

6 NYCRR Parts 52, 190, 550-556, 560, and 750
HIGH-VOLUME HYDRAULIC FRACTURING

ASSESSMENT OF PUBLIC COMMENT

This assessment responds to the consolidated comments received on the draft regulations for Parts 52, 190, 550-556, 560, 750-1, and 750-3 of Title 6 of the New York State Code of Rules and Regulations (NYCRR). The revised draft Supplemental Generic Environmental Impact Statement (rdSGEIS) was released for public comment on September 7, 2011. On September 28, 2011, the New York State Department of Environmental Conservation (Department) released for public comment draft regulations concerning high-volume hydraulic fracturing and the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from High-Volume Hydraulic Fracturing (HVHF General Permit). Public hearings were held concurrently on all of these documents and the combined public comment period was held open until January 11, 2012. In total, the Department received over 66,000 individual public comments on these documents, from postal mail, electronic submissions, and speakers at public hearings held in 2011.

The Department processed every comment and comments received equal consideration. The Department broke down comment submissions into smaller, more manageable segments. Similar segments were combined into one consolidated statement. Therefore, one consolidated statement could represent portions of identical or similar comments received from a number of commentors. Of the 66,000 comments, there are more than 650 consolidated comments on the draft regulations to which the Department provides responses below.

The Department received comments from many diverse groups and individuals including mineral rights owners, federal, state, and local agencies, environmental organizations, landowner coalitions, industry representatives, and legislators. During preparation of the proposed revised regulations, the Department incorporated suggestions made by the public (both with respect to the proposed regulations and the 2011 rdSGEIS).

The Assessment of Public Comment (APC) presents and responds to all of the consolidated comments on the proposed regulations that were received during the public

comment period. The consolidated comments and responses are grouped into several categories: categories 82-89 regarding the proposed mineral resources regulations; category 90 regarding the proposed water resources regulations; categories 91 and 92 regarding the proposed lands and forests, fish, wildlife and marine resources regulations; and category 114 regarding general comments on the proposed rulemaking.

The Department will accept additional public comment on the proposed revised regulations, and will prepare a subsequent assessment of public comment in response to those comments.

82: Part 551, Reports and Financial Security

Comment 3109:

Part 551.1(a) should be revised to require disclosure by applicants of pending and final actions concerning violations in other states. Applicants that have been fined or suspended from drilling in other states should not be able to simply move to New York State and begin operating.

Response 3109:

The Department disagrees that the proposed rules should be amended as suggested in the comment. Previous violations and penalties assessed in other states are relevant to the fitness of an applicant for a Department issued permit. However, the compliance history of an applicant is fact specific and cannot be addressed with a broad prohibition against operating in New York based either on a pending enforcement action or a final one. The Department's Record of Compliance policy, available on the Department's website at: <http://www.dec.ny.gov/regulations/25244.html>, provides information on how an applicant's compliance history factors into a permitting decision by the Department.

Comment 3110:

Parts 551.1 through 551.3: Reporting appears to be the responsibility of the gas companies. Objective, disinterested assessment and reporting should instead be mandated.

Response 3110:

The reports required by existing regulations at 6 NYCRR Section 551.1 through 551.3, which include organization reports, production reports, and well completion reports should be completed by the person(s) most knowledgeable of and responsible for the relevant activity. Reports submitted to the Department are signed under penalty of perjury, and it is therefore more reasonable to require those reports to be submitted by the responsible party.

Comment 3111:

Part 551.4(a) should be revised to state that an owner of an oil or gas well must file financial security documentation with the Department as part of the well permit application and that no surface disturbance for a new well pad or well drilling for an existing pad can occur until such financial security is in place and deemed acceptable by the Department.

Response 3111:

The proposed revisions is not necessary, as paragraph 552.2(a) already requires financial security to be in place prior to issuance of a permit to drill. Section 552.1 (a), under the proposed rules, will also make clear that no surface disturbance is allowed prior to obtaining a permit from the Department.

Comment 3112:

Part 551.5: For wells up to 6,000 feet deep, the per-well and total cap limits for financial security are too low and should be increased.

Response 3112:

The proposed regulatory changes to Part 551 included removal of the per-well and total cap for wells that exceed 6,000 feet in true measured depth. For wells less than 6,000 feet deep, to which the comment pertains, the amount of financial security is set in statute at ECL 23-0305(8)(k). Any change to the amount of financial security needed for wells less than 6,000 feet deep would therefore require legislative action.

Comment 3113:

Parts 551.5 and 551.6: Regardless of well depth and type, the amount of financial security required should be the full cost of plugging and abandoning all of the wells involved. There should be no cap, there should be no discounts for multiple wells, and the calculated cost should take inflation and future prices into account. The State already has too many abandoned and unplugged wells and inadequate financial resources to address them.

Response 3113:

See response to Comment 3112.

Comment 3114:

Part 551.6: Financial security requirements should be based on more than the anticipated costs of plugging and abandoning the wells and should include the costs of other liabilities such as potential remediation, cleanup, accidents, and spills and releases.

Response 3114:

The Department disagrees, as the requirement for financial security stems from ECL 23-0305(8)(e) which states that prior to the commencement of drilling a well, a well operator shall provide financial security “conditioned upon the performance of said operator’s plugging responsibilities with respect to said well.” The statute does not authorize the Department to set the amount of financial security required for deep wells to serve as a contingency fund in the event of a contamination event.

Comment 3115:

Part 551.6: As an alternative to or in addition to increasing financial security to cover the costs of potential liabilities beyond plugging and abandonment (such as remediation, accidents, and spills and releases), well operators should be required to purchase insurance to cover those potential liabilities. The up-front cost of insurance might be more incentive to operate in an environmentally responsible manner and might be a more reliable form of compensation if a drilling company becomes insolvent.

Response 3115:

See response to Comment 3114. The suggestion in the comment is beyond the scope of the proposed rulemaking.

Comment 3116:

Part 551.6: The Department should not be the only entity involved in determining that the financial security required and obtained by operators is adequate.

Response 3116:

The Department disagrees, as ECL Article 23 indicates that the bond or other security provided must be acceptable to the Department.

Comment 3117:

Part 551.6: The \$2 million cap on financial security requirements for wells deeper than 6,000 feet is too low. There should be no cap (or the cap should be raised) and the amount required should be the full cost of plugging and abandoning all of the wells involved. With financial security limits for 6,000+-foot wells of \$250,000 per well and \$2,000,000 total, operators with more than eight wells would have no additional liability or incentive to responsibly plug and abandon wells beyond the first eight. As well, \$2,000,000 is inadequate to pay for a major drilling mishap or the future financial and environmental costs of abandoned unplugged wells. (The amounts being required by the Delaware River Basin Commission for spills and releases are \$5 million for each well and \$25 million for multiple wells.)

Response 3117:

See response to Comment 3112. The proposed rule would require the well operator to file financial security based upon the anticipated costs of plugging and abandoning the well. Well operators will need to supply information to the Department concerning the cost of plugging and abandoning the well in order for the Department to determine an acceptable amount of financial security.

Comment 3118:

Part 551.6: In addition to the financial security required, each well should be assessed additional fees payable to the state that could be used for purposes such as a cleanup fund (to clean up abandoned high-volume hydraulic fracture well sites where the responsible party is bankrupt or closed); additional state monitoring and enforcement personnel; or a land conservation fund (for the state to purchase additional lands to offset habitat destruction and fragmentation caused by high-volume hydraulic fracturing).

Response 3118:

Assessment of a new fee is beyond the scope of the proposed rule. See also response to Comments 3114 and 3115.

Comment 3119:

Part 551.6: Financial security should be required for plugging and abandoning wells of any depth, not just those that are 6,000 feet or more in depth.

Response 3119:

There are financial security requirements for ECL 23 wells of any depth. See ECL 23-0305(8)(k) and the responses to Comments 3112 and 3114.

Comment 3120:

Part 551.6: The State should be named the insured for an environmental liability policy of not less than \$2,000,000 for each well.

Response 3120:

The Department does not currently accept insurance as a means of financial security. ECL Article 23 indicates that bonds, cash or negotiable bonds of the United States Government are acceptable forms of financial security.

Comment 3121:

Bureau of Oil and Gas Regulation officials should be directed to prevent financially unqualified owners from obtaining oil or gas wells through transfer requests.

Response 3121:

The current rulemaking does not include proposed rules related to the transfer of wells. However, the commenter should note that ECL 23-0305(8)(e) provides that an operator is not relieved of its well plugging responsibilities unless a subsequent operator has furnished the appropriate bond or substitute and until the Department has approved the transfer of plugging responsibilities to the subsequent operator.

Comment 3122:

The required financial security should be in the form of insurance or money placed in an escrow account overseen by the State. It should not be in the form of a security bond, which is only as good as the financial state of a company. In case of an extreme accident that tests the economic viability of a company, a security bond can be withdrawn by the issuing bank or company.

Response 3122:

ECL Article 23 authorizes the use of bonds. The proposed rules do not propose to change the types of financial security accepted by the Department. See response to Comment 3120.

Comment 3390:

Instead of the financial security requirements proposed in Part 551.6, a bond to offset the cost of plugging the gas well should be posted for each gas well drilled, to ensure that taxpayers will not have to pay later for inadequately plugged and abandoned wells.

Response 3390:

Bonds are routinely accepted by the Department as a means of financial security to ensure that well operators satisfy their well plugging responsibilities. See also response to Comment 3117.

Comment 6280:

Part 551 should include liability clauses in its regulation of the hydraulic fracturing industry. Any company, party, or entity involved in the process must be held accountable for cleaning up any environmental contamination, fully restoring the site to its previous condition, and bearing all expenses and responsibilities of such. As well, the State's costs for monitoring the industry should be billed directly to the drilling companies.

Response 6280:

The Department disagrees that Part 551 should be amended as suggested in the comment. Existing Section 554.1 already prohibits pollution of the land and/or surface or ground fresh water from exploration or drilling. Operators are also held responsible, pursuant to ECL Article 71, for failing to comply with the rules and regulations of the Department as well as any condition of a Department-issued permit. Therefore, the ECL and the implementing regulations

already address accountability for contamination and reclamation of the land surrounding the well.

Comment 6283:

The Department's proposal to amend Part 551 of the existing regulations to eliminate the maximum bond required for plugging and abandonment of an individual well and a two million dollar cap on bonding for operators that operate multiple wells (i.e., blanket bonding) goes too far. Although Industry supports reasonable bonding requirements, it is unreasonable to eliminate bonding limits and not encourage blanket bonds or other funding mechanisms that will be more cost-effective to industry. Shale gas wells are expected to be productive for decades. As such, requiring individual bonding for each well will tie up capital unnecessarily. Bonding is only necessary where an operator defaults on its plugging and abandonment obligations. In recent times, there have been no such defaults. Accordingly, the proposed amendment of Part 551 is unnecessary and unreasonable. Moreover, the elimination of a limit on the bond required per well and the total bonding required per operator is inconsistent with the bonding requirements of neighboring states, which will render New York non-competitive. For example, Pennsylvania is currently considering increasing the blanket bonding required to \$600,000. Ohio and West Virginia require \$15,000 and \$60,000 bonds, respectively. In addition, given the longevity of bonding with wells that may last for three decades or longer, it is important to provide alternatives for those operators that can meet a financial test for financial security. Accordingly, Part 551.6 should be revised to state: The owner of an oil , gas or solution mining , storage, stratigraphic, geothermal or disposal well that exceeds or that is expected to exceed 6,000 feet in true measured depth must file financial security for that well in an amount based upon the anticipated costs of plugging and abandoning that well to the satisfaction of the department in accordance with Part 555 of this Title, up to \$250,000. However, the owner is not required to file financial security under this section exceeding \$600,000, regardless of the number of wells described in this section that the owner may have. Any owner that is subject to the financial security requirements of this section may qualify based upon the financial test and guarantee provided in Section 373-2.8(d)(5).

Response 6283:

The Department disagrees that the financial test and guarantee utilized in the hazardous waste program is appropriate for use in the Oil, Gas and Solution Mining program. ECL Article 23 directs that a bond, cash or negotiable bonds of the U.S. Government, in a form approved by the Department, shall be provided to ensure compliance with an operator's well plugging responsibilities and the proposed rules do not include a change in the types of financial security acceptable to the Department. As to the amount of financial security required, the Department disagrees that the operator cap currently set at \$2 million should be reduced to \$600,000. The Department proposed to remove the cap to account for the fact that drilling of deep wells is expected to be more common than in previous years. Estimates of potential drilling activity to target low-permeability reservoirs also suggest that the number of applications for a Permit to Drill submitted to the Department will far exceed existing levels of permitting. The existing operator cap of \$2 million presented a risk that the amount of financial security held by the Department would not be commensurate with the number of active wells operated by any one

entity. In some instances, \$2 million may be appropriate as an operator cap, and the Department retains the discretion to utilize an operator cap.

Comment 6580:

Part 551.1(a)(2): Disposal wells with a true vertical depth shallower than 500 feet should also be subject to reporting requirements.

Response 6580:

The proposed changes to 551.1(a)(2) were intended to clarify that an organizational report is required for all wells regulated under the Oil, Gas and Solution Mining Law. As the Department issues permits for initial well drilling as well as for wells plugged back, deepened, and converted, the proposed rules simply spells this out in greater detail. The disposal wells called out in 551.1(a) refers to wells drilled for the injection of brine. ECL 23-0305(14) expressly limits the Department's jurisdiction in the Oil, Gas and Solution Mining Law to brine disposal wells drilled deeper than five hundred feet. Therefore, the change suggested in the comment is beyond the scope of the regulatory changes as it would require legislation.

Comment 7793:

Part 551.6: The true costs of plugging and abandoning the wells should be required to be calculated based on third-party contractors carrying out the work, as is done in New Mexico's oil and gas regulations, for example.

Response 7793:

New Mexico's oil and gas regulations include both a per-well financial assurance requirement as well as the option for well operators to submit a blanket bond for multiple wells. The regulations do not indicate that the amount of financial security is based on the work being carried out by third-party contractors. Nevertheless, the Department will be requesting well operators to supply estimated plugging and abandonment costs for wells deeper than 6,000 feet to assist in calculating financial security requirements for deep wells. As suggested in the comment, the amount of financial security required for deep wells will be based on the well actually being proposed. The Department expects that in the case of multi-well pads economies of scale will allow well operators to plug wells at a rate lower than the rate expected for single well pads. Like other case-specific circumstances, these economies of scale will be reflected in the amount of financial security required for deep wells.

Comment 7794:

Part 551 should be amended to provide for New York's adopting an effective severance rate of 7.5% (similar to Texas). This will generate approximately \$60 billion in tax revenues over the next 30 years based on estimates prepared by the Pennsylvania Budget and Policy Center that "the average Marcellus Shale well is projected to generate \$16,000,000 (of energy company revenue) over its life based on an estimated 3.8 billion cubic feet of natural gas produced from each well at a price of \$4.28 per thousand cubic feet."

Response 7794:

Adoption of a severance tax would require legislative action and is therefore beyond the scope of the proposed rules and the authority of the Department.

Comment 10257:

Part 551.6: It is commendable that the Department has changed this section to not place a cap on plugging and abandoning a well.

Response 10257:

The comment is noted.

Comment 7971:

Of the 75,000 wells drilled so far in New York State, only 13,500 are still active. More than half of the abandoned wells were never plugged or plugged improperly. The \$2,000,000 liability limit should be removed otherwise large operators have no incentive to plug their wells.

Response 7971:

The comment is noted, as the proposed rules would remove the \$2 million operator cap.

83: Part 550, [Promulgation and Enforcement of Rules and Regulations] General

Comment 3681:

Part 550 is not clear on how the Department will ensure that they provide adequate staff to enforce the regulations. It seems that the Department increasingly has less staff each year due to budget cuts and it is believed that the Department will not have the manpower to enforce the regulations.

Response 3681:

The Department's staffing needs are not addressed in either existing regulation or the proposed rules. However, the regulatory impact statement (RIS) does recognize that implementation of the proposed rules will require the Department to incur additional costs associated with permitting, compliance monitoring and enforcement.

Comment 3682:

Part 550 is not clear enough on how the Department will monitor and inspect the wells and

enforce the regulations. Even a small violation that goes undetected could have serious environmental consequences.

Response 3682:

Existing Section 550.5 includes provisions that authorize the Department, its employees, agents and representatives, to inspect any regulated facility and to access well records to determine whether the regulations are being complied with. The proposed rules did not include any changes to Section 550.5. However, since many of the proposed rules are based on supplementary permit conditions proposed in the rdSGEIS for inclusion in a Department issued Permit to Drill, the discussion in Chapter 8 concerning enforcement of the rdSGEIS is germane to a discussion how the proposed rules will be enforced.

Comment 3683:

Part 550 needs to be in adherence with local law, which is not presently a requirement.

Response 3683:

Part 550 implements authority granted to the Department through Environmental Conservation Law (ECL) Article 23. There is no requirement for Part 550 to adhere to local law. However, the statutory authority for Part 550 was updated to provide clarification as to the source of the Department's authority.

Comment 3684:

Part 550 et seq. should be reviewed and updated annually to ensure frequent incorporation of changes in the shale gas industry and methods.

Response 3684:

Comment noted. Please note that the Department, pursuant to SAPA, publishes a regulatory agenda and a 5-year review of rules in the State Register.

Comment 3686:

Part 550.5(a) should be revised to include compliance with permit provisions as a reason for making investigations or tests.

Response 3686:

The suggested change is not necessary, since paragraph 550.5(a) provides the Department with the right to inspect to determine compliance with the rules and regulations of the Department. This would include compliance with any permit issued pursuant to Part 552. Also, ECL Section 71-1305 already explicitly makes it a violation for any person to fail to comply with a condition of any permit of the Department.

Comment 3689:

Part [550.6] is not clear enough regarding a penalty schedule for violations.

Response 3689:

Penalties for violations of ECL Article 23 are provided in ECL Section 71-1307. It is not necessary to repeat the penalty amounts in regulation.

Comment 3691:

The Department should be separated from the Mineral Resources agency. This is the norm in most states and ensures that the fox is not guarding the henhouse. If the two agencies are not separated, then the environmental regulatory mission is simply reduced to preventing pollution from the wells the Department issues permits for.

Response 3691:

The comment is beyond the scope of the proposed rules and suggests an action that exceeds the Department's authority. The Department also disagrees with the characterization that regulation of oil, gas and solution mining is not compatible with the Department's other environmental protection and regulatory goals. And contrary to the assertion in the comment, it is more common for regulation of oil and gas to be an integral part of the environmental regulatory agency than to be a stand-alone entity, especially in the Northeast and the Appalachian Basin.

Comment 3692:

No department in New York State - including the Department, New York State Department of Transportation, New York State Department of Health, Office of the Attorney General, and Office of the State Comptroller - is prepared to address the regulation and taxation of shale gas industrialization; therefore, promulgating regulations under these circumstances is irresponsible.

Response 3692:

The Department disagrees. The comprehensive regulatory scheme proposed for high-volume hydraulic fracturing builds on the Department's decades of experience in regulating the oil, gas and solution mining industries.

Comment 3693:

The regulations applicable to high-volume hydraulic fracturing, including Parts 550 to 560, are not clear and coherent as required by law. They do not provide the operators, monitors, or the public with a clear indication of what is allowed and what is prohibited and, as is, will not withstand legal scrutiny and challenges.

Response 3693:

The Department disagrees with the comment. The proposed rules provide a great deal of specificity of what would be required by the regulated community. The comment does not provide any specific examples of where clarity is sought. In response to other comments that provided specific examples, and where the Department agreed that additional clarification was warranted, changes in the rules were made.

Comment 3694:

In addition to the positions identified in Part 550.2, a Statewide Hydraulic Fracturing Monitoring Committee should be appointed comprising at least one citizen representative from each of the Department regions as well as one representative each from Riverkeeper, Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, Scenic Hudson, and/or other environmental groups. The [chief] director of the Division of Mineral Resources should be an ex officio member along with the regional supervisor, the United States Environmental Protection Agency, and commissioners of the Department and the New York City Department of Environmental Protection. The committee should meet at least monthly and advise the [chief] director of the Division of Mineral Resources on actions to preserve and protect the resources of New York State with special regard to the avoidance of significant impacts on the New York City water supply system from high-volume hydraulic fracturing activities.

Response 3694:

The suggestion to form a committee is noted but is beyond the scope of the proposed rules. As to the suggestion that the committee pay special regard to the New York City water supply system, the proposed rules would already prohibit the siting of a well pad where high-volume hydraulic fracturing is planned within the New York City drinking water supply watershed as well as a 4,000 foot buffer.

Comment 4403:

In many places the definitions in the minerals regulations overlap or conflict with definitions in the water quality (Part 750) regulations. The Department should clear up inconsistencies and ensure that there is a full set of definitions in either Part 550 or 560. For example, the minerals regulations do not define reserve pit as used therein, although reserve pit is defined in the proposed water regulations (Part 750-32(44)). The proposed Part 560 definition for product conflicts with the definition in Part 550 and neither is the same as that in Part 750.

Response 4403:

The Department agrees that the definitions proposed for Part 560 and Part 750 required clarification. The final rules will be amended to provide the clarity and eliminate inconsistencies as sought in the comment.

Comment 6275:

6 NYCRR 550.3(a) should be revised to read: surface casing shall mean casing installed and cemented from the surface, through protected groundwater, to a point at least 100 feet below the deepest protected groundwater. Protected groundwater should be defined in a way that meets New York State long-term water needs.

Response 6275:

The Department disagrees with the proposed change to the definition of surface casing. The existing definitions of surface casing and potable fresh water provide a clearer indication of where surface casing should extend. The use of “protected” groundwater, as suggested in the comment, would be vague.

Comment 7790:

Part 550.2(b): As proposed, the Director of Mineral Resources would seem to have supremacy over environmental and public health issues related to oil, gas, and solution mining. At a minimum, it should be expressly stated that for those concerns, responsibility and authority is shared by other Directors within the Department or at the State Health Department.

Response 7790:

The Department disagrees both with the characterization that the Director of Mineral Resources has supremacy over environmental and health issues and the suggestion that the DOH should be granted authority in the proposed rules to regulate oil, gas and solution mining. The proposed rules would implement authority granted pursuant to ECL Article 23 and Article 23 specifically entrusts the Department, except where noted, with the authority to implement the Oil, Gas and Solution Mining Law. DOH has its own source of authority in the Public Health Law and to the extent activities permitted by the Department present public health issues, DOH’s authority is not supplanted by the fact that the Department regulates the underlying activity. While DOH serves in an advisory capacity on many issues related to high-volume hydraulic fracturing, it is not a permitting agency for activities covered by the proposed rules.

Comment 7791:

Part 550.3(s): If refracturing is included in workover operations, it should be subject to the same regulation as the original fracturing.

Response 7791:

An applicant proposing to perform high-volume re-fracturing during workover operations would be required to submit the proposed Sundry Well Notice and Report form for Department review and approval, describing the planned fracturing procedures and products, water source, proposed site disturbance and layout, and fluid disposal plans [proposed 556.6(g)]. If the proposed re-fracturing is high-volume, then it would be subject to the same environmental and operational requirements as “original” high-volume hydraulic fracturing, including the requirement for

submission of the Pre-Fracturing Checklist and Certification as described by proposed 560.6(c)(22).

Comment 7792:

Part 550.1: The regulation should be amended to add an objective that emphasizes protection of health, welfare, and the environment.

Response 7792:

The policy objectives stated in Section 550.1 mirror those in ECL Article 23 and the Department disagrees that it is necessary to add to them, as other implementing regulations repeat the broader policy goals of the Department to protect public health, welfare, and the environment.

Comment 8521:

Gas is not a mineral; although it may be contained within a mineral deposit such as the Marcellus Shale. In order to hydraulically fracture a gas bearing mineral deposit, some of the shale must first be mined (removed) for the well bore. Drilling the well bore must precede the fracturing process. Title 9 [of Article 23 New York State Environmental Conservation Law] does not define, address, or give authority for the mining of, or the extraction of minerals from shale gas formations.

Response 8521:

The Department disagrees. The comment refers to Title 9 of Article 23, however, it is Title 5 of Article 23 that directs the Department to issue a permit to drill, deepen, plug back or convert a well. The act of drilling a well is therefore authorized under both Article 23 and the Department's implementing regulations.

Comment 10057:

The safe implementation of the proposed regulations (Parts 550 to 560) outlined in the rdSGEIS this document are important, and the rdSGEIS and regulations this document will more than adequately put a system of conditions in place to mitigate the identified concerns.

Response 10057:

The comment is noted. The Department agrees that the proposed rules will mitigate potential environmental impacts identified in the rdSGEIS.

Comment 10885:

Since the GEIS, the Department has examined the regulatory experience in other states and responded to the concerns of New York City and State residents. However, based on experience

in other states, there are grave concerns on whether the Department has the resources to regulate an industry so powerful and growing in New York State.

Response 10885:

See responses to Comments 3681, 3682 and 3692.

Comment 10240:

6 NYCRR 550.2 and 750-3.2: The Department should include a definition of "downhole operation". It is undefined in the regulation.

Response 10240:

The Department disagrees that a regulatory definition of "downhole operation" is required. It is obvious by the nature of any proposed operation whether it would occur in the wellbore (i.e., "downhole") or on the ground surface.

84: Part 552, Permits to Drill, Deepen, Plug Back or Convert Wells

Comment 3770:

Part 552: The United States Environmental Protection Agency recommends that the Department clarify that additional requirements may apply for permits to drill, deepen, plug back, or convert wells that involve high-volume hydraulic fracturing operations in accordance with Part 560.

Response 3770:

Since the proposed Part 560 specifically addresses high-volume hydraulic fracturing, and proposed Section 560.1 already indicates that "each person who intends to drill, drills, or operates a well subject to this Part shall comply with this Part's requirements and with all requirements contained in Parts 550 through 558 . . ." potential well operators will have sufficient notice that an application to drill a well completed by high-volume hydraulic fracturing requires additional information beyond that required for a well subject to only Parts 550 through 558.

Comment 3773:

The proposed revisions to Part 552.1(b) require the application for a permit to drill a well be accompanied by a plat that shows the distance in feet from the well to the nearest plugged and abandoned well subject to Part 552 (if same is within one mile) and the distance in feet from the well to the nearest producing well (if same is within one mile). For directional/horizontal wells, the United States Environmental Protection Agency suggests that the Department clarify what is meant by distance in feet from the well (i.e., from the surface location of the well, the minimum distance from any portion of the well, etc.).

Response 3773:

The Department's *Application for Permit to Drill, Deepen, Plug Back or Convert a Well Subject to the Oil, Gas and Solution Mining Law* (APD), already requires applicants to indicate the proposed surface location, top of the target interval, bottom of the target interval, and bottom hole location. Therefore, well operators are already aware of the Department's requirements for a well plat that accompanies an APD. Distances are measured from the surface location of the proposed well.

Comment 3774:

Part 552.1(b): In some more densely drilled areas of the state, there may be one or more plugged and abandoned and/or producing wells that are shallower and will not be affected by the drilling and hydraulic fracturing of a new shale production well. However, there may also be deeper wells nearby (but not the closest well) that, if improperly completed or plugged, may serve as a conduit for hydraulic fracturing fluids. By only requiring the distance to the nearest plugged and abandoned and producing wells, regardless of depth, the permit applicant is not required to provide information on any nearby deeper wells. The United States Environmental Protection Agency recommends that Part 552.1(b) be amended to require the distances to the nearest wells as currently worded, but add a requirement to provide distances to the nearest plugged/producing wells completed in the same producing horizon as the planned well is targeting.

Response 3774:

The proposed revisions to Part 560.3 would require that an applicant provide the distance to any plugged, abandoned, or producing well, or non-producing well that is subject to Part 552 - regardless of depth or target formation - within one mile of a proposed ECL 23 well.

Comment 3777:

Part 552.1(b) states that "if the distance between the well and the nearest well completed in the objective pool is such that there is a possibility of violation of the spacing requirements of Parts 553.1 or 553.3, the distance between the well and the nearest well completed in the objective pool shall be measured accurately on the ground." This statement is confusing since the proposed revisions to this section eliminated the requirement to show on the plat the distance in feet from the well to the nearest well completed in the same objective pool.

Response 3777:

The proposed revisions now at Part 552 would require the distance to the nearest non-producing unplugged well (within one mile) completed in the objective pool.

Comment 3782:

For Part 552.2(c), define what is meant by the term "pursued in a diligent manner" or replace the

term with a more definitive measure such as the well must be drilled to its permitted objective or well must be drilled and either completed or plugged and abandoned, or some other definitive performance standard.

Response 3782:

Part 552.2(c) begins, “If the operations for which the permit is granted have not commenced and been pursued in a diligent manner . . .” Since the rules already require an operator to commence operations prior to expiration of the permit term, the rules already include a definitive performance standard.

Comment 3844:

Revise Part 552.2(f) (proposed express terms numbering) such that, if the Department permits the commencement of operations by verbal authority prior to the issuance of a formal permit, the notifications in Part 560.5 must be followed.

Response 3844:

The comment did not specify the notifications in Section 560.5 sought to be addressed. However, presumably the comment is referring to the notifications to the county emergency management office that are required prior to certain events on a well pad where high-volume hydraulic fracturing is planned. The Department understands the concern, however, verbal approval would not relieve an applicant of the obligations in Part 560, or any other applicable regulation of the Department.

Comment 3868:

Per Part 552, the only criterion necessary to get a drilling permit is to demonstrate that the proposed well is at least a mile away from another well. Nothing else is taken into consideration -- not water features, not existing land uses, not topography. This is indicative of the fact that, in the dual role the Department has taken on, the environmental mission is secondary. This also reinforces the need for local ordinances to keep wells out of areas where they do not belong.

