

**Comments Of The  
Alkylphenols & Ethoxylates Research Council  
On The  
May 9, 2007 Federal Register Notice Regarding The  
Safer Detergent Stewardship Initiative (SDSI) Program  
Docket ID Number: EPA-HQ-OPPT-2007-0274  
Submitted July 9, 2007**

**EXECUTIVE SUMMARY**

On May 9, 2007 EPA published a Federal Register notice (72 Fed. Reg. 26357) seeking public comment on a planned Information Collection Request (ICR) on the Safer Detergent Stewardship Initiative (SDSI) that will ultimately be submitted to the Office of Management and Budget (OMB) for review and approval. The Alkylphenols & Ethoxylates Research Council (APERC), the trade group representing the major U.S. manufacturers of nonylphenol (NP) and nonylphenol ethoxylates (NPE), has serious reservations about the scope, content and overall benefit anticipated from the SDSI program.

It is APERC's view that EPA has not established a need for SDSI and has not shown that the use of detergents or surfactants in general, or nonylphenol ethoxylate (NPE) surfactants specifically, pose a risk to human health or the environment. While EPA has suggested such a program is needed to assist in complying with the newly adopted federal Ambient Water Quality Criteria (WQC) for NP, nowhere within the Federal Register notice or the associated Supporting Statement, does EPA explain the rationale for this view. In fact the available monitoring results that have been collected over the past 15 years suggests that environmental levels are by and large already below the WQC for NP.

APERC recommends that in revising its ICR for submission to OMB that EPA should undertake the following:

- 1) Clearly articulate the environmental benefit expected from SDSI. APERC advocates that DfE review the available monitoring results on surfactants and their degradates and explain how a national recognition program that promotes the deselection of NPE will enhance compliance with the NP WQC.
- 2) EPA should explain the relationship between SDSI and the other DfE sponsored programs, (such as the Formulators Initiative and CleanGredients) with emphasis on describing the additional benefit that will accrue from SDSI that is not provided by these other programs. EPA already has several programs directed at detergents and there has been no explanation of how SDSI relates to these other initiatives. These other programs appear more robust as they focus on the entire detergent formulation and not just the surfactant.

3) Given the limited resources of the DfE office, EPA should provide a more realistic and comprehensive assessment of the Agency costs associated with developing and implementing the SDSI program. Based on the estimates provided in the Supporting Statement, it appears that EPA anticipates spending on average less than 6 minutes of time reviewing and validating each SDSI application. APERC is convinced that EPA has significantly underestimated the time necessary to effectively review each application and believes that a full accounting should be presented so that they can be considered in contrast with other DfE programs and the perceived environmental benefit anticipated to result from SDSI.

If the Agency decides to proceed with SDSI, APERC advocates that EPA should limit the program to detergents and other cleaning products and not expand to include all uses of surfactants. The Federal Register notice and associated Supporting Statement are somewhat inconsistent in their characterization of the products EPA would like to be within the scope of SDSI with the Supporting Statement implying that certain product such as paints and inks, should be outside the scope of SDSI. At a minimum, EPA needs to clearly define and justify the type of products proposed for inclusion in SDSI.

Once the Agency settles on the scope of products to be covered by SDSI, EPA should refine in its ICR, the estimate of the reporting and recordkeeping burden associated with respondents that are likely to seek recognition; EPA should also factor into the ICR the greater burden estimate that is likely to accrue to the potentially large number of entities that will need to review and consider the SDSI program irrespective of whether they decide to seek recognition.

APERC is convinced that the Agency, OMB and the public would be in a better position to judge the value of the SDSI program if the DfE office would assemble and present the information called for by these recommendations.

## **I. INTRODUCTION**

APERC submits the following comments in response to the May 9 FR notice, which is directed at soliciting feedback comments on a new ICR to be submitted to OMB pertaining to the DfE proposed SDSI Program.

APERC is comprised of the major North American producers of alkylphenols (AP) and alkylphenol ethoxylates (APEs) including nonylphenol (NP) and nonylphenol ethoxylates (NPE).<sup>1</sup> For more than twenty years, APERC has actively engaged in the conduct and monitoring of toxicology, ecotoxicology and environmental effects research on these compounds. APERC has a unique interest in this proceeding given that a major focus of the SDSI Program is to promote the deselection of the products made by our members - NP and NPE.

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<sup>1</sup> Members of the Alkylphenols & Ethoxylates Research Council include: Dover Chemical Corporation; Rhodia Inc.; Rohm and Haas Chemicals LLC; SI Group.; Texas Petrochemical LP; and, The Dow Chemical Company.

APERC appreciates the opportunity that DfE has provided to submit comments on the draft ICR in advance of its formal submission to OMB. It is our understanding that EPA will consider the comments received in completing the ICR and associated Supporting Statement prior to submission to OMB pursuant to the Paperwork Reduction Act (PRA). We further expect that once the formal ICR is submitted, EPA will publish a subsequent notice in the Federal Register announcing an additional opportunity for the public to submit comments to EPA and Office of Information and Regulatory Affairs (OIRA)/OMB on the officially submitted ICR and Supporting Statement.

