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July 10, 2017

The Honorable Samuel Coleman, P.E.
Acting Regional Administrator
EPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

RE: Proposed NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (General Permit No. GMG290000)

Dear Administrator Coleman:

As the national trade association for the oilfield service, supply, and manufacturing sector, the Petroleum Equipment and Services Association (PESA) appreciates the opportunity to provide comments on the draft National Pollutant Discharge Elimination System (NPDES) General Permit for the Outer Continental Shelf (OCS) of the Gulf of Mexico (General Permit No. GMG290000) for discharges in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category.

PESA represents approximately 200 companies that develop and provide the services, technology, equipment, chemicals and expertise necessary to safely and efficiently explore for and produce oil and natural gas. Many of these companies are the contracted vendors to exploration and production companies and/or drilling contractors working in the Gulf of Mexico, including Region 6.

PESA members are committed to conducting their work in a safe and environmentally responsible manner. The comments provided to EPA reflect the perspective of subject matter experts from numerous PESA member companies and are intended to ensure that the permit meets the shared goals of EPA and industry: safe and environmentally responsible operations.

Should you have any questions or need further information, please contact me at jgould@pesa.org or 713-933-1920.

Sincerely,

Jean Gould
Director of Public Policy

Attachment – PESA Comments on GMG290000

Petroleum Equipment & Services Association (PESA) Comments

EPA Region VI: Proposed NPDES General Permit for New and Existing Sources and New Dischargers in the e Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GMG290000)

Comment 1: Drilling Fluids – Monitoring Requirements - Part I.B.1.c

Current proposed permit language:

“Drilling Fluids Inventory. The permittee shall maintain a precise chemical inventory of all constituents and their total volume or mass added downhole for each well.”

PESA recommended proposed language:

“Drilling Fluids Inventory. The permittee shall maintain a precise chemical usage record of all products and their total volume and mass added for each well. Information shall be recorded and retained for the term of the permit.”

Justification/Rationale:

The Drilling Fluid Chemical inventory for drilling operations is currently maintained using product names and quantities of products added to the drilling fluid. Use of the term "products" will maintain clarity and conformity of the records maintained by Drilling Fluid Specialist and Service company records provided to the operators for commercial, technical and permit compliance purposes. This approach is also consistent with the use of product substitution as a tool to maintain technology based limits as defined in the Effluent Limitation Guidelines (ELG) and other regional NPDES permits.

Comment 2: Deck Drainage - Part I.B.3.a

Current proposed permit language:

3. Deck Drainage

A use of biocide for sump/drain systems to comply with proper operation and maintenance requirements is permitted and toxicity test for such a discharge of drainage is not required.

a. Limitations

Free Oil. No free oil shall be discharged, as determined by the visual sheen method on the surface of the receiving water. Monitoring shall be performed daily when discharging, during conditions when an observation of a visual sheen on the surface of the receiving water is possible in the vicinity of the discharge, and the facility is manned. If a sheen is observed at other times, in addition to the required daily monitoring, it must be recorded. The number of days a sheen is observed must be recorded.

PESA suggested clarification:

PESA believes that a clarification of the ELGs for accumulated soils in mud pits and the drill floor also include similar accumulated mud solids associated with solid control equipment and mud handling equipment such as shale shaker areas, cutting dryer areas and mud pumps (reference Page VII-70 of the ELG development document). Separating the water from these areas and discharging it to the deck drain limit of no free oil is appropriate and would prevent the unnecessary transportation and onshore disposal of the water and accumulate solids.

This clarification would not require any specific change to the permit language. It simply requires a clarification to this comment that when EPA uses the term rig floor wash water associated with drilling fluids it also means other wash water associated with drilling fluids and it does not prohibit this discharge when it contains residual amounts of Synthetic based drilling fluid. The no free oil discharge requirement would continue to be the discharge limit for deck drainage.

This approach is in conformance with the EPA ELG decision on how to manage this waste to avoid impacts unrelated to water quality. PESA continues to support previous industry comments that enforcement of a zero discharge on this type of wash water results in the unnecessary hauling of water with only a small quantity of Synthetic based drilling fluid.

Comment 3: Well Treatment Fluids, Completion Fluids, Workover Fluids – Priority Pollutants - Part I.B.6.a

Current proposed permit language:

“In case either a vendor certification is not available or the present of priority pollutants is in doubt, “Trace amounts” shall mean the amount equal to or less than the most sensitive method detection limit listed in 40 CFR Part 136 for the applicable parameter or as sensitive as MQLs listed in Appendix E of the permit.”