Response 3868:

The commenter overlooks the fact that each APD is accompanied by an Environmental Assessment Form, which requires applicants to describe, among a host of other facts, nearby environmental resources. Department staff also conducts a field inspection prior to issuance of a permit to drill to confirm information submitted in an APD. APDs submitted for wells proposed to be completed by high-volume hydraulic fracturing would also be accompanied by the information required in the EAF Addendum, which is Appendix 6 of the rdSGEIS. The EAF Addendum contains an exhaustive list of information required for a complete APD.

Comment 3869:

Part 552: Require that no permits can be approved unless there are sufficient Department personnel to inspect, at least once a week, all aspects of related drilling.

Response 3869:

See responses to Comments 3681 and 3682.

Comment 3870:

The Department should not be in charge of issuing permits because it does not have the manpower and has a conflict of interest in its dual obligation toward protection and resource capitalization. A separate body should be established, composed of representatives from local governing bodies, the Department, the New York State Department of Transportation, and other impacted organizations. This body must be fully funded and have the authority to halt all drilling activity or permitting should funding be insufficient.

Response 3870:

The Department disagrees that a conflict of interest exists. Nevertheless, creation of a new agency, committee or regulatory body is beyond the scope of the proposed rules and beyond the Department's jurisdiction. See responses to Comments 3681, 3682, 3692 and 3694.

Comment 3871:

Revise Parts 552.1(a) and (b) to require that applications and permits are required for all activities, including deepening or plug back operations, that represent a significant change from any such activities addressed in a related permit for the well in question.

Response 3871:

The comment suggests that a new permit should be required for any significant change in activities specified in a permit issued for the same well. There are some circumstances where an entirely new permit must be issued, such as instances where the surface location has been moved more than 75 feet from the original location. In many cases, however, issuance of an entirely new permit is not the most efficient means to review and approve of a change in the permitted activity. For instance, in a case where a well operator requests approval to re-fracture a well, the Department has already approved the location and issued a permit with a set of permit conditions specific to that location. If no other part of the operation changes, it is more efficient for the Department to approve the request to re-fracture the well based on the original set of permit conditions. To accomplish this, the Department proposes to use a Sundry Well Notice and Report Form. Sundry notices are used in many oil and gas producing states, and are also used on production leases on federal land. The Sundry Form will provide an efficient means for well operators to request approval or to notify the Department of any circumstance that deviates from the permitted activity. Note that the operations which require a Sundry Well Notice and Report form are now described in Part 556.

Comment 3872:

Revise Part 552.1(b) so that plats are not allowed to be certified by a civil engineer. Under New York State Education Law Article 145, a licensed land surveyor is the only licensed professional allowed to represent parcel boundary line locations.

Response 3872:

In 552.1(b), the Department did change “civil” engineer to “professional” engineer to be consistent with the State Education Law.

Comment 3873:

Revise Part 552.1(c) to require that the owner or operator certify that there have been no significant changes at the well site in question that would impact re-fracturing operations or that might reasonably be anticipated to lead to any significant environmental impact not addressed or mitigated in the original permit for the well.

Response 3873:

The Department disagrees that the certification proposed in the comment is necessary. Well operators are currently required by Section 554.7 to submit a completion report detailing operations conducted pursuant to a permit to drill. For high-volume hydraulically fractured wells, proposed 556.2(g)(3) also provides the conditions under which the Department would approve of a re-fracturing operation and supplementary permit conditions proposed in the rdSGEIS would also require mandatory reporting of any non-routine incident. Coupled with the proposed requirement to submit a Sundry Notice to notify the Department of certain events at the well site and routine site inspections by Department staff, there are sufficient opportunities for the well operator to communicate with the Department about any circumstance that could have environmental implications.

Comment 3874:

Part 552.1(c) (new, additional subdivision (c)) states that, if a well is proposed for re-fracturing, the Department will require an application be submitted at least 15 days prior to start of work. Given the anticipated workload of drilling in the State and lack of Department staff to review applications, it is questionable whether this is adequate time.

Response 3874:

The comment is noted. However, the Department expects 15 days to be more than adequate to respond to a Sundry Well Notice for an existing well. Note that the Sundry Well Notice requirements are now found in proposed 556.2(g).

Comment 3875:

Part 552.2(c) should not be changed under the proposed express terms to allow permits to expire after two calendar years of non-operation. Permits for operations that have not commenced should expire within 180 days, as the regulation is currently stated. Similarly, Part 552.2(d) should not be changed under the proposed express terms to a two-calendar-year permit term and should remain a 180-day permit term, as the regulation is currently stated.

Response 3875:

The Department disagrees. The 180-day permit term in existing regulation required Department staff, in many instances, to issue a second permit for the same well simply because the well operator was not able to secure a drilling rig in time to commence operations prior to expiration of the 180-day permit term. As noted in the RIS, Department staff spends significant time and resources to review permit application materials, conduct pre-permit site inspections, hold hearings and issue compulsory integration orders related to permits that expire. By extending the period of time in which an operator must commence drilling activities, the Department will avoid the unnecessary expense associated with reviewing applications for a permit to drill, deepen, plug back and convert a well at a location which has already been approved by the Department. In addition, for high-volume hydraulically fractured wells, Part 560 will require well operators to develop and implement an extensive list of plans, some of which require action prior to spudding the well. These activities, like the testing of private water wells, would be difficult to complete within a 180-day window.

Comment 3876:

Part 552.2(f) (proposed express terms numbering) gives the Department the ability to allow high-volume hydraulic fracturing operations to commence without all of the safeguards involved in the permitting process to have been fulfilled. This regulation should be removed unless the rationale for, and circumstances under which, verbal authority may suffice in lieu of a formal permit are clearly laid out.

Response 3876:

The provision allowing the Department to commence operations by verbal authority is an existing provision. The Department understands the concern expressed in this comment; however, as stated in response to Comment 3844, verbal approval would not relieve an applicant of the obligations in Part 560, or any other applicable regulation of the Department. In addition, the proposed revision now requires that a complete application be on file with the Department. See response to Comment 7803.

Comment 3877:

Delete Part 552.2(f) (proposed express terms numbering). Under no circumstances should anyone be able to operate upon verbal authority and without a permit.

Response 3877:

See response to Comment 3876.

Comment 3878:

Part 552.3(a) would allow for the transfer of a permit to a new owner or operator if a requesting letter and financial security are provided. Revise the regulation to also require the new owner's/operator's plan for drilling or water and waste management.

Response 3878:

Part 552.3(a) is intended to address those instances, however rare, where a permitted well operator sells or leases their working interest in a well to another operator. The proposed rules would retain the requirement for the Department to determine if the application for re-issuance of a permit is in order prior to approval of a new operator to take over a previously permitted location. The Department agrees that the new operator will have to either adopt the previous operator's drilling and waste management plans or submit new plans consistent with Department regulations.

Comment 3879:

Gas companies should be required to submit a Geological Survey Report and other information for the specific site with their application before the Department issues a permit. The survey should include all land mass formations of the site through which the drilling will go, from top elevation to points below. The study should contain a site history of the area, containing the locations of rivers, streams, and caverns containing water. It also should describe snow melt runoff, natural flooding, or circumstances of heavy rains or hurricane activity to help assist determination of runoff through sites and site pond and trench water holding systems that will be affected. The location of area dams, reservoirs, hydroelectric power plants, mills, or any man-made engineered systems also should be identified. The report should describe effects on existing farmlands and crops, with data and samples of crops grown using chemical water, from seeds to mature product. It also should address a survey for noise disturbance that would be created by any manner of blasting, drilling, truck movement, etc.

Response 3879:

The Department disagrees that such measures are necessary. The EAF submitted with each application for a permit to drill already requires applicants to identify existing land uses within ¼ mile of the project, nearby environmental resources such as primary or principal aquifers, critical environmental areas and wetlands. The EAF Addendum, which would be required for wells completed by high-volume hydraulic fracturing, also requires identification of a host of other resources within a specified distance from the proposed well. The concerns expressed in the comment are therefore addressed by the Department's permitting process. As to the remainder of the comment, the drilling of a well subject to the Oil, Gas and Solution Mining Law does not involve blasting and potential noise impacts are addressed as a SEQRA issue in accordance with the Department's noise policy, DEP-00-1, *Assessing and Mitigating Noise Impacts*.

Comment 6287:

Industry supports the change in Part 552.2 from a 6-month to a 2-year permit term. Industry supports the need to have a longer permit term given the uncertainties associated with the length of time that it will take to obtain a drilling permit, which will prevent operators from scheduling rigs and other services until a permit is granted. A longer permit term also will allow industry to spread out development more effectively, thereby reducing the potential for short-term cumulative impacts.

Response 6287:

The comment is noted.

Comment 6289:

Part 552.1(b): The location of wells should not only be identified "on a neat plat" as noted in the proposed regulation, but also by Global Positioning System and tracked on a geographic information system maintained by the Department. This tracking system should include the condition of the well and 10-year monitoring plan.

Response 6289:

The Department's APD currently requires the applicant to identify the longitude and latitude of the surface location, top of target interval, bottom of target interval and the proposed bottom hole location. This information is keyed into the Department's oil and gas well database. It is unclear how a GPS system could track the condition of the well, or anything other than location information. The reference to a 10-year monitoring plan is also unclear since Part 552 does not address monitoring of the well.

Comment 6581:

Part 552.2(e): Remove the second occurrence of the word "may" in the first sentence. It's a typo.

Response 6581:

The typo has been corrected in the revised rule.

Comment 6585:

Part 552.3(a): Add the following sentence to the end of the section: If the operations for which the reissued permit is granted have not commenced and been pursued in a diligent manner within two calendar years from the date of reissuance of the permit, the reissued permit shall expire.

Response 6585:

The Department understands the concern, however, paragraph 552.2(c) would apply to any permit to drill issued by the Department including permits issued for a location that had been previously permitted. Therefore repeating the language in 552.3(a) is not necessary.

Comment 7795:

Part 552.1(b): The plat map should also be required to show all known seismic fractures within one mile of the well, similar to the requirement under Part 560.3 for abandoned wells.

Response 7795:

The Department disagrees that seismic fractures should be included on a plat map. The location information shown on the plat is intended to assist Department staff in determining whether a proposed well meets spacing unit and other surface setbacks.

Comment 7796:

Part 552.1(c): The regulation should require pre-fracture notice and disclosure of chemicals to be used, to both the Department and the landowner, as has been done under Wyoming's and Colorado's regulations.

Response 7796:

The disclosure provisions for hydraulic fracturing are included in proposed Sections 560.3(c) and 560.5(h) and will apply to wells completed by high-volume hydraulic fracturing. Section 560.3(c) addresses the information that must be disclosed to the Department at the time of permit application, while Section 560.5(h) addresses the information that must be disclosed to both the Department and the national chemical disclosure registry, FracFocus (www.FracFocus.org) following well completion. As specified in the provisions, all chemical constituents of hydraulic fracturing additives must be disclosed to the Department both at the time of application and following well completion, and all information disclosed to the Department will be made available to the public, except that which is sufficiently justified as trade secret in accordance with 6 NYCRR §616.

Comment 7797:

Part 552.1(e) (proposed express terms numbering): Including a provision for good cause suspension of the term of a permit is not necessary. If an exception is needed, the regulations allow for a variance. Otherwise, in the absence of criteria for what constitutes good cause, experience indicates that operators will use this regulation to "stockpile" permits and will commence operations largely in conjunction with the market price for natural gas. Such stockpiling should be discouraged.

Response 7797:

It has not been the experience of Department staff that well operators stockpile permits to drill. The time and expense of securing a permit, particularly those that will involve wells completed by high-volume hydraulic fracturing, would discourage operators from doing so. However, there is no regulatory basis to prevent a well operator from seeking a suspension of the permit term for good cause. As indicated in response to Comment 3875, Department resources are wasted if Department staff must re-review a location and re-issue a permit for a location and plan that was previously approved.

Comment 7798:

Part 552.3(a): Reissuance of a permit to a different operator should be allowed only if that operator is not the subject of a sanction under Sec. 750-3.20. Research across several states indicates that operators do not pay much attention to penalties unless they interfere with their access to producing wells. Therefore, one of the few effective enforcement mechanisms is to prevent an operator who is not in compliance with the regulations from getting new well permits. This subsection provides an appropriate place for such an enforcement mechanism.

Response 7798:

See response to Comment 3109.

Comment 7799:

Part 552.1(b): The required plat should include the location and distance of private water wells within 1,000 feet and 2,000 feet of the proposed natural gas well.

Response 7799:

The Department disagrees, as the locations and distances of private water wells within 1,000 feet (or 2,000 feet if none are within 1,000 feet) of a gas well proposed to be completed using high-volume hydraulic fracturing would be provided on a Department-prescribed form as part of the EAF Addendum.

Comment 7800:

Part 552.1(a): Operations less than a true vertical depth of 500 feet should not be excluded from these requirements.

Response 7800:

ECL 23-0305(14) expressly limits the Department's jurisdiction under the Oil, Gas and Solution Mining Law to geothermal, stratigraphic and brine disposal wells drilled deeper than five hundred feet. Therefore, the change suggested in the comment is beyond the Department's jurisdiction.

Comment 7801:

Part 552.1(c): The Department's Sundry Well Notice and Report Form could not be found in the public domain. Also -- the regulation should specify what information is required of the applicant and what procedures are required of the Department prior to approval to refracture.

Response 7801:

The form would be a new form for the Department; it is not yet publically available. Instructions included on the form will provide the necessary guidance to the regulated community on how to obtain approval for a re-fracturing operation. However, note that the proposed rules included paragraph 556.2(g)(4), which would apply to wells completed by high-volume hydraulic fracturing.

Comment 7802:

Part 552.2(e): Both "on its own motion" and "good cause" should be defined or explained. This should be modified to reduce the temporal impacts on the lessor and surrounding landowners.

Response 7802:

“On its own motion” means that the Department can decide to suspend the term of a permit. To clarify the intent of the regulation, the word “initiative” replaced the word “motion.”

Comment 7803:

Part 552.2(f) should clarify what unusual or emergency circumstances would warrant issuance of verbal permission to commence operations prior to the issuance of a formal permit.

Response 7803:

Part 552.2(f) has been amended to indicate that verbal permission could only be given if an application is complete and the owner and operator are in full regulatory compliance with the provisions of Parts 550 through 560. This provision is intended to save time in emergency situations such as remedial operations or the drilling of an offset well during a blowout situation.

Comment 7804:

Part 552.3(a): A permit being "reissued" implies that the timeframe for completing operations under that permit would be "reset." If true, that should not be the case; the new operator should be obligated to comply with the timeframes of the original permit without an extension.

Response 7804:

The Department agrees. The intent of the regulation is that a new permit would be issued based on the same terms as the permit originally issued for the same location. Since re-issuance of a

permit would not be subject to a new permit fee, the Department does not intend to spend staff time and resources reviewing a modified application.

Comment 7805:

Part 552.1(b): The regulation should be revised to require that, before any drilling permit is issued, a gas/drilling company must conduct a survey to identify any abandoned wells within the proposed horizontal drillbore length and adjacent fracturing zone plus 2,500 feet and, where any abandoned well is identified, the gas/drilling company must verify that such well has been effectively plugged.

Response 7805:

The proposed 552.1(b) would require an applicant to identify the distance in feet to the nearest plugged and abandoned well on the well plat submitted with an APD. The comment suggests that all abandoned wells within a stated distance should also be included on the plat. Proposed 560.3(a)(8) would require permit applicants to identify any abandoned wells within the proposed spacing unit and within one mile of the proposed surface location. However, the information collected on the well plat pursuant to Part 552.2 serves a different purpose than the information that would be collected pursuant to proposed Part 560, which is limited to wells where high-volume hydraulic fracturing is planned. The purpose of the well plat is to assist the Department in determining whether the proposed well meets well spacing setbacks, not to determine whether the proposed well at target depth may communicate with previously abandoned wells. Part 552.2 also applies to all Article 23 wells and the Department disagrees that all well plats submitted to drill an Article 23 well should reflect the same amount of information required of wells subject to Part 560.

85: Part 553, Well Spacing

Comment 4220:

Part 553.1: The initial well spacing of 640 acres for horizontal wells can be reduced by the Department down to 40 acres. As an oil or gas field is developed the well spacing decreases, so the 640-acre spacing for horizontal wells is likely to decrease, meaning more well pads on increasingly tighter spacings. This could effectively ruin surface uses. Even a spacing of 640 acres is too dense. 640 acres per well pad should be considered a least restrictive spacing that is applied in areas with minimal environmental impacts. More restrictive standards should be applied as necessary in forested and other areas with ecosystems that are sensitive to fragmentation.

Response 4220:

The statewide spacing requirements found ECL Article 23, Title 5 were adopted by the Legislature in 2005. In 2008, Title 5 was amended to provide statewide spacing options for oil wells and for shale gas pools at any depth targeted by either vertical or horizontal wells. Proposed Section 553.1 is intended to promulgate, almost verbatim, the statewide spacing provisions found in the statute in order to update the concept of statewide spacing in the regulations to conform to the statewide spacing unit sizes adopted by the Legislature in 2005. Pursuant to ECL Article 23, Title 5, a well operator is not obligated to develop a 640 acre unit, as suggested in the comment, since the size of the spacing unit depends, in part, on the amount of acreage under lease.

The comment is correct that a 640 acre spacing unit for a horizontal well can be reduced by the Department in the event that a well operator does not fully develop the entire spacing unit with infill wells. It is also correct that limitations on the size of a spacing unit may lead to an increase in the number of well pads constructed overall provided the acreage excluded from a reduced spacing unit contains natural gas capable of being produced. ECL Article 23 provides the Department with the ability to reduce the size of the spacing unit in order to protect the correlative rights of owners in the spacing unit whose acreage may be held by production by the first well drilled in the unit. Without this authority, which is provided in statute, a well operator could hold acreage by production but never produce the natural gas in a timely fashion, preventing mineral rights owners from receiving either their proportionate share of production or a royalty. Mineral rights owners would also be prevented from either drilling their own wells or leasing their rights to another operator. As to the concerns expressed in the comment about fragmentation of the land, the SEQRA process provides the means to address the environmental impacts associated with construction of additional well pads.

Comment 4222:

Part 553.1: The spacing units are too small and will result in a well density that has too much environmental impact on communities and rural residents. Alternative spacing suggestions include: 1) A spacing unit of 25 square miles for one multi-well pad for horizontal wells, where the number of wells per pad is limited to six, with each less than a mile long. 2) A spacing unit of 10 square miles for single vertical wells. 3) No further infill wells should be allowed past initial spacing. 4) Not more than one well platform in a one square mile area. 5) Not more than one well platform in a three square mile area. 6) Only one well pad per unit.

Response 4222:

See response to Comment 4220. Statewide spacing unit sizes are provided in statute and when the Department find that a proposed unit meets regulatory setbacks and would provide for orderly development of the resource, a permit must be issued by the Department. If an operator proposes a unit that does not meet the default statewide spacing options found in the statute, the non-conforming unit hearing process is available to determine whether the proposed unit should be approved. The comment suggests that the Department should alter the spacing options for all horizontal and vertical wells. However, the suggested changes would conflict with the statutory language adopted by the Legislature.

Comment 4223:

Part 553.1: Establishing a well spacing requirement of 640 acres will result in much of the natural gas resource being unutilized or the use of numerous fill in wells that would create more disturbance to the environment.

Response 4223:

The Department disagrees that a spacing unit size of 640 acres will result in greater surface disturbance. In fact, the opposite is true. Improvements in drilling technology make it possible to drill longer horizontal distances and the ability to co-locate wells means a greater amount of the resource can be accessed on a fewer number of well pads. In addition, pursuant to ECL Article 23, Title 5, a well operator is not obligated to develop a 640 acre unit, as suggested in the comment.

Comment 4224:

Part 553.1(a)(6): The citation subdivision 4 of section 23-0503 of [Environmental Conservation Law] is incorrect and should be Section 23-0503.4. This error occurs in other places as well.

Response 4224:

The comment is correct that paragraph 553.1(a)(6) contains a citation error, but not the one indicated in the comment. Proposed paragraph 553.1(a)(6) is taken verbatim from ECL 23-0501(1)(b)(1)(vi), which includes a cross-reference to “subdivision 4 of section 23-0503 of this title. . .” On transcription into the proposed rule the reference to “subdivision 4 of section 23-0503 of this title” should have been changed to “subdivision c of this section” so that the reference pointed to the appropriate text in the regulations.

Comment 4226:

It is not clear in Part 553.1, which allows for a denser drilling pattern for vertical wells, whether those wells would be allowed to be converted to horizontally fractured wells at a later date. If so, this could prove to be a loophole for drillers to drill more wells than anticipated in the rdSGEIS. This should be clarified in the regulations.

Response 4226:

Pursuant to Section 552.1, any well plugged back or deepened to a new producing horizon of a pool requires a separate permit to drill. This includes any horizontal well drilled using the vertical portion of an existing wellbore. With each application for a permit to drill, the Department must evaluate and approve the proposed spacing unit to determine whether the unit meets with the policy objectives of Article 23 and the detailed requirements provided in the statute. The Department disagrees that a plug back or deepening of an existing vertical well with a horizontal wellbore is a regulatory loophole, as it is commonplace and environmentally desirable for a well operator to re-use an existing well pad, rather than drill from a new location. As to the suggestion that well operators could drill more wells than anticipated in the 2011

revised draft SGEIS, the draft did not contain any restrictions on the number of wells that could be drilled. Instead, the 2011 revised draft considered different rates of drilling in order to describe the potential significant adverse environmental impacts associated with different drilling scenarios.

Comment 4227:

Part 553.1 contains no mention of proximity to natural resources but rather references unit boundaries. Revisions should be included to prevent unreasonable well density in or proximate to sensitive environmental areas including but not limited to wetlands and any natural resource with a hydraulic linkage to the New York City water supply system. Well spacing also should take into account scaled distance from the proposed surface location of the well and the closest edge of the proposed well pad to any primary or principal aquifer boundary, perennial or intermittent stream, wetland, storm drain, lake, or pond within 660 feet, and any surface water body within 660 feet that is a tributary to a public drinking water supply.

Response 4227:

The comment appears to equate spacing unit boundary setbacks from setbacks for the wellbore. Spacing unit setbacks are designed address the distance from other wells and spacing unit boundaries, not the distance from the well to environmental resources of concern. Wellbore setbacks and setbacks from well pads that address environmental concerns can be found in Part 553 and proposed Section 560.4.

Comment 4228:

In Part 553.1, change 330 feet to 3,000 feet or more anywhere that “330 feet” occurs.

Response 4228:

The Department disagrees that the change is necessary. However, since Section 553.1 would promulgate language adopted by the Legislature, altering the Legislature’s regulatory language is beyond the Department’s authority.

Comment 4229:

Part 553.1: Shale gas is not in a pool; therefore, the terminology in the regulations needs to be changed. This should probably refer to the drilling unit.

Response 4229:

The reference to shale gas pools appears in ECL Article 23 and it is beyond the Department’s authority to unilaterally change the words adopted by the Legislature. “Pool” is also defined in regulation at 550.3(ah) as “an underground reservoir containing a common accumulation of oil and gas or both. Thus each zone of a structure which is completely separated from any other zone in the same structure is a pool.” The definition of “pool” therefore adequately describes gas recoverable from shale formations.

Comment 4230:

Setbacks and measured distances addressed by Part 553 should be required to be measured with respect to the edge of the well pad, and not the well bore, in order to be consistent with the rdSGEIS and other portions of the regulations.

Response 4230:

In some cases it is appropriate to impose a setback from the wellbore and in other cases a setback should be measured from the well pad. Setbacks included in proposed Section 560.4 are measured from the well pad because the setback is intended to address multi-well pads where high-volume hydraulic fracturing is planned. The Department expects most high-volume hydraulically fractured wells will be sited on multi-well pads. Part 553 applies to all ECL Article 23 wells.

Comment 4231:

Revise Part 553.2 such that setbacks from the edge of the well pad are increased. Suggestions include: 500 feet from homes and public buildings, 1,000 feet from homes whose owners did not sign a lease, 1,000 feet from schools, 2,000 feet from any water body, and 5,000 feet from residential and municipal well water sources.

Response 4231:

See response to Comment 4230. The revised proposed rule does, in Part 560.4, include an increase in the setback for inhabited private dwellings and places of assembly to 500 feet for wells where high-volume hydraulic fracturing is planned.

Comment 4232:

Part 553.3(a): The Department should not allow any spacing units for shale gas in which people have been compulsorily integrated. The original reason for forcing people in was so gas would not be extracted from under them without their being compensated. But since you cannot extract shale gas without trespassing under people's property, the reason for forced pooling does not exist and should be removed.

Response 4232:

The commenter appears to misunderstand the concepts of well spacing and compulsory integration. Spacing units, created by issuance of a permit to drill or by order of the Department, establish the acreage assigned to a given well. Once the spacing unit is established, any unleased mineral rights in the unit are addressed through the compulsory integration process. Therefore, the suggestion in the comment that the Department should not allow spacing units in which people have been compulsorily integrated has the order reversed. It is also incorrect to equate gas production in a forced pooled unit with a trespass. A compulsory integration order, pursuant

to ECL 23-0901(3)(c)(1)(ii)(f), specifies that all well operations conducted on any portion of spacing unit shall be deemed for all purposes the conduct of such operations upon each separately owned track. Therefore, the drilling of a well on any portion of an integrated spacing unit is permitted by statute. Nevertheless, as the proposed paragraph 553.3(a) is a verbatim recitation of ECL 23-0503(2), no changes were made as a result of the comment.

Comment 4234:

Parts 553.3 and 553.4: Exceptions, modifications, or variances to the statewide spacing requirements should not be allowed under any circumstances. The public has a right to know the maximum well density they will be subjected to and not have it changed in the future at the discretion of the Department or others.

Response 4234:

The commenter should note that the statewide spacing unit sizes listed in subdivisions 553.1(a) and (b) are not among the list of spacing options where a variance is available in 553.3 and 553.4. Since the default statewide spacing units are specified in the statute, it is not within the Department's discretion to issue variances from the spacing unit sizes. ECL 23-0503(3) provides the applicant with the means to propose a non-conforming unit that does not meet statewide spacing requirements. The Department must first conduct a technical review to determine if issuance of the well permit meets the policy objectives of Title 3 of Article 23.

Comment 4235:

Parts 553.3(e) and 553.4: If exceptions, modifications, or variances are allowed, all parties in the spacing unit, as well as local government, should be required to be notified in writing of any variance request and given at least two months to comment on it after they have been notified. Putting it in the environmental notice bulletin is akin to hiding it and circumvents public comment.

Response 4235:

The Department disagrees that publishing a public comment period in the Environmental Notice Bulletin is akin to hiding the public comment period. Proposed subdivision 553.4(a) already specifies that the owner or operator must also provide notice of the public comment period by publication. The Department disagrees with the suggestion that at least two months should be given to affected individuals and local government. The variances that would be allowed under proposed subdivision 553.4(a) are limited to wells exempt from statewide spacing and the wellbore setbacks provided in Section 553.2.

Comment 4236:

Part 553.3(e) (proposed express terms new subdivision (e)): Define the term "reasonable opportunity" and the process of ensuring that affected persons are notified if a hearing is not involved.

Response 4236:

The language proposed for subdivision 553.3(e) is identical to language included in ECL 23-0305(6). The length of the comment period needed for modification of a previously established spacing unit will depend on the circumstances, however, in the past the Department has provided affected persons with 30 days to comment on a proposed spacing order.

Comment 4238:

Part 553.4(a) should be revised. The current wording appears to take decision-making authority away from the Department and forces it to issue a permit if the public does not comment. The Department should be allowed to raise its own issues and be required to make a finding of no significant impact even in the absence of any public comments or comments that do not raise substantive and significant issues.

Response 4238:

The Department understands the concern since the words “Where in its opinion there exists good and sufficient reason to permit an exception to the well spacing provision . . .” will be deleted. However, the proposed rule will now begin, “The department may permit reasonable well location variances. . .” Therefore, the granting of a variance will require the exercise of discretion and issuance of a variance will not be mandatory.

Comment 4239:

For Part 553.4, the terms for variances to well spacing and the notification requirements for proposed variances are not clearly specified. Well spacing variances should not be granted until all impacts, including effects on air quality, noise in the area, roads, and the possible impact of the structure of neighboring gas well casings, have been evaluated.

Response 4239:

The specific purpose of the public comment period specified in Section 553.4 is to elicit comments on the request for a variance from either the unit setbacks for wells exempt from ECL 23-0501 or the wellbore setbacks provided in Section 553.2. This process is separate and distinct from the technical and environmental review of the APD.

Comment 6308:

New York State has created a detailed statutory scheme for spacing and compulsory integration to promote the greater recovery of the resource and protect correlative rights. See Environmental Conservation Law (ECL) Article 23, Title 5. ECL 23-0503(2) authorizes the issuance of permits to drill wells if a proposed spacing unit conforms to statewide spacing and is of approximately uniform shape with other spacing units within the same field or pool, and abuts other spacing units in the same pool, unless sufficient distance remained between units for another unit be

developed. For the more uniform plays like the Marcellus and the Utica, this is likely to require relatively uniform rectangular-shaped abutting units in order to avoid gaps in the development of the resource. The Part 553.1(a)(6) requirement that all horizontal wells be drilled from the common well pad within three years of the date the first well in the unit commences drilling may be unrealistic. The same is true for the 553.1(c) requirement that infill wells deemed necessary must be drilled within three years from the date the first well in the unit commences drilling. Industry recommends that Part 553.1(c) be more flexible to accommodate potential legislative changes and, therefore, should be amended to read as follows: In a spacing unit established pursuant to paragraph (6) of subdivision (e) of this section, infill wells shall be deemed necessary to satisfy the policy objectives of Part 550 of this Title.