While the focus of these comments are directed at the issues raised by the May 9 Federal Register notice and Supporting Statement, the next section briefly reviews the history associated with the development of the SDSI Program in order to put these comments into perspective in relation to the evolution of the program. This is followed by a brief summary of the current version of the proposed SDSI Program based on a review of the ICR Supporting Statement. This summary and the associated comments are presented given that a concise description of the Program was not presented in the FR notice. Section IV of the comments addresses issues associated with EPA's estimate of the burden hours associated with the program and the last section (V) responds to additional issues EPA solicited for comment.

## **II. HISTORY – 2006 PROPOSED SDSI PROGRAM**

In February 2006, the EPA DfE announced the SDSI Program - a program intended to recognize companies (suppliers, formulators, retailers/distributors, organizations or end-users) for committing voluntarily to phase out the manufacture or use of NPE surfactants in detergents or cleaning products.

EPA announced the SDSI Program in conjunction with the Office of Water's finalization of the Ambient Water Quality Criteria (WQC) for NP,<sup>2</sup> a biodegradation intermediate of NPE. The final WQC for NP were 28 µg/L (fresh water, acute), 7.0 µg/L (salt water, acute), 6.6 µg/L (fresh water, chronic) and 1.7 µg/L (saltwater, chronic). It is relevant to note that in developing the final WQC, EPA considered reproductive and developmental effects of NP in aquatic species. . In addition, EPA's final WQC Document notes that concern about potential estrogenic effects occurs at concentrations that are greater than that associated with apical toxicological endpoints. The document states "*the ability of nonylphenol to induce estrogenic effects has seldom been reported at concentrations below the freshwater Final Chronic Value of 6.5965 µg/L.*"

The "safer detergent" program - focused solely on the deselection of one ingredient - was justified by EPA based on the availability of "safer" alternatives to NPE and the Agency's contention that "concentrations of NP/NPE were increasing in the environment"; hence SDSI was promoted as needed to achieve the WQC for NP.

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<sup>2</sup> US EPA(2006) Notice of Availability of Final Aquatic Life Ambient Water Quality Criteria for Nonylphenol , Federal Register Vol. 71, No. 36 9337-9339, February 23, 2006

Shortly after the initial SDSI announcement, representatives from APERC and the industrial laundry industry - one of the largest users of NPE in detergents - met with EPA to discuss issues associated with SDSI and to provide extensive detailed summaries of the available science on NP/NPE. The information presented included a recently completed survey of environmental monitoring data in US surface waters that covered over a 15-year period. The monitoring data clearly showed that concentrations of NP/NPE were not increasing in US surface waters. Moreover, the information supported the conclusion that these compounds do not present a risk in US waters when compared to EPA's just-adopted final WQC for NP. A summary of the science supporting the treatability of NPE in wastewater treatment plants was also presented.

APERC and its member companies also expressed concern about the proposed SDSI program at an EPA public meeting held on June 12, 2006. Those concerns were directed at APERC's contention that there was a lack of scientific support to justify a national deselection program focused on NPEs – a view that APERC maintains. We further questioned why it was necessary to launch a new program given the various other DfE programs directed at detergents, such as the “Formulators Initiative,” which appears to be much more robust.

At the public meeting, APERC offered four recommendations:

1. EPA should review the available environmental monitoring results for NP in order to assess whether there is adequate technical justification to support a national “use anything but NPE initiative.”
2. If EPA finds that there is not adequate justification to endorse such a national program, then EPA should abandon the SDSI Program.
3. If after review of the monitoring results, EPA finds that there is sufficient justification to endorse a national deselection program, the alkylphenol industry, which is comprised of companies that take seriously their commitment to RESPONSIBLE CARE, stands ready to work with EPA to reduce the levels of NP in the environment.
4. If after reviewing the data, the conclusion is reached that a national program is not justified, but there are a few local hot spots, APERC committed to work with the Agency to address those as well.

These recommendations are restated here because they are still relevant today in the context of the May 2007 revised proposed SDSI Program.

### III. REVISED SDSI PROGRAM (May 9, 2007, FR Vol. 72, No. 89) AND SUPPORTING STATEMENT

On May 9, EPA published a notice seeking public comment on a planned ICR associated with the SDSI Program. The notice itself provides very limited information on the SDSI Program. SDSI is described as:

*SDSI is a voluntary program administered by EPA to offer resources and recognition to businesses involved in the transition to safer surfactants. Surfactants are a major ingredient in cleaning products such as detergents, cleaners, airplane deicers and firefighting foams. Safer surfactants are those that break down quickly to nonpolluting compounds.*

It further states that the “*entities potentially affected by this action are establishments or organizations engaged in formulating, producing, purchasing or distributing surfactants or products containing surfactants.*”

#### A. EPA Appears To Have Significantly Expanded The Scope Of The Proposed SDSI Program

Based on review of the May 9 FR notice, EPA has expanded the scope of SDSI beyond its singular focus on NPE to include all surfactants. APERC believes such a change is appropriate. At the same time, the FR notice suggests an even larger expansion in scope from facilities involved with “detergents” - as highlighted in the SDSI name - to a much broader universe that includes all products containing surfactants. According to the notice, potentially affected entities are “*establishments or organizations engaged in formulating, producing, purchasing or distributing surfactants or products containing surfactants.*”

There is little explanation of the differences between the SDSI program as envisioned in early 2006 and the more expanded program described in the May 2007 notice.