PESA recommended proposed language is to maintain the existing permit language:

Priority Pollutants. For well treatment fluids, completion fluids, and workover fluids, the discharge of priority pollutants is prohibited except in trace amounts. Information on the specific chemical composition of any products containing priority pollutants shall be recorded. [Note: If materials added downhole as well treatment, completion, or workover fluids contain no priority pollutants, the discharge is assumed not to contain priority pollutants except possibly in trace amounts.]

Justification/Rationale:

PESA believes that proposed EPA Region 6 language contradicts the 1993 ELG decision to regulate priority pollutants with oil and grease only. The existing permit language has been in use since the 1991 ELGs were issued and is appropriate.

The documentation and the effluent limitation guidelines development document (in tables X-12, X-13, X-14) clearly demonstrate that the EPA recognized trace amounts of priority pollutants in these fluids above the detection methods. Imposing MDL limits on all 129 priority pollutants would result in significant impacts associated with transportation, discharge, disposal and excess treatment.

PESA requests that EPA maintain the current wording in the Region VI permit. If priority pollutants were not intentionally added to the formulation of the product then they are considered to be in there only in trace quantities. Change of the word "additives" to "products" maintains consistency with PESA comment number 1.

A certification program would be burdensome and unsuitable for 129 priority pollutants and all products used in completion fluids systems. There is no apparent environmental benefit over the current system of regulatory control for the significant costs that this would entail. Consequently, an unintended certification program would result in impacts unrelated to water quality which would require additional treatment and discharges.

Comment 4: Well Treatment Fluids, Completion Fluids, Workover Fluids – Characteristic Assessments – Part I.B.6.c

Current proposed permit language:

Operators must conduct well treatment fluids, well completion fluids, and workover fluids assessments whenever they apply those fluids. Such assessments shall be conducted for each applicable well by operators either corporately or individually. The general information of a specific well treatment, well completion or workover fluid could be used for assessment purposes.

Each fluid assessment shall include the following information:

- 1) Lease and block number
- 2) API well number
- 3) Type of well treatment or workover operation conducted
- 4) Date of discharge
- 5) Time discharge commenced
- 6) Duration of discharge
- 7) Volume of well treatment
- 8) Volume of completion or workover fluids used
- 9) The common names and chemical parameters for all additives to the fluids
- 10) The volume of each additive
- 11) Concentration of all additives in the well treatment
- 12) Concentration of all additives in the completion, or workover fluid
- 13) The No Observable Effect Concentration (NOEC) of 48-hour acute Whole Effluent Toxicity (WET) test for well treatment fluids discharged separately from the produced water discharge

Operators shall use the following methods to perform the 48-hour Acute Whole Effluent Toxicity Test

Method:

- a) The permittee shall utilize the *Mysidopsis bahia* (Mysid shrimp) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- b) The permittee shall utilize the *Menidia beryllina* (Inland Silverside minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- c) The NOEC is defined as the greatest effluent dilution which does not result in lethality that is statistically different from the control (0% effluent) at the 95% confidence level.

PESA recommended proposed language:

Operators must conduct well treatment fluids, well completion fluids, and workover fluids assessments whenever they apply those fluids. Such assessments shall be conducted for each applicable well by operators either corporately or individually. The general information of a specific well treatment, well completion or workover fluid could be used for assessment purposes.

Each fluid assessment shall include the following information:

- 1) Lease and block number
- 2) API well number
- 3) Type of well treatment or workover operation conducted
- 4) Date of discharge
- 5) Time discharge commenced
- 6) Duration of discharge
- 7) Volume of well treatment
- 8) Volume of completion or workover fluids used
- 9) The function and chemical parameters for all products to the fluids. For example, (corrosion inhibitor, pH 7, flash point > 200F)
- 10) The volume of each product
- 11) Concentration of all products in the well treatment
- 12) Concentration of all products in the completion, or workover fluid.
- 13) The No Observable Effect Concentration (NOEC) of 48-hour acute Whole Effluent Toxicity (WET) test for well treatment fluids discharged separately from the produced water discharge or other appropriate toxicity test.

Operators shall use the following methods to perform the 48-hour Acute Whole Effluent Toxicity Test:

Method:

- a) The permittee shall utilize the *Mysidopsis bahia* (Mysid shrimp) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- b) The permittee shall utilize the *Menidia beryllina* (Inland Silverside minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- c) The NOEC is defined as the greatest effluent dilution which does not result in lethality that is statistically different from the control (0% effluent) at the 95% confidence level.

