EPA Docket Center (EPA/DC)
Docket ID No. EPA-HQ-OPA-2006-00990
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: RIN: 2050-AE87, Docket ID No. EPA-HQ-OPA-2006-00990, LAEO Public Comment/Recommendations -- Proposed Rules - 40 CFR Parts 110 and 300 National Oil and Hazardous Substances Pollution Contingency Plan

We would like to begin by recognizing and acknowledging the immense amount of work by many well-intentioned individuals and professionals involved in this rulemaking revisions project and thank you for all that you are doing towards the goal of safeguarding our oceans and living eco systems.

While these regulations are intended to help enforce and support the U.S. Clean Water Act the original sections and some of the newly proposed changes do not effectively address many of the most concerning issues we have experienced in working within the NCP system to implement improvements in spill **removal** technologies.

While intended to provide guidance in spill remediation, much of the current NCP is still based on outdated science with very complicated bureaucratic layers making it difficult for responders to navigate the system. Most concerningly, are the possibly unintended but nevertheless evident in practice, open door policies allowing undesirable chemicals to be used on oil spills while hampering innovative technologies that can in fact completely *remove* hazardous chemical spills from our waters and oceans. The true test of regulations lies in proof of whether or not they in fact achieve a desirable end result in actual practice

That said, while many of the proposed changes are based on sound judgment and lessons learned, there remain several sections which contain elusive and/or ambiguous language that provide easy pathways for hazardous chemicals to enter our oceans and waters and, again, we emphasize—while constraining the use of better technologies for cleaning and protecting the Gulf of Mexico and the critically important waters of Alaska and the Arctic and the thousands of toxic spill sites throughout Earth's lands and waters.

By way of example, mandates for setting strict monitoring *requirements* on dispersant use would be an excellent and most needed revision, but when stipulated as *activated* when

"*100,000 U.S. Gallons of these chemicals are used over a 24 hour period"* borders on preposterous, given that the ingredients of these agents have proven to be unacceptably lethal to marine and human life - albeit dozens of '*BP Spill aftermath'* science studies pouring out continue to be controversial. But even if the science is contended, the level of uncertainty should put all use of chemical dispersants on hold until we are certain!

The Lawrence Anthony Earth Organization most strongly advocates that *more testing* of chemical dispersants, which contain well-known toxic constituents, is not the answer. And, instead of millions of tax payer dollars spent on dispersant studies, monitoring, etc., said rule changes should lead to **equal scientific resources and effort being applied to identifying safe and non-toxic oil spill cleanup technologies to replace those with undesirable trade offs that are ineffective at removing toxic and other harmful elements of a spill.** The NCP should be a living document that reflects best available technology and science, but there are no mechanisms in place to incentivize this.

Further, the NCP should be viewed as an **integrated system** with inter-related tools. It should not leave critical adjudications of what response method is ***appropriate*** for use on a given spill in the hands of unqualified decision-makers operating in high-stress emergency conditions. Looking at a response method in a single view without regard to how these chemical and biological agents work within an integrated system is problematic as well as dangerous. Why we say this will be further explained and detailed in our recommendations that follow.

An Urgent Call for a Twenty-First Century Solution in Oil Spill Response

The Lawrence Anthony Earth Organization and its Science and Technology Advisors have fully reviewed the EPA's proposal.

LAEO encourages regulations that help industry to expand and evolve ethically, taking into account and enhancing the survival potential of all stakeholders potentially impacted by their activities. However, no company has any business drilling, mining, fracking, transporting oil or other hazardous chemical products without spill contingency plans in place that will factually and completely remove spills from the environment.

The Clean Water Act standard and expectation of *complete removal of hazardous waste and toxic pollutants from the environment* governs the basis for our position and comments.

Below are three sections with proposed changes within the NCP, Subpart A, Subpart J and Appendix C to part 300. EPA Revisions are indicated in normal font and LAEO Comments are summarized in Orange with expanded comment/information in blue.

EPA Proposal:

SUBPART A: Subpart A is the preface to the NCP. It contains statements of purpose, authority, applicability and scope. It also explains abbreviations and defines terms that are used in the NCP.