Both the FR notice and Supporting Statement correctly note that detergents, cleaners, fire gels and aircraft deicers contain surfactants. However, the FR notice does not appear to limit the focus to these or any particular group of products containing surfactants, while the Supporting Statement suggests that the scope is limited to products that are discharged, although there is no explanation as to what is meant by “discharge.”

The Supporting Statement states that “products such as paint and ink that also use surfactants were not included in the scope of SDSI” and notes that stakeholders suggested that EPA could drive the most significant environmental improvement at the lowest possible cost by focusing SDSI on “products whose use routinely results in their discharge to the environment.”

As DfE is well aware, even detergents and cleaning products are not routinely discharged to the environment directly, but typically after treatment in wastewater treatment plants. APERC recommends that EPA clearly define and justify the type of products proposed for inclusion in SDSI. It is APERC's contention that not only has EPA not provided adequate justification for the SDSI program for detergents, there is also no justification to expand the scope of uses, assuredly not to include all uses of all surfactants, as suggested in the FR notice. It is likely that there are few products and/or articles in commerce today that have not been manufactured, formulated, processed or packaged - or in some way touched by a surfactant or a surfactant-containing product.

In considering the scope of any new recognition program, DfE should reconsider incorporating products such as fire gel that have other benefit risk considerations. It is important to recognize that, for example, firefighting products are tested and approved by the USDA Forest Service for ecotoxicity as well as human safety and most importantly fire fighting efficacy. Since the USDA Forest Service qualifies only those firefighting products that meet all of its standards, including those for environmental impact, the inclusion of these products within the scope of SDSI will not result in any further environmental benefit. Therefore, APERC recommends that firefighting products be removed from the scope of SDSI.

Once EPA has established the universe of products/facilities eligible for SDSI, the Agency should revise accordingly its reporting burden estimates.

#### B. Requirements To Gain Recognition Have Also Been Modified

DfE has also changed the criteria associated with providing recognition since the February 2006 public meeting. As the program is currently envisioned, recognition is divided into two classifications: Champions and Partners. The primary differences between the two classifications are the timing of program implementation and the eligibility to attend an EPA-sponsored award ceremony.

**Champion:** Companies that manufacture, process or use surfactants are eligible for Champion status if they have fully transitioned to "safer surfactants." According to the Supporting Statement, candidates wishing to be classified as a "Champion" and desiring to attend EPA's awards ceremony, must apply by December 2007. In addition to an invitation to attend EPA's SDSI Awards Ceremony, Champions would be authorized to use a special DfE SDSI logo in literature, and listed as a Champion on the EPA SDSI website.

Champion status can also be obtained by other types of organizations (e.g., non-profits, academic institutions etc.) that can document "outstanding efforts" to encourage the use of safer surfactants. Examples of contributions that would qualify as "outstanding efforts" include those that have developed a means for surfactant users to identify safer surfactants, those that have taken action to educate industry or the public about safer surfactants, and those that have encouraged businesses to move toward safer surfactants.

**Partners:** Companies that have not “fully transitioned” to so called “safer surfactants” may achieve Partner status if they commit to do so by a specific date and can document efforts to achieve full implementation. Partners are not eligible to attend the SDSI award ceremony but can be listed on EPA’s SDSI website.

### C. What Is A Safer Surfactant?

There is little information presented in either the FR notice or the Supporting Statement as to what the Agency considers to be a “safer” surfactant. In a brief characterization in the Supporting Statement, EPA describes safer surfactants as follows:

*Safer surfactants are surfactants that break down quickly to non-polluting compounds. Nonylphenol ethoxylates, commonly referred to as NPEs, are an example of a surfactant class that does not meet this definition. Both NPEs and their breakdown products, such as nonylphenol, are toxic to aquatic life.*

Page 18 of the Supporting Statement (Attachment B as part of the proposed Application Form) also states that “CleanGredients™ is a resource for information on safer surfactants ([www.cleangredients.org](http://www.cleangredients.org)).”

A footnote to the form indicates that “a class of safer surfactants is linear alcohol ethoxylates (LAE). LAEs are toxic to aquatic life, but break down quickly to non-polluting compounds.”

The Supporting Statement notes that NPE break down to NP. As EPA should be well aware, only a small fraction of NPE will break down to NP under anaerobic conditions. As described further in Section V.C. below, environmental monitoring data show that concentrations of NP do not exceed EPA’s WQC except in very few locations that are associated with more general issues with pollution and as such there is an expectation that all surfactants would be a concern at these locations.

