EPA Region 2 Comments on the NYSDEC's SPDES General Permit for Stormwater Discharges from High Volume Hydraulic Fracturing (HVHF)
December 22, 2011

Part I (General Permit Coverage and Limitations):

1. Part I (D)(5): This section states that contaminated stormwater discharges from drilling operations subject to 40 CFR Part 435 are ineligible for coverage under the general permit. The section includes a note that states, "most contaminated discharges from drilling facilities are subject to these effluent guidelines and are not eligible for coverage under this general permit." The processes ineligible for coverage under the standard include "any source associated with production, field exploration, drilling, well completion, or well treatment (i.e., produced water, drilling muds, drill cutting, and produced sand)." [See 40 CFR § 435.32]. The New York State Department of Environmental Conservation (NYSDEC) should enumerate the processes ineligible for coverage (in quotes above) in the general permit. The general permit does allow for drilling muds to be put in reserve pits. Any discharge from a reserve pit that includes drill cuttings or drilling muds must be ineligible for coverage under the permit. The NYSDEC can clarify the current language by adding, to the note in Part I(D)(5), the phrase "including any stormwater from reserve pits that contain drilling muds." The NYSDEC should prohibit drilling muds from being put into reserve pits.

2. Part I (D): The table in this section states that High Volume Hydraulic Fracturing (HVHF) operations sited within 100 feet of wetlands are ineligible for coverage. The term "Wetlands" in the table needs to be qualified as "ECL Article 24 mapped freshwater wetlands" and a footnote should be added to Part I (D) stating "Operations sited within federally regulated wetlands may require a separate permit under Section 404 of the CWA before construction begins." The EPA suggests that the permit require a larger buffer to better protect wetlands. Also, where it states twice in the table "as described in 6 NYCRR Parts 800-910," as a qualifier for perennial and intermittent streams, this qualifier is confusing and should be deleted. If one looks at the actual ECL regulations Parts 800-910, they include every perennial and intermittent stream, known or unknown. The Part 800-910 regulations are about waterbody classification and since the SPDES General Permit eligibility restrictions are not being tied here to stream classification, but rather the presence of a stream of any classification, the qualifier is confusing and unnecessary.

Part II (Obtaining General Permit Coverage):

3. Part II (A): The permit is not specific as to who is responsible for compliance with the requirements where multiple owners at a site are involved. How will the NYSDEC determine responsibility at a site where there are multiple owners for enforcement purposes? The permit should require the Stormwater Pollution Prevention Plan (SWPPP) to identify all contractors and subcontractors. The permit should also require a signed certification from any contractor or subcontractor with SWPPP responsibilities that they will comply with the permit and fulfill their SWPPP responsibilities.

4. Part II (A): The NYSDEC uses *"owner or operator*" throughout the permit. The NYSDEC should include language which clearly states that whoever submits the notice of intent (NOI) is responsible for the permit's implementation, unless otherwise specified in the Comprehensive

SWPPP. The permit should state clearly whether it is the owner or the operator who is liable in the event that a site should fail to obtain coverage under the permit.

5. Parts II (A), III (B)(2), and VII (B)(2): These sections state that documents must be maintained at a secure location, such as a job trailer, on-site construction office, or mailbox. A secure location could be understood to mean a location remote from an organization's primary place of business. A mailbox may not be on-site. Rather than use the term "secure location" the NYSDEC should indicate that the permittee must have documentation (e.g, NOI, a copy of the SWPPP, etc.) available at a central location on-site for the use of all those identified as having responsibilities under the SWPPP whenever they are on the construction site.

6. Part II (B)(3): This section indicates that where the Construction SWPPP has been prepared in conformance with New York State Standards, the general permit is effective 30 calendar days after receipt of the notice of intent and if the Construction SWPPP is not prepared in conformance with the New York State Standards, the general permit is effective 60 calendar days after receipt of the NOI. If the Construction SWPPP has not been prepared in conformance with New York State Standards, the general permit should not be effective at all. II(B)(3)(b) must be deleted. Later in the permit at III(D)(2) , the permit states, "where the planned amendments or modifications to the Construction SWPPP are not in accordance with the technical standards, the owner or operator shall have the Construction SWPPP amendments or modifications reviewed and accepted by the Department prior to commencing construction of the post-construction stormwater management practice." If the NYSDEC intends that owners or operators can request a variance from the technical standards based on equivalent measures, then the effective date in II(B)(3)(b) should only be after the NYSDEC has provided a written determination that the permittee's stormwater management practices are equivalent to the technical standards and not an arbitrary number of days after receipt of the NOI.