1. Definitions

The Agency is proposing revisions to § 300.5 that amend the definitions for Bioremediation agents, Burning agents, Chemical agents, Dispersants, Sinking agents, and Sorbents. The Agency proposes to revise the term Surface washing agent and amend its definition. Additionally, the proposal includes new definitions for Bioaccumulation, Bioconcentration, Biodegradation, Biological agents, Bioremediation, Herding agents, Products, and Solidifiers. Finally, the Agency is removing the definitions for Miscellaneous Oil Spill Control Agent (MOSCA) and Surface collecting agents.

LAEO Comment on (a) Revised Definitions

The President of the United States under the **Clean Water Act (CWA**) and the **Oil Protection Act (OPA)** amended § 311, is mandated to take action to ensure:

"effective and immediate removal of a discharge, and mitigation or prevention of a substantial threat of a discharge, of oil or a hazardous substance."

In any document of law, ***words*** *and* ***definitions matter***.

The President is mandated to take action to ensure the effective and immediate ***removal*** of a ***discharge***, and ***mitigation*** *or* ***prevention*** *of a substantial threat of a discharge****, of oil*** *or a* ***hazardous substance."***

Oil or hazardous substance (which today can also refer to: oil and/or an oil dispersant mixture) comes specifically after the word ***mitigate***. This is a glaring problem. By definition this word, which is derived from the Latin verb: *mitigare*, can mean both "to make less severe" or "to appease or pacify." There are few words in the lexicon of regulations in the United States that have been so misused and misunderstood. ***We cannot afford words in legislation that can in any way minimize or misdirect the intent of the law.***

The word ***Removal*** also plays a critical role in these defining terms. We cite these as examples of words that imply one thing but can be interpreted as another. Such is the quandary of regulations and law making as demonstrated in the example below:

311(a)(8) of the CWA, ***Remove or removal*** refers to containment and removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare of the

United States...

But ***Removal*** can actually happen is several different ways:

Removal of oil from the surface through ***collection*** i.e. skimmers, herding agents, sorbents (which are very ineffective and dependent on surface conditions)

Removal of oil from the surface by ***in situ burning*** (which will simply transfer it in an even more toxic form of PAH's (poly aromatic hydrocarbons) into the atmosphere)

Removal of oil from the surface by the use of ***dispersants*** (which will simply transfer the oil in an even more toxic form into the water column and eventually the seafloor)

Removal of oil from the surface through ***bioremediation*** (which in the case of at least one agent type we know of could actually ***fulfill the letter of the law and remove 100% of oil from the water*** leaving only Co2 and water)

With the frequency and quantity of oil that is being extracted from greater depths and traveling across greater distances than ever before in history, mitigation or removal through transference to another location, cannot be a viable interpretation of this law. ***We must elicit*** the **original intent** of the law and seek to achieve ***100% removal*** of all toxic hydrocarbons from the spill environment. There are advances in spill remediation today that have proven capable of this goal. They need only the regulatory pathway to be opened in order to take a position in the front lines of spill remediation technology.

Therefore any definitions used to define chemical or biological agents and their related terms used in the context of oil spill response regulations must clearly state the purpose of the agent, its mechanism of action and separately classify and identify it as a removal agent or mitigating agent or tool/action and reference it in terms of how it integrates into the overall system. No assumption can be made that an NCP listed spill response tool/agent removes oil from the environment unless specified in its definition. Care and attention needs to be paid to ensuring there is a clear and transparent expression of said agent's function and/or mechanism of action in the overall scheme of the complete spill response system must be part of Subpart A definitions. For example: Chemical Dispersants are mitigating agents and must be represented as such, or Bioremediation Enzyme Additive Category per NCP should be correctly designated as a removal agent.

EPA: (a) Revised Definitions

Bioremediation agent—The Agency is proposing to revise the definition of bioremediation agents to identify as such biological agents and/or nutrient additives.

LAEO Comment: Definitions of Bioremediation Agent must be broken down for the 3 Types of Bioremediation because they are distinctly different from one another and

should not be lumped in as one. For instance there are huge differences in applicability and appropriateness for applications of bioremediation agents that contain Microbes = Microbiological Cultures (MC) Category and Enzyme Additive Bioremediation Category that do not contain live microorganisms. Lumping them together is like combining together chemical dispersants and surface washing agents---just entirely different types of agents with different purposes. For example MC type can't be used on open water spills but only in contained environments that have no chance of releasing non-indigenous invasive species into our streams, rivers and oceans—which means their use is too high a risk for negative environmental consequences. [See corrected definitions at: http://protectmarinelifenow.org/wp-content/uploads/delightful-downloads/2015/04/Bioremediation-for-Oil-Spill-Response-Oct2014.pdf]

EPA Proposal:
Chemical agents—The Agency proposes to revise the definition of chemical agents to identify as such those elements, compounds, or mixtures that are designed to facilitate the removal of oil.