Additionally, while EPA is correct in noting that NPE are toxic to aquatic life, so are the majority of the alternative surfactants that are in use, including LAEs. As DfE should be well aware, surfactants are by nature toxic to aquatic life. A comparison of the toxicity profile to aquatic life of various surfactants reveals that most have similar toxicity.

## **IV. EPA SHOULD EXPAND ITS ASSESSMENT OF THE BURDEN/COST ASSOCIATED WITH THE PROPOSED SDSI PROGRAM**

The FR notice specifically requested comment on the “accuracy of the Agency's estimates of the burden of the proposed collection of information, including the validity of the methodology and assumptions used.” EPA estimates that the total annual burden associated with the ICR is 4986 hours; when these hours are converted to dollars using hourly labor rate associated with the various job categories, they are projected to be valued at \$248,133.

EPA's estimate is based on the assumption that 375 applications will be submitted over the three-year life of the ICR. EPA is assuming that "about 300 participants will apply for recognition under SDSI - 150 for Partner recognition and 150 for Champion recognition – and that roughly half of the 150 participants who apply for Partner recognition (or 75) will apply at a later time for Champion recognition."

EPA's reporting burden is based on the assumption that there is an annual public reporting and recordkeeping burden of an average of 10 hours per response. Burden is intended to cover "the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information," which "includes the time needed to review instructions; develop, acquire," and provide the information.

- A. The Agency Has Underestimated The Burden Associated With SDSI; EPA Should Describe The Universe Of Companies From Which Applications Will Be Submitted And Incorporate An Estimate Of The Burden Associated With Companies Reviewing The SDSI Program Whether Or Not They Submit An Application

EPA's burden estimate is based on the assumption that there will be 375 applications submitted over the three-year life of the OMB clearance from about 300 companies seeking recognition under SDSI. While APERC has little basis to judge interest in the program, it is prudent to assume that if recognition is considered a valuable marketing tool that many more companies may apply, particularly if limited effort is involved in gaining recognition.

First, as already discussed, the full scope of the products EPA seeks to include within the SDSI program is unclear and appears considerably broader than the SDSI name implies. It has been estimated that there are approximately 2900 commercially available surfactants<sup>3</sup> for use in thousands of applications. Clearly, if the scope is expanded, EPA will need to revise its burden estimates.

Even if EPA limits SDSI to its original product scope of just detergents or cleaning products, the public reporting and recordkeeping burden should be revised. Consider that there are several thousand industrial laundry facilities in the US. In addition, within the industrial and institutional cleaning services sector, the International Sanitary Supply Association (ISSA) represents more than 4,800 members, including 300 cleaning product manufacturers<sup>4</sup> in the cleaning and maintenance industry and has more than 3,700 member companies in the United States and Canada, which serve essentially any type of institution, business or industry.<sup>5</sup>

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<sup>3</sup> Flick, Ernest W. (1993) Industrial Surfactants (2nd Edition) William Andrew Publishing/Noyes. <http://www.knovel.com/knovel2/Toc.jsp?BookID=425>.

<sup>4</sup> EPA Design for Environment Group. Supporting Statement for a Request for OMB Review under The Paperwork Reduction Act (May 9, 2007) Footnote 1

<sup>5</sup> International Sanitary Supply Association <http://www.issa.com/worldwide/index.jsp?region=1>

Consider also that within the consumer products sector of the detergents and cleaning products market, the scope of SDSI is open not only to surfactant manufacturers and detergent formulators but also to distributors of these products and retail enterprises. As such the potential universe of respondents to SDSI is likely many thousands of entities. Whether or not each of these companies submits an application, it seems prudent for EPA to factor into its burden estimate the time associated with these facilities, reviewing, considering and a subset submitting information to EPA.

For these reasons, APERC believes that EPA should factor into its burden estimate the numerous facilities that fall within the scope of “affected facilities” that will review the program, even if they will ultimately decide not to submit an application for recognition.

B. The Full Costs Associated With The Management and Implementation of The SDSI Program Should Be Described

While recognizing that the focus of the ICR is directed at the burden of Respondents associated with the collection of information, APERC believes that EPA should also provide an estimate of the overall costs to EPA associated with developing and implementing the SDSI Program.

The draft ICR projects the Agency’s estimated burden and costs associated with the information collection activities at \$7,551 (see discussion on page 12 of the Supporting Statement.) As reflected on Exhibit 6.2 of the Supporting Statement, this estimate assumes a total of 12 hours of EPA managerial staff hours and 38 EPA technical staff hours will be needed to verify the information and make award selections associated with all the applications received. Assuming EPA’s estimate is correct that there will be 375 applications, this means that less than 6 minutes per application will be spent by EPA’s technical staff reviewing and verifying requests for recognition.

APERC contends that this is a significant underestimation of the time needed for EPA to effectively manage and implement SDSI. Most importantly:

1. It is likely that there will be many more than 375 applications to SDSI; and
2. Six minutes per application does not in any way seem reasonable for the government to review and verify whether an applicant is truly only employing “safer” surfactants or more ideally, that they have transitioned to appropriate detergents/cleaners and not just focused on the surfactant.

