organic compounds that do not occur naturally in the environment. PFAS contain an alkyl carbon chain on which the hydrogen atoms have been partially or completely replaced by fluorine atoms.

84 Fed. Reg. at 66,370.⁸ This definition does not take into account the various definitions included in the NDAA (e.g., in Subtitle C of the NDAA pertaining to the U.S. Geological Survey's duties) and lacks sufficient precision to understand the scope of substances being considered by EPA. Academic papers⁹ provide clearer and more rigorous definitions that should be used by EPA to guide its decision-making process. The Buck paper, for example, states that Perfluoroalkyl substances should be defined as aliphatic substances for which all of the H atoms attached to C atoms replaced by F atoms, except those H atoms whose substitution would modify the nature of any functional groups present. It further defines Polyfluoroalkyl substances as aliphatic substances for which all H atoms attached to at least one (but not all) C atoms have been replaced by F atoms, in such a manner that they contain the perfluoroalkyl moiety C_nF_{2n+1} – (e.g., $C_8F_{17}CH_2CH_2OH$). To provide the regulated community with greater guidance on the scope of substances being considered, SIA calls on EPA to use a more precise definition that is recognized by the academic community.

Without further refinement, the EPA definition in the ANPRM encompasses an overly broad range of substances. For example, the EPA definition could potentially include substances such as perfluorinated gases or heat transfer fluids used in a variety of manufacturing operations. SIA believes it is unlikely EPA intends to consider such a broad range of substances for inclusion in TRI reporting, even under the going-forward provisions of the NDAA. Further clarification should be provided. A clearer definition is needed to properly respond to the EPA notice; and to determine whether the NDAA's forward-looking requirements have superseded the need for such a clarification, much less the need for comment from the public.

3. Applying Statutory Criteria for Addition of PFAS to Toxics Release Inventory

As EPA acknowledged in the ANPRM, in order to add a chemical substance to the Toxics Release Inventory, the substance must meet one of the criteria in Section 313(d) of the Emergency Planning and Community Right-to-Know Act (EPCRA). While Congress has mandated the addition of certain well-known substance to the TRI requirements for which certain concerns for environmental or health effects are widely acknowledged (e.g., PFOS and PFOA), not all of the substances Congress has deemed to be listed meet the statutory criteria in EPCRA for such listings. For many PFAS, there is no documented evidence of health and environmental concerns. For example, many of the substances that are subject to the two existing SNURs addressed in the NDAA have been included on the basis of their structural

⁸ The ANPRM does not comment on, nor take note of, the definition in 40 CFR §SNUR 721.10536(b) which EPA also did not address in its recent web-site listing of 160 PFAS.

⁹ See, e.g., Buck, Robert C., et al., 2011. Perfluoroalkyl and Polyfluoroalkyl Substances in the Environment: Terminology, Classification, and Origins. Integrated Environmental Assessment and Management —Volume 7, Number 4—pp. 513–541.

analogy to chemically or functionally similar chemicals. This would not satisfy the TRI-listing criteria specified in the authorizing legislations. SIA believes EPA must set forth some criteria – such as threshold levels of persistence, bioaccumulation, and toxicity of EPCRA Section 313(d) – for its review for “inclusion following assessment” obligations affecting TRI reporting in future cycles.

In the course of implementing the NDAA, SIA urges EPA to make clear that when a new TRI listing is under consideration for a substance that is not among those specifically identified by chemical name in the NDAA for listing, or when EPA takes an action that would trigger an automatic inclusion for TRI purposes (such as adding a substance to the existing PFAS SNURs), EPA will include additional PFAS only when there is sufficient information available for that substance to meet the listing criteria of EPCRA Section 313(d).

SIA suggests that EPA analyze each substance Congress has not identified by chemical name to be added to the TRI pursuant to the mechanisms established by Section 7321(c) of the FY2020 NDAA by applying the listing criteria of Section 313(d)(2) to confirm that these substances meet one of the listing criteria. (For example, when considering the addition of a substance to the chemicals currently subject to existing SNURs.) To the extent that such a substance does not meet a statutory listing criterion, SIA encourages EPA to exercise its authority pursuant to EPCRA Section 313(d)(1) to consider omitting or removing the substances from the TRI list. This approach would apply the same standards Congress has directed EPA to use when making decisions for “inclusion following determinations” under Section 7321(d) of the NDAA.