Part III (Development and Administration of the Construction SWPPP):

7. Part III (B)(4)(g): This section should require that the certification statement that is attached "to the copy of the Construction SWPPP that is maintained at the well site" should be signed.

Part IV (Contents of the Construction SWPPP):

8. Part IV (A)(1): The words "minimize" and "sensitive" in sub-sections (a) and (b) respectively are difficult to enforce because the words are subjective and not clearly defined in the permit. More specific language regarding these sub-sections is needed such as, "in accordance with the 2010 NYS Stormwater Design Manual."

9. Part IV (B)(1)(c), (B)(1)(d), and (B)(1)(e): These sections require the permittee to design, install, and maintain erosion and sediment controls that: "c. Minimize the amount of soil exposed during the Construction Phase; d. Minimize the disturbance of steep slopes; e. Minimize sediment discharges from the well site." More specific language than "minimize" should be used to describe how the controls must be designed, installed, and maintained; such as, "in accordance with the 2010 NYS Stormwater Design Manual."

10. Part IV (B)(1)(f) and (B)(1)(g): More specific language than "infeasible" should be used to describe the application of Best Practicable Technologies (BPTs) with regard to natural buffers and soil compaction.

11. Part IV (B)(4): The permit should require the owner/operator to identify site-specific waste management controls. Waste-generating materials and/or activities should also be identified on the site map.

12. Part IV (B)(4)(a), (B)(4)(b), and (B)(4)(c): The permit should use more specific language than "minimize" to describe the application of BPTs with regard to pollution prevention measures.

13. Part IV (B)(4): These sections contradict Part I (C)(2) (for instance Part IV (B)(4)(a) states "Minimize the discharge of pollutants from equipment and vehicle washing…" and Part I (C)(2) states that vehicle washwater discharges are ineligible for coverage). Since vehicle washwater discharges are unpermitted, the NYSDEC should change "minimize" to "eliminate". The NYSDEC should also add vehicle washwater as a prohibited discharge in Part IV (B)(4).

14. Part IV (C)(1)(b): This section states the site map requirements for the Construction SWPPP require the location(s) of the stormwater discharge(s) but do not require the Construction SWPPP to include the locations where stormwater discharges to a water of the United States or wetland (e.g., receiving water location). The EPA requires in its construction general permit (CGP) that the site map include "directions of flow," "approximate slopes anticipated after grading activities," "locations of major structural and non-structural best management practices," and "locations of off site materials." The site map should also include all receiving waters, any impaired/TMDL status of waters (including pollutants of concern), whether pollutants of concern are associated with industrial activity, all industrial activity, and potential pollutant sources. The EPA suggests that these should be included in the site map requirements section.

Part V (Construction of Well Site – Inspection, Maintenance, and Recordkeeping Requirements):

15. Part V (A)(3): The NYSDEC should be notified when soil disturbance activities have been temporarily suspended and the owner/operator shifts to a 30-day inspection schedule. The permit should also specify how this notification needs to occur (e.g., written notification).

16. Part V (B)(5): The EPA requires in its CGP that inspection reports include "weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred." These should be included as a requirement for the qualified inspector to include in the inspection reports.

17. Part V (B)(5)(E): This section states that the inspection report should include "A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the well site which receive runoff from disturbed areas." The term "natural surface waterbodies" should be qualified as to include wetlands.

18. Part V (C)(2): To help facilitate enforcement of the requirements found in this section the permit should require documentation.