Response 6308:

The Department agrees with this comment and the proposed regulations have been revised accordingly.

Comment 6309:

Industry recommends that should the Department decide not to allow waivers from the final prohibitions and spacing requirements [listed in 6 NYCRR Part 553], the variance provisions of 553.4(a) should be expanded to include variances from certain of these requirements and prohibitions and other substantive requirements where waivers are not allowed.

Response 6309:

As proposed, Section 553.4 would provide the means to obtain a variance from the spacing requirements listed in Part 553 except in the case of statewide spacing units established by ECL 23-0501(1)(b). Pursuant to ECL 23-0503(3), any proposed unit that does not meet statewide spacing requirements is subject to the similar, but not identical, non-conforming unit process provided in the statute.

Comment 6605:

Part 553.1(c) should be revised to state: The department may issue permits to drill infill wells on a reasonably uniform pattern within the spacing unit after an integration order has been issued, if required, and only if it determines that drilling infill wells is necessary to satisfy the policy objectives of Part 550 of this Title. The distances from the unit boundaries set forth in this section shall apply to any infill wells. For purposes of this section, new lateral wellbores drilled from the original wellbore in the unit are not considered infill wells if they are drilled prior to the first product sales from the original surface location. In a spacing unit established pursuant to paragraph (6) of subdivision (e) of this section, infill wells shall be deemed necessary to satisfy the policy objectives of Part 550 of this Title.

Response 6605:

See response to Comment 6308.

Comment 6606:

Part 553.3(c) (proposed express terms numbering): change the word "promulgated" to "issued."

Response 6606:

The Department agrees with the suggested change and the final rule was amended to clarify the intent of the regulation. "Promulgated" was used in subdivision 553.3(c) since it appeared in existing subdivision 553.3(b), which will be the new 553.3(d). For consistency, both instances of the word have been changed in the revised proposed rule. The Department also changed "Title" to "Part" for clarity.

Comment 6607:

Part 553.4(a): Revise the first sentence to: [Where in its opinion there exists good and sufficient reason to permit an exception to the well spacing provision of section[s] 553.1, 553.2 and 553.3 of this Part, t] T he department may permit reasonable well location [exception] variances to the well spacing provisions of subdivisions (d) and (e) of section 553.1, sections 553.2 and 553.3 of this Part, and the requirements of Part 560 (to the extent that waivers are not available to the operator), in order to [which will] protect correlative rights and prevent waste."

Response 6607:

The Department agrees that waivers to Part 560 should be available under specific circumstances, and the regulations have been updated accordingly.

Comment 6608:

Part 553.4(b): Add the following sentence to the end of the section: "Any such hearing shall be scheduled as expeditiously as possible consistent with the requirements of the ECL."

Response 6608:

ECL 23-0501(3) obligates the Department to take actions as expeditiously as possible, however this subdivision doesn't expressly apply to hearings on a spacing variance request since it is limited to titles 7 and 9 of ECL Article 23. Nevertheless, the Department endeavors to schedule all hearings required by ECL Article 23 as soon as possible.

Comment 7806:

Part 553.2: In light of the increased setbacks contained in portions of these proposed rules, this section needs to be amended to reflect those changes. The minimum setback from any stream, river, other body of water, or private water well needs to be at least 3,000 feet. Furthermore, the setbacks listed here for public buildings and dwellings do not meet the minimum socially necessary distance to prevent conflict between appropriate surface uses and production of gas or

oil. Other states have larger setbacks that could be looked to for guidance as to the appropriate setback distance; for example, California's recommendation for industrial facilities is a quarter-mile setback from public buildings in order to maintain air quality.

Response 7806:

Part 560 proposes additional setbacks for wells completed by high-volume hydraulic fracturing.

Comment 7807:

Part 553.3(e) (proposed express terms numbering): In light of the addition of new language referring to notice and comment for "affected persons," there needs to be a definition of who an "affected person" is. The controversy around downspacing in other states shows that this zone of who is affected must include landowners and local governments, at a minimum. Also, the regulation needs to define what a "reasonable opportunity to comment" is; that is, what kind of notice is necessary and how it should be provided.

Response 7807:

A modification to spacing unit boundaries would occur after a permit to drill is issued, so unless local government controls mineral rights in the spacing unit, the Department disagrees that local governments should be considered affected persons. As to the portion of the comment seeking a definition of a "reasonable opportunity to comment", see response to Comment 4326.

Comment 7808:

Part 553.2: The regulation should be revised to establish a minimum setback distance of not less than 300 feet, measured on the surface but extending subsurface to preserve the fee simple ownership of all subsurface rights, for all drilling and all ancillary activities, from the boundary lines of all parcels containing a residential structure, a school, or any public building.

Response 7808:

The proposed regulations did not include a change to Section 553.2 and the Department disagrees that the change suggested in the comment is necessary. If a surface owner also controls the mineral rights to their land, they can simply protect their real property interests by not signing a lease.

Comment 7809:

Part 553.1(c): Parts 553.1(a)(6) and (7) document spacing requirements based on the commitment of operators to drill/not drill infill wells. The regulations should clarify how these requirements align timing-wise and procedurally with the requirements of Part 553.1(c). For example, how would these requirements be managed in gas fields with existing wells, such as Chautauqua County?

Response 7809:

Subdivision 553.1(c) indicates that infill wells are deemed necessary for spacing units created pursuant to 553.1(a)(6). The number of infill wells needed will vary widely since the spacing unit size could be any size up to 640 acres +/- 10% for a horizontal well. ECL Article 23 requires well operators to drill all infill wells in a spacing unit created for a horizontal shale well within three years of the date the first well in the unit commences drilling. The concern expressed about existing gas fields in Chautauqua County is unclear, as the existing statutory 3-year infill requirement applies only to shale wells.

Comment 10942:

The Department's Proposed Regulations modify existing drilling regulations in ways that make drilling operations subject to even less public and regulatory oversight. For example, applications for well spacing variances formerly automatically required the Department to schedule a public hearing on the variance; under the Proposed Regulations, the default is for the Department to grant the variance request, and a public hearing would only be scheduled if, after a 15 day comment period, the Department determined that substantive and significant issues were raised. The Department's Proposed Regulations severely limit the role of public participation and also limit Department authority to review major drilling operation decisions before they are made.

Response 10942:

The only difference between the existing and proposed regulations is that a public comment period will provide an opportunity for the Department to receive comments on the application before scheduling a hearing and Department staff will be provided an opportunity to determine whether a hearing is even necessary. Holding a public comment period prior to scheduling a hearing would also make the process of reviewing variance requests consistent with the public notice and hearing requirements found in other parts of ECL Article 23, such as 23-0503(3) and 23-0503(6).

86: Part 554, Drilling Practices and Reports

Comment 3786:

Part 554.1(c)(1) should be revised to state that contingency plans must be submitted to the Department for the disposal of wastewater if the primary method of fluid disposal is a publicly-owned treatment works (POTW), to be consistent with Section 1.7.9 of the rdSGEIS.

Response 3786:

The Department agrees that a contingency plan should be required for every well that is high-volume hydraulically fractured. However, Part 554 applies to all wells regulated under ECL Article 23 and it would be unreasonable for an operator of a geothermal well, for example, to have to prepare a contingency plan for the minimal amount of fluids that may require disposal

following completion of drilling operations. The Department's discretion is necessary and the proposed rules would clarify that failure to obtain approval of an operator's proposed plan would serve as a basis for the Department to require preparation of a contingency plan. See also Response to Comment 3441 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations.** .

Comment 3787:

Parts 554.1(c)(2) and (3) should be modified to prohibit the on-site storage of brine and salt water and require that all drilling mud reserve pits be lined to reflect current Department on-site fluid storage requirements.

Response 3787:

The change suggested in the comment would remove an operator's ability to maintain fluid storage for recycling purposes. Additionally, existing regulation at Part 554.2 states that the standard for all pits, regardless of construction, is watertight as to prevent escape of any fluids.

Comment 3788:

Part 554.4(c) seems to allow operators to not use blowout equipment in areas where subsurface formations and pressures have been reasonably well established by prior drilling practice if it is in accordance with established local practice. Yet Section 5.2.1 of the rdSGEIS states that Part 554.4 requires blowout equipment to be maintained and in proper working order during operations with no such caveat mentioned. Part 554.4(c) should state that blowout equipment is always required.

Response 3788:

The Department did not propose any revisions to Part 554.4. Part 554 applies to all wells regulated under ECL Article 23 and it would be unreasonable and/or impractical for an operator of a geothermal, monitoring or shallow oil well where subsurface pressures have been well established to require the installation of blowout prevention equipment. Proposed Part 560 require the use of blowout prevention equipment in every instance for high-volume hydraulically fractured wells.

Comment 4233:

Parts 554.1(a) and (b) are completely inadequate and must be set out in detail and the public allowed to comment on them.

Response 4233:

The Department disagrees. A general statement prohibiting pollution by wells addresses a broad range of potential issues and is an effective enforcement tool when a specific activity is not addressed in the regulations.

Comment 4319:

The Drilling and Production Waste Tracking Form, as required by Part 554.1 (and addressed in rdSGEIS Appendix 10 item 53), with original signatures should be retained indefinitely by the Department. This might become valuable information if any improprieties are discovered in the future.

Response 4319:

The Department maintains records in accordance with a records retention policy and will take such comments under consideration when setting the timeframe for disposal of Department records.

Comment 4592:

Part 554.1 states that a plan for the disposal of brine, salt water, or other polluting fluids be prepared and submitted to the NYSDEC for approval. However, drilling muds are not expressly mentioned or included in the assessment of polluting fluids. Drilling mud can contain water, bentonite, polymers, caustic soda, barite, and oil. Considering the negative impact some of these chemicals can have on water quality and aquatic life if released into the environment, the United States Fish and Wildlife Service recommends that drilling muds be included in any plans that cover proper containment, transportation, treatment, and disposal, and that the proposed regulations be revised accordingly.

Response 4592:

The proposed rules contained a bracket around the sentence in existing paragraph 554.1(c)(1) which read: "For purposes of this subdivision, drilling muds are not considered to be polluting fluids". The brackets indicated the Department's intent to delete this sentence to clarify that the fluid disposal plan must address the disposition or disposal of drilling muds. The comment's recommendation was therefore part of the proposed rulemaking.

Comment 4594:

Regarding Part 554.1: we agree with the proposed revisions to this part including the requirement for the operator to submit and receive approval for a plan for the environmentally safe and proper disposal or beneficial re-use of drill cuttings on-site or off-site before a permit is issued.

Response 4594:

The comment is noted.

Comment 4595:

The requirements in Part 554.1(c)(1) are too vague for the importance of this topic. While requiring that the well permit applicant furnish a plan to show how fracturing waste will be disposed of, there is no objective standard proposed for "environmentally safe and proper ultimate disposal of such fluids." In most states, that would mean put into a disposal well, but there are no disposal wells in New York State. The proposed regulation refers to the "sensitivity of the surrounding environment to the polluting fluids," implying that ultimate disposal could consist of dumping the fracturing waste on-site. Because in hydraulic fracturing the produced water is stored in open pools prior to being disposed of, this regulation should read -- the operator must submit and receive approval for a plan for the environmentally safe and proper immediate storage and ultimate disposal of such fluids. The regulation also does not specify allowable levels and limits for the different chemicals that will be in the wastewater. This vague language underscores the concern that there is no economically and environmentally responsible way to get rid of the billions of gallons of wastewater that would be produced by shale gas industrialization.

Response 4595:

The Department disagrees that the 554.1(c)(1) is either vague or underscores that no responsible disposal options are available to well operators. Paragraph 554.1(c)(1) simply outlines some of the considerations that may be relied on by the Department to approve a fluid disposal plan. The Department must also correct the statement in the comment that "produced water is stored in open pools." For several years now, the Department's proposed supplementary permit conditions for wells completed by high-volume hydraulic fracturing have proposed that flowback be directed to tanks. The storage of production brine in on-site pits has also been prohibited in New York since 1984.

Comment 4596:

Part 554.1(c) should be revised to also address the following: Contaminated filter sludges from radium removal from flowback water will require proper disposal. The Department should also require that the aquifer be tested for concentrations of hydrocarbons, arsenic, mercury, total dissolved solids, and radium before well drilling commences so that a baseline of background concentrations is known and the Department will know whether gas well drilling and production have contaminated an aquifer.

Response 4596:

The Department recognizes that wastes produced from the treatment of production brine must be addressed since the treatment of production brine may result in processed and concentrated naturally occurring radioactive material (NORM). However, filter sludges created by treatment of production brine are not generated at the well site, but at an off-site facility. The disposal of processed and concentrated NORM is regulated under 6 NYCRR Part 380, rather than Part 554. The Department also disagrees that the rules which apply to all ECL Article 23 wells should be

amended to require baseline testing of aquifers. The proposed rules in Part 560 would prohibit the siting of high-volume hydraulically fractured wells in some aquifers and a stated buffer, and would require baseline testing of private water wells.

Comment 4597:

For Part 554.1(c)(1), drilling muds should be considered polluting fluids, and perhaps even hazardous waste, and should not be exempt from the requirement to be disposed of in an environmentally safe and proper way.

Response 4597:

See response to Comment 4592.

Comment 4598:

Drill cuttings are addressed in Part 554.1(c)(4), where it states that an operator must receive approval of a safe and proper disposal plan or beneficial re-use plan for the material. The United States Fish and Wildlife Service has concerns about approving beneficial re-use of cuttings that may contain elevated levels of naturally occurring radioactive material (NORM) without prior proper testing and reporting. Prior to the removal or disposal of drill cuttings, the Department should require adequate testing for NORM and report the results to the public, including adjacent landowners. The Department Mining Database may be an appropriate repository.

Response 4598:

The comment is noted. The Department evaluated the potential for NORM to exist in drill cuttings and found that it is processing activities that have the potential to accumulate NORM that requires regulatory oversight. The approval process for beneficial use of a waste material is addressed by 6 NYCRR Part 360 and any application for a beneficial use determination would need to contain analytical data supporting the request.

Comment 4599:

The word "unreasonably" in Part 554.5(a) is too vague and needs to be defined. As well, the permit should be modified if major changes are desired.

Response 4599:

The Department disagrees that the word "unreasonably" is too vague and needs to be defined. Staff will review the "as drilled" wellbore to determine that well spacing requirements for the unit have been met. The Department will require modification of the unit or possibly order the well plugged should the well be drilled in violation of the well spacing requirements.

Comment 4600:

For Part 554.7(d): A Department inspector should be on hand to observe the sample drill cuttings collected in every case.

Response 4600:

The Department disagrees that staff should have to witness the collection of drill cuttings.

Comment 4602:

For Part 554.7(e), no information from the completion report and well log and drill cutting samples should be considered confidential. The information also should be made available on the Department website within two days.

Response 4602:

ECL 23-0313 specifically addresses the confidentiality of information related to regulated wells and the Department implements this aspect of the Oil, Gas & Solution Mining Law accordingly. A change in the accessibility of well records by the public would require legislative action.

Comment 5798:

Secondary containment requirements for fuel tanks should extend to all hydrocarbon drilling and high-volume hydraulic fracturing operations in New York State. The requirements should not be limited to shale gas drilling and high-volume hydraulic fracturing operations. These recommendations should be captured in 6 NYCRR 554.

Response 5798:

Proposed Part 560.6(b)(1)(i) would require secondary containment for fueling tanks for high-volume hydraulic fracture operations in New York.

Comment 6343:

Section 554.5(a) should be clarified as to what unreasonably means where the bottom hole assembly is lost in the hole and a sidetrack is needed. Industry recommends that the requirement for the Department to approve a proposed modification to the well's path and/or bottom hole location be modified so as to permit verbal approval in order to facilitate operations. Specifically, Industry recommends that the following sentence be added to proposed amendment to 554.5(a): For good cause shown, verbal approval may be granted in response to emergency or unforeseen circumstances.

Response 6343:

See Response to Comment 4599. The Department disagrees that the proposed language is necessary. Proposed 556.2(g) would provide the requested authority for verbal approval of

operations that normally require pre-approval based on a Sundry Well Notice and Report form filed by the operator. The Department will consider the operator's justification for these modifications prior to approval and may require additional information to determine the need for modification.

Comment 6361:

A recommendation for this section is to streamline surface casing regulations by amending the regulations to include requirements contained in the 2011 rdSGEIS and standard stipulations. The Department has included some, but not all, of these requirements in the regulations. However, there are a number of inconsistencies between the permit conditions and the regulations. Additionally, there are a number of new surface casing requirements proposed for high-volume hydraulic fracture wells that are standard industry best practices for all oil and gas wells. These requirements should be included in Part 554 (drilling practices for all oil and gas wells) and not contained just in Part 560 (drilling practices for high-volume hydraulic fracture wells). Nor should these requirements be found just in permit conditions (permit conditions should be reserved for site- and project-specific requirements). Part 554.1(d) should be revised to require the surface casing setting depth to be at least 100 feet below protected groundwater for all wells, or the Department should provide a technical justification for reducing the setting depth to 75 feet for some wells. Parts 554.1(d) and 554.4(a) should be combined or at least be consistent to require the surface casing setting depth to be at least 100 feet below protected groundwater. The regulations should require the protected groundwater depth to be estimated in the drilling application to aid in well construction design, and require the protected water depth to be verified with a resistivity log or other sampling method during drilling. If the protected water depth is deeper than estimated, an additional string of intermediate casing should be required. Additionally, the regulations need to be clear on whether their purpose is to protect potable fresh water only or a broader definition of protected groundwater, which would result in surface casing being set deeper. Part 554.4(b) should be revised to be consistent with the proposed rdSGEIS Appendix 8 and 9 permit conditions and Appendix 10 best practices for high-volume hydraulic fracturing. If cable tool drilling is anticipated for New York State, Part 554.3 should be revised to require these wells be constructed to the same quality standards as wells drilled with rotary drilling equipment. Part 554.1(c)(1) should be revised to require a more robust waste management planning and oversight process, including detailed instructions on collection, testing, transportation, treatment, and disposal of waste.

Response 6361:

Part 554 applies to all wells regulated under ECL Article 23 and it would be unreasonable and/or impractical for an operator of a geothermal, monitoring or shallow oil well to comply with the same requirements placed on high-volume hydraulically fractured wells. The Department currently has a 75-foot depth of setting surface casing below the deepest fresh water zone encountered or 75 feet into competent bedrock, whichever is deeper. The casing depths proposed in the drilling application must take the depth to base of fresh water into account. Per existing regulations, the surface casing setting depth requirement is below potable fresh water. The waste disposal plan will be reviewed by Department staff to determine its adequacy and completeness.

Comment 6362:

The recommendations listed in the Surface Casing Analysis Table (Appendix A to the Harvey Consulting LLC report) should be considered for the rdSGEIS and Part 554. The Harvey Consulting LLC report addresses the following, for which their specific recommendations should be incorporated: Surface Casing Setting Depth, Protected Water Depth Verification, Cement Sheath Width, Amount of Cement in Annulus, Shallow Gas Hazards, Excess Cement Requirements, Cement Type, Cement Mix Water Temperature and pH Monitoring, Lost Circulation Control, Spacer Fluids, Hole Conditioning, Cement Installation and Pump Rate, Rotation and Reciprocation, Centralizers, Casing Quality, Casing Thread Compound, Drilling Mud, Cement Setting Time, New York State Inspectors, Cement Quality Assurance/Quality Control, Formation Integrity Test, Blowout Preventer Installation, Record Keeping, Additional Casing or Repair, and Pressure Testing.

Response 6362:

Many of the recommendations listed are required and implemented through DEC's guidelines and/or permit conditions. Note that the Harvey report was focused on the SGEIS, which relates to high-volume hydraulic fracturing. Such operations are addressed by requirements proposed in Part 560.

Comment 6367:

Part 554.1(b) should be amended to add that pollution of the air is also prohibited.

Response 6367:

A general statement prohibiting pollution by wells addresses a broad range of potential issues and is an effective enforcement tool when a specific activity is not addressed in the regulations. Specific air pollution issues are addressed by the Division of Air Resources' regulations.

Comment 6368:

Part 554.1(c)(1) should be modified from its current statement of "sufficient quantities to be deleterious to the surrounding environment" to "in more than de minimis quantities," as the current language is so vague as to be unenforceable. We agree with the deletion of the sentence related to drilling muds. We also believe that the Department should explicitly take into account the seismic history of the area before approving a plan for disposal of fluids.

Response 6368:

The statement "sufficient quantities to be deleterious to the environment" has been deleted. As to the comment that the Department should take into account the seismic history of the area before approving of a fluid disposal plan, a consideration of the area's seismic history would only be relevant in cases where disposal is through use of a disposal well. In those instances, a SPDES permit would be necessary and the review of the injection well would be guided by

applicable SPDES regulations, as well as any requirements imposed by the EPA pursuant to the Safe Water Drinking Act.

Comment 6370:

Part 554.2 should be amended to require a minimum of 48 hours notice to the Department before drilling or fracturing operations commence, which would allow for observation of such operations by Department staff.

Response 6370:

Existing Part 554.2 has been amended to require at least 24 hours notice prior to the start of drilling operations. Proposed 560.6(c)(22) requires submittal to the Department of the pre-fracturing checklist at least 3 days before the proposed high-volume hydraulic fracturing operations.

Comment 6371:

Part 554.4(a) should be amended to specify that cementing of the production casing be from a minimum of 100 feet below the deepest potable fresh water to the surface.

Response 6371:

The Department did not propose any revisions to Part 554.4. The current requirement of setting surface casing 75feet below the deepest fresh water zone for all wells provides adequate protection.

Comment 6372:

Part 554.5(d): The required information for horizontal or directional wells under this subsection must also include the names and contact information for landowners, the location of any water wells within one mile of the down hole location, baseline monitoring data for each of those water wells, and documentation of delivery of that baseline data to each water well owner.

Response 6372:

Part 554 applies to all wells regulated under ECL Article 23 and it would be unreasonable and/or impractical for an operator of a non-vertical geothermal, monitoring or solution mining well to comply with the same requirements placed on high-volume hydraulically fractured wells. The Department disagrees that the proposed informational amendments should be listed in the controlled directional drilling section of the regulations.

Comment 6373:

Part 554.5(e): The plan view should include any water wells that are present.

Response 6373:

The plan view map in 554.5(e) specifically requires information regarding the orientation of the wellbore and its subsurface path with respect to drilling to the target formation. It is not the purpose of this map to evaluate the location of nearby water wells, therefore the proposed revision is not necessary in this section of the regulations.

Comment 6374:

Part 554.7(a) should be amended to require that within 30 days, an operator must also post, on a publicly accessible website, a list of all chemicals used during drilling and fracturing.

Response 6374:

The revisions of Part 554.7(a) specifically refer to the filing of a completion report or interim completion report with the Department. The proposed amendment is not relevant to the filing of a completion report and is therefore not necessary in this section of the regulations.

Comment 7810:

Part 554.(c)(1) should clarify the circumstances under which the discharge/disposal of produced fluids might not require a permit.

Response 7810:

The Department requires that produced fluids be disposed of properly. The Department does not believe it is necessary to list in Part 554 circumstances under which the discharge/disposal might not require a permit. A permit will always be required if the proposed disposal method requires one (e.g., underground injection at a disposal well, discharge via a wastewater treatment plant, etc.) This determination will be made upon review of the fluid disposal plan.

Comment 7811:

Part 554.7(a): The Well Drilling and Completion Report form could not be found in the public domain. Are these forms still in development?

Response 7811:

The Well Drilling and Completion Report form is in the public domain at <http://www.dec.ny.gov/energy/4761.html>.

Comment 7812:

Part 554.7(e): Drill cutting samples could be useful to better understand chemical properties and potential health concerns related to drilling. This provision should be modified to allow for their examination by the State Health Department (or other suitable entity).

Response 7812:

Drill cuttings are available to other departments, including State Health Department, agencies and offices of state governments according to the provisions of ECL 23-0313.

Comment 7813:

Part 554.1(c)(1) will require a fluid disposal plan to be approved by the Department prior to well permit issuance for "any operation in which the probability exists that brine, salt water or other polluting fluids will be produced or obtained during drilling operations in sufficient quantities to be deleterious to the surrounding environment." To fulfill this obligation, the Environmental Assessment Form Addendum will require information about waste fluids disposition, including: planned transportation off-site; planned disposition; and identification and permit numbers for proposed treatment facility or disposal well in New York. Industry suggests that this level of detail and duration may be unduly burdensome, create difficulties in responding to unforeseen issues, and inhibit the growth of a valid water treatment business to the extent that it effectively locks operators into a long-term arrangement that may be more costly in terms of dollars and environmental impacts. Accordingly, Industry suggests that the Department include allowances for operational flexibility in the Fluids Disposal Plan and limit the duration of the planning commitment to no more than 5 years.

Response 7813:

The fluid disposal plan discussed in 554.1(c)(1) and the EAF Addendum does not lock operators into a long-term arrangement but is flexible so that operators may amend the plan should other disposal options become available. The plan is necessary at the time of permitting to ensure that operators have an approved disposal site for its drilling and production related wastes.

Comment 10296:

There are a number of new intermediate casing requirements proposed for high-volume hydraulic fracture wells that are standard industry best practices for oil and gas wells. Those requirements should be included in Part 554 and not just covered in the new Part 560.

Response 10296:

Part 554 applies to all wells regulated under ECL Article 23 and it would be unreasonable for an operator of a geothermal, monitoring or shallow oil well, for example, to install intermediate casing when it is not required or necessary. Department staff reviews each drilling permit's casing proposal to determine if the program requires the installation of one or more intermediate casing strings.

Comment 10943:

The Department's Proposed Regulations modify existing drilling regulations in ways that make

drilling operations subject to even less public and regulatory oversight. Under the previous regulatory program, a written permit application was required to deviate a vertical well to drill directionally and the Department's receipt of such an application would trigger a compulsory ten-day waiting period for objections; if objections were received or if the Department was not in accord with the deviation, a public hearing would be scheduled to determine whether directional drilling should take place. Under the Proposed Regulations, no provision for review or public hearing is made; operators must simply notify the Department of their intention to deviate a vertical well and provide a follow-up angular deviation and directional survey within thirty days of doing so. With respect to spacing unit variance applications and applications to directionally drill, The Department's Proposed Regulations severely limit the role of public participation and also limit Department authority to review major drilling operation decisions before they are made.

Response 10943:

The Department respectfully disagrees with the commenter that the modifications to Part 554.5 make drilling operations subject to less public and regulatory oversight. The 10 day waiting period and hearing listed in the prior version of this section, when taken in context, allow offset operators to voice their objection to the deviated well. The Department will require modification of the unit or possibly order the well plugged should any well be drilled in violation of the well spacing requirements found in ECL 23-0501. Any drilling application received by DEC that includes a spacing unit variance results in the publication of the proposed variance in the ENB and a call for public comments. Public participation in the spacing unit variance process has not been diminished. The Department has authority to review major drilling operation decisions before they are put into effect.

87: Part 555, Plugging and Abandonment

Comment 3791:

Many of the older wells, particularly enhanced recovery injection wells, are constructed with tubing on a packer with cement on the packer. The requirements under Part 555.5(a)(1) ignore the plugging requirements for such wells, i.e., set cement plug in the bottom of the tubing, shoot off the tubing, and set cement plug across the tubing stub.

Response 3791:

For older wells completed in this fashion, the packer and cement plug would be removed (drilled out) and plugging would proceed in accordance with the requirements of this Part.

Comment 3796:

Separate the requirements under Part 555.5(a)(2) pertaining to cemented casing, uncemented casing that is removed, uncemented casing that cannot be removed, and requirements pertaining to all wells, e.g., surface plugs.

Response 3796:

The Department agrees that the text related to surface plugs should be separated from the rest of proposed Part 555.5(a)(2).

Comment 3798:

Part 555.5(a)(2): It is unclear to the United States Environmental Protection Agency what is meant by "50 feet inside and 50 feet outside of the casing shoe." First, does this mean that there must be a 50-foot plug placed inside the casing with the bottom at the shoe, and a 50-foot plug placed between that casing and the next largest casing string or the wellbore with the bottom of the plug at the depth of the casing shoe, or does this mean that a 100-foot plug must be placed across the casing shoe, extending from a point 50 feet below the casing shoe to 50 feet above? Second, this requirement appears to pertain to the production/long string casing that is typically set at the bottom of the well. Thus, setting a plug 50 feet below the casing seat may not be possible. Third, it also appears to pertain to casing that is cemented in the well, further confusing the requirement to place cement "outside" the casing shoe.

Response 3798:

The text, "50 feet inside and 50 feet outside of the casing shoe" in proposed Part 555.5(a)(2) has been revised to read, "50 feet below and 50 feet above the casing shoe." This requirement would not apply to the base of the production string if such string is set (and cemented) to the bottom of the hole.

Comment 3800:

The second sentence of Part 555.5(a)(2) should be modified to specify the minimum thickness of the plug that must extend above the stub.

Response 3800:

The second sentence in proposed Part 555.5(a)(2) has been revised to indicate that a plug approximately 50 feet in length be placed in and above the stub of the casing.