APERC maintains that EPA should be a bit more realistic about the time demands and other resources of reviewing applications and in doing so to ensure that the Agency staff will give each application appropriate scrutiny before providing national recognition and authorize a facility to utilize its logo to promote its product. Assuming there is environmental benefit to the SDSI Program, it is important that the Agency provide a meaningful review so as to maintain the credibility of the government’s program. If, for example, recognition under SDSI is easy to obtain by many companies, it will reduce the

value of the recognition in the marketplace and potentially undermine other DfE programs.

Additionally, EPA should also describe the time/resources involved in other aspects of the program including “tracking the progress” of the program.

## **V. APERC RESPONSE TO SPECIFIC ISSUES IDENTIFIED IN MAY 9, 2007 FR**

While the SDSI program as described in the May 9 FR notice has evolved such that it is not solely based on recognizing companies that deselect NPE surfactants, the program still focuses on the hazards of surfactants rather than an assessment of the hazards or risks of formulated products. In addition, SDSI still highlights NPE surfactants, citing them as examples of surfactants that are “not safer” and provides only vague guidance about the criteria for defining “safer surfactants.”

The FR notice identifies a series of requests for comment to which EPA specifically solicits feedback, pursuant to section 3506(c)(2)(A) of the Paperwork Reduction Act. These requests for comment are primarily directed at assessing the value and burden of the information collection activities as put forth by EPA to support the revised proposed SDSI Program.

Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility

As already noted, APERC does not believe EPA has established a need for SDSI and has not shown that the use of detergents or surfactants in general, or NPE surfactants specifically, pose a risk to the environment. EPA has not demonstrated that a federal deselection campaign, with a particular focus on NPE, is necessary for the proper functioning of the Agency in promoting improvements in environmental quality.

EPA has not explained why there is a need for a new DfE SDSI Program with a particular focus on NPE surfactants in light of the following facts:

- NPE and their degradants are neither persistent nor bioaccumulative;
- Reviews conclude NPE are treatable in wastewater treatment plants;
- Extensive monitoring data support a conclusion that NPE/NP uses do not represent a risk to the environment;
- EPA WQC and federal and state regulatory mechanisms exist to address any location where levels of NP/NPE may be of concern; and,
- Existing DfE programs that address detergents such as the Formulators Initiative and the DfE collaboration with GreenBlue on the CleanGredients database.<sup>6</sup>

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<sup>6</sup> GreenBlue (2006) About CleanGredients <http://www.cleangredients.org/about>

APERC recommends that in revising its ICR prior to submission to OMB, EPA should assess whether there is a need for a new program when other programs already exist that accomplish the same purpose. In addition, EPA should assess the available data related to NPEs to determine whether a program with such focus on NPE surfactants is in fact even warranted.

A. EPA Should Explain The Relationship Between The SDSI Program And Other DfE Programs Directed At Detergents And Why The Existing Program Are Inadequate

Since DfE has been supporting several programs directed at detergents, APERC recommends that EPA explain the relationship between these programs and what additional enhancements are provided by SDSI. There are at least two other DfE programs that relate to detergents: CleanGredients and the Formulators Initiative.

CleanGredients:- The Supporting Statement makes reference to CleanGredients as a source of information on “safer” surfactants. Somewhat surprising, no explanation is provided as to how to utilize CleanGredients to distinguish between different types of surfactants and to discern whether one is “safer” than the other.

Formulators Initiative: While APERC has reservations about the Formulators Initiative, it appears considerably more robust than SDSI. Under the Formulator Initiative, the partnering company submits a confidential list of the ingredients in its formulated product. All of the product ingredients are then profiled, and if necessary, recommendations are made for “safer” substitutes for chemicals of potential concern. Assuming the formulator agrees, the company signs a Memorandum of Understanding with EPA declaring that the company will produce the cleaning product with the agreed upon ingredients. After pledging that the ingredients in the product are those that DfE recommended, the company is then able to put the DfE logo on its products.

The DfE logo is intended to represent that “each ingredient in the product has been screened by the DfE scientists and researchers for potential environmental and human health effects and that the product contains only those ingredients that pose the least concern among chemicals in their class.” DfE has reviewed and recognized numerous industrial and institutional cleaning products including institutional and industrial laundry detergents. The use of a SDSI logo based on a program that requires limited scrutiny has the potential to undermine the credibility and stature of the other programs.

The DfE Formulators Initiative highlights the importance of product review and recognition based on a full formula review. As characterized by EPA, the Formulators Initiative “uncovers chemicals of concern that can be masked by raw material blends or by dilution in water” and “spots negative synergies between product components.” In

addition, under the Formulator Initiative, DfE has the opportunity to require partners to demonstrate that their products perform effectively.<sup>7</sup>

It is significant to note that primarily due to funding limitations, DfE recently made the decision to outsource to the National Sanitation Foundation (NSF) International the chemical profiling services it performed previously in conjunction with the Formulators Initiative. As a result, NSF now charges a fee for those services in connection with the Formulators Initiative.