Part VIII (HVHF Operation Requirements):

19. Part VIII (A)(2): This section states that a list must be maintained of all HVHF phase fluid additives used on-site. The list must include the volumes and amounts of all chemical additives used for each HVHF stage, but may exclude any information that has been determined to be confidential business information. The general permit does not specify or reference New York State's laws regarding confidentiality of business information at 6 NYCRR 750-1.22 or give any indication of what is required for a claim of confidential business information. If specific volumes and amounts of chemical additives are determined to be confidential business information, the owner or operator should be required to maintain a non-confidential list of the chemical additives without volumes and quantities used for each HVHF stage in order for emergency response personnel to ensure the health and safety of humans and the environment in the event of a release.

Part IX (Contents of the HVHF SWPPP):

20. Part IX (A)(3): Since there will be horizontal drilling performed at extensive distances from the drill pad in HVHF, the permit should require that the map narrative identify all locations relative to aquifers and unfiltered water supplies at distances based on how far out horizontal drilling may occur from the drill pad.

21. Part IX (A)(4): Within this section the SWPPP should include information concerning potential issues regarding hydrologic connectivity to surface waters due to horizontal drilling.

22. Part IX (A)(14): The sentence starting with "the record shall include a list of the individual chemicals/additives…" should mean that confidential business claims will not excuse the permittee from providing the chemical additive information. If this is the case, please amend the language to clearly state that the chemical additive information is required.

23. Part IX (A)(16)(a): This section states that Best Management Practices (BMPs) "should" take into consideration the items at IX(A)(16)(a)(i)-(iii). The permit should require that the BMPs must take these items into consideration. The permit should be rewritten to state that "Selection of BMPs must take into consideration:" the items at IX(A)(16)(a)(i)-(iii).

24. Part IX (B)(5)(b)(i) and (B)(5)(b)(ii): For consistency with the construction portion of the permit the phrases "weekly" and "biweekly" should be changed to "every 7 calendar days" and "every 14 calendar days."

25. Part IX (B)(6): This section states that "Records of inspections required for HVHF operations shall be maintained in accordance with this general permit." The provision does not state what the records of inspections would be for the HVHF operations (for example for the Construction SWPPP, at provision V(B)(5) specifies the minimum requirements for the inspection report). The permit should specify the minimum inspection report requirements for the HVHF SWPPP similar to the inspection report requirements in the Construction SWPPP.

26. Part IX (B)(7): This section indicates that employee training "should" include topics such as spill response, good housekeeping, and material management practices. Spill response, good housekeeping, and material management are crucial elements of the HVHF SWPPP. Employees

must be familiar with spill response and good housekeeping practices as required at provision IX(B)(7)(c) of the permit. We suggest the permit be rewritten to state that the description of employee training "must include the topics to be covered, including, at a minimum, the topics listed at IX(B)(7)(c)(i) to (iii)."

27. Part IX (A)(2)(d): This section states, in "Contents of the HVHF SWPPP," that the site map must show "Locations and names of all surface water bodies within one (1) mile of the well site." The term "all surface waterbodies" needs to be qualified to include wetlands. However, since federally regulated wetlands cannot be readily verified at this scale without extensive fieldwork, a footnote should be added qualifying that it is sufficient for federal wetland purposes to show locations of wetlands as identified on National Wetland Inventory maps and/or areas of hydric soils identified on the county USDA Soil Survey, in lieu of field-verified federally regulated wetlands or as identified by the Army Corps of Engineers, the EPA, the Fish and Wildlife Service, or local governments.

28. Part IX (C)(1): This section addresses required structural BMPs and states that the "Factors for the *owner or operator* to consider when selecting appropriate structural BMPs should include:" factors listed at IX(C)(1)(a) and (b). These factors are important in selecting appropriate structural BMPs. The permit should be rewritten to state that "Factors for the *owner or operator* to consider when selecting appropriate structural BMPs must include at a minimum:" the factors listed at IX(C)(1)(a) and (b).

Part X (Activity-Specific Structural and Non-Structural BMPs and Benchmark Monitoring Requirements):

29. Part X: Where specific parameters are mentioned for monitoring, the permit specifies certain analytical methods. In one case, total dissolved solids (TDS), the method is the standard method instead of the EPA method 160.1. In the tables throughout the permit where the analytical methods are specified, the NYSDEC should specify the methods approved by 40 CFR Part 136 that yield a detection limit that will allow for water quality standard compliance to be evaluated (sufficiently sensitive method).