4. Clarifying the Effect of SNUR Exemption on New TRI Reporting Requirements

A feature of the FY2020 NDAA (i.e., Section 7321(b)(1)(E)) requires the immediate inclusion of “active” PFAS covered by two significant new use rules (SNURs) to TRI reporting requirements.¹⁰ However, the use of PFAS in semiconductor manufacturing is often exempt from such SNUR requirements.¹¹ SIA requests that EPA make clear when it issues final regulations implementing Section 7321(b)(1)(E) of the NDAA that entities who are engaged in these “on-going” uses which operate as exemptions from the SNUR requirements will be exempt from the new TRI reporting requirements.

5. Simplifying TRI Reporting for Downstream Users

As EPA noted in the ANPRM, a wide variety of PFAS are used in the United States and these substances have varying properties and present differing levels of potential hazard. Manufacturers of PFAS-containing products often keep confidential the chemical composition of these products. Thus, downstream users of these PFAS-containing products will have difficulty determining whether they are required to comply with TRI reporting requirements because the specific identity of PFAS constituents in a supplier’s formulation might not be known to the user.

These confidentiality concerns are especially true for the suppliers and users of chemical in semiconductor industry; downstream users will typically lack complete knowledge on key information (such as specific chemical identities and CAS registry numbers) needed to provide an informed response to the EPA’s ANPRM and to complete newly-enacted TRI reporting

¹⁰ Specifically, the SNURs codified at 40 CFR §§ 721.9582 and 721.10536.

¹¹ See 40 CFR § 721.9582(a)(3).

requirements. For example, in many cases, chemical suppliers do not disclose to companies in the semiconductor industry information related to TRI reporting including:

- The PFAS included in the chemicals used in manufacturing processes
- The quantities of each substance are present in these chemicals
- The byproducts or degradants are formed as a result of using these substances in our manufacturing processes

The supplier notification requirements in the TRI rules at 40 CFR § 372.45 will require a significant adjustment in the current information flow between suppliers of chemical formulations used in the semiconductor manufacturing sector and the formulators and distributors of such products. Because this information might not be routinely provided by chemical suppliers, chemical users will face compliance challenges which they might not be able to overcome. EPA needs to take steps to provide timely guidance to avoid reporting delays or compliance difficulties by proactively addressing these information needs and supply chain disclosure concerns when issuing the immediately-effective final rule implementing the NDAA.

SIA requests that EPA explain the steps it will take to help downstream users of PFAS to comply with TRI reporting requirements.

6. De Minimis Exemption

When an entity is determining whether it has met the TRI reporting threshold, TRI regulations at 40 CFR § 372.38 generally permit the entity to exclude from this determination quantities of a substance present in a mixture at a concentration of less than 1 percent. However, this will depend in large measure on which section in the regulations a chemical substance is eventually codified. SIA requests that EPA confirm that the manner in which the PFAS entries will be codified will ensure the de minimis exemption is applicable to PFAS added to the TRI in accordance with the FY2020 NDAA. Suppliers of formulations provided for use in the semiconductor industry frequently includes substances in mixtures at very low concentrations. For this reason, SIA requests that the PFAS substances entered pursuant to the NDAA not be included among the lower-threshold substance identified in the 40 CFR § 372.28 entries to which the de minimis exemption generally would not apply. Further, SIA encourages EPA to ensure the applicability of the de minimis exemption to each future PFAS that the Agency considers adding to the TRI. SIA recommends the additions of an entirely new subsection within Part 372 which is specifically set aside for PFAS-related entries.

7. Assuring Availability of Test Methods for All TRI Listed Substances

In order for EPA to proceed with listing additional PFAS and setting reportable quantities for each substance, EPA must ensure that approved test methods exist to detect and quantify the PFAS present in wastewater or other forms of releases (e.g., hazardous waste disposal). SIA understands there are only approved methods for detecting 24 specific PFAS compounds in wastewater; however, the Agency intends to establish 160 new TRI listings this year. SIA considers it to be imperative that approved test methods should exist to detect PFAS in wastewater at low levels of detection at the time TRI listings take effect. In the absence of such methods, it is unclear how regulated entities can accurately estimate and report releases under TRI.

For each PFAS to be considered for TRI reporting, EPA should provide a better understanding concerning when there will be approved methods for testing these substances in wastewater and other media of release.

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SIA appreciates the opportunity to submit the foregoing comments concerning EPA's ANPRM for the potential TRI listing of certain PFAS. SIA would be glad to arrange a meeting during which these comments can be addressed further if clarification or additional information is needed.