Comment 3802:

The third sentence of Part 555.5(a)(2) is unclear to the United States Environmental Protection Agency. Does this sentence mean that the 100-foot plug is to be squeezed out of the ripped/perforated casing such that the 100-foot plug is outside the casing that was not pulled, or if the 100-foot plug must be inside the perforated/ripped casing with an unknown amount having

gone out of the perforated/ripped section? If the 100-foot plug is to be placed outside the casing that was not pulled, how does the operator verify that a 100-foot plug was actually placed, i.e., that cement was not lost into the formation?

Response 3802:

The text in proposed Part 555.5(a)(2) referenced by this comment explains that, for uncemented casing that cannot be pulled, the casing must be perforated 50 feet below the shoe of the next outer casing and a 100-foot plug placed across that shoe. This would mean that a plug of at least 50 feet would extend above (i.e., inside the casing that cannot be pulled) the shoe of the next outer casing. The Department recognizes that some cement may be lost to the formation below the shoe of the next outer casing.

Comment 3804:

The United States Environmental Protection Agency suggests moving the last sentence of Part 555.5(a)(2) to a new paragraph as this paragraph (a)(2) appears to specify requirements only for wells where casing is to be left. The surface plug must be placed in all wells. Putting the surface plug requirement in this paragraph is confusing as the subsequent paragraphs discuss plugs to be placed deeper in the well and before the surface plug. To the extent possible, the plugging regulations should list the required plug placements sequentially from total depth to the surface, as is indicated in the opening sentence of Part 555.5(a).

Response 3804:

The Department agrees with these suggested changes.

Comment 3806:

Part 555.5(a)(3) states "If casing extending below the deepest potable fresh water level shall not remain in the ground, a cement plug of at least 50 feet in length shall be placed in the open hole at a position approximately 50 feet below the deepest potable fresh water level." This requirement is unclear to the United States Environmental Protection Agency since in deep wells there will be several strings of casing that extend below the deepest potable fresh water level.

Response 3806:

This requirement would not apply to wells constructed with multiple casing strings set below the deepest potable fresh water, if those casing strings were left in the ground.

Comment 3809:

Part 555.5(a)(4): define the term "drawn."

Response 3809:

The term “drawn”, as used in Part 555.5(a)(4), means “pulled”.

Comment 3810:

In Part 555.5(a)(4), at the end of the first sentence in the paragraph, add "(i.e., the casing seat)."

Response 3810:

The Department has incorporated this clarification.

Comment 3812:

In Part 555.5(a)(4), it is unclear to the United States Environmental Protection Agency whether the top or bottom of the plug shall be placed immediately below the point where the lower end of the conductor or surface casing shall previously have rested. It should also be noted that conductor pipe often does not extend to 50 feet in depth.

Response 3812:

Comment noted. The 50-foot plug would be placed such that its top is immediately below the casing seat.

Comment 3814:

In Part 555.5(a)(4), there is a typo in the last sentence of the paragraph. The Department should replace "well" with "will".

Response 3814:

The Department has made this correction.

Comment 3815:

For Part 555.5(a)(5), it appears to the United States Environmental Protection Agency that the requirement in paragraph 4 to use cement, sand, or rock sediment above the surface casing seat plug and/or conductor seat plug and below the surface plug conflicts with the requirement in paragraph 5 to use gelled fluid between plugs. In addition, there has been concern expressed with using gel in the depth interval of aquifers, particularly in cases where the surface casing has been removed or lacks integrity. The State of Pennsylvania specifically prohibits the use of gel as a plugging material in this depth interval due to occasional problems with gel impacting local water wells. The Department may want to consider a similar prohibition.

Response 3815:

Surface casing in New York State must extend to a depth at least 75 feet below the base of potable fresh water. As described in proposed Part 555.5(a)(4), a cement plug of at least 50 feet

in length shall be placed so that the top of the plug is immediately below the casing seat, and the hole above that point shall be filled with cement, sand or rock sediment or other suitable material in such a manner as will prevent erosion of the well bore area and not interfere with normal soil cultivation. The Department will modify the text in Part 555.5(a)(5) to indicate that gelled spacers shall not be used in the interval between the top of the surface casing seat plug and the bottom of the surface plug.

Comment 3821:

Part 555.5(c) appears to allow for abandoned well sites to go un-restored as long as the landowner signs a release and no hazard is present. In determining whether or not no hazard exists, does the Department take into account adverse impacts to the environment or is it public safety concerns? Either way, the United States Environmental Protection Agency recommends removing this waiver and requiring full site restoration after a well is plugged as specified on page 5-144 of the rdSGEIS.

Response 3821:

The commenter is mistaken, in that Part 555.5 (c) addresses surface restoration of a well that is being plugged and abandoned, not the restoration of an abandoned well site. For any site disturbing greater than one acre, a well operator must maintain coverage under the SPDES General Permit, and as described in Section 5.17 of the rdSGEIS (Well Plugging), such coverage could only be terminated upon satisfactory completion of surface restoration activities at a well site. The Department's statutory and regulatory programs are designed to protect both public safety and the environment.

Comment 4908:

Part 555: There is concern that the Department likely does not have the resources to adequately monitor and enforce proper well plugging, abandonment, and oversight/inspection of abandoned wells (the latter to ensure the plugs remain intact and the wells do not leak in the future). The state has thousands of orphan wells that are not plugged. The Department cannot responsibly allow additional well construction until the current backlog of unplugged abandoned wells has been addressed. There also is concern whether the required financial security will be adequate for all of the costs involved, and that residents and taxpayers will be left to pay the bills. By the end of 2009, the state fund to plug wells contained about \$208,806, but plugging the states abandoned wells will cost between \$76 and \$530 million. The liability requirements and related policies need to ensure that no wells can be abandoned without being capped, and that the financial responsibility belongs to the drilling companies.

Response 4908:

The Department has recognized for some time that its personnel resources would be a limiting factor on the rate of development of proposals for high-volume hydraulic fracturing. However, it is not within the Department's sole discretion to either hire additional staff or increase funding (bonding). The advisory panel assembled to advise the Department will assess the needs of all

agencies and make recommendations on staffing and funding. Proposed revisions to Part 552.1(b) would require that an applicant supply, on a plat accompanying the application materials, the distance in feet from the surface location of a proposed well to the nearest non-producing unplugged well (if same is within one mile). Any unplugged well so identified would need to be annotated with additional pertinent information. Additionally, proposed revisions to Part 560.3(a)(8) would require that an applicant provide "...identification of any abandoned wells subject to Parts 550 through 559 of this Title within the proposed spacing unit and within one mile of the proposed surface location of the well, and information on such wells, as specified by the Department." Section 7.1.6 of the rdSGEIS discusses the Department's approach to abandoned wells identified during the application process, and Section 8.2.3 discusses the Department's enforcement authority.

Comment 4909:

Part 555: There is concern that not enough is known regarding the long-term stability and integrity of high-volume hydraulic fracture wells that are plugged and the behavior of chemicals and pollutants that remain in abandoned well systems. Proposed systems for leak detection and monitoring are short-term. Long-term regulation, permitting, and monitoring of compliance is necessary. Part 555 should include evidence-based standards for plugging the wells. As well, a program should be established to inspect all abandoned, plugged wells for leaking and ensure that leaking wells are expeditiously repaired. This program should continue at least 100 years beyond the time the last gas or oil well in the state is discontinued, to protect groundwater.

Response 4909:

Comment noted. The Department agrees that post-plugging inspections are an important part of an effective regulatory program. Such inspections are currently conducted by Department staff.

Comment 4910:

Parts 555.2(b) and 555.3: No extensions should be granted, ever.

Response 4910:

Changes to Parts 555.2 (b) and 555.3 have not been proposed at this time. However, the Department is charged with ensuring the environmentally sound, economic development of New York's non-renewable energy and mineral resources for the benefit of current and future generations. The granting of extensions to shut-in or temporary abandonment status is but one aspect of the Department's broad authority to carry out this part of its mission.

Comment 4911:

Part 555.4: A representative of the Department should be at the well site during plugging and abandoning. No exceptions.

Response 4911:

The Department agrees that its representatives should observe all well plugging operations, but acknowledges that circumstances sometimes dictate that it is not always possible.

Comment 4912:

Part 555.4(d): No exceptions should be given for hardship, only for emergencies that threaten the environment or public health or safety beyond the threats posed by everyday operations.

Response 4912:

See response to Comment 4910.

Comment 4913:

Part 555.5: The United States Fish and Wildlife Service recommends that the Department require evaluation logs (on the well casing and cement) for all wells to be plugged, and that this not be a discretionary requirement. This evaluation would be important to determine the integrity of the casing and cement along with the proper procedure and materials needed for a successful plugging of the well.

Response 4913:

The Department agrees that quality cement bond evaluation logs are valuable tools in the assessment of well integrity. However, it may not be prudent to mandate this costly procedure in all cases. Older or abandoned wells may contain obstructions, such as production tubing, that preclude the use of down-hole tools for logging. In other circumstances, some wells may have been installed by driving casing, so there would be no cement to evaluate.

Comment 4914:

Part 555.5(a)(5): The phrase "or other department approved fluid" is too vague. The allowed fluid, or its specific characteristics, should be specified.

Response 4914:

The Department disagrees with this comment. There are many engineered spacer fluids used in well plugging, and new products continue to be designed and tested.

Comment 4915:

Part 555.5(a)(5): 8.65 pounds per gallon is roughly the density of water. It would seem that something more substantial than muddy water is envisioned here, so this section requires technical review and editing, as appropriate.

Response 4915:

At standard atmospheric temperatures and pressures, water's average weight is approximately 8.33 pounds per gallon. The referenced (density) value of 8.65 pounds per gallon is a minimum value; more importantly, these engineered fluids are designed to maintain their characteristic density over time and under different subsurface stress regimes.

Comment 4916:

Part 555.5(c) should address other holes, too.

Response 4916:

Part 555, in its entirety, applies to all ECL 23 wells in New York State.

Comment 4917:

Part 555.5(c): No surface restoration requirements should ever be waived, under any circumstances.

Response 4917:

See response to Comment 4910.

Comment 4918:

The following risks have not been addressed in Part 555: Risks of explosions from existing gas wells abandoned long ago that may not be properly capped, which has occurred in Bradford, Pennsylvania near the site of recent hydraulic fracturing activity; and risks of explosion from poorly capped wells created by hydraulic fracturing where well drillers did not follow the rules and wells were not carefully inspected due to lack of qualified personnel.

Response 4918:

Well control issues are discussed in the rdSGEIS in Chapters 1, 5, 7 and 10. A discussion of the April 2011 well-control incident in Bradford, Pennsylvania, which involved the uncontrolled flow of hydraulic fracturing fluid during fracture stimulation, is presented in Section 10.2.1 of the 2011 rdSGEIS.

Comment 4919:

Part 555 is not clear whether a well that might be reused in the future to extract gas from the Utica Shale or other formations can remain unplugged until that time or must be plugged first before it is reopened later.

Response 4919:

A well that is plugged and abandoned in accordance with the Department's rules and regulations may be re-entered and completed in a different formation, provided that all the requisite application documents have been provided and a Permit to Drill can be issued by the Department. Parts 555.3 and 555.4 address the time frames during which wells not in use can remain unplugged.

Comment 6533:

The proposed regulations increase the overlap lengths for cement plugs in abandoned oil and gas wells from 15 to 50 feet at several locations (6 NYCRR 555.5(a)). This increase in plug length is an improvement but not sufficient or well planned in all locations. The regulation requires filling with cement from total depth to at least 50 feet above the top of the shallowest formation from which the production of oil or gas has ever been obtained in the vicinity (6 NYCRR 555.5(a)(1)). But not all gas pockets have actually produced gas but could cause methane contamination if they are not already sealed off by casing. The regulations should specify that the cement plug below the deepest potable fresh water level should overlap the transition than be just below it because even a short section of uncased well bore open to the salt water could mix into the well and to above the fresh water line (6 NYCRR 555.5(a)(3)).

Response 6533:

The Department agrees that a cement plug set below the deepest potable fresh water should extend into the potable fresh water zone.

Comment 6566:

Part 555: The regulations and the rdSGEIS mitigation measures should be revised to clearly specify that plugging a well bore should be performed in a manner that ensures that all hydrocarbons and fresh water are confined to their respective indigenous strata and prevented from migrating into other strata or to the surface. All hydrocarbon-bearing strata should be permanently sealed off by installing a cement barrier at least 100 feet below the base to at least 100 feet above the top of all hydrocarbon-bearing strata (200 plug). The plugging of a well should include effective segregation of uncased and cased portions of the well bore to prevent the vertical movement of fluid within the wellbore. A continuous cement plug must be placed from at least 100 feet below to at least 100 feet above the casing shoe (200 plug). The operator should be required to submit records to the Department to demonstrate that the well has been plugged and abandoned in compliance with the regulations.

Response 6566:

This comment does not provide a technical basis for requiring a 200-foot plug in place of the Department's proposed 100-foot plug. ECL 23 provides the Department with broad authority regarding the plugging of wells; this authority includes the ability to require timely filing of plugging reports. Specifically, ECL 23-0305(8)(d) states that the the Department shall have the power to "Require the drilling, casing, operation, plugging and replugging of wells and reclamation of surrounding land in accordance with rules and regulations of the department in such manner as to prevent or remedy the

following, including but not limited to: the escape of oil, gas, brine or water out of one stratum into another; the intrusion of water into oil or gas strata other than during enhanced recovery operations; the pollution of fresh water supplies by oil, gas, salt water or other contaminants; and blowouts, cavings, seepages and fires.”

Comment 6567:

The regulations and the rdSGEIS mitigation measures should be revised to require cement quality standards, including the use of gas blocking cement. The regulations should require tagging of all cement plugs and provide instructions on when additional cement evaluation tools must be run.

Response 6567:

The Department agrees that the use of quality cements, including those containing gas-block additives, is critical to a quality plugging job. It is important to note that the method of cement emplacement is just as important as the quality of cement used. Part 555.5(a) states that the Department has the discretion to require the tagging of cement plugs. See response to Comment 6566.

Comment 6568:

Part 555.5(a)(1) should be revised to state: The well bore, whether to remain cased or uncased, shall be filled with cement from total depth to at least 50 feet above the top of the shallowest formation from which the production of oil or gas has ever been obtained within 1,000 feet of the well bore. Alternatively, a bridge topped with at least 50 feet of cement shall be placed immediately above each formation from which the production of oil or gas has ever been obtained within 1,000 feet of the wellbore.

Response 6568:

The Department disagrees with this comment, as there is no technical justification for the comment’s specified 1,000-foot distance. The term “vicinity” provides greater flexibility to the Department for its assessment and evaluation of a proposed plugging plan.

Comment 6569:

Part 555.5(a)(2) should be revised to state: For any casing left in the ground, a cement plug of at least 100 feet in length shall be placed 50 feet below and 50 feet above the casing shoe . Uncemented casing must be cut and pulled as deep as practical with a plug approximately 50 feet in length placed in and above the stub of the casing. If the uncemented casing is unable to be pulled the casing must be perforated 50 feet below the shoe of the next outer casing and a 100-foot plug placed across that shoe. A 50-foot plug shall be placed at the surface.

Response 6569:

The Department agrees that, for clarity, the terms “above” and “below” should be used in place of the proposed terms “inside” and “outside”.

Comment 7814:

Part 555.5(c) needs to state specifically that no waste from well operations, such as contaminated soil, pit liners, etc., may be buried as part of the earth used to fill in any pit.

Response 7814:

The Department disagrees that waste handling measures should be added to Part 555. Parts 554 and 560 address the management of wastes associated with ECL 23 wells.

Comment 7815:

Part 555.6: The proposed express terms do not say whether Part 555.6 will remain unchanged.

Response 7815:

Changes to Part 555.6 have not been proposed at this time.

Comment 7816:

Part 555.5(a): There are two technical issues/problems with this section. 1. De-bonding between rock and cement is expected to happen because of their different material properties. 2. The modeling work behind the regulation assumes that the plug and the rock remain fully bonded once the plug is sealed. Thus, it is highly likely that well plug failure will occur far in advance of 150 years.

Response 7816:

This comment provides no factual basis for its claims related to cement-bond and well-plug failure.

88: Part 556, Operating Practices

Comment 3084:

Part 556.2(c): Gas flaring should not be permitted and extensions of time periods should not be allowed. Some reasons cited included -- gas flaring generates significant greenhouse gas emissions and wastes natural gas resources. Technology has been developed to reduce emissions of natural gas during well completions. These procedures collect the natural gas, filter it, and place it into pipelines and tanks as an alternative to venting or flaring it. The technology used in the process is not complex and is done by means of special temporary equipment brought to the

well site. Studies have shown that this approach increases gas industry profits and significantly reduces the greenhouse gases produced during well completion.

Response 3084:

The Department will require, via permit condition, a reduced emission completion whenever a gathering line and sales line are available during completion at any individual well or the multi-well pad. See rdSGEIS Chapter 7. Gas flaring may also be necessary for safety purposes during drilling and completion operations. See also response to Comment 3095.

Comment 3085:

Part 556.2(c): Require the well operator to limit flaring to the minimum amount necessary and also find alternatives to flaring, such as storing the gas or using it to generate electricity.

Response 3085:

See responses to Comments 3084 and 3095.

Comment 3086:

Part 556 should mandate the use of natural gas-powered trucks, drill rigs, compressors, etc., so there would be no diesel in the fracking fluids or escaping into the air.

Response 3086:

The rdSGEIS would require well operators to specify the type of fuel and engines proposed for use at a well pad and would require the diesel fuel used in drilling and completion equipment be limited to ultra low sulfur fuel with a maximum sulfur content of 15 ppm. However, these are SEQRA mitigation measures and are not proposed regulatory requirements. The Department also lacks the authority to regulate the type of fuel used in trucks. In addition, it is incorrect to imply that there is a connection between the fuel used in a truck, drill rig or compressor engine and the content of additives used in the process of hydraulic fracturing. Aside from the fact that there is no physical contact between fuel combusted in an engine's cylinders and additives introduced to the subsurface, proposed 560.6(c)(24) would prohibit the use of a diesel-based hydraulic fracturing fluid for wells subject to Part 560.

Comment 3095:

Part 556.2(b): Gas should not be allowed to escape from any well (high-volume hydraulic fracture or otherwise) and extensions of time periods should not be allowed.

Response 3095:

Existing 556.2(b) already specifies the conditions under which an operator may flare and the changes proposed to subdivision 556.2(b) will clarify the procedures for the well operator to

obtain approval to flare. The Department agrees that it is undesirable to allow gas to escape in the air; however, flaring (combustion) of gas produced for a well is necessary in some circumstances. Therefore, it is appropriate for the Department to retain the discretion to allow an extension of the time period specified in the regulations.

Comment 6577:

The Department needs to clarify 556.2(g)(1) to explain what is meant by any permanent change in the well bore configuration and/or why this proposed requirement is necessary.

Response 6577:

Examples of permanent changes to wellbore configuration include, but are not necessarily limited to, addition or removal of casing strings and new perforations. Deepening and plugging back within the same producing horizon are covered in the regulations elsewhere but are also permanent changes to the wellbore that do not require a new permit but which should be reported and recorded. The Sundry Notice and Report is intended to inform the Department of these changes and to create a record of them should there ever be a need to investigate the well's downhole condition (e.g., prior to plugging, if gas storage is proposed nearby, etc.).

Comment 6578:

Part 556.2(g)(3): If an operator needs to submit a Sundry Well Notice and Report form, then the regulations should specify a reporting time requirement. Industry recommends that operators submit the form quarterly or annually for work done within that period.

Response 6578:

As revised, 556.2(g) requires the Sundry Notice and Report for several operations that require Department approval, including a change to previously approved plans, modification of the wellbore path, modification of the bottomhole location, flaring and re-fracturing. In these cases, the form must be filed in advance each time one of these operations is proposed, and the operation may not commence ahead of the Department's approval. In other instances, the form is used to report activities that did not require prior approval but still require prior notice, and the Department agrees that a time period would be appropriate and has modified the draft regulations accordingly.

Comment 7817:

Part 556.2(c) needs to specify an efficiency standard for flaring of at least 98 percent.

Response 7817:

The Department respectfully disagrees that a 98 percent flaring efficiency standard is necessary. The primary objective of flaring is to burn off the methane being produced from the well as a safety measure. This goal is achieved from ignition of the flare and combustion of the gas.

Comment 7818:

Part 556.2(g)(2) seems unlimited in terms of the scope of possible changes that could be requested. There should either be tighter language putting some limits on those changes or some other way of providing notice and the opportunity to comment to interested parties of those possibilities.

Response 7818:

See response to Comment 6577. The Sundry Notice and Report is intended for operations for which an approval or advance notice to the department is appropriate, but which do not require another permit.

Comment 7819:

Part 556.2(g): Operators should be required to submit the Sundry Well Notice and Report form quarterly or annually for work done within that period.

Response 7819: See response to Comment 6578.

89: Part 560, Drilling, Operation, and Stimulation of Low Permeability Reservoirs

Comment 2865:

The National Park Service (NPS) requests that the Department revise proposed Part 560.3(b)(2) to incorporate the following rdSGEIS recommendation: a bullet added on page A6-3 of the Environmental Assessment Form (EAF) Addendum under Topographic map of area, under Required Attachments, location of the legislative boundaries of units of the National Park System and any other areas under federal ownership (the applicant should consult with the NPS to determine the legislative boundary of a particular unit or area subject to the management and control of the NPS).

Response 2865:

The EAF Addendum (Appendix 6, rdSGEIS) was amended to require the location of legislative boundaries of units of the NPS. The Department is opting for now to not include this language in proposed Part 560.3(b)(2).

Comment 2875:

Since it does not appear that 6 NYCRR Chapter V, Subchapter B already contains such a requirement, the Department should add a provision to those already proposed that obligates the applicant to identify the equipment that the applicant will have available to address anticipated

emergencies (such as, blowouts, hydrocarbon presence in the annulus outside the outer casing, a loss of power, containment of a fluid release, etc.).

Response 2875:

The Department does not agree that it should promulgate new regulations which identify equipment to be used in an emergency. The Emergency Response Plan (ERP) includes a description of release, fire, and explosion prevention procedures and equipment. It is not intended to provide an all-inclusive list of emergencies (or other non-routine incidents) and their correlative responses.

Comment 3042:

The proposed regulations would require operators to report to the Department any non-routine incident at a well pad. Given the description of non-routine incident contained in the proposed regulations, Part 560.5(c), the potential breadth of this requirement seems excessive and arbitrary. The Department should clarify the proposed regulations to confirm that incident reporting is required only in the event of releases into the environment that pose a risk of significant harm or circumstances presenting a significant risk to public safety.

Response 3042:

The Department cannot make a site-specific assessment of the risk of significant harm to the environment or public safety until after the non-routine incident is reported.

Comment 3043:

The rdSGEIS and proposed regulations, 6 NYCRR 560.5(c), purport to provide the Department with the authority to require immediate cessation of operations if it receives a water supply complaint that coincides with certain non-routine well pad incidents. Cessation of operations simply because a third-party complaint coincides with a non-routine incident would be excessive and arbitrary. The proposed regulations and rdSGEIS should clarify that cessation of operations would depend upon an established connection between the complaint and the incident, as well as a risk of substantial harm from continued operation.

Response 3043:

Whenever a spill occurs, the Department would consider the need to require immediate cessation of operations or immediate corrective action, regardless of complainant.

Comment 3422:

Part 560.2(b)(8): the definition of high-volume hydraulic fracturing should be revised to read 300,000 gallons or more of fresh water. This would encourage recycling of flowback and production fluids.

Response 3422:

The definition of high-volume hydraulic fracturing in Part 560.2(b) has been revised. See Response to Comment 3436 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**. In addition, a requirement has been added to proposed 554.1(c)(1) which states, “The owner or operator must state in its plan that it will maximize the reuse and/or recycling of used drilling fluids, flowback water and production brine to the maximum extent feasible.” This wording recognizes that on-site processing of hydraulic fracturing fluids and reuse may not always be practical, technically viable and/or economical.

Recycling and reuse of flowback water is anticipated and encouraged by the Department. On-site processing of hydraulic fracturing fluids and reuse may not always be practical, technically viable and/or economical, and therefore it is not a requirement of the proposed regulations.

Comment 3423:

Part 560.2(b)(17): The definition of product contained in this section is inconsistent with the definition of product in Part 550.3(an). The Department should clarify that this definition supersedes the definition of product contained in 550.3(an) for purposes of high-volume hydraulic fracturing.

Response 3423:

The Department does not agree that the two definitions of product need clarification as suggested in the comment. Part 560.2(a) states that the general definitions in Section 550.3 apply to the extent not superseded by this Part, i.e., 560.

Comment 3424:

Part 560.3(c)(1)(i) and(ii): The use of the term "additive product" in these sections is inconsistent with the definitions and Environmental Assessment Form Addendum. It should be revised to read chemical additive, by product name. The terms chemical additive and product are both defined terms, whereas additive product is not.

Response 3424:

The Department has revised 560.3 to eliminate the use of the term “additive product” in favor of either “additive” or “product” as appropriate. Note that these provisions are now in proposed 560.3(d), rather than 560.3(c), and that 560.5(h) has also been added, using consistent terminology, to address hydraulic fracturing chemical disclosure following well completion.

Comment 3426:

Part 560.3(c)(1)(v): This requirement is vague and open ended. Halliburton Energy Services, Inc. (HESI) believes that its Chemistry Scoring Index should be allowed to be used to meet this requirement.

Response 3426:

The language, now found in Part 560.3(d)(1)(vii), does not preclude HESI from using its Chemical Scoring System as long as its system is part of its submission.

Comment 3427:

Certain components of Industry state that they support Part 560.3(c)(2). The Department should make it clear that service companies should be allowed to make the disclosures required by 560.3(c)(1). The regulatory language appears to suggest that could be the case, but it is not explicit. The regulatory language that states "Records determined by the department to be exempt from disclosure shall not be considered a well record for purposes of disclosure" is also supported.

Response 3427:

The Department has clarified Part 560.3 to indicate that the required disclosures, now described by Part 560.3(d)(1), can be made by operators, service companies, or chemical suppliers/manufacturers, as appropriate and necessary. Additionally, similar language is included in proposed Part 560.5(h). Comments regarding support for Part 560.3(c)(2) [now 560.3(d)(2)] are noted.

Comment 3428:

Part 560.6(c)(26)(viii) relates to the records required to be maintained of the hydraulic fracturing operation. It is suggested that the last sentence contained in 560.3(c)(2) be added to this provision, or else that clarification be provided as to what level of detail regarding additives is required in the records and the Department's Well Drilling and Completion Report.

Response 3428:

Part 560.6(c)(26)(viii) has been revised to specify that the records to be maintained by the well owner or operator must include a list of all additives, by product name. Part 560.5(h) has been added to address the specific hydraulic fracturing fluid information which will be required to be disclosed following well completion, concurrent with the filing of the Well Drilling and Completion Report. Language similar to that formerly in 560.3(c)(2), now in 560.3(d)(2), is also included in Part 560.5(h). Also see response to Comment 6116.

Comment 3755:

Proposed regulation 560.5(a) would require, as a supplementary permit condition, that operators provide the Department with an Emergency Response Plan (ERP) three days prior to well spud. Copies of the ERP should also be submitted to all appropriate local government agencies (including the local health department), in order to help these agencies better prepare for all

eventualities. The ERP also should include provisions specific to the transportation plan required under proposed regulation 560.3(a).

Response 3755:

The Department does not agree that inclusion of transportation plan specifics in the ERP is necessary. As described in Section 7.13 of the rdSGEIS, the ERP must include the identification and evaluation of potential release, fire and explosion hazards, and the identity of a knowledgeable and qualified individual with the authority to respond to emergency situations and implement the ERP. After the SGEIS is finalized, dedicated staff within the Department would serve as a focused resource for local citizens and governments. Local agencies interested in the ERP's on file with the Department could contact these staff for assistance.

Comment 3762:

Proposed regulation 560.5(c) specifies that all non-routine incidents of potential environmental and/or public safety significance must be reported to the Department. This proposed regulation should be expanded to include a mandate that the Department notify the New York State Department of Health (NYSDOH) and the appropriate local health department immediately upon the receipt of any non-routine incident that has the potential to affect public health.

Response 3762:

The Department is responsible for responding to any spill or other non-routine incident at a well pad, including investigations to determine the extent of contamination when warranted by the nature and magnitude of the incident. The Department would be involved at the outset in investigating complaints from private well owners that coincide with or occur within a year of hydraulic fracturing operations at any well pad. Otherwise, local health departments would refer the complaint to the Department after ruling out other potential causes. In cases where water well complaints do not coincide with nearby high-volume hydraulic fracturing operations, the initial response is best handled by the appropriate local health office because of the myriad possible causes and their expertise in dealing with such issues. The Department and NYSDOH will continue to coordinate efforts with respect to alleged private water well contamination.

Comment 3764:

Part 560.5(d)(1) states that when testing residential water wells prior to well spud the operator must test "for the parameters specified by the department." This vague wording leaves it unclear as to whether the Department will specify parameters on a case-by-case basis, well-by-well basis, or whether a fixed set of parameters will be established for all high-volume hydraulic fracturing wells drilled and produced in New York State. It is essential that the regulations require and define a fixed, minimum set of parameters (specifically, as a minimum those that have been recommended by the New York State Department of Health, and listed in Table- 7:3 of the rdSGEIS).

Response 3764:

Part 560.5(d)(1) has been revised as follows: “prior to well spud, the operator must make all reasonable attempts to sample and test, at the operator’s expense, all residential water wells within 1,000 feet of the well pad for the parameters specified by the department, which at a minimum include Barium, Chloride, Conductivity, Gross alpha/beta, Iron, Manganese, Dissolved methane and ethane, pH, Sodium, Static water level (when possible), total dissolved solids (TDS), and volatile organic compounds (VOCs), specifically BTEX....”