Dispersants—The Agency is proposing to revise the definition of dispersants to identify them as those agents that promote the formation of small droplets of oil in the water column by reducing the oil-water interfacial tension. Dispersants are proposed to be defined as typically mixtures of solvents, surfactants (including biosurfactants), and additives. The proposed definition specifically addresses the process through which these agents assist in mitigating the consequences of a discharge, clarifying for manufacturers which testing requirements they will be subject to when seeking to list a product on the NCP Schedule.

LAEO Comment: LAEO concurs with these definitions for Chemical Agents and Dispersants providing it is emphasized that chemical dispersants have no removal function, and do not remove oil from the environment, nor do they detoxify the oil.

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LAEO believes it is important to put toxicity assessments in perspective and viewed against all other rule revisions. Therefore LAEO is addressing this critical aspect first in order of importance.

EPA Rule Change: Appendix C to part 300: Revise the requirements for product testing protocols and summary test data including new dispersant baffled flask efficacy and toxicity tests; new standard acute toxicity tests for bioremediation agents, surface washing agents, herding agents, and solidifiers; and revised bioremediation agent efficacy test.

EPA's stated goal: Ensuring chemical and biological agents have met efficacy and toxicity requirements.

LAEO's Comment/Recommendation:

The acute toxicity thresholds should be set at 100ppm or greater to meet the standards of *virtually non-toxic*.

Additionally, any chemical dispersant or biological agent when mixed with oil it is intended to remediate must not increase toxicity levels. If toxicity does increase when respective agent is applied to a spill, this is not a passing grade for its use. Until there is scientific evidence and certainty that 10-100 ppm thresholds which are classed as slightly toxic [used as criteria during the 2010 BP spill] can be deemed factually safe, this EPA proposed standard violates the Clean Water Act.

In real-life situations, the new EPA rules for oil spill response chemicals and agents cannot break the law they were intended to enforce.

Therefore, EPA rules in **Section 300.915** and **Appendix C Testing Protocols** *must* include:

- **Pass** or **Fail** criteria for chemical agents to be listed on the NCP Schedule that stipulate:
  - That toxicity and efficacy test requirements include mixing the proposed chemical or biological agent with both fresh and weathered crude oil per manufacturers' recommended ratios and, if so mixing thereby results in increasing the LC 50 toxicity factor, the product be denied listing.
  - Any product by itself should not have an LC 50 less than 100 and ideally should be (by extrapolation taken from the grading system used for pesticides) at the level of 2000 ppm or greater, reflecting toxicity tolerances for mammals. [EPA's suggested NCP Product Schedule threshold of 10-100ppm graded as "slightly toxic" proved to contain many uncertainties in the application of *Coexists* to the BP spill – why, then, would we use the same benchmark?]
  - NCP listed agents must not inhibit hydrocarbon-degrading bacteria present in the environment of a spill. Given that a recent Naval Research Laboratory scientific study indicated that chemical dispersants might be lethal to important microbes communities that degrade oil, efficacy and toxicity testing of chemical dispersants must identify negative impacts on hydrocarbon-degrading bacteria, especially since the use of dispersants has a stated primary purpose of enabling oil eating microbes to degrade a spill. (Effects of COREXIT EC9500A on bacteria from a beach oiled by the Deepwater Horizon spill Leila J. Hamdan, Preston A. Fulmer)
  - Section 300.915 should specifically state: *If required toxicity testing shows that a submitted product when used with oil increases the*

toxicity over a 24 hour period in a given intended-use target environment, or that it diminishes the population and capacity of hydrocarbon-degrading bacteria to degrade oil, then it should not be listed or used.

- The pre-authorization criteria and OSC decision-making process should also include this clause.

300.915 Product Schedule

The Product Schedule is a list of agents that have undergone required testing to be listed on the NCP. Inclusion on the Product Schedule does not mean a product is authorized for use, which is in itself problematic.