Justification/Rationale:

PESA recognizes that EPA has not been able to find available information that suggests that there have been major changes in the chemicals used offshore since the discharges and chemical additives were examined during development of the ELG. PESA also recognizes that EPA has not gathered detailed data and performed analysis in a number of years on the specific issue of completion fluids, workover fluids and well treatment fluids.

PESA recommends that the study design include a sampling program and appropriate models that distinguish the required elements to evaluate the well treatment, well completion and workover fluids in a manner that recognizes these fluids have different design parameters.

PESA recommends that EPA refine the assessments to recognize the intermittent nature of these discharges and require a once a month while discharging sampling rate.

PESA recommends that EPA continues to focus on end of pipe (WET) test methods and recognize that previous ELG studies have established appropriate and relevant technology based limits.

PESA recommends the study design evaluate the appropriateness of the water quality tests (i.e. chronic tests) to evaluate a technology based limitation for TWC. Use of an acute test such as the 96-hour mysid shrimp test may be more appropriate and relate toxicity information on workover, completion and well treatment fluids to drilling fluids.

The presumptive use of an off-the-shelf toxicity test designed for produced water may result in inappropriate and potentially counterproductive regulatory controls and technology application. As such, PESA urges EPA to work with industry to develop an objective-based approach to toxicity evaluation that builds on the cooperative approach used during the development of tests for Synthetic based drilling fluid cuttings.

It is well known that mysid shrimp have ion intolerance and therefore, any test for completion fluids and similar low solids/high salt solids free toxicity test are likely to primarily be driven by ion intolerance. Other targeted pollutants such as toxic pollutants or hydrocarbons, or surfactants other non-conventional pollutants would not be accurately monitored because the test would be blinded with ion toxicity. This issue was summarized in SPE 37909 which discussed using Salinity-Toxicity Relationships (STR) in Toxicity Identification Evaluation (TIE) for Produced Water. In this paper, the authors identified that Toxicity Identification Evaluations could be enhanced by the use of a Salinity Toxicity Relationship. The conclusions reached included:

- Traditional Toxicity Identification Evaluations methods are ineffective in isolating toxicity due to common ions such as chloride, potassium, calcium, etc.
- Salinity-Toxicity Relationship models can accurately predict ion related toxicity in effluents. When combined with mock effluent studies, STRs provide important evidence in TIE investigations.
- STRs can be used for many different effluents.

In addition, SPE 37909 and other SPE papers have further developed the concept and understanding of the role ions have in conventional effluent discharge testing. These papers include SPE 35845 and SPE 29730. Consequently, the development of appropriate tests instead of off-the-shelf tests designed for other purposes is appropriate in this case for evaluation potential toxicants in completion fluids and other high salt, low solids fluids.

Additional consideration needs to focus on before use, after use, and also recovered use of these fluids. In many cases, expensive completion fluids are recovered and reused from well to well.

Change of the word "additives" to "products" maintains consistency with PESA comment numbers 1 and 3. Use of product additions/sales also allows business records to support compliance documentation.

Comment 5: Well Treatment Fluids, Completion Fluids, Workover Fluids – Fluids Commingled with Produced Water; Well Treatment Fluids, Completion Fluids, Workover Fluids – Industry – Wide Study Alternative – Part I.B.6.c

Current proposed permit language:

Operators must conduct well treatment fluids, well completion fluids, and workover fluids assessments whenever they apply those fluids. Such assessments shall be conducted for each applicable well by operators either corporately or individually. The general information of a specific well treatment, well completion or workover fluid could be used for assessment purposes.

Each fluid assessment shall include the following information:

- 1) Lease and block number
- 2) API well number
- 3) Type of well treatment or workover operation conducted
- 4) Date of discharge
- 5) Time discharge commenced
- 6) Duration of discharge
- 7) Volume of well treatment
- 8) Volume of completion or workover fluids used
- 9) The common names and chemical parameters for all additives to the fluids
- 10) The volume of each additive
- 11) Concentration of all additives in the well treatment
- 12) Concentration of all additives in the completion, or workover fluid
- 13) The No Observable Effect Concentration (NOEC) of 48-hour acute Whole Effluent Toxicity (WET) test for well treatment fluids discharged separately from the produced water discharge

Operators shall use the following methods to perform the 48-hour Acute Whole Effluent Toxicity Test

Method:

- d) The permittee shall utilize the *Mysidopsis bahia* (Mysid shrimp) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- e) The permittee shall utilize the *Menidia beryllina* (Inland Silverside minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.
- f) The NOEC is defined as the greatest effluent dilution which does not result in lethality that is statistically different from the control (0% effluent) at the 95% confidence level.