The parameters in the proposed final rule must be included in any private well sampling that is conducted. Operators may include additional parameters at their discretion.

Comment 3779:

Part 560.5(d): Water well testing appears to deviate from section 7.1.4.1, Private Water Well Testing of the rdSGEIS. Section 7.1.4.1 outlines a schedule where the operator would have all identified residential water wells within the area of concern sampled and analyzed prior to the commencement of drilling for each well on a pad; sampled and analyzed three months after each well has reached total measured depth (TMD) if there is to be a hiatus greater than three months between reaching TMD and the next applicable milestone; and sampled and analyzed three months, six months, and one year after the conclusion of hydraulic fracturing operations of each well on the pad. 560.5(d) Water well testing only proposes sampling and analysis be completed prior to well spud (paragraph (1) and "at other intervals specified by the department after the well reaches total measured depth" (paragraph (3). When a primary concern surrounding the high-volume hydraulic fracturing process is the potential contamination of residential water wells, it is imperative the regulations adopt the recommendations of the rdSGEIS and plainly state its schedule for sampling and analyzing.

Response 3779:

The Department acknowledges that in some cases the rdSGEIS is more detailed than a proposed regulation. Mitigation measures contained in the Final SGEIS will be required and enforced as permit conditions. This provides flexibility for other approaches to be implemented as operators and the Department gain experience. While the rdSGEIS reflects those approaches that the Department has determined would effectively achieve an environmental objective, there may be other ways to accomplish the same objective that exist now or that will be developed as technology advances. The Department always has the option to propose additional regulations should a specific approach to a given objective become standardized or be deemed the only acceptable alternative.

Comment 3789:

Part 560 in general: The Department should make the new regulations consistent for all hydraulic fracturing, not just that where more than 300,000 gallons of water are used. Otherwise, vertical oil and gas wells using less than 300,000 gallons of water will remain grandfathered under outdated permitting conditions and will be allowed to use inferior casing standards, open waste pits, and a regulatory framework that dates back to the 1970s.

Response 3789:

The Department does not agree with the commentor's characterization of the existing regulatory framework as antiquated. Wells using under 300,000 gallons of water do not have the same magnitude of potential impacts as high-volume hydraulically fractured wells. Proposed Part 560 sets the high-volume threshold at 300,000 or more gallons of water for hydraulic fracturing per well completion as such was identified as triggering known and/or potential impacts that require enhanced well application information (i.e., rdSGEIS Appendix 6, Environmental Assessment Form Addendum), and mitigation in the form of permit conditions (i.e., SGEIS Appendix 10, Proposed Supplementary Permit Conditions for High-Volume Hydraulic Fracturing).

Comment 3792:

Proposed regulation 560.5(d)(4) must include the requirement that operators provide copies of test results and documentation related to delivery of test results to local health departments, the New York State Department of Health, and owners of the water wells tested. The operator shall review the test results and include an analysis of whether there have been deviations from baseline testing in a report to local health departments and New York State Department of Health.

Response 3792:

The Department does not agree that the regulation should be changed as suggested in the comment. Part 560(d)(1) already requires that the owner of any water well tested be provided with a copy of the test results. Part 560(d) has been amended to require that the New York State Department of Health be provided with a copy of test results and documentation related to delivery. Copies of test results and documentation of delivery must be made available to the Department upon the Department's request.

Comment 3794:

Part 560.5(f) requires that the Drilling and Production Waste Tracking Form be completed and retained for three years by the operator, transporter, and destination facility and be made available to the Department, if requested. These forms are the companion pieces to the Fluid Disposal Plan, which would be required by proposed 6 NYCRR 750-3.12(b) and will, in part, demonstrate whether or not the Fluid Disposal Plan was implemented. Together, these forms help identify the owner's/operator's waste, waste management plans, and projections, and if those were accurate. As such, the Drilling and Production Waste Tracking Form should be publicly available.

Response 3794:

The Department agrees and has amended Part 560.5(f) to require the operator to make the Drilling and Production Waste Tracking Form available to the public on the operator's website within 30 days of receipt of the waste by the disposal or treatment facility.

Comment 3801:

Part 560 in general: The proposed Part 560 regulations do not address greenhouse gas emissions. At a minimum, applicants should be required to provide a description of planned greenhouse gas emission control measures. Even more effective would be to require a greenhouse gas impacts mitigation plan estimating anticipated greenhouse gas emissions at the well site and quantifying the impact of proposed control measures. The regulations also should address greenhouse gas emissions testing and reporting as described in the rdSGEIS. Two years after completion of the first well drilled and completed, the Department should analyze the actual usage of Reduced Emissions Completions; therefore, permits should require testing, recordkeeping, and reporting. Site owners should be required to keep annual reports of compliance with the greenhouse gas emissions leak detection program and make the reports available to the Department upon request.

Response 3801:

The rdSGEIS Appendix 10 proposed Supplementary Permit Conditions contain a requirement for the submittal of a greenhouse gas (GHG) emissions plan. Included in the GHG emissions plan is a leak detection and repair requirement (LDAR) whereby the operator must submit an annual report to the Department and repair any discovered leaks within 15 days. See rdSGEIS Chapter 7. The Department believes this level of reporting is adequate but not necessary for inclusion in the regulations. This provides flexibility for other approaches to be implemented as operators and the Department gain experience and as the technology evolves.

Comment 3807:

For proposed regulation 560.3(a)(6), the scaled distance from the proposed surface location of the well and the closest edge of proposed well pad to any primary or principal aquifer boundary, perennial or intermittent stream, wetland, storm drain, lake or pond, and any surface water body that is a tributary to a public drinking water supply should be increased to 2,640 feet to be consistent with other application requirements and recommended setback distances for these resources.

Response 3807:

The Department respectfully does not agree that the setback distances must be the same for all resources. The sensitivity of a resource to a given drilling activity will depend upon many factors. Setbacks were developed by balancing the protection of the water resource, which is achieved by many measures in addition to setbacks, and the policy in ECL §23-0301 to allow for the recovery of the natural gas resources and to protect correlative rights. The magnitude of the setback reflects the magnitude of the potential risk and the potential harm in the event of a spill.

Comment 3819:

Part 560.3(b), Mapping Requirements, should include a requirement for a map drawn at the scale

of 1:2,400 showing the locations as identified in published documents of faults and fracture-intensive domains (FIDs) within one mile of the proposed edge of the well pad.

Response 3819:

See Section 6.1.6.2, Subsurface Pathways in the rdSGEIS, which describes the specific conditions and analytical results supporting the conclusion that hydraulic fracturing does not present a reasonably foreseeable risk of significant adverse environmental impacts to potential freshwater aquifers, including via migration through faults. See rdSGEIS Appendix 10, Proposed Supplemental Permit Conditions, which requires immediate suspension of hydraulic fracturing pumping operations if any anomalous pressure and/or flow condition is observed such as would be seen if a fault was encountered.

Lineament mapping may have some value but cannot provide the exact location of faults and fractures. Surface lineaments also do not indicate whether or not a surface fracture is open at depth. Surface mapping and investigation is necessary to confirm whether a lineament is in fact a fracture or some other linear feature.

Comment 3822:

Part 560.3(b), Mapping Requirements, should include a requirement for a map drawn at a scale of 1:24,000 that shows the primary and principal aquifers of concern. The existing statewide geographic information system map (showing principal aquifers) is outdated and inaccurate as it was digitized at a scale of 1:250,000 and has not been revised to include information from numerous detailed aquifer studies that have been conducted since the map was digitized in the 1980s. There is >30% discrepancy between the aquifer boundaries mapped at scales 1:250,000 and 1:24,000.

Response 3822:

Additional mapping of principal aquifers at the 1:24,000 scale is warranted. The Department is able to assist applicants with determining whether a proposed location is within the principal aquifer boundary. The Department recognizes this concern and suggests that if a proposed well location is within 2,000 feet of the principal aquifer boundary on a 1:250,000 scale map, the well permit applicant must contact the Department for a determination.

Comment 3826:

In proposed regulation 560.4 (a), the prohibition of well pads should be expanded to include a prohibition of well pads in the following areas: (1) closer than 1,000 feet from a private water well unless waived by the water well owner; (2) within the geometric boundary of a primary aquifer and a 2,000-foot buffer from the boundary of a primary aquifer or surface water divide for the aquifer, whichever is closer; (3) within a 100-year floodplain and a 500-foot buffer of the 100-year floodplain; (4) within 500 feet of a wetland; (5) within 2,000 feet of any public water supply (municipal or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing

operations), and river or stream intake; (6) within 2,500 feet of any faults identified in published documents or fracture intensification domains (FIDs) that are mapped within 1,000 feet of any public water supply (municipal or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), and river or stream intake; (7) within 1,000 feet of any active or abandoned salt mine; (8) below a Finger Lake or dry Finger Lake valley and within 500 feet of the Finger Lake; and (9) within 500 feet of a perennial stream.

Response 3826:

The Department does not agree that the commenter's proposed prohibitions are necessary. Existing Parts 550 – 559 regulations, the proposed Part 560 regulations and the prohibitions/restrictions found in the rdSGEIS provide adequate protections for the public, drinking water supplies, and the environment. The presence of FIDs or faults does not mean these features are open and able to transmit fluids at depth. See also response to Comment 3828.

Comment 3828:

Proposed regulation 560.6(c)(20) should be expanded to require (prior to hydraulic fracturing operations) the operator perform a down-hole 3-D seismic survey that covers the full extent of the planned horizontal borehole. A record of the 3-D seismic test must be maintained on-site by the operator and be available to the Department upon request.

Response 3828:

The Department will require a 3-D seismic survey prior to hydraulic fracturing operations or active microseismic monitoring (sometimes referred to as down-hole 3-D fracture imaging) during fracturing when the proposed objective formation top is less than 3,000' true vertical depth. See rdSGEIS Chapter 7. The Department does not agree that the proposed regulatory expansion is necessary.

Comment 3831:

Part 560 in general: The rdSGEIS proposes mitigation measures concerning high-volume hydraulic fracturing operations that are not addressed in these regulations (e.g. limiting emissions from diesel engines, the greenhouse gas mitigation plan). The United States Environmental Protection Agency Region 2 recommends that the Department include all applicable mitigation measures in the regulations to improve their enforceability as well as provide one clear document in English to which the regulated community, the regulators, and the public can refer to determine applicable requirements.

Response 3831:

The Department acknowledges that in some cases the rdSGEIS is more detailed than a proposed regulation. Mitigation measures contained in the Final SGEIS will be required and enforced as

permit conditions. This provides flexibility for other approaches to be implemented as operators and the Department gain experience. While the rdSGEIS reflects those approaches that the Department has determined would effectively achieve an environmental objective, there may be other ways to accomplish the same objective that exist now or that will be developed as technology advances. The Department always has the option to propose additional regulations should a specific approach to a given objective become standardized or be deemed the only acceptable alternative.

Comment 3832:

The 1992 GEIS describes use of up to 80,000 gallons of water for a typical hydraulic fracturing operation. Part 560.2(b)(8) defines high-volume hydraulic fracturing as the stimulation of a well using 300,000 gallons or more of water as the primary carrier fluid in the hydraulic fracturing fluid. In order to be consistent with the GEIS, high-volume hydraulic fracturing must be defined as the stimulation of a well using greater than 80,000 gallons of water as the primary carrier fluid in the hydraulic fracturing fluid. This threshold as a definition based on average volumes for each stage of shale drilling should be reevaluated based on what is documented in the 1992 GEIS.

Response 3832:

See Response to Comment 3436 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**. The 1992 GEIS does not state or set a maximum volume of water used for hydraulic fracturing operations. Instead, it describes a typical water-gel hydraulic fracturing treatment known as “Water-gel fracs” as the most common stimulation technique. Twenty to eighty thousand gallons of fluid are injected into the producing formation under high pressure. It was ultimately determined by the Department that high-volume hydraulic fracturing and potential associated impacts would not be triggered and realized until a volume of 300,000 gallons of water is reached or exceeded. All proposed water volumes below this threshold are considered under the 1992 GEIS.

Comment 3833:

Proposed regulation 560.7(f) should classify flowback water as hazardous waste and subject it to the corresponding regulations.

Response 3833:

Currently, “drilling fluids, production brine, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy” are excluded from being regulated as a hazardous waste in both federal law and federal and state regulations (42 U.S.C. 6921 (b)(2)(A), 40 CFR 261.4(b)(5), 6 NYCRR 371.1(e)(2)(v)). This is commonly referred to as the “extraction and production” (E&P) exclusion. This exclusion has existed since the beginning of the RCRA regulatory program and was included verbatim in the New York regulations when USEPA delegated the RCRA program to New York. The exclusion was

conditionally included in the RCRA statute by Congress (Section 3001(b)(2)(A)). Congress required USEPA to study these wastes and determine whether they should be regulated as hazardous waste or not. USEPA reported to Congress in 1988 and concluded that regulation of E&P wastes as hazardous waste was not warranted. USEPA provided several reasons for their conclusion (53 FR 25446):

- existing state and federal regulatory programs (including the Solid Waste Disposal Act, Safe Drinking Water Act, Clean Air Act, and Oil Pollution Act) provided adequate controls for the disposal of these wastes;
- given that billions of barrels (volumes approaching one trillion gallons per year) of these wastes are generated per year nationally, regulating these wastes under RCRA would cause a severe impact on oil and gas production in the United States;
- insufficient commercial treatment capacity would create serious short-term implementation problems; and
- regulating these wastes under RCRA would inhibit the exploration for new oil, gas, and geothermal energy deposits.

The proposed regulations and permits provide provisions to prevent significant adverse impacts from mismanagement of high-volume hydraulic fracturing wastes. Wastes must be handled and stored in ways to minimize the potential for releases (e.g., secondary containment for flowback fluids and standby vacuum trucks). Drilling operations must conform to setback requirements. Transportation must be carried out by haulers permitted under Part 364. The disposal of wastes must be tracked from generation to disposal using a Drilling and Production Waste Tracking Form. Disposal of waste fluids must be in accordance with a variety of requirements, particularly those under SPDES. Solid wastes must be disposed in accordance with Part 360.

Regulating high-volume hydraulic fracturing wastes as hazardous wastes would unnecessarily increase the cost of regulation with little, if any, additional environmental benefit. It would also likely eliminate the recycling of flowback water.

Comment 3834:

The definition of wetlands in Part 560.2(b)(26) should be revised to read: Any area 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 groundwater 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 Clean Water Act, 33 U.S.C. 1362(7).

Response 3834:

This definition in Part 560.2(b)(26) is consistent with the rdSGEIS and a definition of "wetlands" that has been added to the HVHF General Permit: "any area regulated pursuant to Article 24 of

the Environmental Conservation Law and any other wetlands regulated under Section 404 of the Clean Water Act.”

Comment 3837:

Part 560.4(a) should be revised to include the prohibition against high-volume hydraulic fracturing operations within 4,000 feet of the New York City and Syracuse Watersheds as recommended by Section 3.2.4 of the rdSGEIS. The regulations also should clarify if activities associated with high-volume hydraulic fracture drilling and completions will be prohibited underneath the watershed as well as on the surface.

Response 3837:

The Department would prohibit the construction of well pads within the 4,000-foot buffer through the SGEIS. The 4,000-foot buffer is with respect to well pads and is not a prohibition of horizontal drilling under the buffer or the watershed itself.

Comment 3842:

Part 560.4(a) should be modified to include the requirement under Section 3.2.5 of the rdSGEIS that site-specific environmental assessments and State Environmental Quality Review Act determinations of Significance are required for the following high-volume hydraulic fracturing projects: 1. Any proposed well pad within 500 feet of a principal aquifer; 2. Any proposed well pad within 150 feet of a perennial/ intermittent stream, storm drain, lake, or pond; and 3. Any proposed well location within 1,000 feet of the New York City Department of Environmental Protection's subsurface water supply infrastructure.

Response 3842:

The Department does not agree that it is necessary to promulgate SEQRA determinations as regulations. They will be formalized in a Findings Statement that will be issued after the SGEIS is finalized.

Comment 3843:

Part 560.4 Setbacks: The Department should include a requirement prohibiting well pad sites on steep slopes.

Response 3843:

The draft stormwater general permit for high-volume hydraulic fracturing specifies that general permit coverage is not available on steep slopes. An individual SPDES permit would be required for steep slopes which would provide a mechanism for addressing potential stormwater management and erosion control issues.

Comment 3845:

Part 560.5 Testing, Recordkeeping and Reporting Requirements: The Department should consistently require that private water well test results be submitted to the Department. The Department should consider establishing a groundwater baseline database and follow-up with the entry of post-initial sample results.

Response 3845:

Part 560.5 has been revised to require that private water well testing data be submitted to the NYSDOH and be made available to the Department upon request. Establishment of a groundwater baseline database is beyond the scope of the proposed rules. See also Response to Comment 3792.

Comment 3847:

In accordance with Page 7-45 of the rdSGEIS, Part 560.5(d)(1) should be revised to clarify that initial sampling and analysis of residential water wells must occur prior to site disturbance at the first well on the pad and then prior to drilling commencement at additional wells on multi-well pads.

Response 3847:

Part 560.5(d)(1) has been amended.

Comment 3848:

The proposed Part 560 regulations do not address mitigation measures that the rdSGEIS says will be required for wildlife, grasslands, forest integrity, and the spread of invasive species.

Response 3848:

The Department acknowledges that in some cases the rdSGEIS is more detailed than a proposed regulation. Mitigation measures contained in the Final SGEIS will be required and enforced as permit conditions. This provides flexibility for other approaches to be implemented as operators and the Department gain experience. While the rdSGEIS reflects those approaches that the Department has determined would effectively achieve an environmental objective, there may be other ways to accomplish the same objective that exist now or that will be developed as technology advances. The Department always has the option to propose additional regulations should a specific approach to a given objective become standardized or be deemed the only acceptable alternative.

Comment 3849:

Part 560.5(d) should specify in accordance with page 7-47 of the rdSGEIS that the water samples be collected by a qualified professional and analyzed utilizing a laboratory approved by the New York State Department of Health's Environmental Laboratory Approval Program, including the

use of proper sampling and laboratory protocol, in addition to the use of proper sample containers, preservation methods, holding times, chain of custody, analytical methods, and laboratory quality assurance/quality control.

Response 3849:

The Department acknowledges that in some cases the rdSGEIS is more detailed than a proposed regulation. Mitigation measures contained in the Final SGEIS will be required and enforced as permit conditions. This provides flexibility for other approaches to be implemented as operators and the Department gain experience. While the rdSGEIS reflects those approaches that the Department has determined would effectively achieve an environmental objective, there may be other ways to accomplish the same objective that exist now or that will be developed as technology advances. The Department always has the option to propose additional regulations should a specific approach to a given objective become standardized or be deemed the only acceptable alternative.

Comment 3850:

In accordance with Paragraph 54 of Appendix 10 of the rdSGEIS, Part 560.5(g) should be modified to include not only the intended destination of any fluid or other waste material moved off site by pipeline but its intended disposition and use at that destination or receiving facility.

Response 3850:

Part 560.5(g) has been amended.

Comment 3851:

Part 560.6(a)(4) should be revised to include the proposed requirement specified on page 7-37 of the rdSGEIS that pit liners must be constructed, coated, or lined with materials that are chemically compatible with the substance(s) stored and the environment as well as the requirement for freeboard monitoring.

Response 3851:

Part 560.6(a)(4) has been modified to require pit liner compatibility with stored substances. The requirement for freeboard is included in the Supplementary Permit Conditions of the 2011 rdSGEIS.

Comment 3852:

Part 560.6(b)(1)(ii) appears to allow fueling tanks within 500 feet of a perennial or intermittent stream, storm drain, wetland, lake, or pond if longer distances are not considered practical by the operator. This is inconsistent with the recommendation to completely prohibit such siting of fueling tanks in Section 7.1.3.1 of the rdSGEIS. Therefore, delete the phrase "to the extent practical" and increase the allowed distance between fueling tanks and the water sources listed, taking into account topography, slope, and other factors.

Response 3852:

The Department has deleted the phrase “to the extent practical” and will evaluate fuel tank and other equipment placement during its review of the proposed application to drill.

Comment 3854:

Part 560.6(c)(15) states that remedial cementing will be required if the cement bond is not adequate for drilling ahead. Part 560.3(a)(16)(iii-iv) indicates that any casing and casing seat integrity testing plans must be submitted as part of the permit application. It is unclear if these tests are required but, in any case, if such tests are run, the results of those tests should also be considered when determining if remedial cementing of any casing string is necessary.

Response 3854:

Comment noted. The Department will evaluate all test information available in order to determine whether remedial cementing of casing is required.

Comment 3856:

Part 560.6(c)(16) specifies that if intermediate casing is installed, the production casing cement must be tied into the intermediate casing string with at least 300 feet of cement measured using True Vertical Depth. This requirement is unclear as it could be interpreted to mean: (1) The production casing must have a minimum 300 feet of cement above the casing shoe and must tie into the intermediate string of casing by an unspecified amount, e.g. 10 feet; or (2) The cement outside the production casing must extend a minimum of 300 feet above the casing seat for the intermediate string of casing. Thus, it is recommended that the Department clarify the language.

Response 3856:

The cementing language has been clarified to require that the production casing cement must extend a minimum of 500 feet above the intermediate casing seat.

Comment 3857:

Part 560.6(c) should clarify whether or not pressure testing of the casing and casing seat integrity tests as referenced in the permit application requirements in Part 560.3 are required. If hydraulic fracturing operations are occurring down tubing set on a packer [Part 560.6(c)(21)], the tubing/casing annulus should be pressure tested to ensure that the packer has a good set that can withstand hydraulic fracturing pressures, the tubing is sound, and the production casing is sound and can withstand hydraulic fracturing pressures in the event a tubing or packer failure occurs during hydraulic fracturing operations.

Response 3857:

The Department believes the test requirements do not need to be included in the Part 560 regulations. Appendix 10 of the rdSGEIS, Proposed Supplementary Permit Conditions, requires pressure testing of casing, injection lines, hydraulic fracturing treating equipment, wellhead components and casings, injection lines and manifold, associated valves, hydraulic fracturing head or tree and any other wellhead component or connection. The Department will utilize the BOP Use and Test Plan to evaluate all pressure tests during drilling and will also evaluate breakdown pressure data. An unacceptable loss of pressure during the test (> 10%) indicates the injection string packer was not seated properly and any failed test must be reported to the Department along with the operator's plan to remediate the problem.

Comment 3859:

Part 560.6(c)(28) should be modified to state that the flare stack must be at least 30 feet in height unless the absence of hydrogen sulfide has been demonstrated at a previous well pad which was completed in the same producing horizon. In some parts of New York State, the Marcellus and Utica formations are both potential targets, so one well pad may be home to wells completed in the Utica and the Marcellus.

Response 3859:

Part 560.6(c)(28) has been amended.

Comment 3860:

A sentence should be added to Part 560.7(e) clarifying that no waiver of these reclamation requirements shall be granted when such well pad or access road was constructed in wetlands.

Response 3860:

The Department does not agree that the proposed statement should be added to Part 560. However, the SGEIS recognizes that wetlands are sensitive resources requiring enhanced protection. Additionally, in response to this comment and others concerning wetlands and other sensitive water resources, the Department proposes in its revised rulemaking under 6 NYCRR 750-3 to increase the setback of well pads from wetlands from 100 to 300 feet. Additionally, the construction of a well pad or access road in wetlands would require an Article 24 wetlands permit and the operator would be required to comply with additional permit conditions.

Comment 4401:

The proposed regulations do not address measures to prevent seismic impacts.

Response 4401:

The rdSGEIS has characterized the risks of seismicity impacts from high-volume hydraulic fracturing as low with essentially no increased risk to the public, infrastructure or natural resources from induced seismicity related to hydraulic fracturing.

Comment 4402:

The proposed rules provide no protection against the pollution and environmental damage that gas drilling and hydraulic fracturing have already caused. [This is shown by] pollution [incidents] that have occurred [in other places], despite promises that there was no danger.

Response 4402:

The proposed regulations contain many proposed requirements to prevent and reduce potential significant adverse impacts to natural resources. The Department believes that these requirements would prevent and reduce significant adverse impacts to environmental resources including water quality, habitat quality, and the spread of invasive species.

Comment 4405:

Part 560.4: Water well owners should not be allowed to waive the requirement of the 500-foot setback. A decision by a private landowner to waive the requirement endangers water quality for that aquifer. As well, the regulation should state that any attempt to waive or vary from requirements will automatically be a Type I action under the State Environmental Quality Review Act.

Response 4405:

The Department does not agree that a decision by the landowner to waive the 500-foot setback will endanger the water quality for the aquifer. The protections and requirements found in the rdSGEIS, Environmental Conservation Law and Regulations provide protection to the aquifer and the environment. Likewise the Department does not agree that an attempt to waive the 500-foot setback should require that the action be classified as Type 1.

Comment 4407:

Part 560.4: A 500-foot distance from a primary aquifer is not adequate. Just as in the case of New York City and Syracuse, the setbacks should be 4,000 feet from the boundaries of the watershed, not just the aquifer itself.

Response 4407:

The New York City and Syracuse drinking water supply watersheds have a 4,000-foot well pad prohibition from their boundaries due to the exclusion of communities with Filtration Avoidance Determinations (FAD). The Department believes that the circumstances unique to FAD watersheds warrant the larger setbacks compared to primary aquifers.

Comment 4409:

Part 560.4: Setbacks from sole-source aquifers are not addressed. Cortland County has a sole-

source aquifer that serves 39,000 people. Unlike a primary aquifer, the boundaries of a sole-source aquifer include its watershed. Given the fact that the very designation of being a sole-source aquifer means that there is no other economically feasible water supply for that area, a sole-source aquifer deserves the same protection that is given to the New York City and Syracuse watersheds, i.e., a 4,000-foot setback from the boundaries.

Response 4409:

See response to Comment 4407. The Department has taken the position that there is no direct technical relationship between the designation of "Sole Source" Aquifers and Primary and Principal Aquifers (see <http://www.dec.ny.gov/lands/36151.html>).

Comment 4554:

The Department should amend the following provision that poses a safety hazard. Part 560.6(c)(19) states: "Under no circumstances should the annulus between the surface casing and the next casing string be shut-in, except during a pressure test." This requirement is not good practice and is in fact a safety and environmental hazard, as it could lead to surface pollution, fire, or a blowout. A better general rule would be to require an appropriate gauge and release valve.

Response 4554:

The Department does not agree. The concern with shut-in of the annulus between the surface casing and the next string (typically intermediate casing in wells where high-volume hydraulic fracturing is used) is possible gas buildup and pressure at the surface casing seat resulting in movement outside of the surface string, and possible risk to freshwater intervals.

Comment 4555:

Several provisions in Part 560 describe ambiguous or vague standards and requirements. For example, Part 560.6(c)(1) mandates that a required well prognosis be revised by the operator if drilling reveals significant variation between anticipated and actual geology/formation pressures, but no clarification or guidance is given as to the interpretation of "significant" in that context. Part 560 uses the word "adequate" without any clarification or guidance a total of eight times (e.g., pit sidewalls and bottoms must be adequately cushioned.) (see 560.6(a)(4)(iii)). This loose phrasing increases regulatory uncertainty and decreases the likelihood that all operators will follow appropriate procedures and observe the intent of Part 560. Along the same lines, in order to clarify operator obligations and ensure appropriate practices, Part 560 should enshrine specific operational standards and American Petroleum Institute (API) standards wherever possible and appropriate, including in place of the term "industry standards" in Parts 560.6(c)(3), (4), and (10).

Response 4555:

The Department does not agree that the use of terms such as adequate or significant will create regulatory uncertainty resulting in the likelihood of decreased compliance with the requirements of Part 560. Department staff will perform inspections during all phases of drilling to ensure compliance, verify adequacy of the well site components and to verify the status of the “as drilled well” versus the prognosis. The use of seismic and other data along with the blanket nature of shale formations leads the Department to believe that significant variations will be rare. As with other permitting programs, communication of a variation event from the anticipated prognosis is essential. References to conforming to or being in accordance with API standards are found in Appendix 10 and 25 which include casing, thread compound, centralizers, cement and well logging and other testing. An industry standard that conforms with API standards or is equally protective is also acceptable to the Department. Enshrinement of “API standards” language is not necessary.

Comment 4556:

Some of the provisions in Part 560 call for blanket technology solutions that may not be appropriate for all wells. For example, Part 560.6(c)(13) sets forth the blanket rule that intermediate casing must be installed in the well. That intermediate casing should be used more often than it is used currently, and in New York all wells that undergo large-volume hydraulic fracturing should have intermediate casing, but it is not certain that this is the case and therefore the Department is encouraged to consider whether it may be desirable to set forth clear guidelines describing the circumstances where intermediate casing is and is not required.

Response 4556:

The rdSGEIS’ Proposed Supplementary Permit Conditions for High-Volume Hydraulic Fracturing, Chapter 1 and Chapter 7 contain language regarding an operator’s request or ability to waive the intermediate casing requirement. The operator must make its case for the waiver and obtain Department approval to do so.