Before allocating resources to SDSI, it is APERC's contention that EPA should explain what additional benefit would be gained by the SDSI Program over other EPA initiatives.

B. EPA Should Clearly Articulate The Environmental Benefit Expected From SDSI

The Supporting Statement implies that there is a need for the SDSI program in order to maintain the Water Quality Criteria for NP:

*EPA published the Aquatic Life Ambient Water Quality Criteria for Nonylphenol in the Federal Register in February 2006. The Safer Detergents Stewardship Initiative will complement EPA's Aquatic Life Criteria, by encouraging the manufacture and use of safer surfactants, thus reducing the amount of nonylphenol ethoxylate surfactants and nonylphenol in streams and other water bodies.*

Similar to APERC's concerns expressed with the initial release in 2006, this view is expressed even though nowhere within the FR notice or the Supporting Statement does EPA provide any justification for this position.

The Supporting Statement acknowledges the need to track progress and assess environmental benefits associated with the program. As noted on page 2:

*EPA will use available information resources to track the progress of the program, both in terms of the level of participation and expected environmental benefits....EPA will use its own Inventory Update Rule to establish a baseline and track changes in the levels of nonylphenol ethoxylate manufactured, imported and used in the U.S. EPA may also make use of ongoing studies that monitor the level of contaminants, like nonylphenol, in various water bodies and sediment. EPA will review information sources for endpoints such as level of program participation, trends in surfactant use, and levels of toxic surfactant degradates in waters and sediment. EPA will evaluate whether there is a correlation between SDSI participation and environmental outcomes.*

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<sup>7</sup> US EPA Design for the Environment. (2007, March). A Discriminating and Protective Approach to Cleaning Product Review and Recognition. <http://www.epa.gov/dfe/pubs/formulat/formulator-review1.pdf>

APERC supports EPA's plans to review information sources for trends in surfactant use and levels of surfactants and their degradates in the environment. Increases in the environmental prevalence of some surfactants are likely to accompany decreases in others. A tracking program is necessary in order for EPA to evaluate whether there is a correlation between SDSI participation and environmental outcomes.

APERC has on several occasions attempted to engage EPA in discussions of an analysis by Klecka et al. (2007) of environmental levels of NPE and their degradation intermediates that have been measured based on extensive monitoring that has been conducted over a 15 years period, which concluded that there is a low probability of surface water exceeding EPA's WQC for NP. APERC urges DfE to review the available monitoring data on NP, NPE and its degradates and explain the basis and extent to which a meaningful reduction in NP is expected as a result of the SDSI Program.

APERC supports EPA's recognition of the need to evaluate the environmental benefits and believes this is an important aspect of the program. APERC maintains that such an analysis is important in order to judge whether the expenditure in reporting burden (the main subject of the ICR), as well in DfE taxpayer resources, could be better allocated to achieve greater environmental benefit.

APERC appreciates much of the work conducted by DfE and the goal of encouraging industries to integrate health and environmental considerations into their business decisions. As noted on its website, the DfE program is directed at promoting voluntary environmental improvement by systematically:

- Identifying the array of technologies, products, and processes that can be used to perform a particular function within an industry and related pollution prevention opportunities.
- Evaluating and comparing the risk, performance, and cost tradeoffs of the alternatives.
- Disseminating information to the entire industry community.
- Encouraging and enabling use of this information by providing mechanisms and incentives to institutionalize continuous environmental improvement.

APERC recognizes that on the surface it might appear that the proposed SDSI Program is consistent with these activities; however, there is little evidence presented that SDSI will do little more than reward companies that have already made decisions on surfactant selection.

Consider the following: EPA is projecting that over half (55%) of the companies that will seek recognition are formulators; the remaining companies are distributed between chemical manufacturers (10%), retailers/distributors (6%), institutional purchasers (6%) and others (23%). EPA has based these estimates on public statements and comments the Agency received early on in the program when the focus was directed at recognizing

companies strictly for committing not to use NPE. It is APERC's contention that many of these companies never used or have long discontinued the use of NPE and rewarding companies simply for not using NPE will provide no environmental benefit.

C. EPA Has Not Demonstrated That The Use of Detergents Containing NPE Present A Risk That Needs Addressing

The FR notice states:

*Surfactants are a major ingredient in cleaning products such as detergents, cleaners, airplane deicers and fire-fighting foams. Safer surfactants are those that break down quickly to non-polluting compounds.*

EPA defines a pollutant as “generally any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.”<sup>8</sup> According to this definition, the presence of a substance in the environment at concentrations that do not adversely affect a resource or the health of human, animal or ecosystems should not be considered polluting.

EPA has not established that surfactants of any type are the cause of such adverse impacts and has not provided an assessment of the current environmental impact of any surfactants. NPE are highlighted in the Supporting Statement as an example of surfactants that are not “safer” because “both NPEs and their breakdown products, such as nonylphenol, are toxic to aquatic life.” To the contrary, sufficient data on the ecotoxicity, treatability in wastewater treatment plants and environmental concentrations of NPE and their biodegradation intermediates exist to establish that their current uses do not represent a risk to the aquatic environment. Few other surfactants - including those that would be used as substitutes under SDSI - have been studied so comprehensively.