30. Part X: The permit should include a provision stating that for any discharge that is monitored more frequently than required by the permit, using the procedures in 40 CFR Part 136, the results of the monitoring must be provided to the NYSDEC.

31. Part X (Table – Pollutants of Concern): This table lists radium as a pollutant of concern to be monitored as "Radium (sum of all isotopes), pCi/l". The discharger may only provide the sum and not the individual isotopes. The water quality standards apply to radium 226 and 228, so the permit should specify that these isotopes need to be reported individually.

32. Part X (A)(6): The word "minimized" in this section is difficult to enforce because the word is subjective and not clearly defined in the permit. More specific language regarding this section is needed such as, "in accordance with the 2010 NYS Stormwater Design Manual."

33. Part X (B)(3)(c): To help facilitate enforcement of the requirements found in this section, the permit should require documentation.

34. Part X (D)(1)(b): The permit should be more specific about where the permittee is allowed to "divert runoff and runon."

35. Part X (G)(1)(a) and (G)(1)(b): The words "familiar," "closely," and "often" in these sections are difficult to enforce because the words are subjective and not clearly defined in the permit. More specific language regarding these sections is needed such as, "in accordance with the 2010 NYS Stormwater Design Manual."

36. Part X (H): Please explain the purpose for the NYSDEC to separate this section "chemical/fluid storage" from Part X (F), "materials and chemical storage areas." The two sections have very similar descriptions of activity, BMP requirements, and benchmark requirements.

37. Part X (M): This section, Freshwater Surface Impoundments and Reserve Pits, states all flowback wastewater must be directed to watertight holding tanks. The revised draft Supplemental General Environmental Impact Statement (SGEIS) specifies that the flowback wastewater must be directed to covered, watertight holding tanks. The general permit should be consistent with the SGEIS and require "covered" watertight holding tanks. In addition, the EPA suggests that the permit should require holding areas for mud and other sediments be covered.

38. Part X (M)(1): The general permit indicates at X(M) that "All *flowback* wastewater must be directed to watertight holding tanks." and at X(M)(1)(a) that "*Flowback* shall not be directed to *reserve pits*;" The permit should also specify that production brine shall not be directed to reserve pits (in accordance with #66 from Appendix 10 of the SGEIS). In the permit, where the term flowback or flowback wastewater is used, the permit should include "flowback wastewater and production brine." Under 40 CFR Part 435, no distinction is made between flowback wastewater and production brine.

39. Part X: The bases for benchmark values in Part X of the permit is not provided in the fact sheet and for total dissolved solids, sulfate, radium, gross alpha radiation, and gross beta radiation no benchmark value is provided and instead only reporting of results is required. New York State has applicable water quality standards at 6 NYCRR Part 700 et seq. that include standards for total dissolved solids, sulfate, radium-226, radium-228, gross alpha radiation, and gross beta radiation. The benchmark concentrations in Part X of the general permit should be set at the state water quality standards to ensure that water quality standards are not exceeded for all parameters that have water quality standards in 6 NYCRR Part 703 and aquatic life standards and guidance values from 6 NYCRR Part 702. At a minimum, the NYSDEC must ensure that the benchmark concentrations are set so that the discharge does not cause or contribute to a water quality which is exceeded.

40. Part X (B)(4), (F)(4), (G)(4), (H)(4), (J)(3), and (M)(3): Benchmark Monitoring Requirements for Areas where Well Drilling and High Volume Hydraulic Fracturing at X(B)(4), Benchmark Monitoring Requirements for Material and Chemical Storage Areas at X(F)(4), Benchmark Monitoring Requirements for Chemical Mixing, Material Handling, Loading/Unloading Areas X(G)(4), Benchmark Monitoring Requirements for Chemical Storage Areas X(H)(4), Benchmark Monitoring Requirements for Areas where Piping and Conveyances are Located X(J)(3), and Benchmark Monitoring Requirements for Areas in which Flowback Water Storage and Reserve Pits are Located at X(M)(3) should include chronic and/or acute toxicity testing since a mixture of individual chemicals may be found in these areas that may have synergistic

effects not apparent from individual parameter measurements. The EPA recommends that a discharger conduct chronic toxicity testing if the dilution of the effluent falls below 100:l at the edge of the mixing zone. The EPA recommends that a discharger conduct either acute or chronic toxicity testing if the dilution of the effluent falls between 100:l and 1,000:l at the edge of the mixing zone.