Comment 4557:

Part 560 contains several provisions for on-site pits that should be re-examined. Part 560.6(a)(4)(iv) states that any reserve pit, drilling pit, or mud pit on the well pad which will be used for more than one well that is constructed in unconsolidated sediments must have beveled walls of 45 degrees or less. All earthen pits should meet this requirement, not just those constructed in unconsolidated sediments. Part 560.6(b)(2) states that except for freshwater storage, fluids must be removed from any on-site pit prior to any 45-day gap in use and the pit must be inspected by the department prior to resuming use. This requirement could limit water reuse and recycling to the extent that multi-use pits are utilized. The Department should consider adding a narrowly drawn exception provision.

Response 4557:

The Department will require beveled walls of 45 degrees or less for all earthen pits. The Department does not agree that the requirement that fluids must be removed from any on-site pit

prior to any 45-day gap would limit water reuse and recycling. The operator must plan accordingly to take the 45-day gap into account when drilling subsequent wells on a multi-well pad.

Comment 4558:

Part 560 should place greater emphasis on wellbore integrity and certain operational issues. The draft Model Regulatory Framework (attached to comment; MRF for Hydraulically Fractured Hydrocarbon Production Wells) goes into great detail on these topics. In particular, although the Environmental Defense Fund (EDF) does not endorse the MRF draft in all respects, EDF feels that Part 560 should be revised to the extent necessary to cover adequately those operational issues addressed in Articles IV through VI of the MRF, including but not limited to the following MRF topics: The casing strength and composition requirements set forth in Section 2(a) of Article IV; The well-head assembly and blowout preventer requirements set forth in Sections 2(b) and (c) of Article IV; The mud and drilling fluid requirements set forth in Sections 2(d), (e), and (f) of Article IV; The surface, intermediate, and production casing requirements set forth in Sections 4 through 6 of Article IV; The cement quality requirements of Section 4(d) of Article IV; The use of only state-approved cementers and service companies pursuant to Section 7 of Article IV and Section 4 of Article V, respectively; The pre-hydraulic fracturing pressure, cement integrity, and surface equipment testing requirements of Section 2 of Article V; The hydraulic fracturing job monitoring and reporting requirements of Section 3 of Article V; The production and well monitoring requirements of Article VI; and The additional requirements for operations involving close proximity wells set forth in Sections 4(h) and 6(h) of Article IV and Section 2(d) of Article V. Rather than conceiving of close proximity wells as those that are 500 feet beneath the base of protected water, as is done in the current MRF draft, EDF suggests that the Department consider using 1,000 feet.

Response 4558:

The Department acknowledges that in some cases the rdSGEIS is more detailed than a proposed regulation. This provides flexibility for other approaches to be implemented as operators and the Department gain experience. However, mitigation measures contained in the Final SGEIS will be required and enforced as permit conditions. In some instances the Department added language to incorporate EDF's proposed requirements to the draft document. The rdSGEIS and its appendices contain many of the requirements proposed in the Model Regulatory Framework (MRF). Examples include but are not limited to: casing specifications, testing of casing, testing wellhead and other equipment, waiting on cement time, cement compressive strength, BOP tests, conformance with API specifications, monitoring the well during fracture operations, and the volume of annular cement necessary to prevent vertical migration of fluids. In several cases the Department's requirements and standards exceeded EDF's proposed revisions; therefore, the Department determined that it would not incorporate EDF's revisions for those items. A partial list of the Department's more stringent requirements include: no used or reconditioned casing allowed for high-volume hydraulic fractured wells, 3-day pre-fracture notification instead of 24 hours notice, cementing of intermediate casing to the surface, running a full string of production casing run to the surface (no liners) and an approximately 1,200-foot separation for wells in close proximity to the freshwater zones instead of EDF/MRF's 500 to 1,000 feet. The State holds the

operator responsible for the actions of its contracted service providers such as service and cementing companies. The Department believes the SGEIS, once it is finalized, along with the Environmental Conservation Law, and regulations will adequately protect the public, water resources and the environment.

Comment 4559:

A clarification of what is meant by flowback fluids is suggested. The term is defined in Part 560.2(b)(7) as liquids produced following drilling and initial completion and clean-up of the well or clean-up of a well following a re-fracture or workover. The Department should specify if this is intended to include only the production brine that comes out of the well immediately after completion or re-fracture, or if production brine surfacing long after the initial completion or re-fracture is also included. This ambiguity could lead to operator uncertainty.

Response 4559:

The term has been amended to “flowback water.” Relatively small amounts of production brine may be produced during initial completion and clean-up of a well. However, production brine as it is defined in Part 560.2(b)(18) means liquids co-produced from oil and gas wells during the production phase of the well. The Department does not agree that the term flowback water needs clarification.

Comment 5794:

The proposed regulations refer to an "operators designated representative." However, that term is not defined in any of the regulatory proposals. It is recommended that a definition be included in 560.2 as follows: designated representative means a person employed by the permittee or an agent contracted with the permittee to oversee compliance at the well site.

Response 5794:

The Department prefers this designation be made on a permit and site specific basis to allow for changes in relationships, responsibilities and preferences, and will therefore not amend the regulations as suggested in this instance.

Comment 6086:

Part 560.2(b)(1): Use the term "technical standards" in place of "best management practices."

Response 6086:

The term “best management practices” is used by industry, regulators and various agencies within the Department and is appropriate for use in the proposed regulations.

Comment 6087:

The Part 560.2(b)(8) definition for high-volume hydraulic fracturing should be revised to add the word cumulatively in order to be more consistent with the Part 750-3.2 (b)(22) definition. Without the conditional "cumulative" wording, the definition could pertain to each separate fracturing stage (which may each be under the 300,000 gallon threshold).

Response 6087:

See Response to Comment 3436 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**. Part 560.2(b)(12) has been amended to make it clearer that the volume threshold applies to each well completion (which may consist of multiple hydraulic fracturing stages).

Comment 6088:

The proposed 560.2(b)(12) definition of partial reclamation differs from the proposed 750-3.2(35) definition. Moreover, the concept of partial site reclamation is unclear in both. This is an important issue because of the episodic nature of drilling and completion associated with shale development. When clarifying the definition in proposed 560.2(12), industry needs a reasonable time frame to comply with the partial reclamation requirement and recommends six months.

Response 6088:

Partial reclamation operations must commence after completion of the last well on the wellpad. The time necessary to do so may vary considerably based upon the time of year reclamation activities begin and the length of the growing season. For these and other reasons a set time frame was not proposed. Six months may or may not be adequate to partially reclaim the site. The Department will review the proposed regulations for consistency prior to finalization.

Comment 6089:

Parts 560.2(b)(14) and (16): The Department continues to illogically distinguish between principal and primary aquifers. Regardless of what population density is served by an aquifer, the mechanism of protection should be identical. By suggesting that principal aquifers deserve less protection because they serve a secondary human purpose condemns future New Yorkers to potentially more resource constraints when potable water supplies become scarce.

Response 6089:

Setbacks have been recommended in order to conservatively provide a margin of safety should the operational mitigation measures fail or not be implemented in a particular instance. Additionally, setbacks were developed by balancing the protection of the water resource, which is achieved by many measures in addition to setbacks, and the policy in ECL §23-0301 to allow for the recovery of the natural gas resource and to protect correlative rights. The prohibitory setbacks are for current drinking water supplies, including unfiltered drinking water supplies and

Primary Aquifers serving large numbers of residents and major municipal systems. A site-specific SEQRA review is more appropriate for Principal Aquifers, as they generally serve smaller numbers of residents than Primary Aquifers, and other water resources that are not used as drinking water supplies. The Department always has the option to propose additional regulations should additional protections to aquifers become necessary.

Comment 6090:

A public water supply is defined in Part 560.2(b)(19) as a well system that provides water for human consumption to at least 5 service connections or to at least 25 persons per day at least 60 days per year. These definitions suggest that a well providing water to 1 to 4 buildings that are not residences and that seldom provide drinking water to more than 25 persons per day would not be covered under these regulations.

Response 6090:

The Department agrees.

Comment 6091:

Parts 560.2(b)(19) and (20): Clarify that a public water supply can consist of groundwater and/or surface water.

Response 6091:

The Department does not agree that Parts 560.2(b)(19) and 560.2(b)(20) need further clarification.

Comment 6092:

The definition of water well in Part 560.2(b)(23) is inconsistent with usage elsewhere in Part 560. Part 560.2(b)(23) states that a water well shall mean any residential well used to supply potable water. However, Parts 560.5(d)(1), (2), and (3) all use the term residential water wells, which implies that there may be other (non-residential) water wells in the area under consideration. Perhaps it would be better to remove the terms residential and potable and have the definition apply to all water wells.

Response 6092:

Comment noted. The Department deleted the water well definition found in Part 560.2(b)(23). The Department will review the proposed regulations for consistency prior to finalization.

Comment 6093:

Part 560.2(b)(25): This definition of well site seems to create ambiguity allowing well pad features (equipment and staging) to exist away from the pad.

Response 6093:

The revised proposed rule has been amended to clarify the intent of the term.

Comment 6094:

The proposed water regulations at 750-3.4 contemplate similar application requirements to those proposed in 560.3, but they vary somewhat. Industry recommends that all of the application requirements be contained in the minerals regulations and the singular application requirements serve as a checklist for a complete application and compliance with the 1992 GEIS and the rdSGEIS. There should be one-stop shopping at the Department.

Response 6094:

Comment noted. The Department will review the proposed regulations for consistency prior to finalization.

Comment 6095:

Part 560.3: The application for a permit should include a graphical illustration of a model site, showing grading, run-off contouring, drainage routing, use of berms, sills, and other barriers to achieve containment, and all measures used to avoid drainage toward streams and wetlands. It would also illustrate specific site locations for vehicle and equipment storage, fueling, cleaning and maintenance; chemical and materials storage, mixing, handling, loading and unloading, and cement mixing; lumber storage and processing; and a closed system of water-tight steel tanks for supply of water for drilling fluids, hydraulic fracturing, and flowback.

Response 6095:

The Department does not agree that a graphical illustration containing all of the above items is necessary for review of the application to drill. The Department's plat and map requirements found in Section 552.1, 560.3 and the proposed EAF Addendum (rdSGEIS Appendix 6) provide adequate information for the evaluation of the drilling permit.

Comment 6096:

Part 560.3(a)(2): The operator should also be required to complete geophysical logging including conductivity measurements to verify the depth of potential fresh water, unless it had been based on previous drilling on the well pad.

Response 6096:

Part 560.6(c)(11)(ii) would require the use of geophysical logging to determine the base of potable water.

Comment 6097:

Part 560.3(a)(3): The operator should also be required to discuss and specify how the estimated volume of water (to be used in hydraulic fracturing) was determined.

Response 6097:

Part 560.3(a)(3) requires an operator to provide “the basis for the estimate of proposed total volume of fluid,” which includes the total volume of fresh water and other water based fluids. See also revised regulations at 750-3.8(c), which require monitoring and recording provisions in the HVHF SWPPP for the volume of water used for each HVHF stage.

Comment 6098:

Parts 560.3(a)(5) and (6): The application should provide the distance to the water supply features in (5) and the aquifer and stream features in (6) if they are within two miles.

Response 6098:

The Department disagrees. The EAF Addendum would require an applicant to provide scaled distances from the proposed surface location of the well and the closest edge of the proposed well pad to these features if they are within 2,640 feet, which is sufficient to ensure that the proposed setbacks are met.

Comment 6099:

Parts 560.3(a)(5) to (8), 560.4, and 560.6(b)(1)(ii): Revise the regulations to specify that, where there is slope or grade that may potentially cause materials from gas production-related activities to migrate toward or enter said water resources, any potential sources of contamination such as storage containers, facilities, equipment, holding ponds, access roads, storage lots, and other facilities may be located no closer than 2,640 feet from the topographical boundary or ridge where the slope or grade will not cause materials to reach the water resources. Potential sources of contamination should be considered to include loose soil; mud runoff; lubricants; discharged or vented materials; chemically treated water or produced water; cuttings; spills; proppant; stored chemicals; reserve pits; and flowback storage.

Response 6099:

The Department disagrees. The proposed regulations and the rdSGEIS present a multitude of site controls to protect water resources. The potential sources of contamination listed in this comment and the proposed mitigation measures to address them are discussed in the rdSGEIS in Chapters 6 and 7, respectively.

Comment 6101:

Parts 560.3(a)(5), (6), (7), and (8) do not require enough information. All surface waters, aquifer

boundaries, wetlands, wells, springs, location of fueling tanks, and other equipment should be mapped for the entire drilling unit, as well as for a distance beyond the unit. This is important, especially considering that laterals could extend anywhere within the unit.

Response 6101:

Part 560.3(a)(7) has been amended in order to be consistent with the rdSGEIS. Fueling tanks are prohibited from being placed within 500 feet of a public or private water well, domestic supply spring, reservoir, perennial or intermittent stream, storm drain, wetland, lake or pond. These requirements are focused on the well pad where the equipment is located and activity occurs. The direction and extent of the lateral well bores has no bearing on surface setbacks measured from the well pad.

Comment 6102:

Part 560.3(a)(7): The United States Fish and Wildlife Service (USFWS) is concerned that locating drilling rig fuel tanks at least 500 feet from streams, wetlands, and other bodies of water is far enough. This distance might not be protective enough for aquatic habitat should a spill or release of fuel occur in certain instances, such as on slopes. USFWS recommends increasing the distance to more than 500 feet.

Response 6102:

Protection of streams, wetlands, and other bodies is achieved with the 500 foot setback and secondary containment in proposed Part 560.6(b)(1). Setbacks that are delineated in the proposed regulations are designed to ensure that significant adverse environmental impacts are part of a multi-barrier approach avoided or mitigated to the greatest extent practicable. The Department believes that the 500-foot setback is adequate in light of the other controls required.

Comment 6103:

Part 560.3(a)(9): There is concern that the gas companies and the Department will not be able to locate and identify abandoned wells within the proposed spacing unit and within one mile of the proposed surface location as the rule requires. Before high-volume hydraulic fracturing takes place, the Department needs to find all of the abandoned wells in the state, map them, inspect them, and ensure they have been plugged and are not leaking.

Response 6103:

Proposed Part 560.3(a)(8) would require applicants to identify and assess any abandoned oil and gas wells within the spacing unit and within one mile of the proposed surface location. This comprehensive search will ensure all known wells that could be impacted by the specific proposed operations are evaluated. Locating all other abandoned wells in the state, most of which pre-date the Department's Oil, Gas and Solution Mining Law, is not germane to the proposed action.

Comment 6104:

Part 560.3(a)(9): In addition to identifying any abandoned wells in accordance with this regulation, revise the regulation to require the applicant to identify the distance from the surface location of the proposed well to the surface location of any existing well listed in the Department's Oil & Gas Database or any abandoned well identified by property owners or tenants within the proposed spacing unit and within one mile of the proposed surface location. For each well identified, require the following information: well name and American Petroleum Institute number; well type; well status; well orientation; and quantity and type of any freshwater, brine, oil, or gas encountered during drilling as recorded on the Department's Well Drilling and Completion Report.

Response 6104:

The Department agrees, and the proposed regulation, now at 560.3(a)(8), provides for the Department to specify the required information. As explained in the rdSGEIS, the EAF Addendum would require that an operator submit all of the items listed in this comment.

Comment 6106:

Proposed Part 560.3(a)(13) requires a description of the drilling and hydraulic fracturing engines to be used, the type of fuel needed for such engines, and a description of planned air emission control measures. This requirement should be conformed to the final version of the rdSGEIS, given that the Independent Oil and Gas Association of New York has raised issues concerning federal preemption and the need for additional mitigation requirements given the aggressive effort by the United States Environmental Protection Agency to regulate emissions from natural gas drilling in stimulation activities. Accordingly, Part 560.3(a)(13) should be revised to state: a description of the drilling and hydraulic fracturing engines to be used, the type of fuel needed for such engines and a description of any planned air emission control measures.

Response 6106:

The Department agrees. Proposed Part 560.3(a)(12) reflects the comment's suggestion.

Comment 6107:

Part 560.3(a)(16)(iv) allows too much room for less-than-best-practice by drilling companies and their subcontractors. Casing seat integrity failures have been implicated in too many cases of drinking water contamination by gas drillers, in both conventional and unconventional plays. All precautions, including both casing seat integrity testing and blow-out preventers, should be required for every well.

Response 6107:

Operators must provide with the application for permit to drill a well subject to Part 560 the proposed blowout preventer use and test plan for all drilling and completion operations. The

plan must include information on pressure ratings and test pressures of the BOP, related equipment and casing strings. The Department disagrees with the statement that the proposed regulation allows for less than best management practices.

Comment 6108:

Proposed Part 560.3(a)(16)(vii), which requires a copy of the operators well control barrier policy that identifies acceptable barriers to be used during identified operations, is vague and should be clarified, as industry standard only requires one barrier for testing purposes.

Response 6108:

Part 560.6(c)(3)(i) reflects a conservative approach to well control that the Department has determined would effectively achieve environmental objectives by requiring the use of at least two mechanical barriers during the regulated operation.

Comment 6109:

Revise Part 560.3(a) to say the following: 560.3(a)(17): a list of invasive species found at the well site and measures to prevent the spread of these invasive species including measures being used to prevent new invasive species being transported into the site; 560.3(a)(20): a transportation plan indicating the planned route for delivery of raw materials and chemical additives to the site, the proposed route for transport of waste materials and an estimated number of truck trips associated with same, providing plans to accommodate the current local truck trips made by existing businesses.

Response 6109:

Part 560.3(a) has been revised as follows: Part 560.3(a)(16) states, “a list of invasive species found at the well site and description of the best management practices which will be used for preventing the spread of these invasive species, including measures being used to prevent new invasive species from being transported to the site;” Part 560.3(a)(18) states, “a transportation plan indicating the planned route for delivery of raw materials and chemical additives to the site, the proposed route for transport of certain waste materials requiring tracking by means of the department’s Drilling and Production Waste Tracking Form and an estimated number of truck trips associated with each, and a copy of any road use agreement(s) between the owner or operator and any municipalities or documentation of the owner’s or operator’s efforts to obtain such agreements”.

Comment 6110:

Part 560.3(a)(17) provides little substance in protecting biodiversity from oil and gas development. Almost none of the mitigations proposed by the rdSGEIS are reflected in the new rules. The requirement of posting best management practices for the identification and control of invasive species at the drill site is not the same as actually requiring that the driller comply with those practices.

Response 6110:

Proposed Part 560.3(a)(16) indicates that an operator would need to provide both a list of invasive species found at the well site and a description of the best management practices which will be used for preventing the spread of these invasive species. Proposed Part 560.3(c)(3) would require that an operator provide a map at 1:24,000 scale showing the location and identity of all occurrences of invasive species within the proposed well site. Permit conditions would require the operator to fully implement the approved plan.

Comment 6111:

Part 560.3(a)(19): More information should be required relating to reclamation, schedule for reclamation, etc.

Response 6111:

Proposed Part 560.3(a)(17) would require that an operator provide a partial site reclamation plan that describes the methods for partially reclaiming the well site following completion, including a description of best management practices for restoration of native plant cover. Permit conditions would require the operator to conduct partial reclamation in accordance with the approved plan.

Comment 6112:

Part 560.3(a)(20): The required transportation plan also should address spill prevention measures, emergency containment and cleanup procedures, and plans for transportation routes to avoid sensitive areas such as wetlands, streams, and the habitats of threatened and endangered species.

Response 6112:

These areas of expertise are not within the purview of a traffic engineer/transportation consultant who would be preparing transportation management plans. Spill prevention measures are required as part of the Spill Prevention and Control Plan. Review of an application to drill a well will address wetlands, streams and habitats work on a case by case basis as part of the comprehensive review.

Comment 6114:

Part 560.3(b): All surface and subsurface features within and adjacent to the drilling unit should be required to be mapped.

Response 6114:

The comment is overly broad and does not identify the need for the information to be included with the plat. Proposed Parts 552.1(b) and 560.3(b) specify the information that an operator would be required to submit as part of an application package.

Comment 6115:

Part 560.3(b)(2): The topographic map areas should be increased from within 2,640 feet of the proposed surface location to within one mile of the proposed surface location. The map should include locations of all aquifers, water wells, stream channels, and other water features. The map should also include surface geology including faults. Contaminant pathways for transport from the pad should be identified on the map.

Response 6115:

The mapping requirement in Part 560.3(b)(2) is sufficient to make a decision on whether to issue a permit. The rdGEIS identifies the appropriate measures to mitigate potential sources of contamination, including secondary containment where recommended, stormwater management plans, emergency response plans, and spill control and prevention plans.

Comment 6116:

Part 560.3(c): No substances or chemicals used in the fracturing fluids should be exempt from disclosure. All products including their chemical and radioactive constituents (not trade names, but Chemical Abstract Service numbers), volumes, and concentrations and other chemical additives should be fully disclosed to the Department and the public.

Response 6116:

Part 560.3(c) has been revised to require that, at the time of permit application, all chemical constituents, be disclosed to the Department by chemical name and CAS Number along with the proposed actual or maximum concentration of each chemical constituent, in addition to the product name of each additive proposed for use. Part 560.5(h) requires that the same information be disclosed to the Department following well completion.

Existing state law, POL 87(2)(d), recognizes the right of persons who submit information to the Department to request that such information be excepted from public disclosure if the information qualifies as a trade secret. The Department's existing Records Access Regulations, 6 NYCRR 616.7, which implement POL 87(2)(d), lay out the process for making such requests, as well as the Department's procedure for independently evaluating whether the subject information qualifies as trade secret. Additive information determined by the Department to be trade secret could not be disclosed to the public; however, all other additive information would be made available to the public.

Comment 6117:

Part 560.3(c): In addition to full disclosure to the public regarding the substances and chemicals

intended to be used in each well, those substances and chemicals should be posted online by well for each individual well at least two months before either drilling (for drilling ingredients) or fracturing (for fracturing ingredients) begins. This will give nearby landowners a chance to test their private wells for those chemicals. In addition, all landowners within a one- to two-mile radius of the well must be notified in writing at least two months ahead with a list of the chemicals to be used.

Response 6117:

See response to Comment 6116 regarding the hydraulic fracturing fluid additive information required to be disclosed under Part 560.3(c) and how this information would be handled with respect to disclosure to the public. As indicated in the rdSGEIS, Material Safety Data Sheets (MSDSs) would be required to be submitted, as attachments to the EAF Addendum, for each additive product to be used in the drilling fluid and these MSDSs would be posted on the Department's website so that they are available to the public. Since all of the non-trade secret hydraulic fracturing fluid additive information will be available on Department's website prior to commencement of a hydraulic fracturing operation and following well completion, the Department does not find it necessary to provide landowners with individual notification regarding the chemical constituents to be utilized, as this information will be readily accessible to all interested individuals/parties.

The requirements for private water well testing imposed upon well operators are addressed by Part 560.5(d) and the parameters to be tested for are specified in Section 7.1.4.1 of the rdSGEIS. These parameters, which were recommended by NYSDOH, can be used as indicators of water quality, and are independent of the specific chemicals used in any given hydraulic fracturing operation.

Comment 6118:

Part 560.3: Fracturing fluids should be prohibited from containing any substances that are known carcinogens or endocrine disruptors.

Response 6118:

By implementing the proposed mitigation measures identified in the proposed regulations and SGEIS, the Department expects that human exposures during routine high-volume hydraulic fracturing operations would be prevented or reduced below levels of significant health concern. Therefore, the Department does not agree that it is necessary to prohibit specific substances based on concerns about health impacts that could only happen if there is an exposure. Proposed Part 560.3(d) details the hydraulic fracturing fluid information that an operator would need to disclose for a permit to drill, deepen, plug back or convert a well for high-volume hydraulic fracturing. See Response to Comment 3438 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**.

Comment 6120:

Part 560.3: In order to reduce the risk of contamination associated with spills or storage failures, the use of benzene, xylene, formaldehyde, heavy naphtha, diesel fuel, and other petroleum distillates should be prohibited in fracturing fluids or any other part of the process.

Response 6120:

Some additive products proposed for use in New York contain small amounts of benzene, toluene, ethylbenzene and/or xylenes. Diesel fuel, however, is not proposed as the carrier fluid for high-volume hydraulic fracturing in New York and use of diesel fuel for this purpose would be prohibited by well permits issued under the proposed regulations. See proposed 560.6(c)(24) and response to Comment 6118.

Comment 6121:

Part 560.3(c)(1)(v): The regulation should provide specific criteria for what constitutes an acceptable reduction in aquatic toxicity and an acceptable reduction in risk. The regulation also should identify the type, volume, and concentrations of fracture treatment additives that are protective of human health and the environment and include a list of prohibited additives. The list of prohibited fracture treatment additives should apply to all hydraulic fracture treatments, not just high-volume hydraulic fracturing treatments. The Department should also develop a process to evaluate newly proposed hydraulic fracturing chemical additives to determine whether they should be added to the prohibited list. No chemical should be used until the Department and/or the New York State Department of Health has assessed whether it is protective of human health and the environment, and has determined whether or not it warrants inclusion on the list of prohibited hydraulic fracturing chemical additives for New York State.

Response 6121:

The approach taken in the proposed regulations and assumes that hydraulic fracturing fluid additives, if released into the environment, may pose some potential impact that depends on site-specific circumstances. Therefore, the requirements contained in the proposed regulations, Chapter 7 and Appendix 10 of the rdSGEIS, including setbacks, buffers, exclusion areas, secondary containment requirements, inspection and preventative maintenance protocols, and well construction requirements, are included as precautionary measures that are intended to reduce and/or prevent any releases and environmental and human exposures. This approach addresses a broader range of potential impacts than attempting to apply a toxicity or hazard characterization to any specific chemicals, since all chemicals are toxic at some exposure level. Regardless of additive composition, the potential impacts from the chemicals utilized in hydraulic fracturing are mitigated by the required design and operational controls to prevent releases and exposures. Therefore, prohibiting specific chemicals or additives is not necessary.

Despite this, proposed Part 560.3(d)(1)(vii), which formerly appeared as Part 560.3(c)(1)(vii), would require documentation that proposed additives exhibit reduced aquatic toxicity and pose at least as low a potential risk to water resources and the environment as all known available alternatives, or documentation that available alternative products are not effective in achieving

the desired results or economically feasible. The Department, however, does not find it appropriate to specify in regulation an “acceptable reduction in aquatic toxicity” since the Department will also consider product effectiveness in achieving the desired results, as well as economic feasibility of use.

Comment 6122:

Add a Part 560.3(c)(1)(vii) that would require an assessment to be conducted of potential adverse environmental impacts from the proposed fracturing fluid.

Response 6122:

The rdSGEIS assesses the potential adverse environmental impacts from fracturing fluid in Sections 6.1.3 and 6.1.4. The Department does not agree that requiring additional assessments for each proposed fracturing fluid would measurably add to the protection of the public health or the environment.

Comment 6123:

Proposed Part 560.3(c)(1)(v), as well as sections 750-3.4(b)(7) and 750-3.11(e)(1)(i), contemplate requiring a green fracturing fluid analysis for each well permit. While Industry supports working toward greener options, as detailed in the Independent Oil and Gas Association of New York’s Critical Issues Analysis, the proposed analyses are unnecessarily costly and inefficient. The requirements to conduct a green fracturing fluid analysis for each permit application, therefore, should be deleted. Alternatively, if an analysis of green fracturing fluid additives is required, Industry recommends that the Department change Part 560.3(c)(1)(v) to require the service providers to submit the alternatives analysis to the Department. The service companies providing high-volume hydraulic fracturing stimulation chemicals and pumping services to operators are the entities most knowledgeable about the relative environmental benefits of both existing additive products and new additives. Furthermore, the review of additives for alternative green chemistry with every new permit application is impractical. When alternative additives with reduced toxicity are developed, these additives become known throughout the industry and also by regulators. Since the introduction of new hydraulic fracturing products is a time-intensive process for service and chemical companies and because operations tend to use a similar set of products when conditions allow within a play, Industry recommends that a biennial master chemical review by the high-volume hydraulic fracturing service companies be instituted rather than a permit-specific review. This chemical review would focus on the relative toxicity and other environmental attributes of the various additives that are used, or could be used, by a service company in hydraulically fracturing Marcellus Shale wells or wells in other shale gas plays. The service company would include in the review any green products it offers that could be used in shale gas wells. The service company could subsequently update its master list when it anticipates using a new chemical, or every two years at a minimum. Each application for permit to drill submitted by an operator would include a permit condition that the operator must use a service company that has an approved filing on record with the Department. The service company in turn would have already addressed the relative environmental attributes of its additive products under its master (biennial) filing to the

Department. Such an approach has several benefits. It places the chemical review responsibility in the hands of the service companies who provide the fracturing fluids. The service companies will be the first to know of new chemical availability and, therefore, are best positioned to notify the Department regarding such products. It will also serve to significantly reduce the review burden on the Department; there will be only a handful of master review lists requiring approval (i.e., a list for each service company), rather than adding to the review and approval process for each. The Department must also consider that green additives may not always be the most suitable for a particular fracture treatment based on local geology or other conditions. The universal use of green chemicals which are efficacious but less efficient could result in reduced well efficiency and less efficient production of the resource. The approach currently contemplated by the Department appears not to acknowledge the significant steps that have been taken to improve high-volume hydraulic fracturing chemistry to date (including a trend towards the overall reduction in the number of chemical additives used in a fracture fluid blend), particularly as relates to its use in the Marcellus Shale area. Moreover, any final regulation concerning this topic (and if there is one it should be located only in the mineral regulations) must consider the efficacy of the proposed fracturing fluid for the target formation and taking into account site specific considerations, detail how various options should be compared, and identify who will determine the best alternative.