PESA Revised Permit Wording/Clarification for alternative industry study:

As an alternative to the narrow and specific changes recommended in Comment 4, PESA has also developed a broader recommendation to address the issue of developing a test program for well treatment, completion and workover fluids.

EPA Region VI will require development of appropriate toxicity testing strategies to determine a testing procedure that will address the following objectives for evaluation of these fluids. The options will be to:

- 1) Use EPA protocols already developed for produced water.
- 2) Develop alternative protocols as an individual operator.
- 3) Participate in an Industry Work Group to develop an appropriate method or methods meeting the following approach previously used to develop tests for Synthetic based drilling fluid cuttings.

Design parameters:

- 1) Maximum discriminatory power.
- 2) Maximum repeatability of results.
- 3) Practicality of implementation.
- 4) Ranking of known test substances as expected.
- 5) Ecological relevance.
- 6) Government acceptance of the protocols.

In a similar fashion, the following approach has been applied to the process of using the laboratory tests to qualify technologies for field application:

Development procedures:

- 1) Identify all of the available tests.
- 2) Experimentally modify to optimize the tests to meet the design objectives.
- 3) Conduct screening tests to identify the strengths and weaknesses of the available test methods to meet the design objectives.
- 4) Select a limited number of top contenders and further develop standardized protocols, maximize the positive qualities and minimize the negative qualities of the test.
- 5) Select a top contender and propose the method.
- 6) Validate the test methodology and develop a regulatory limit based on the test.
- 7) Implement the test method in the field and correct any problems that affect the usefulness of the test.

Justification and Supporting Documentation:

From a supplier perspective, the presumptive use of an off-the-shelf toxicity test designed for produced water may result in inappropriate and potentially counterproductive regulatory controls and technology applications. As such, PESA requests that EPA work with industry to develop an objective-based approach to toxicity evaluation that builds on the cooperative approach used during the development of tests for Synthetic based drilling fluid cuttings.

Examination of existing research highlights limitations in the proposed approach. For instance, it is well known that mysid shrimp have ion intolerance; therefore, any test for completion fluids and similar low solids/high salt solids free toxicity test are likely to primarily be driven by ion intolerance. Other targeted pollutants such as toxic pollutants or hydrocarbons, or surfactants other non-conventional pollutants would not be accurately monitored because the test would be blinded with ion toxicity. This issue was summarized in SPE 37909 which discussed using Salinity-Toxicity Relationships (STR) in Toxicity Identification Evaluation (TIEs) for Produced

Water. In this paper, the authors identified that Toxicity Identification Evaluations could be enhanced by the use of a Salinity Toxicity Relationship. The conclusions reached included:

- Traditional Toxicity Identification Evaluations (TIE) methods are ineffective in isolating toxicity due to common ions such as chloride, potassium, calcium, etc.
- Salinity-Toxicity Relationship (STR) models can accurately predict ion related toxicity in effluents. When combined with mock effluent studies, STRs provide important evidence in TIE investigations.
- STRs can be used for many different effluents.

In addition, SPE 37909 and other SPE papers have further developed the concept and understanding of the role ions have in conventional effluent discharge testing. These papers include SPE 35845 and SPE29730. Consequently, the development of appropriate tests instead of off-the-shelf tests designed for other purposes is appropriate in this case for evaluation potential toxicants in completion fluids and other high salt, low solids fluids.

Additional consideration needs to focus on before use, after use, and also recovered use of these fluids. In many cases, expensive completion fluids are recovered and reused from well to well.

Comment 6: Appendix C-7.0

PESA agrees with Region VI that the use of an optional calibration curve for NIST 2779 is required because the supply of NIST 1582 is no longer available. Because NIST 2779 has a difference concentration of target aromatic compounds (105 EIP area to the TCB m/z 91 EIP area) compared to NIST 1582, it is necessary to change the spiked concentration in the clean base fluid to generate the same calibration curve. The specific addition to the procedure is listed below.

Current proposed permit language:

7.0 Reagents and Standards

“7.2.5 Crude oil/drilling fluid calibration standards-Prepare a 4-point crude oil/drilling fluid calibration at concentrations of 0% (no spike-clean drilling fluid), 0.5%, 1.0%, and 2.0% by volume according to the procedures outlined below using the Reference Crude Oil:

7.2.5.1 Label 4 vials with the following identification: Vial 1-0%Crude in NAF drilling fluid, Vial 2-0.5%Crude in NAF drilling fluid, Vial 3-1%Crude in NAF drilling fluid, and Vial 4-2%Crude in NAF drilling fluid.