Part XII (HVHF Phase Monitoring):

41. Part XII (A)(1)(a) and (A)(2)(a): In this section the owner/operator must conduct visual and quarterly inspections of outfalls. These sections could be interpreted to mean on-site outfalls only. Also, it is possible that stormwater discharges to MS4s, entries to storm sewers, or at MS4 outfalls might not be inspected. The permit should be clarified to explain exactly what "each outfall" requires.

42. Part XII (A)(3)(c): This section states that samples must be received by the laboratory in a timely manner, so that samples may be analyzed within the holding time, but no later than ten (10) calendar days after the samples have been collected. For some parameters, e.g., total suspended solids, the holding time is less than ten calendar days. The permit provision must be rewritten to reflect that holding times may be less than the ten days. For instance, it may be rewritten as, "Samples must be received by the laboratory in a timely manner, so that samples may be analyzed within the holding time. For parameters with holding times greater than ten (10) days, samples must be analyzed no later than ten (10) calendar days after the samples have been collected."

43. Part XII (A)(3)(c): The term "qualifying storm" should include a reference to where the phrase is defined or should be defined in Appendix A.

Part XIII (HVHF Phase Reporting):

44. Part XIII (A)(1) and Part XVI (A)(1): The EPA is concerned that the NYSDEC will not be able to ensure all the applicable DMR forms are provided to each project given the activity-specific benchmark requirements outlined in Part X of the Permit. How does the NYSDEC expect to accomplish this?

Part XV (Production Phase Inspection and Maintenance):

45. Part XV: For clarity, the EPA recommends moving Part XV before Part XIV, so that the inspection and maintenance requirements for the production phase precede the monitoring requirements for the production phase (same pattern as Parts XI and XII, which relate to the HVHF phase).

Appendix A (Definitions and Acronyms):

46. Appendix A: The General Environmental Impact Statement from 1992 (GEIS) describes use of up to 80,000 gallons of water for a typical hydraulic fracturing operation. Appendix A defines High-Volume Hydraulic Fracturing as hydraulic fracturing using greater than 300,000 gallons of water cumulatively in the HVHF phase. In order to be consistent with the GEIS, HVHF must be defined as using greater than 80,000 gallons of water in the HVHF phase. Increasingly, gas

extraction activities are recycling water. The definition should specify whether or not the water usage is fresh water or includes water recycled on-site.

47. Appendix A: "Floodplain" is defined as the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA). The Department has a burgeoning Floodplain Mapping Program. Under a Cooperative Technical Partnership with FEMA, the Department has begun conducting new Flood Insurance Studies for the State of New York. The program employs cutting edge geographic information technology to produce some of the most accurate, advanced floodplain maps in the nation. Where the State of New York has developed more advanced floodplain maps, these should be employed. Also, any local community floodplain requirements that are more restrictive than state requirements must be considered.

48. Appendix A: There appears to be a typographical error in the definition of "product." It defines "Product" as "a material a hydraulic fracturing fluid that is manufactured using precise amounts of specific chemical constituents and is assigned a commercial name under which the material is sold or utilized." It is not clear what the meaning is or its usage.

49. Appendix A: "Normally occurring radioactive materials" (NORM) are defined as the radioactivity that can exist naturally in native materials. The term is not used in the document except in the definition of production brine that is also found in Appendix A.

50. Appendix A: The following definition should be added: Wetlands – means areas regulated pursuant to Article 24 of the Environmental Conservation Law; and federally regulated wetlands, which are further defined as areas included under the definition of "waters of the United States" at 33 CFR §328.3(b), which defines the term "wetlands" to mean "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions," and which are "navigable waters" as defined by Section 502(7) of the CWA, 33 U.S.C. §1362(7).