Response 6123:

The Department recognizes the wide range of products and potential alternatives that may be used for high-volume hydraulic fracturing, and that research and development associated with these products (and alternatives) are an ongoing effort by many parties. The Department also recognizes that improvements have occurred, but because SEQRA requires the maximum practical mitigation of environmental impacts, the permitting process is designed to ensure that the best alternatives are used on an ongoing basis. Section 8.2.1.1 of the rdSGEIS describes the Department's proposed approach to the evaluation of alternative products, and this approach is being further evaluated. The Department does not agree, however, with the commenter's assertion that the service companies are in all cases the most knowledgeable entities regarding the environmental fate and transport of the products used in these processes; for example, some service companies might not employ professional hydrogeologists, environmental toxicologists, and risk assessment specialists. The Department anticipates that some alternatives evaluations will be applicable to more than one well permit application and could be done once and incorporated by reference in subsequent, similar permit applications.

Comment 6124:

Part 560.3: In addition to the list of requirements before gas drilling can commence, the Department should require testing of the aquifer for hydrocarbons, arsenic, mercury, total dissolved solids, and radium in an Environmental Laboratory Approval Program-certified laboratory.

Response 6124:

Proposed Part 560.5(d)(1) indicates that, at a minimum, all residential water wells within 1,000 feet of the well pad would be tested for the parameters specified by the Department, which at a minimum would include barium, chloride, conductivity, gross alpha/beta, iron, manganese, dissolved methane and ethane, pH, sodium, static water level (when possible), total dissolved solids, and volatile organic compounds, specifically BTEX. This list reflects NYSDOH recommendations; however, the statement that these are minimum requirements would allow the Department to specify additional parameters it may deem necessary on a site-specific basis.

Comment 6125:

Part 560.3(c)(2) should specify how the Department will maintain the non-disclosed records, and should be modified so that the exemption from disclosure will not apply in the event of a non-routine incident or other emergency.

Response 6125:

The Department's existing Records Access Regulations, specifically 6 NYCRR 616.7(b), address the Department's handling of information that is sufficiently justified as trade secret and applies to how the Department will handle trade secret hydraulic fracturing additive information. Pursuant to Part 616.7(b), the Director of the Division of Mineral Resources or a designee shall be responsible for the custody of trade secret records, shall take appropriate measures to safeguard such records and protect against their unauthorized access, and will use simple and effective devices to identify and maintain repositories for records containing trade secrets so that security is maintained. Part 616.7 however, does not provide for the disclosure of trade secret information by the Department in the event of non-routine incidents or emergencies.

Comment 6126:

Part 560.4(a): Setbacks of 2,000 feet for municipal water supplies is insufficient for many water resources in the state whose watersheds are significantly larger than the 2,000-foot setback distance. Taking Owasco Lake as an example, which provides drinking water to the city of Auburn and surrounding communities, the watershed for Owasco Lake comprises 208 square miles. A baseline limitation of 2,000 feet from surrounding municipal water supplies is an insufficient distance to protect the watershed of Owasco Lake, for example, because drilling from a minimum distance of 2,000 feet from this lake would still clearly fall within the lake's watershed. The regulation should be revised to prohibit drilling within the watershed of public waterways. Another approach would be to require an individualized analysis of the impact on the watersheds of a proposed drilling area.

Response 6126:

See response to Comment 6136.

Comment 6127:

The Part 560.4 setbacks from aquifers should be revised to require that no well pad may be

located within any known or suspected aquifer or within a one-mile buffer from the boundary of any aquifer.

Response 6127:

The Department disagrees. Proposed setbacks relative to Primary and Principal Aquifers and their boundaries are discussed in the rdSGEIS in Sections 7.1.3.5, and 7.1.11.1.

Comment 6128:

Part 560.4 does not provide for the 1,000 foot setback for the tunnels carrying the water from the source to the New York City locations.

Response 6128:

The complete list of prohibitions based on proximity to water supplies will be included in proposed Part 750-3.

Comment 6129:

Part 560.4 should include appropriate setbacks for other public and private structures and facilities such as nuclear power plants, daycare centers, nursing homes, schools, hospitals, churches, etc.

Response 6129:

The revised Part 560.4 provides for a 500-foot setback from the well pad to any inhabited private dwelling or place of assembly.

Comment 6130:

The Part 560.4 setbacks should be revised to include the following minimum setbacks: 1,320 feet for homes, public buildings, and schools; 4,000 feet for private and public wells, primary aquifers, and other sensitive water resources; and 660 feet for other water resources.

Response 6130:

With the noise and other mitigation measures that would be implemented pursuant to the rdSGEIS, the Department believes that 500 feet is an appropriate minimum setback for inhabited dwellings and places of assembly. Beyond 500 feet, noise impacts would be assessed as set forth in the rdSGEIS. With respect to water resources, see response to Comment 6136.

Comment 6131:

Part 560.4: The floodplain setback should be changed from the 100-year floodplain to the 500-year floodplain. As well, the regulations should specify approved sources for floodplain

information and location (e.g., Federal Emergency Management Agency maps, United States Geological Survey, or other sources).

Response 6131:

The Department does not agree. The prohibition within the 100-year floodplain would be sufficiently protective of potential flooding impacts. FEMA Floodplain Insurance Rate Maps are one source of information discussed in Section 2.4.9 of the rdSGEIS; this section of the document also discusses the roles that local governments play in their review of any floodplain development activity. In addition, proposed Part 560.3 has been revised to provide a notice period during which local officials could inform the Department of local and site-specific issues. This would provide an opportunity to mention areas outside the 100-year floodplain that are known to be susceptible to flooding and where the Department should consider mitigation measures such as moving or elevating the well pad.

Comment 6132:

Part 560.4: All setback distances should be measured from not only the well pad, but also from the underground laterals.

Response 6132:

See responses to Comments 6101 and 6136.

Comment 6133:

Part 560.4 should clarify that setbacks are measured from the edge of the drill site. Wells should be centered on the well pad and should be set back at least 100 from the pad edge, to maximize well setbacks from sensitive receptors.

Response 6133:

See responses to Comments 6101 and 6136.

Comment 6134:

The Part 560.4 setbacks should be reevaluated and revised as a result of a hazard identification analysis the Department should perform to provide scientific and technical justification for each setback distance and demonstrate how that distance is protective of the nearby sensitive receptor.

Response 6134:

The Department respectfully does not agree that the setback distances must be reevaluated after completion of a hazard identification analysis. The sensitivity of a receptor to a given drilling activity will depend upon many factors. Setbacks were developed by balancing the protection of the receptor, which is achieved by many measures including setbacks, and the policy in ECL §23-0301 to allow for the recovery of the natural gas resources and to protect correlative rights.

The magnitude of the setback reflects the magnitude of the potential risk and the potential harm in the event of a spill. Setbacks that are delineated in the proposed regulations are designed to ensure that significant adverse environmental impacts are avoided or mitigated to the greatest extent practical. The Department believes that, with proper planning, a prudent operator can address these elements in an efficient manner.

Comment 6135:

Part 560.4 should be revised to allow local zoning authorities to establish more protective setbacks than statewide regulations to address unique and site-specific local concerns and community characteristics.

Response 6135:

Note that proposed Part 560.3 has been revised to provide a notice period during which local officials could raise unique and site-specific local concerns and community characteristics. See also the response to Comment 6131.

Comment 6136:

The Department proposes to codify the setbacks and prohibitions proposed in the rdSGEIS in a new, proposed Part 560.4. For the reasons detailed in the Independent Oil and Gas Association (IOGA) of New York's Critical Issues Analysis (Tab 1 to IOGA cover letter) and Comments on the rdSGEIS (Tab 2), IOGA recommends that many of the setbacks be eliminated or reduced to the existing setbacks, or setbacks that are consistent with those in place in other neighboring states. IOGA further recommends that broad waiver provisions be included in the regulations to allow setbacks to be waived by the Department for good cause shown based upon the application of superior technology. Finally, for the prohibitions or setbacks that the Department is proposing to revisit in a given period of time, it would be far better to have those provisions automatically sunset in the regulations subject to an emergency rulemaking, if warranted, or, alternatively, unless extended by an order from the Commissioner. This would avoid the need to go through the rulemaking process a second time to eliminate requirements that are already too restrictive. The cumulative effect of these prohibitions and setbacks [proposed in Part 560.4] comes at significant cost to large operators, small operators, landowners, and municipalities. Industry estimates that the cumulative impact of these prohibitions and setbacks will strand approximately 50% of the acreage that is prospective for shale development in New York State. As a consequence, operators will lose hundreds of millions of dollars already invested in minerals leases, landowners will lose millions of dollars in royalties, the state and local governments will lose significant tax revenue, and very few operators, if any, will be willing to invest their drilling budgets in New York State. The result will be lost economic opportunity for New York totaling billions of dollars. Since a number of small businesses are impacted by these requirements, the Department is mandated by the State Administrative Procedures Act (SAPA) to consider less costly alternatives. Reduction and/or elimination of these setbacks and the inclusion of automatic sunset provisions are a legal necessity under the circumstances. At an absolute minimum, all prohibitions and setbacks including those that disqualify an operator from operating under the rdSGEIS or the multisector general stormwater permit applicable to high-volume hydraulic

fracturing should be identified in Part 560.4 and not contained in the water regulations (Part 750-3.3) nor the well construction and operation regulations (Part 560.6). Scattering the prohibitions, setbacks, and disqualifications around in different sections of the regulations creates regulatory confusion and uncertainty. For example, Part 560.6(b)(1)(ii) regarding the placement of fueling tanks is confusing and an example of a setback that should be contained in Part 560.4. There should also be a minimum volume applicable to this requirement and the requirement should expressly state that it does not apply to portable fuel tanks and tankers that are brought to the site for fueling purposes. Additionally, 750-3.3 should be moved to 560.4 and the prohibitions and setbacks therein should have sunset provisions to avoid the need to go through a rulemaking to eliminate the prohibitions. Accordingly, Part 560.4 should be revised to state: (a) No well pad or portion of a well pad may be located: (1) closer than 250 feet from a private water well unless waived by the water well owner; (2) within 4,000 feet of, and including the, unfiltered surface water supply watersheds; (3) within a 100-year floodplain unless the operator has adopted a contingency plan to monitor for and react to a flood event; and (4) within 1,000 feet of any public water supply (municipal or otherwise) well or intake in a reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), river or stream. (b) No wellbore shall be located less than 2,000 feet below the surface and within 1,000 feet of the groundwater bearing zone unless it is demonstrated that adequate protections exist to prevent the migration of hydraulic fracturing fluids to the groundwater bearing zone. (c) The department may grant a waiver from any of the prohibitions, setbacks or restrictions provided herein if the operator agrees to implement additional safeguards and engineering controls that provide a greater degree of environmental protection than the standards set forth in this part. (d) The setbacks and prohibitions detailed herein shall be determined based upon conditions existing at the time of permit application.

Response 6136:

Setbacks have been proposed in order to conservatively provide a margin of safety should the operational mitigation measures fail or not be implemented in a particular instance. In most cases, the setbacks are designed to provide an added level of protection from potential surface spills from a well pad, and thus most setbacks are measured from the closest edge of the well pad. Additionally, setbacks were developed by balancing the protection of the water resource, which is achieved by many measures in addition to setbacks, and the policy in ECL §23-0301 to allow for the recovery of the natural gas resource and to protect correlative rights.

The proposed siting prohibitions in Part 560 may lead to waste of natural gas if such prohibitions make it impossible to locate a well pad close enough to the resource to enable efficient development of the spacing unit. However, for now, the Department expects to implement the Part 560 prohibitions without discretion and does not have plans to incorporate a provision allowing variances from the prohibitions proposed in 560.4(a)(3)-(5). Note that proposed Part 560.4 has been revised to permit reasonable well location variances to the setbacks from certain private water wells, inhabited dwellings and places of assembly where written consent has been given by potentially affected landowners.

The Department routinely uses setbacks from water resources in many of its programs. Examples include: siting of wastewater treatment facilities; structures from wetlands; certain docks, wharfs or moorings; and the application of manure. Setbacks serve as a means of helping to prevent a spill from reaching and contaminating critical water resources. Depending on the scope of the setback (the larger the distance the greater the protection), a spill can potentially be contained, or sufficiently delayed before reaching the water source to reduce the potential impact. In this regard, setbacks represent an effective risk management tool in the event of a spill. Setbacks can provide the Department and/or the operator of a well the ability to respond to a spill. Thus, the magnitude of the setback should also reflect the magnitude of the potential risk and the potential harm.

The proposed rules have been revised to clarify as follows: Well pads for high-volume hydraulic fracturing would be prohibited within 2,000 feet of any public (municipal or otherwise) drinking water supply well, reservoir, natural lake or man-made impoundment. Well pads for high-volume hydraulic fracturing would also be prohibited within a 100-year floodplain and within a primary aquifer in addition to a 500-foot buffer from the boundary of a primary aquifer.

Comment 6137:

Part 560.5(a) should specify content requirements for the Emergency Response Plan. Recommendations are included in the rdSGEIS (Chapter 7.13).

Response 6137:

The Department disagrees, as the Emergency Response Plan (ERP) discussion in Section 7.13 of the rdSGEIS will convey the essential elements of an ERP, as well as the importance of tailoring a given ERP to a specific site. It is not intended to provide an all-inclusive list of emergencies (or other non-routine incidents) and their correlative responses.

Comment 6138:

Part 560.5(a): Three days is not long enough for the Department to be able to review an Emergency Response Plan (ERP). The ERP should be required to be provided and approved by local emergency response personnel and the town supervisor before the permit is issued.

Response 6138:

The Department disagrees, as it has broad authority to suspend any permit if warranted, for reasons including but not limited to an operator's provision of an ERP that the Department deems inadequate for the protection of public safety or the environment.

Comment 6139:

Part 560.5(b): In addition to notifying county emergency management offices of the information and events listed in the regulation, notifications should be made to towns, villages, county health departments, and residents within a mile of the well.

Response 6139:

The Department has revised proposed 560.3 to require the Department to notify local governments of all applications for high-volume hydraulic fracturing on new well pads in their localities, and to notify the public when draft permits on new well pads are available for review. The Department does not agree that the additional notifications suggested by the commentor are necessary. Sufficient information will be available on the Department's website for interested local agencies and residents to track routine operations. Emergencies and related notifications will be coordinated by the appropriate agency using established procedures and the required ERP.

Comment 6140:

Part 560.5(c): Residents living within a mile should be notified within five hours of all incidents in which any fluids are released to the ground, water, or air.

Response 6140:

See response to Comment 6139.

Comment 6141:

Part 560.5(c): Non-routine incidents should be required to be posted in the Departments online Spill Incidents Reports.

Response 6141:

The Department agrees that spills at well sites should be entered into its Spills database; however, new regulations are not necessary to achieve this. The Department does not agree, however, that all non-routine incidents should be entered, as spills are just one example of the types of non-routine incidents that may occur at a well site.

Comment 6142:

Part 560.5(c): Define fishing jobs.

Response 6142:

"Fishing jobs" is a term generally recognized by the industry and does not need to be defined in regulation.

Comment 6143:

The proposed requirement in Part 560.5(c) addresses when non-routine incidents must be reported to the Department. The Independent Oil and Gas Association of New York (IOGA)

offers the following comments: The proposed regulation would require incidents to be reported within two hours. This is too short given the remote nature of drilling operations. IOGA recommends at least four hours instead. The proposed regulation does not specify how to document compliance and should be amended to make it clear to the regulated community as to how compliance will need to be documented. Because pressure variations occur often during high-volume hydraulic fracturing operations, they should not be included as reportable non-routine incidents. The long list of non-routine incidents may occur sequentially. The Department, therefore, should clarify when the proposed two-hour reporting limit starts to run. The requirement that the operator receive Department approval prior to recommencing hydraulic fracturing activities in the same well after a suspension in hydraulic fracturing pumping operations should be deleted. An operator can fix certain pump problems within a few hours and would need the authority to resume immediately, not after a protracted Department review. Accordingly, make the following two changes to Part 560.5(c): Change "two hours" to "four hours" in the first sentence. Add the following sentence after the existing sentence that ends in "health, safety, welfare, or property of any person": "The first event in a series of related events shall be considered the reportable event."

Response 6143:

The Department recognizes that some drilling operations occur in remote locations; however, the remoteness of a given location does not preclude the importance of timely reporting, response, and remedial efforts. Accordingly, the Department disagrees with the suggestion to change "two hours" to "four hours" in the first sentence. The Department also disagrees with the suggestion to delete the requirement of its approval to recommence hydraulic fracturing pumping operations.

Comment 6145:

Part 560.5(d)(1): The regulation needs to specify what reasonable attempts to test wells means. The regulation also should specify that all wells (not just some wells) are required to be tested in the 1,000- and 2,000-foot distances of the well pad.

Response 6145:

The proposed regulation has been clarified to refer to all residential water wells, domestic supply springs and water wells and springs that are used as water supply for livestock or crops. The Department does not agree that the term "reasonable attempts" needs to be defined.

Comment 6146:

Part 560.5(d)(1): Distances at which water well testing is completed should not be based on arbitrary distances and instead should be based on the hydrogeology of the area and the potential for contaminant migration. Distances of 1,000 and 2,000 feet from the well pad are inadequate. 2,500 or 5,000 feet would be better.

Response 6146:

See Response to Comment 3784 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**. The groundwater monitoring program, referenced in that comment, must take into account the hydrogeology of the area and the potential for contaminant migration.

Comment 6147:

Part 560.5(d): The Seneca Lake Pure Waters Association recommends that the New York State Department of Health (NYSDOH) oversee the drinking water testing, to ensure the use of certified procedures and a scientific, unbiased protocol. The analytes should be selected by the NYSDOH and tailored to the chemicals expected to be used in the development of the specific gas well. Water wells should be tested into the future after operations have ceased at the well in order to evaluate water well contamination over time and help establish responsibility for any remediation. Such data should be made available to the public. The NYSDOH also should set up a registry to monitor drinking water supplies.

Response 6147:

Revised proposed 560.5(d) requires that water well testing results be submitted to NYSDOH. As explained in the rdSGEIS, analysis must be by a DOH ELAP-approved laboratory, including the use of proper sampling and laboratory protocol, in addition to the use of proper sample containers, preservation methods, holding times, chain of custody, analytical methods and laboratory QA/QC. Minimum required analytes are now listed in the proposed regulation.

Comment 6148:

Part 560.5(d): Water wells should be required to be tested by an independent third party that is not associated with the drilling companies or allowed to serve the driller in other capacities.

Response 6148:

See response to Comment 6147.

Comment 6149:

Part 560.5(d): The Department should specify the parameters to be tested for water well testing. At a minimum, they should include hydrocarbons, arsenic, mercury, total dissolved solids, methane, and radium. They also should be tested for all components of the fracturing fluid disclosed in the permit application.

Response 6149:

The testing parameters recommended by NYSDOH and made a part of Part 560.5(d) must be included in any private well sampling that is conducted. The proposed rule has been amended to include the parameters methane, TDS and Gross alpha/beta. NYSDOH determined that the specified parameters were sufficient for determining whether a water quality impact may have

occurred. Operators may include additional parameters at their discretion. If a non-routine incident occurs or a complaint is received that requires further investigation, the chemical information submitted to the Department with the relevant well permit applications would be consulted, as appropriate, to determine potential additional analytes.

Comment 6150:

Part 560.5(d)(1): The operator should provide the results of water tests to private water well owners within two days (not 30 days) of the operators receipt of the results.

Response 6150:

The proposed rule requires that the results of each test be provided to the property owner within 30 days of the operator's receipt of laboratory results and that the pre-drilling sampling be done prior to site disturbance. The 30-day time frame is reasonable for the operator to receive the results from the laboratory and distribute the results.

Comment 6151:

Part 560.5(d)(4): Results of water well testing should be made publically available on a Department website.

Response 6151:

Any data received by the NYS Department of Health as part of required reporting of the test results and documentation related to delivery would be available to the public through FOIL. Data collected regarding the water quality of private wells is generally not made publically available as part of the protection afforded to maintain the privacy of citizens.

Comment 6152:

Parts 560.5(d)(4) and (e): Testing records should be required to be retained for at least 50 years to provide protection to homeowners with wells that may not be initially contaminated, but are eventually contaminated through the migration of pollutants slowly through aquifers. Five years is an insufficient records retention period.

Response 6152:

The requirement that test records and documentation related to delivery of test results must be maintained for a period up to and including five years after the well is permanently plugged and abandoned is consistent with the Department's record retention policies that are established for various categories of records.

Comment 6153:

Part 560.5(d): All wells within a five-year transport zone around the proposed well should be located and included in the testing program. Dedicated monitoring wells also should be established within this zone and included in the testing program.

Response 6153:

The objective of water well testing is to provide baseline information to aid in the investigation of complaints from well owners about potential contamination. The distance specified in regulations (1,000 feet, or 2,000 feet if no available wells within 1,000 feet) is sufficient for this purpose. As proposed in 750-3, the Department may require a groundwater monitoring program for a proposed well where high-volume hydraulic fracturing would be used.

Comment 6154:

Part 560.5(e): The results of blowout preventer testing and pressure tests on well casings should be required to be submitted to the Department for review, not just kept on file with the driller.

Response 6154:

The operator must make the results of a blowout preventer test available to the Department at the well site in accordance with Part 560.5(e). The Department has the option to require the operator to provide a copy of the test results should there be any question or doubt regarding environmental protection or public safety.

Comment 6155:

Part 560.5(e): change the reference to "560.3(a)(17)" to 560.3(a)(16).

Response 6155:

Citations in the revised proposal have been updated.

Comment 6156:

Part 560.5(f): The Drilling and Production Waste Tracking form should be required to be submitted to the Department, as soon as it is available, for review by the Department, and not just kept on file with the driller.

Response 6156:

Proposed Part 560.5(f) has been amended to require the operator to make the Drilling and Production Waste Tracking Form available to the public on the operator's website within 30 days of receipt of the waste by the disposal or treatment facility.

Comment 6157:

Part 560.5(f) should require a mandatory monthly online filing of the Drilling and Production Waste Tracking Form so that it is available to and accessible by the public.

Response 6157:

See response to Comment 6156.

Comment 6158:

Parts 560.5(f) and (g): The regulations should be more specific regarding the information required to describe proper disposition of wastes and drilling fluids. It is not sufficient to simply have a form or record that states where the waste and fluids are sent.

Response 6158:

The Department disagrees with the comment. Prior to permit issuance, planned disposition of fluids will be reviewed by the Department and no permit will be issued unless and until such plan is approved. See Part 554.1(1). The Drilling and Production Waste Tracking Form must be completed and maintained by generators, haulers and receivers of all wastes. For all wastes other than flowback water that is being recycled, that form must also be posted on the operator's website, with the URL posted with the permit. Proposed regulations at 6 NYCRR 750-3 include requirements that must be met for acceptance of this source of wastewater for disposal by POTWs and on-site and off-site private wastewater treatment facilities. These requirements clearly define the measures necessary to accept, treat, and discharge this source of wastewater. The Department's water quality review process for SPDES permit issuance includes evaluation of basin-wide impacts associated with the discharge and is protective of the best usages of the receiving water.

Comment 6159:

Part 560.5(f): Drilling Production and Waste Tracking Forms should be maintained for at least 50 years. Lawsuits can be protracted and contamination might not be discovered for many years.

Response 6159:

The requirement that the Drilling Production and Waste Tracking Form must be retained for a period of three years for any waste removed from the well site is consistent with the Department's record retention policies that are established for various categories of records. Lawsuits on issues of possible contamination are outside the scope of the proposed regulations.

Comment 6160:

Proposed Part 560.5(g) [which describes requirements for tracking fluids or other waste materials moved off-site] needs to be clarified. Specifically, the Independent Oil and Gas

Association of New York recommends that the Department specify how the requirement is met if the intended destination is a mobile truck or temporary holding facility.

Response 6160:

Proposed Part 560.5(g) refers specifically to wastes moved off site via pipeline or other piping. For any used drilling mud, flowback water, production brine, or drill cuttings removed from the site - regardless of the transportation method used - the Department's Drilling and Production Waste Tracking Form must be completed and retained in accordance with Proposed Part 560.5(f).

Comment 6161:

Part 560.6(a)(1): Proper siting for access roads should be more clearly specified and should take into account potential effects on both nearby populations as well as sensitive habitats. For example, access roads should be at least 1/4 mile from buildings and unleased properties since spills and trucking accidents are common in such operations. At the same time, roads, staging and storage areas, and utility corridors should not be situated in areas of sensitive vegetative and wildlife habitat, especially areas of state- or federally-listed threatened or endangered species.

Response 6161:

Part 560.6(a)(1) has been amended to clarify that any new access road must be located as far as practical from water resources, inhabited private dwellings and places of assembly. The Department would consider surrounding land uses when reviewing plans for new roads, as well as sensitive environmental areas, habitats, streams, and slope, in order to minimize the impacts of the new road. Best management practices for the control of soil erosion would be required as conditions of the permit and the HVHF General Permit.

Comment 6162:

Section 560.6(a)(3) concerning the materials permitted for construction of piping, conveyances, valves and tanks in contact with flowback water is vague. Industry, therefore, seeks clarification as to what is intended.

Response 6162:

Part 560.6(a)(3) has been amended by the removal of the word "composition". Piping, conveyances, valves and tanks in contact with flowback water must be constructed of materials compatible with flowback water.

Comment 6163:

Part 560.6(a)(4)(ii): It is not clear if the pit sizing takes into account large precipitation events and if so, what procedures will be in place to monitor and remove or contain excess fluids. This analysis should be incorporated into the regulations in this section.

Response 6163:

Pits authorized by regulation must be maintained in a leak free condition. The requirement to maintain two feet of freeboard at all times, including during precipitation events is stated in the rdSGEIS, Appendix 10 – Supplementary Permit Conditions. It will be the operator's responsibility to make any necessary preparations when a storm approaches, and any release resulting from a failure to do so would constitute a violation and could result in an enforcement action.

Comment 6164:

Part 560.6(a)(4)(ii) regarding total pit volume needs to be clarified to define what is considered a tract of land, i.e., well pad or 640-acre spacing unit. In addition, Industry recommends that the reference to related tracts of land be revised to be adjacent tracts of land. Accordingly, Part 560.6(a)(4)(ii) should be revised to state: total pit volume may not exceed 250,000 gallons, or 500,000 gallons for multiple pits on one tract or adjacent tracts of land under common ownership or control.

Response 6164:

The Department has clarified Part 560.6(a)(4)(ii) to indicate that total pit volume may not exceed 250,000 gallons, or 500,000 gallons for multiple pits on one tract or an adjacent or related tract of land under common ownership or control.

Comment 6165:

Part 560.6(a)(4)(ii): The new regulations establish an open pit volume limit of 250,000 gallons for drill cuttings/fluids or 500,000 gallons for multiple pits on one site. The rdSGEIS estimates that a 7,000-foot well bore combined with a 4,000-foot lateral will produce 217 cubic yards of cuttings or 44,000 gallons. This appears to be at the upper limit of what is to be expected for a single well. If the Department anticipates that this 200,000 gallon overcapacity is to serve multiple wells on one pad then it is facilitating the long-term and unsafe presence of open pits on the well pad. Since the new regulations will only allow 45 days of waste storage in the pits, this overcapacity seems unwarranted unless the Department intends to allow consistent variances to drillers that exceed the anticipated waste fluid amounts. Section 5.2.3 of the rdSGEIS details the tanks and recirculation apparatus for drilling muds that suggest all liquids are recycled into the drilling process and cuttings are separated, so there should not be that much liquid waste in the reserve pits; certainly not enough to require a 200,000-to-500,000 gallon impoundment. The Department should reject open pits as a best available technology in favor of closed loop systems.

Response 6165:

Reserve pits for temporary storage and/or disposal of cuttings will be permitted in certain circumstances, as explained in the rdSGEIS. The Department will utilize mitigation measures to

address potential significant adverse environmental impacts from any on-site reserve pit. One of those mitigation measures is to limit pit volumes to 500,000 gallons for multiple pits on one pad. See also response to Comment 6168.

Comment 6166:

Part 560.6(a)(4): Pits should be required to be fenced and covered to exclude wildlife contact with drilling fluids, mud, and cuttings.

Response 6166:

Given the temporary nature of drilling, wildlife exposure to reserve pit fluids during drilling would be limited. Wildlife would not be exposed to flowback water and production brine because reserve pits are prohibited from containing fracturing fluid, flowback water, or production brine. The Department, therefore, does not expect any significant adverse impacts to biota through exposure to pits. In designated Agricultural Districts, the Department would recommend fencing of sites in active pasture areas to prevent livestock access.

Comment 6167:

Part 560.6(a)(4) should be clarified to specify what materials and fluids may be stored in open pits. No drilling fluids should be stored in open pits since the Department proposes no standards for drilling fluids, which can be as toxic as fracturing fluids.

Response 6167:

See response to Comment 6168.

Comment 6168:

Part 560.6(a)(4): All flowback, wastewater, drilling fluids, drilling muds, and cuttings should be required to be maintained in a closed-loop steel tank system and not allowed to be placed in open pits. Closed-loop tank systems are discussed in the rdSGEIS but not in the regulations.

Response 6168:

Part 560.6(c)(27) states that flowback water is prohibited from being directed to or stored in any on-site pit. A closed-loop tank system must be used to manage drilling fluids and cuttings for horizontal drilling in the Marcellus Shale unless an acid rock drainage mitigation plan for on-site burial of cuttings is approved (Part 560.6(c)(7)). Part 560.7(c) requires cuttings contaminated with oil-based mud or polymer-based with mineral oil lubricant mud to be contained in a closed loop-system.