7.2.5.2 Vial 1 will not be spiked with Reference Oil in order to retain a “0%” oil concentration, add 5 mL of clean NAF base fluid only.

7.2.5.3 Weigh 90.5 mg of NIST Crude Oil into Vial 2 and add 5 mL of clean NAF base fluid. This will be the 0.5% Crude equivalent in NAF mud standard.

7.2.5.4 Weigh 181 mg of NIST Crude Oil into Vial 3 and add 5 mL of clean NAF base fluid. This will be the 1.0% Crude equivalent in NAF mud standard.

7.2.5.5 Weigh 362 mg in NIST Crude Oil in Vial 4 and add 5 mL clean NAF base fluid. This will be the 2.0% Crude Equivalent in NAF mud standard

7.2.5.6 Thoroughly mix the contents of each of the 4 vial by shaking vigorously.

PESA recommended proposed language:

“7.2.1 Crude Oil Reference- NIST 1582 or NIST 2779 Petroleum Crude Oil Standard Reference Material (U.S. Department of Commerce National Institute of Standards and Technology, NIST 2779 Petroleum Crude Oil Standard Reference Material (U.S. Department of Commerce National Institute of Standards and Technology)).

7.2.5 Crude oil/drilling fluid calibration standards -Prepare a 4-point crude oil/drilling fluid calibration at concentrations of 0% (no spike-clean drilling fluid), 0.5%, 1.0%, and 2.0% by volume according to the procedures outlined below using the Reference Crude Oils:

For NIST 1582

7.2.5.1a Label 4 vials with the following identification: Vial 1-0%Crude in NAF drilling fluid, Vial 2-0.5%Crude in NAF drilling fluid, Vial 3-1%Crude in NAF drilling fluid, and Vial 4-2%Crude in NAF drilling fluid.

7.2.5.2a Vial 1 will not be spiked with Reference Oil in order to retain a “0%” oil concentration, add 5 mL of clean NAF base fluid only.

7.2.5.3a Weigh 90.5 mg of NIST Crude Oil into Vial 2 and add 5 mL of clean NAF base fluid. This will be the 0.5% Crude equivalent in NAF mud standard.

7.2.5.4a Weigh 181 mg of NIST Crude Oil into Vial 3 and add 5 mL of clean NAF base fluid. This will be the 1.0% Crude equivalent in NAF mud standard.

7.2.5.5a Weigh 362 mg in NIST Crude Oil in Vial 4 and add 5 mL clean NAF base fluid. This will be the 2.0% Crude Equivalent in NAF mud standard.

7.2.5.6a Thoroughly mix the contents of each of the 4 vials by shaking vigorously.

For NIST 2779

7.2.5.1b Label 4 vials with the following identification: Vial 1-0%Crude in NAF drilling fluid, Vial 2-0.5%Crude in NAF drilling fluid, Vial 3-1%Crude in NAF drilling fluid, and Vial 4-2%Crude in NAF drilling fluid.

7.2.5.2b Vial 1 will not be spiked with Reference Oil in order to retain a “0%” oil concentration, add 5 mL of clean NAF base fluid only.

7.2.5.3b Weigh 24.4 mg of NIST Crude Oil into Vial 2 and add 5 mL of clean NAF base fluid. This will be the 0.5% Crude equivalent in NAF mud standard.

7.2.5.4b Weigh 48.9 mg of NIST Crude Oil into Vial 3 and add 5 mL of clean NAF base fluid. This will be the 1.0% Crude equivalent in NAF mud standard.

7.2.5.5b Weigh 97.7 mg in NIST Crude Oil in Vial 4 and add 5 mL clean NAF base fluid. This will be the 2.0% Crude Equivalent in NAF mud standard.

7.2.5.6b Thoroughly mix the contents of each of the 4 vials by shaking vigorously.

Justification/Rationale:

In the development of the GC/MS procedure for formation oil testing in Synthetic based drilling fluids, it was documented to the EPA that there is a wide variety of crude oils in the Gulf of Mexico. Use of a single crude oil reference and appropriate calibration of the crude oil promotes a consistent and accurate approach to a pass-fail limit.

Comment 7: Appendix F – Table 1

PESA recommends that once all edits and changes to the permit text language is complete, Table 1, Appendix F requirements should be updated accordingly to match.

Justification/Rationale:

Consistent requirements between the table and body of the permit will promote consistent application of permit requirements.