EPA Proposal: "Product Use: Recommended procedures, including product concentrations, application ratios, types of application equipment, conditions for use, and any application restrictions. The procedures must address variables such as weather, water salinity, water temperature, types and weathering states of oils or other pollutants, and product and oil containment, collection, recovery and disposal, and include supporting documentation and standard methods used to determine them."

LAEO Comment: Product Use submissions should also be a reflection of and contain language for pre authorization plans (if so indicated as appropriate) and/or be an expression of the product's workability in relationship to other legacy tools used in oil spill response within the context of the NCP. Submission Templates should be provided to ensure adequate information for OSC's, RRTs and Area Committees responsible for planning.

EPA Proposal: "(5) *Recommended product use procedures*. The Agency is proposing to revise the requirement for providing information on the recommended application procedures. While the proposal is maintaining the specific elements included in the current requirement, the supporting documentation and information on the standard methods the product manufacturer used to establish the procedures is requested. EPA believes that providing detailed information on the recommended product use procedures is necessary to inform the OSC when authorizing these products. This supporting documentation and specific information on the methods and standards used to establish them will inform OSCs and other response personnel in selecting products that can be effectively used under the operating conditions encountered for any given incident. The Agency requests comment on the revised data requirement, and whether there are other elements that should also be included to ensure the proper use and application of the products."

LAEO Comment: We are pleased to see this EPA revised data requirement agree with (5) Recommended product use procedures and would like to add:

The EPA has expressed that they want to "ensure that the planning and response community is

equipped with proper information to authorize and use the products in a judicious and effective manner.

The NCP Product Schedule should be the central information point for accessing information on spill response chemicals and agents for decision makers.

- We strongly recommend that the EPA cease putting the final chemical-decision responsibilities in the hands of OSCs and people who are not scientists, untrained and/or unqualified to make such decisions when they do not have access to all data required to make such decisions. OSCs, who are often in the middle of a high-pressure, emergency response when having to make these vitally important decisions, should only do so with reliable and best available decision-making tools. The buck should stop with Science and Technology Committees with adequate multi-agency representation with centralized database kept under NCP EPA Management.

- The NCP List must reflect science-based information that will tell the OSC, Regional and Area Committees what is safe and effective to use, under what conditions and circumstances, in what types of environments. If all information on the NCP list is 'conditional' and 'tentative', as a *disclaimer protection* no standard can be held. The NCP product schedule should list all test information, toxicity and efficacy test results and measures submitted on a *key decision making matrix* to enable OSCs and oil spill response professionals to see all data on a side-by-side comparison basis so as to enable informed planning and preauthorization choices. This would all be based on certified laboratory third party data, with no vested interest, industry-influenced data or opinions.

- Chronic/longer term toxic effects identified and reported would be added to NCP Product Schedule matrix information as a living document based on active/ongoing monitoring programs. For instance a peer-reviewed study recently released found Corexit 9500 to have a negative impact on deep-water corals. An ongoing, living central data depository must be kept for this type of information; otherwise, accurate decision-making is hampered. It should be represented on the *key decision-making matrix* kept by NCP Product Schedule Managers at EPA.

- The public depends on our Natural Resource Trustees and the Environmental Protection Agency to protect our health and the health of all waters and environments. Why is the NCP Schedule not a reflection of those protections? If a specific product doesn't meet standards, this will clearly be seen if put on a *key decision-making matrix* that includes real spill response use monitoring data, as such becomes available. If comparative analysis does not give a good grade to a respective listing, so be it. Any manufacturer will be incentivized to a) correct information if inaccurate, b) do further testing and/or c) select less toxic ingredients and upgrade toxicity and efficacy results. The door should always be open for recourse and relisting once required information is provided.

Industry/Manufacturers must be held accountable for meeting information requirements but also not be subject to random arbitraries or stipulations imposed by multiple layers of agency NRT, RRT and Area Committee level members.

- The training, integrity and ethics of the NCP List Managers would be a crucial part of the list being a reliable information source for OSCs and all stakeholders.

The buck must stop with qualified judges.