1. All surfactants are toxic to aquatic life and WQC and regulatory mechanisms already exist to address NPE degradants

It is well recognized that all surfactants are toxic to aquatic life. Furthermore, environmental toxicity is a characteristic expressed in terms of the concentration at which a substance produces a toxic effect. Both the FR notice and the Supporting Statement highlight the fact that EPA published Aquatic Life Ambient WQC in February 2006 NP, a biodegradation intermediate of NPE. WQC are the foundation for a wide range of programs under the Clean Water Act, representing the concentrations of a substance in water that when met will protect aquatic life.

A regulatory infrastructure that extends beyond EPA exists already to address situations where pollutants are present in surface water at concentrations that exceed federal WQC and/or state Water Quality Standards. The Supporting Statement contends that SDSI will compliment the EPA WQC for NP by “encouraging the manufacture and use of safer

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<sup>8</sup> US EPA. (Updated 2006, October). Terms of Environment. <http://www.epa.gov/OCEPAterms/pterm.html>.

surfactants, thus reducing the amount of nonylphenol ethoxylate surfactants and nonylphenol in streams and other water bodies.” The assumption that any current uses of NPE are resulting in environmental levels of degradants that adversely affect the usefulness of environmental resources or the health of humans, animals or ecosystems is not consistent with the current understanding of the environmental fate and effects of NP/NPE or with the available environmental monitoring data on these compounds.

2. NPE and its degradants are not persistent or bioaccumulative

NPE and their breakdown intermediates including low mole NPE, NP and nonylphenol ether carboxylates (NPEC), are not persistent or bioaccumulative. In fact, all meet the OECD definition of inherently biodegradable (> 60% ThCO<sub>2</sub>) degradation in 28 days.<sup>9 10</sup> Washington State removed NP from that state’s list of persistent, bioaccumulative toxins (January 2006)<sup>11</sup> and Environment Canada categorized NP/NPE NOT persistent and NOT bioaccumulative (January 2006).<sup>12</sup>

3. Environmental concentrations of NP and Other Degradates of NPE do not indicate a need for concern

NPE are primarily used in applications that result in their disposal and treatment in wastewater treatment plants (WWTP) prior to entering the environment. Their treatability and fate in WWTPs has been well studied and reviewed (Melcer et al., 2007; Drewes et al., 2005; Esperanza et al., 2004).<sup>13,14,15</sup> NPE are considered micropollutants in WWTPs due to their generally low influent concentrations, which are reported to have declined in recent years and are typically below 100 µg/ L. Effluent concentrations of NPE degradants are also low and a review of available studies indicates 90-95% removal of primary compounds. NP has been found in WWTP effluents to a lesser extent with typical concentrations reported in the very low parts per billion or below. The results of laboratory simulation and field studies show that NPE and their degradants continue to biodegrade in surface waters, sediments and soil (Melcer et al., 2007).

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<sup>9</sup> Staples, C.A., Williams, J.B., Blessing, R.L. *et al.* (1999) Measuring the biodegradability of nonylphenol ether carboxylates, octylphenol ethoxylates, and nonylphenol. *Chemosphere*, **38**, 2029-2039.

<sup>10</sup> Staples, C.A., Naylor, C.G., Williams, J.B. *et al.* (2001). Ultimate biodegradation of alkylphenol ethoxylates surfactants and their biodegradation intermediates. *Environ. Toxicol. Chem.*, **20**, 2450-2455

<sup>11</sup> Department of Ecology, Washington State (2006) Chapter 173-333 WAC - Persistent bioaccumulative toxic substances (PBTs) - New Rule <http://www.ecy.wa.gov/laws-rules/archive/wac173333.html> .

<sup>12</sup> Environment Canada (2005) Response to APERC’s Proposal Regarding Environment Canada’s Preliminary Categorization of Nonylphenol, Octylphenol and their Ethoxylates <http://www.aperc.org/docs/environmentcanadadecision112105.pdf>.

<sup>13</sup> Melcer, H., Klecka, G, Monteith, H., and Staples, C. (2007) Wastewater Treatment of Alkylphenols and their Ethoxylates: A State of the Science Review. Published by Water Environment Federation< Alexandria, VA [www.wef.org](http://www.wef.org)

<sup>14</sup> Drewes, J. E.; Hemming, J.; Ladenburger, S. J.; Schauer, J.; Sonzogni, W. (2005) An Assessment of Endocrine Disrupting Activity Changes during Wastewater Treatment through the Use of Bioassays and Chemical Measurements. *Wat. Environ. Res.* **77**, 1, 12-23.

<sup>15</sup> Esperanza, M.; Suidan, M. T.; Nishimura, F.; Wang, Z.; Sorial, G.; Zaffiro, A.; McCauley, P.; Brenner, R.; Sayles, G. (2004) Determination of Sex Hormones and Nonylphenol Ethoxylates in the Aqueous Matrices of Two Pilot-scale Municipal Wastewater Treatment Plants. *Environ. Sci. & Technol.*, **38**, 11, 3028-3035.