- As currently worded, the EPA is not held accountable for the decisions made regarding what chemical agents to use during a spill emergency on US navigable waters. This is designated as solely the responsibility of the US Coast Guard On-Scene Coordinator housed in the Department of Homeland Security. The EPA is merely *listing information* without regard for *appropriateness* or for making any science-based recommendations. In real life, the buck doesn't stop anywhere, but appears to rest with potentially unqualified decision-makers (OSCs) who are advised by other agencies, but who are unable to judge the accuracy of such consultation. Some of this may be due to peer-reviewed science and information having no central depository and summations.

- Pre-Authorization or Pre-Emergency Planning should already be in place for every Region and Area regards chemical agent use *prior* to future spills occurring. Otherwise, decision–making is subject to grave errors and mishaps due to time constraints. OSC's should enforce the NCP, its product list and best available science for spill response based on Pre Planning where chemical agents are concerned.

EPA Proposal: "(6) *Environmental fate information*. The Agency is proposing to request any known and available measured data and supporting documentation on the persistence, bioconcentration factor, bioaccumulation factor, and biodegradability of the product and all of its components. The Agency currently has no restriction on use of persistent bio-accumulative products."

LAEO Comment: Any manufacturer of oil spill response agents and/or delivery systems should be encouraged to submit long term fate and all possible information regards their products and systems. Encouraging more information for decision makers adjudicating how to best address a hazardous chemical spill would serve all stakeholders and represent fair and effective market competition, innovation and deliver more effective, less toxic and higher quality products or services for the greater good of the environment. If the published NCP list had options for filling in such information as it become available (as covered above re key decision- making matrix) this would be a far more workable system.

NCP Listing minimum pass or fail requirements with added optional information fields would not preclude new innovative technologies from entering the system but rather encourage transparency and incentivize that type of behavior. Manufacturers

who have to resort to cherry picking science reports and masking undesirable data about their product(s) be detected and vetted out.

EPA Proposal: *"Authorization of Use*. Revise to clarify planning and preauthorization responsibilities, establish limitations and prohibitions on the use of certain agents, establish requirements for storage and use of agents, clarify authorities for requiring supplemental testing, monitoring and information on agents, establish requirements for agent recovery from the environment, and establish reporting requirements for agent use."

Contingency Planning and Authorization of Use

"The proposed amendments are intended to ensure that On-Scene Coordinators (OSCs), Regional Response Teams (RRTs), and Area Committees (AC) have sufficient information to support agent preauthorization or authorization of use decisions."

LAEO Comment: Bioremediation Pre Authorization and First Response Usage Adjudication:

- **Stop discouraging the use of all bioremediation agents as equal in their efficacy, mechanism of action, toxicity information—and cease relegating this vital and useful technology to being merely polishing off agents in the NCP plan. The GOM BP spill is an example of this policy in action. Even now, five years later, irreducible minimum action is taken to "polish off" the clean up. It is very evident that the NCP has built in bias on bioremediation. LAEO Science and Technology Committee has found there are real solutions within this field of technology that are truly non-toxic and effective at removing oil from the environment. If you have questions about the efficacy of the thousands of successful applications that have taken place throughout the world, at the least, support and encourage your Science and Technology Committees to look at this technology carefully as a first response spill clean up candidate for their Area Contingency Plan tool kits. And facilitate the receipt and examination of new information.**

- Further, make Pre Authorization plan development involving the use of chemical agents take into account and compare Bioremediation Enzyme Additive Category to chemical dispersants and other response options. A proven non-toxic means of removing oil from sensitive shorelines and salt and fresh water habitats that is already on the NCP Product Schedule and that has been successfully used in a variety of other countries should be a priority for consideration in the U.S. Any revisions to the NCP should take into account and find out why good technology is being blocked from use – this is a system and policy failure.

- EPA National HQ level should not block or prevent Regional or Area Science and Technology Committees from looking into better spill plan options. An example is what was done in Alaska where Regional Response Team members were ordered to

disregard our submissions and requests for consideration of EA Type Bioremediation as an alternative to chemical dispersants. We have documentation showing the complete series of events indicating the National Response Team Chairman directed Alaska RRT to ignore our submission and move forward on their chemical dispersant pre authorization planning for Alaska over the strong objections of Area Committee members and citizens groups.

- Until the National Response Team's 15 year-out-of-date *Bioremediation Fact Sheet* is corrected, do not disseminate this information to OSCs or other stakeholders without a cover memo indicating that research is out-of-date and exploring best available science and information is therefore encouraged. Currently any alternatives to chemical dispersants are wholly blocked from use on US navigable waters simply because US Natural Resource Trustees and government science advisors are not educated or are ill-informed on bioremediation technology. This is not an excuse or reason to employ obsolete or harmful hydrocarbon-based chemicals and solvents to spills. Sub-Part J should have allowances for and clauses that do not preclude updated science and information from being used in the OSC or Pre-Authorization decision-making process, particularly when a product is already on the NCP Product Schedule.

- Where Pre-Authorization Plans are developed by Area Committees and Regions for Bioremediation use, such are subject to final approval up through the NRT. Regulations should require that these must be reviewed within a 90-day time frame, or otherwise stipulate that they cannot be blocked from being used by an Area or Region. Any pre-authorization plan disapprovals must be put in writing with clear cut, scientific reasons given for the disapproval with citations of peer reviewed literature and statistical measures that can be used to train and guide better Pre-authorization planning.

EPA Proposal: (9) *Certification that bioremediation agents do not contain, at levels that exceed the National Ambient Water Quality Criteria lowest density value, bacterial, fungal, viral or opportunistic pathogens*. While providing information on these product contaminants is currently required for bioremediation agents, there are no threshold levels for product listing; a positive result for any of the above pathogens may raise concern, but would not prevent the product from being listed on the Schedule.

LAEO Comment: **This rule should only apply to bioremediation agents under the MC category-Microbiological Cultures – other categories of Bioremediation that do not contain any live microbes and have a completely different mechanism of action.** [Ref: **http://protectmarinelifenow.org/wp-content/uploads/delightful-downloads/2015/04/Bioremediation-for-Oil-Spill-Response-Oct2014.pdf**]

EPA Proposal: "(b) Dispersant Testing and Listing Requirements

The Agency is proposing revisions to the efficacy and toxicity testing protocols, as well as

establishing new thresholds for listing dispersants on the Schedule in § 300.915(b). The Agency proposes to define dispersants as typically mixtures of solvents, surfactants, and additives that promote the formation of small droplets of oil in the water column by reducing the oil-water interfacial tension. These droplets are driven into the water column by wave action. Emergency response personnel need to know whether a dispersant or any other type of chemical or biological agent on the Schedule could have negative environmental impacts relative to the oil before decisions are made about its use in a particular oil discharge situation. Consequently, it is essential to consider comparative information about the efficacy and the toxicity of these products."

LAEO Comment: ***As you are already aware, LAEO's Science and Technology Committee review of the toxicity and efficacy of chemical dispersants indicate current NCP listed agents do not pass Clean Water Act requirements. Spill mitigation (not removal) using dispersants have too many environmentally harmful trade offs based on peer reviewed scientific studies.***
Complete details with citations are contained in A Call for a Twenty-First-Century Solution in Oil Spill Response – 2014 Updated Research Paper. This can be downloaded at: www.protectmarinelifenow.org (http://protectmarinelifenow.org/wp-content/uploads/delightful-downloads/2015/04/LAEO-Oil-Spill-Response-Research-Paper.pdf)

EPA Proposal*: "Dispersant and Dispersant-Oil Acute Toxicity Threshold*. Using the EPA toxicity classification scheme,[41] LC_{50} values ranging from 10 ppm to 100 ppm are classified as slightly toxic and above 100 ppm substances are considered acutely nontoxic to aquatic organisms. For both *M. beryllina* and *A. bahia*, the Agency is proposing as the threshold value the lower bound of the LC_{50} 95% confidence interval (CI) greater than or equal to 10 ppm for all toxicity tests to qualify a dispersant to be listed on the Schedule."

LAEO Comment: The threshold should be 100ppm or above to meet a *non-toxic* score. Additionally, any chemical dispersant or biological agent mixed with oil it is intended to mitigate must not result in a higher toxicity score. If toxicity increases when the agent is applied, this is not a passing test score but a red flag. Until there is scientific evidence and certainty that 10-100 ppm thresholds of *slightly toxic* are actually safe, this standard violates the Clean Water Act.

EPA Proposal: "(d) Bioremediation Testing and Listing Requirements…the Agency is proposing to revise the efficacy testing protocols, to establish toxicity testing protocols, and to establish both efficacy and toxicity listing thresholds in § 300.915(d).