A study by Klecka et al. (2007),<sup>16</sup> conducted to develop a statistical understanding of exposures NPE and its degradants in US surface waters concluded that on a nationwide basis, the likelihood of surface water concentrations exceeding the chronic EPA WQC for NP is low. Based on EPA's own definition of "pollutant" and using the NP WQC as a definition of "toxic" and/or "safe" in evaluating environmental levels of NP/NPE, it is apparent that current uses of NPE do not represent a risk to the environment in the vast majority of US waterways; therefore funding of a federal program to encourage deselection of these compounds is not justified.

The Klecka et al. study evaluated concentrations of NPE and its degradants in freshwater reported by 19 investigations, conducted primarily by the US Geological Survey, over a period of 15 years. Based on the frequency of detection in surface waters, 67% of all analytes, which also included other alkylphenol compounds, were below their detection limits. Over 99% of the samples contained NP concentrations below EPA's chronic criteria value (6.6 ug/L). Although maximum reported concentrations of NP varied with time, the average and 90<sup>th</sup> centile concentrations have remained relatively constant. Given ongoing use of NPE during the time period studied, this latter finding also supports our understanding that these compounds continue to break down in the environment after treatment in wastewater treatment plants. Further investigation shows that locations where levels of NP exceed the NP WQC are otherwise compromised and simply replacing NPE with another surfactant will not correct the broader problems. Existing federal and state regulations developed in relation to WQC and state level Water Quality Standards are in place to address such problem locations.

Since NPE and their biodegradation metabolites typically occur together in the aquatic environment as mixtures, and the different compounds have varying toxicities, Klecka et al. utilized relative toxicity values developed by Environment Canada (CCME, 2001)<sup>17</sup> to assess concentrations of the NPE and its biodegradation intermediates to estimate the aggregate, NP-equivalent concentration per sample. The authors cautioned that the analysis of aggregated concentrations should be taken as a conservative estimate of exposure and concluded that over 97% of the aggregate NP equivalent concentrations were below the chronic criteria value.

#### Enhance the quality, utility and clarity of the information to be collected

APEREC believes that if EPA is determined to proceed with SDSI, the Agency should structure the program so that it will result in meaningful and demonstrable environmental benefits. An EPA program designed to provide recognition that will result in market

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<sup>16</sup> Klecka et al (2007) Exposure Analysis of C8- and C9-Alkylphenol, Alkylphenol Ethoxylates, and their Metabolites in Surface Water Systems within the United States, Human and Environmental Risk Assessment (in-press)

<sup>17</sup> Canadian Council of Ministers of the Environment (CCME) (2001) Canadian Water Quality Guidelines for the Protection of Aquatic Life: Nonylphenol and its Ethoxylates. Environment Canada Publication Number 12999. ISBN 10896997-34-1. Environment Canada, Ottawa, Ontario, Canada.

advantages for formulators and retail companies should not reward inconsequential or even frivolous products or programs. Equally important, such a program should not result in detrimental secondary impacts. Hence it is important for EPA to make certain that applicants submit meaningful information about their products (e.g., formulations, ecotoxicity test results) and that EPA expend resources to provide a substantive review of the information that is submitted. If SDSI proceeds, APERC believes it is important that EPA and SDSI applicants incorporate the following guiding principles into the program:

1. EPA Should Provide Clear and Measurable Criteria for “Safer Surfactants”

To achieve this objective, EPA should provide clear criteria to define “safer surfactants” based on measurable characteristics (e.g., biodegradability, ecotoxicity) rather than listing “safer surfactants” and “not safer surfactants.” As currently described, SDSI only recognizes linear alcohol ethoxylates (LAEs) as a “safer” surfactant and justifies this view based on vague guidance that “safer surfactants are those that break down quickly to nonpolluting compounds.” Flick (1993) describes 2900 surfactants as commercially available,<sup>18</sup> highlighting the wide selection available to formulators. Given the wide range of environmental fate and effect properties for these numerous surfactant options, EPA should provide clearer criteria against which surfactants can be evaluated to determine if they are safe. The existing DfE Formulators Initiative already provides criteria for environmentally preferable surfactants as well as a mechanism to review products based on their entire formulation, not just the type of surfactant system.

2. EPA Should Evaluate the Whole Product Formulation, Not Just the Surfactant

Additionally, if EPA proceeds with the SDSI Program, the Agency should expand the information required on the SDSI application to allow sufficient evaluation of the whole formulated product not just of the surfactant. Evaluation of a product's safety requires more information than currently requested by the SDSI Program. Not only should the full product formulation be assessed, but EPA should also require an evaluation of potential secondary effects that might result from their use (e.g., increased surfactant/organic loadings; energy and water conservation; impact on WWT operations).

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<sup>18</sup> Flick, Ernest W. (1993). *Industrial Surfactants* (2nd Edition). William Andrew Publishing/Noyes. Online version available at: <http://www.knovel.com/knovel2/Toc.jsp?BookID=425&VerticalID=0>.