… The protocol tests the bioremediation agent for microbial activity and quantifies the disappearance of saturated hydrocarbons and PAHs in weathered oil; for purposes of the proposal the Agency tested the protocol using ANS 521.[56] The sample preparation

LAEO Comment: This efficacy testing procedure applies to MC bioremediation category but not entirely to Enzyme Additive Category. By testing on weathered crude oil, it is suggested that efficacy is being gauged for secondary/polishing off uses of bioremediation.

When testing efficacy of a bioremediation product for *First Response* use, which should be on fresh crude oil, ANS 521 method will not produce adequate efficacy information.

EPA Proposal: "2) Bioremediation Agent Toxicity

Current Requirements: The Agency currently has no bioremediation agent toxicity testing requirements for purposes of listing these agents on the Schedule. Section 5 of Appendix C is reserved for this purpose. The Agency has, however, on a case-by-case basis, requested manufacturers to test bioremediation agents for toxicity if the product contains surfactants or other ingredients that may be harmful to the environment.

Proposed Revisions: The Agency is proposing an acute toxicity testing protocol for bioremediation agents to include both fresh and saltwater. The Agency will use these testing results to determine listing eligibility on the Schedule. The proposed testing protocols for bioremediation agents are detailed in Appendix C. The proposed acute toxicity test protocol for bioremediation agents is based on EPA's protocol, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters for Freshwater and Marine Organisms*. The Agency proposes to require bioremediation agents be tested for acute toxicity for the product alone using fresh water species *Ceriodaphnia dubia* and *Pimephales promelas*, and saltwater species *Americamysis bahia* and *Menidia beryllina*. The concentration of test product causing 50% lethality to the test organisms (LC_{50}) lower and upper 95% confidence intervals (LCI_{95} and $ULCI_{95}$) are calculated at the end of the exposure period. To be listed on the Schedule, bioremediation agents must demonstrate an acute lethal concentration for 50% of the test species (LC_{50}) at the lower 95% confidence interval greater than 10 ppm in either fresh or salt water, consistent with the acute toxicity thresholds proposed for dispersants. EPA's toxicity classification scheme [59] classifies LC_{50} values ranging from 10 ppm to 100 ppm as slightly toxic, and values above 100 ppm substances are considered practically nontoxic to aquatic organisms."

LAEO Comment: We would like clarification on why the aquatic organism species have been revised from previous requirements and why test species are different than those required to be used for chemical dispersants?

It is also unclear why toxicity testing appears to be more stringent for bioremediation products than for chemical dispersants when previous regulations did not even require toxicity testing for bioremediation agents, which generally have proven to be virtually non-toxic. LAEO agrees that toxicity testing should be a requirement for biological agents because we have seen numerous biological agents listed that are even more toxic than Corexit in one case. Therefore all agents no matter their type, should be required to have been given toxicity pass or fail scores before being listed on the NCP product schedule and before being considered for use by OSC.

Additionally, we recommend that if EPA does not want to revise their threshold for NCP requirements—that would be okay with LAEO if a threshold of 100 ppm or greater were set for any agents used under a *Pre-authorization Plan*. This would be a comfortable and realistic safeguard.

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LAEO General Comment: As a general comment, we would like to ensure that attention is paid to the complete recommendations made in our original research paper: *A Call for a Twenty-First Century Solution in Oil Spill Response - Sept 2014 Updated Edition*. We are listing here and officially filing the applicable sections of our paper as key documents that contain the necessary citations to back up our official public comment herein.

Educational Links and Documents:

1. Optimizing Oil Spill – Identification and Assessment Methods for Contingency Planning

2. Corrected Definitions for Bioremediation-Key Data for Open Water Spill Use-Enzyme Additive Category

3. Chemical Dispersants and the Clean Water Act

4. A Twenty-First-Century-Solution in Oil Spill Response–A Lawrence Anthony Earth Organization Science and Technology Research Paper

5. Previous LAEO Comment Documents to National Response Team Officials
LAEO Public Comment to Alaska Regional Response Team
LAEO Sign-On to Alert Project's EPA Petition

All this material is still applicable to the clarifications and changes in Clean Water Act NCP Sub-Part J protections that LAEO has been requesting for more than 3 years.

Copies of all this material can be downloaded in our NCP Revisions Information Center at: **http://protectmarinelifenow.org/take-action**

Thank You