Comment 6169:

Part 560.6(b)(1)(i) requires secondary containment for all fueling tanks. Industry recommends

that this be amended to make it specific to storage tanks. Secondary containment around temporary tanks such as trucks and stimulation equipment is not necessary to protect the environment.

Response 6169:

The Department disagrees. Though the temporary nature of fueling tanks associated with drilling and completion activities would make them exempt from the Department's petroleum bulk storage regulations and tank registration requirements, any such fueling tanks - regardless of volume - must satisfy the secondary containment requirements set forth in Section 7.1.3.1 of the rdSGEIS.

The secondary containment requirement of Part 560.6(b)(1)(i) is not applicable to vehicle fuel tanks.

Comment 6170:

Part 560.6(b)(1)(ii) imposes, to the extent practicable, a 500-foot setback from perennial or intermittent streams, storm drains, wetlands, lakes, or ponds for fueling tanks. The requirement is confusing and includes a vague and undefined practicability standard. Industry recommends that the Department clarify the requirement and, in doing so, amend it to include a minimum volume and further expressly state that the requirement does not apply to portable fuel tanks or tankers that are brought to a site for fueling purposes. Accordingly, Part 560.6(b)(1)(ii) should be revised to state: to the extent practical, stationary fueling tanks must not be placed within 500 feet of a perennial or intermittent stream, storm drain, wetland, lake or pond.

Response 6170:

The final rule will be amended to remove the words "to the extent practical". Fueling tanks must not be placed within 500 feet of a perennial or intermittent stream, storm drain, regulated wetland, lake or pond. The Department disagrees with the comment that a minimum volume should be specified in regulation.

Comment 6171:

Part 560.6(b)(2) should be clarified regarding how this will be enforced.

Response 6171:

The Department maintains the right to conduct on-site inspections and respond to citizens' complaints. Based on the required notifications, Department staff would be aware of a hiatus in wellsite activities and could initiate a compliance investigation.

Comment 6172:

Part 560.6(c)(2)(i) requires that an operator or operator's designated representative be present during all drilling and completion operations when a blowout preventer is installed. This

requirement should be clarified to specify whether this designated representative can be from the drilling company.

Response 6172:

The Department does not agree that the regulation needs to be more specific. The operator could designate a drilling crew member as its designated representative as long as he or she has a current well control certification.

Comment 6173:

Part 560.6(c)(2)(ii): A Department inspector should be on-site to make sure that appropriate pressure control procedures and equipment are in proper working order and properly installed and employed while conducting drilling and completion operations.

Response 6173:

A Department inspector will be present for any critical operations that warrant inspection. Part 560.6(c)(2)(i) requires that the operator or its designated representative be certified in well control and present at the well site when the blowout preventer is installed, tested or in use.

Comment 6174:

Part 560.6(c)(2)(ii) requires that a snubbing unit or coiled tubing unit with a blowout preventer be used to enter any well with pressure or to drill out one or more solid-core stage plugs. Industry recommends that this requirement be deleted as unnecessary because a work over rig with appropriate circulating fluid can handle most interventions.

Response 6174:

The proposed regulation allows an operator with prior Department approval to use equipment other than a snubbing unit or coiled tubing unit with a blowout preventer.

Comment 6175:

Part 560.6(c)(2): Blowout preventers should always be used.

Response 6175:

The Department agrees that blowout preventers should be used. Proposed 560.6(c)(2)(ii) would require a blowout preventer and related pressure control equipment to be installed and employed while conducting drilling and completion operations including tripping, logging, running casing into the well, and drilling out solid-core stage plugs.

Comment 6176:

Part 560.6(c)(3)(i) requires, at a minimum, two mechanical barriers for use during identified operations. Industry recommends that this requirement be deleted. Standard industry practice requires only one barrier for testing purposes.

Response 6176:

Part 560.6(c)(3)(i) reflects a conservative approach to well control that the Department has determined would effectively achieve environmental objectives by requiring the use of at least two mechanical barriers during the regulated operations.

Comment 6177:

Part 560.6(c)(4): Drilling down and then placing a casing pipe, but prior to cementing, leaves the annular space between the casing and the bore wall open. This could allow whatever methane pockets there may be to flow upwards into shallow groundwater. While methane detection is already required, a suggestion is to first require a small-diameter bore down to the depth of the intended first cement seal to monitor for any methane pockets. The small bore, not exceeding four inches, would minimize upward migration of methane and allow the test bore to be stopped when methane is detected. The intended first cementing depth would then be adjusted accordingly.

Response 6177:

The above-mentioned alternative drilling method simply is not practical nor does it provide any additional environmental protections. Given the short duration between the running and cementing of casing, the annulus would not be open long enough for groundwater to be negatively impacted by the presence of methane.

Comment 6178:

Part 560.6(c)(4): Delete "if practical."

Response 6178:

The Department agrees and the proposed regulation has been amended to remove the words "if practical".

Comment 6179:

Part 560.6(c)(4): If hydrogen sulfide is encountered, a Department inspector should be required to be notified.

Response 6179:

Release of hydrogen sulfide during drilling or completion operations would be considered a reportable non-routine incident. Proposed Part 560.5 regulations require any non-routine incident to be reported to the Department within two hours of the incident's known occurrence or discovery.

Comment 6180:

Part 560.6(c)(4) and (22): The proposed regulations would require the drilling operator for each well to log the depths and estimated flow rates where inflows of fresh water, brine, oil and/or gas were encountered or circulation was lost during drilling. The information recorded will depend to some degree on the skill and attentiveness of the driller, and small inflows could easily be overlooked. Therefore, geophysical resistivity logs that can distinguish fresh from salty water should also be run. The information, along with a treatment plan, should be received by the Department at least three days prior to hydraulic fracturing.

Response 6180:

All information on depths, estimated flow rates where fresh water, brine, oil and/or gas were encountered or circulation was lost during drilling operations must be included with the treatment plan. Part 560.6 requires the operator to submit this information to the Department at least three days prior to commencement of high-volume hydraulic fracturing operations. See response to comment 6200.

Comment 6181:

Part 560.6(c)(5) should be revised to state: The intentional annular disposal of drill cuttings or fluid is prohibited.

Response 6181:

The Department does not agree that the regulation should be amended to include the word "intentional". Annular disposal is prohibited for operational and environmental reasons relating to inadvertent injection into zones shallower than the intended injection zone.

Comment 6182:

Part 560.6(c)(7)(ii): Drill cuttings should not be allowed in municipal landfills. They should be considered to be hazardous waste.

Response 6182:

The Department disagrees with the statement that drill cuttings are hazardous waste; see response to Comment 3833. In accordance with proposed Part 560.7(c) and (d) drill cuttings must be disposed off-site or buried on-site in accordance with a Department approved disposal plan. Any permitted Part 360 solid waste landfill that receives drill cuttings from high-volume hydraulic fracturing development would be required to operate radiation detection equipment

and to modify its operating manual to include procedures for detecting prohibited radioactive material, operation and maintenance plans for radiation detectors including standard sensitivity settings and calibration methods, and response procedures to be implemented if radioactive waste is detected. These measures have been recommended and are sufficient to ensure that regulated radioactive waste is not disposed of at any Part 360 landfill. Part 360 landfills are designed and permitted to prevent leakage, and the Department anticipates sufficient capacity exists in New York for this waste stream. Therefore, the Department has concluded that Part 360 solid waste landfills constitute the preferred disposal option for drill cuttings that cannot be buried on-site.

Comment 6183:

Part 560.6(c)(7) should be revised to apply to any shale formations, Marcellus or Utica.

Response 6183:

The Department disagrees, as proposed Part 560.6(c)(7) addresses the use of closed loop tank systems independent of lithology. As stated in proposed Part 560.6(c)(7)(ii), closed-loop tank systems would be required to be used for any drilling requiring cuttings to be disposed of off-site. The requirement to address acid rock drainage for on-site burial of Marcellus cuttings is based on information provided to the Department regarding Marcellus Shale composition. The Department does not agree that this information raises concerns about other shale formations.

Comment 6184:

Part 560.6(c)(8): No transfer sites should be allowed because drill cuttings are toxic.

Response 6184:

See response to Comment 6182.

Comment 6185:

Part 560.6(c)(9): Residents within one mile should be notified at least two months in advance of the biocides to be used so they can test their private water wells for them.

Response 6185:

The Department disagrees with the comment that residents within one mile of a well pad should be given two months notice prior to biocides being used. In addition to the parameters specified by Part 560.5(d)(1) that an operator must sample and test for prior to site disturbance of a new pad or well spud, residents may test their water wells for the presence of biocides at their discretion. Mitigation measures provided by Part 560 regulations that are intended to prevent migration of fluids from the wellbore to private water wells (e.g., casing and cementing requirements) would act to help prevent microbial transfer from the well.

Comment 6186:

Parts 560.6(c)(10) to (19): The Department needs to provide scientific evidence from independent researchers not funded by the gas industry that the standards the Department has set for casing and cementing will prevent contamination of wells and public drinking water sources. These regulations on casing and cementing are no stronger than those in effect in Pennsylvania, where wells have failed (e.g., Dimock), and are less stringent than regulations in other areas.

Response 6186:

The well drilling and construction requirements of Part 560 will prevent significant adverse impacts to drinking water sources. The commenter did not provide scientific evidence or actual documented events in support of the conclusion that the Department's rules for casing and cementing are less stringent and protective than other states, and the Department disagrees with the commenter's unsupported conclusion.

Comment 6187:

Part 560.6(c)(10): Cementing creates a fundamental concern. Cement mixed with aggregate shrinks as it sets and continues to shrink over time. If there are such things as non-shrinking cement or grout, the regulations should mandate their use. The only specification in the proposed regulations is that a calculated compressive strength of 500 psi is achieved prior to disturbing the casing. Every construction project involving concrete requires test cylinders to be tested for strength. For this critical facet of gas wells, the proposed regulations provide only for a waiver to allow testing to shorten the wait-on-cement (WOC) 8-hour requirement. The regulations should specify appropriate sampling and testing of cement over time to ensure that cement shrinkage is within an acceptable range. If not the well operator should be required to address the issue of possible methane leakage between strata.

Response 6187:

The commenter is mistaken that cement used in oil and gas well applications contains aggregate. Oil field cement is thinner than cement or concrete used for construction purposes due to the requirement that it flow and be pumped under pressure. Other than performing a bench test of the actual cement batch used to cement the casing, there is no practical way of testing for cement properties once it has been pumped into the well. Proposed Part 560 regulations require that the cement used must conform to specifications identified in the permit.

Comment 6188:

Part 560.6(c)(10)(v): The standards should be defined in the regulations.

Response 6188:

The words “industry standards” have been removed from the proposed rule. Proposed Part 560.6(c)(10)(v) has been amended to provide that cement must conform to specifications identified in the permit to drill.

Comment 6189:

Part 560.6(c)(10)(v) specifies a gas-block additive as a requirement. A gas-block additive should not be required in the surface string since this string is intended to case off water zones where deeper strings would have cement in contact with gas bearing zones. Furthermore, the requirement is too prescriptive. Industry, therefore, recommends that this requirement be deleted. Accordingly, Part 560.6(c)(10)(v) should be revised to state: cement must conform to industry standards specified in the permit to drill and the cement slurry must be prepared to minimize its free water content in accordance with the industry standards and specifications, and contain a gas-block additive where gas is encountered during the drilling process.

Response 6189:

See response to comment 6188. The proposed rule has been amended to require that the cement slurry contain a gas-block additive or as approved by the Department, the use of a cement blend that is functionally equivalent.

Comment 6190:

Part 560.6(c)(10)(x): Cement job logs should be required to be submitted to the Department for review upon completion, and not just upon request.

Response 6190:

The Department does not agree that it is always necessary to review the casing cement job log. It would be at the Department's discretion to review the cement job log if information gathered from the well site indicates the cement bond may not be adequate.

Comment 6191:

Part 560.6(c)(10)(x): The records should be kept and presented on request for 50 years or more after the last well is plugged.

Response 6191:

The requirement that the operator must provide a copy of the cement bond log to the Department at any time and including five years after the well is permanently plugged and abandoned is consistent with the Department's record retention policies that are established for various categories of records.

Comment 6192:

The recommendations listed in the Intermediate Casing Analysis Table (Appendix B to the Harvey Consulting LLC report) should be considered for the rdSGEIS and Part 560. The Harvey Consulting LLC report addresses the following, for which their specific recommendations should be incorporated: Waiver Provisions, Setting Depth, Protected Water Depth Verification, Cement Sheath Width, Amount of Cement in Annulus, Excess Cement, Cement Type, Cement Mix Water Temperature and pH Monitoring, Lost Circulation Control, Spacer Fluids, Hole Conditioning, Cement Installation and Pump Rate, Rotation and Reciprocation, Centralizers, Casing Quality, Drilling Mud, Cement Setting Time, Cement Quality Assurance/Quality Control, Record Keeping, and Additional Casing or Repair.

Response 6192:

Comment noted. The majority of the content of the recommendations listed in the Intermediate Casing Analysis are addressed in the revised proposed rule. In general, the Department agrees that the industry best practices referenced in the Harvey Report should be followed. The Department disagrees with the suggestion that intermediate casing be made mandatory for every well that will be completed using high-volume hydraulic fracturing as there may be instances where intermediate casing could be omitted without compromise to environmental protection and public safety.

Comment 6193:

The recommendations listed in the Production Casing Analysis Table (Appendix C to the Harvey Consulting LLC report) should be considered for the rdSGEIS and Part 560. The Harvey Consulting LLC report addresses the following, for which their specific recommendations should be incorporated: Casing Design, Cement Sheath Width, Amount of Cement in Annulus, Excess Cement Requirements, Cement Type, Cement Mix Water Temperature and pH Monitoring, Lost Circulation Control, Spacer Fluids, Hole Conditioning, Cement Installation and Pump Rate, Rotation and Reciprocation, Centralizers, Casing Quality, Casing Thread Compound, Cement Setting Time, Cement Quality Assurance/Quality Control, Record Keeping, and Additional Casing or Repair.

Response 6193:

Comment noted. In general, the Department agrees that the industry best practices referenced in the Harvey Report should be followed. The majority of the content of the recommendations listed in the Production Casing Analysis is addressed in the revised proposed Rule.

Comment 6194:

The rdSGEIS and Part 560 should require the operator to: (a) Estimate the maximum vertical and horizontal fracture propagation length for each well and submit technical information (e.g., model output) with its application to support its computations. (b) Describe in its post-well completion report whether the predicted vertical and horizontal fracture propagation lengths were accurate, or note discrepancies. (c) Certify that the high-volume hydraulic fracture work

was implemented safely and fracture propagations did not intersect protected aquifers or nearby wells. Additionally, the State should reserve the right, and provide funding, to periodically review Industry's models and computations to assess quality and verify this work is being completed.

Response 6194:

Proposed Part 560 requires that the treatment plan include a hydraulic fracture stimulation model showing the treatment interval and anticipated pressures and volumes of fluid for pumping the first stage and a description of the planned treatment interval. Hydraulic fracturing operations must be immediately suspended if any anomalous pressure and/or flow condition is indicated or occurring including significant deviation from the treatment model profile.

Comment 6195:

Part 560.6(c)(11): The regulation should specify a maximum time limit for when the cement should be poured into the well after circulating and conditioning. There is no clear indication on how long the operator can wait before cementing.

Response 6195:

The Department disagrees with the comment. In the event the Department determines that undue delay would pose an environmental or safety concern it always has the option to propose a maximum time limit the hole may be circulated and conditioned prior to running surface casing.

Comment 6196:

Parts 560.6(c)(12) and (14): The regulations require that the Department must be notified prior to surface casing cementing, prior to intermediate casing cementing, and if the operator wishes to have the requirement for intermediate casing waived. These requirements for notification imply that the Department may share in the decisions as to placement of casing and cement. If so, then require that a copy of the drillers log from land surface to the current well depth be furnished to the Department before decisions on casing and cementing are made.

Response 6196:

The design of the casing and cementing program is determined by the operator and takes into account drilling, geologic and well control factors. The program must be in compliance with all applicable Department regulations before it can be approved by the Department. The Department does not propose at this time to require the operator to provide a copy of the driller's log, but note that the Department can request such log or any other information it deems necessary in order to make a decision on approving an operator's proposal.

Comment 6197:

Part 560.6(c)(16): No requests to waive any of the cementing requirements should be granted. The proposed regulations are inadequate even with the intermediate casing.

Response 6197:

The Department disagrees with the comment that the proposed regulations are inadequate. The proposed regulation provides for the granting of a waiver to the intermediate casing requirement when it can be shown that environmental protection and public safety will not be compromised. Circumstances that may warrant a waiver of the intermediate casing requirement include: deep-set surface casing; shallow total well depth; and absence of fluid and gas between the surface casing shoe and the target interval. These are examples of the technical bases which the operator would have to establish to the reasonable satisfaction of the Department and on which the requirement for an intermediate casing might be waived.

Comment 6198:

Part 560.6(c)(16) should be revised to require a production casing 500-foot cement overlap into the intermediate casing, which would be more protective.

Response 6198:

The Department agrees and has amended Part 560.5(c)(16) to require 500 feet of cement above the intermediate casing seat.

Comment 6199:

Parts 560.6(c)(16), (17), and (18): The regulation needs to be revised to be clear that, if cement logs indicate incomplete cementing, hydraulic fracturing will be prohibited in that well.

Response 6199:

The Department disagrees with the comment. In the event cement evaluation does not verify the cement bond is adequate then remedial cementing and/or the installation of an additional cemented casing may be required before hydraulic fracturing operations can be performed. Part 560.6(c)(25) provides further specificity in that cement bond evaluation must be approved prior to the commencement of hydraulic fracturing operations.

Comment 6200:

Part 560.6(c)(22): The regulations require the operator to record and report the depths and flow rates where freshwater, brine, oil, and/or gas were encountered or circulation was lost during drilling operations. The regulation should be revised to say that the operator should identify those areas with specific conductivity logging. The regulation also should specify limits or actions the operator should take if certain flow or losses were recorded, as well as what the

Department will do with this information. The required treatment plan also should be required to include a profile showing anticipated pressures and volumes of fluid for pumping the first stage.

Response 6200:

The Department has proposed regulations that would require the use of geophysical logging to determine the base of potable water (Part 560.6(c)(11)(ii)). At this time the Department does not propose additional regulations that specify what logging tools to use. Part 560.6(c)(22) requires the treatment plan to include a profile showing anticipated pressures and volumes of fluid for pumping the first stage.

Comment 6201:

Part 560.6(c)(23): The products used in hydraulic fracturing must be required to be disclosed publicly and periodic testing of the fluid must be undertaken by a third party to confirm that the substances in the fluids are the ones listed in the disclosure. As well, if different products are desired, the permit should be modified.

Response 6201:

See response to Comment 6116 regarding the hydraulic fracturing fluid additive information required to be disclosed to the Department and the public.

While the Department has the authority to verify the accuracy of the disclosed information at any time, it does not agree that verification through sampling and chemical analysis is necessary to ensure no adverse health impacts because the mitigation measures for preventing exposure to hydraulic fracturing additives are not specific to the chemistry of the additives utilized. The approach used by the Department in developing the regulations for high-volume hydraulic fracturing is not specific to the chemistry of the additives utilized. The approach used by the Department assumes that all hydraulic fracturing additive products, if released into the environment, pose some potential impact that depends on site-specific circumstances. Therefore, the mitigation measures proposed in regulations including setbacks, buffers, exclusion areas, secondary containment requirements, inspection and preventative maintenance protocols, and well construction requirements, are included as precautionary measures that are intended to reduce and/or prevent any releases and environmental and human exposures. Regardless of additive product composition or total hydraulic fracturing fluid composition, the potential impacts from the chemicals utilized in hydraulic fracturing are mitigated by the required design and operational controls to prevent releases and exposures.

Proposed 560.6(c)(22) states that fracturing products other than those identified in the well permit application materials may not be used without specific approval from the Department. Such approval would require that all relevant information be submitted to the Department for any new additive product.

Comment 6202:

Part 560.6(c)(24): In place of just eliminating diesel fuel as a carrier fluid or additive for fracturing fluids, the Department should require that all hydrocarbon fluids used in high-volume hydraulic fracturing comply with the purity requirements for white mineral oil as specified in 21 CFR 172.878. In addition, these fluids should be tested and found to be below the detection limits of United States Environmental Protection Agency Method 8260B for benzene, toluene, ethyl benzene, or xylene(s) (BTEX).

Response 6202:

High-volume hydraulic fracturing is a water-based process, with myriad measures proposed to prevent releases and exposures. Therefore, the Department does not agree that additional purity or testing requirements for BTEX are required. See responses to Comments 6118 and 6120.

Comment 6203:

Part 560.6(c)(24): The regulation should be clarified to state that diesel fuel may not be used in any part of hydraulic fracturing operations, except as a fuel for vehicles. Currently, the regulation states that diesel fuel may not be used as a primary carrier fluid, but does not clearly prohibit other uses.

Response 6203:

See responses to Comments 6118, 6120 and 6202.

Comment 5336:

The proposed regulations establishing setback requirements in certain areas are so restrictive and contradictory as to eliminate logical development at numerous potential wellsites. Unintended consequences of the setback rulemaking include: increase in investment cost for the operator as well as impacts for the landowner, mineral owner and community; visual impacts of road and location due to cut-and-fill on hillsides; increased necessity for road maintenance on hilly county or town access roads; increased road traffic, tree removal, the amount of earth to be moved and attendant dust from pad placement on wooded hillsides instead of flat open fields; more required erosion control on access roads, especially in mud, snow, and ice; greater need for coordinating complex personnel, equipment, and emergency-response logistics.

Response 5336:

Setbacks that are delineated in the proposed regulations are designed to ensure that significant adverse environmental impacts are avoided or mitigated to the greatest extent practicable. The Department believes that, with proper planning, a prudent operator can address these elements in an efficient manner. The proposed placement of the well pad and access road will be reviewed by the Department in the application to drill and the resources cited are considered during that review.

Comment 4481:

6 NYCRR Part 560.6(g)(28): "Gas vented through the flare stack must be ignited whenever possible." Who determines when it is or is not possible? The regulation needs to define the situations under which venting versus flaring is justified. Flaring is definitely preferred to venting in regards to controlling air pollution. If there is no valid reason for the gas to be vented rather than flared, it should be prohibited.

Response 4481:

Well completion activities include hydraulic fracturing of the well and a flowback period to clean the well of flowback water and any excess sand (fracturing proppant) that may return out of the well. Flowback water is routed through separation equipment to separate water, gas, and sand. Once the flow rate of gas is sufficient to sustain combustion in a flare, the gas is flared for a short period of time for testing purposes. Existing 560.2(b) already specifies the conditions under which an operator may flare and the changes proposed to subdivision 560.2(b) will clarify the procedures for the well operator to obtain approval to flare. The Department agrees that it is undesirable to allow gas to escape in the air; however, flaring (combustion) of gas produced for a well is necessary in some circumstances. See also response to Comments 4482, 5979 and 8706.

Comment 4482:

6 NYCRR Part 560.6(c)(29): "A reduced emissions completion, with minimal flaring (if any), must be performed whenever gas is capable of being transported or marketed by connection of a sales line and interconnecting gathering line." "Green completion" should be required. Since it is very unlikely that a high-volume hydraulic fracturing well would not produce enough gas to warrant transporting it to market, there is no valid reason for a pipeline not to be in place before a well is allowed to be drilled. This would reduce the amount of venting/flaring necessary for the well.

Response 4482:

Proposed 560.6(c)(29) requires a reduced emission completion (REC) whenever a gathering line, sales line and compressor station are available during completion of any high-volume hydraulically fractured well. Further, an applicant for a well permit would be required to submit a justification for not using an REC, and the justification would be evaluated by the Department.

Comment 5979:

Flaring of gas is permitted if no gathering line is in place at the time of well completion. This results in a wasted gas resource as well as unnecessary emissions. The Department should amend the proposed regulations to require that gathering lines be constructed and ready for gas collection at the time of the completion of the first well on a well pad.

Response 5979:

Existing 556.2(b) already specifies the conditions under which an operator may flare and the changes proposed to subdivision 556.2(b) will clarify the procedures for the well operator to obtain approval to flare. The Department agrees that it is undesirable to allow gas to escape in the air however, flaring (combustion) of gas produced for a well is necessary in some circumstances. The Public Service Commission (PSC) has exclusive jurisdiction over the siting, design, construction, and operation of gathering lines and pipelines.

Comment 8706:

Flaring should be defined as a requirement, rather than an option [for high-volume hydraulic fracturing].

Response 8706:

Flaring is a requirement when a reduced emissions completion cannot be performed.

Comment 4152:

Open pits for storing fracking waste have not been outlawed!

Response 4152:

Proposed 560.6(c)(27) states that flowback water is prohibited from being directed to or stored in any on-site pit. In addition, covered watertight steel tanks or covered watertight tanks constructed of another material approved by the Department are required for flowback handling.

Comment 8588:

The total absence of facilities to process and neutralize used fracking fluids results in the dangerous practice of simply storing this toxic soup in plastic lined pits at the drill sites. Holding ponds are not 100% effective. I am certain that the holding ponds will be subject to; perforation, flood events such as those we saw earlier this year in much of the Marcellus region, and weather variability associated with global climate change guarantees this. The linings of these ponds are plastic, temporary, and vulnerable to leakage. They will crack and perforate with freezing and thawing and be subject to accidents of many kinds (e.g., deer hooves and other natural activities). The pond contents will surely mingle with groundwater, surface waters, and soil under such circumstances. The rdSGEIS does not provide adequate protection from overflow of the holding pools.

Response 8588:

See response to comment 4152.

Comment 9030:

In ECL 23-0301, the Legislature of the State of NY has declared that it is in the public interest to

regulate the development, production and utilization of natural resources of oil and gas in this state in such a manner as will prevent waste. Yet the SGEIS allows for both venting and flaring, thus wasting the resource. Wasteful disposal of the gas violates New York State Environmental Conservation law: 71-1305. "It shall be unlawful for any person to: Waste oil or gas." Until gathering lines are installed, have the industry store gas on site for immediate use by their newly required natural-gas-powered drilling equipment, compressor stations and trucks.

Response 9030:

The Department agrees that it is undesirable to allow gas to escape in the air. However, limited venting and flaring (combustion) of gas produced from a well may be necessary in some circumstances.

Comment 384:

Flowback fluid regulations and definitions are inadequate; new regulations are required.

Response 384:

The Department believes that the draft regulations will provide adequate oversight and, where necessary, support enforcement activities.

Comment 9797:

All comments and input on the 2009 dSGEIS and the 2011 rdSGEIS for high-volume hydraulic fracturing should be taken as applicable comments on the high-volume hydraulic fracturing regulations. This is necessary in case some issue(s) were omitted, or incompletely or incorrectly addressed in the high-volume hydraulic fracturing regulations that were commented on by the public for the SGEIS but were not commented on inadvertently for the regulations. Then there could be no claims that a specific portion of the regulations were acceptable because no public comments were received on the particular issue(s).

Response 9797:

The Department disagrees with this statement. There was a separate process for public review and comment on both the draft SGEIS and proposed regulations.

Comment 10465:

The Proposed Regulations only require "a transportation plan indicating the planned route for delivery of raw materials and chemical additives to the site, the proposed route for transport of waste materials and an estimated number of truck trips associated with the same." (See Proposed Regulation 560.3(a)(20)). This contrasts markedly with the rdSGEIS, which sets forth far more comprehensive requirements for Transportation Plans: The Department would require, as part of any permit application, that the applicant submit a transportation plan. The transportation plan would identify the number of anticipated truck trips to be generated by the proposed activity; the

times of day when trucks are proposed to be operating; the proposed routes for such truck trips; the locations of, and access to and from, appropriate parking/staging areas; and the ability of the roadways located on such routes to accommodate such truck traffic (rdSGEIS at 7-136). The rdSGEIS also details the requirements in connection with Local Road Use Agreements, stating that "the owner or operator should attempt to obtain a road use agreement with the appropriate local municipality; if such an agreement cannot be reached, the reason(s) for not obtaining one must be documented in the Transportation Plan." (Id.) At a minimum, the Proposed Regulations must be revised to reflect the requirements imposed in the rdSGEIS, including the scope of a Transportation Plan and information relating to a Local Road Use Agreement. Moreover, the rdSGEIS appears to leave a loophole for an applicant to avoid Local Road Use Agreements, stating only that "if such an agreement cannot be reached, the reasons(s) for not obtaining one must be documented in the applicant's Transportation Plan." (rdSGEIS at 7-138)

Response 10465:

The Department acknowledges that in some cases the rdSGEIS is more detailed than some of the proposed regulations. This provides flexibility for other approaches to be implemented as operators and the Department – and in this case, DOT -- gain experience. While the rdSGEIS reflects those approaches that the Department has determined would effectively achieve an environmental objective, there may be other ways to accomplish the same thing that exist now or that will be developed as technology advances. The Department always has the option to propose additional regulations should a specific approach to a given objective become standardized and also be deemed the only acceptable alternative. The Department is working closely with DOT to ensure permits are not issued without transportation plans in place that address any and all legitimate concerns.

Comment 4479:

Cortland County Health Department support the requirements in Part 560 that flowback water and production brine not be "directed to or stored in any on-site pit." However, other sections of the regulations (e.g., 553.1 (6)) refer to the disposal of pit liners; 560.7 (a) refers to fluids being removed from pits). This makes the issue of pits unclear. The use of pits (other than for water storage) should be absolutely forbidden. Pits typically leak, they can overflow during times of heavy rains (an increasingly frequent occurrence in New York), and they contribute greatly to the amount of air pollution.

Response 4479:

Comment noted in support of the requirements that flowback water and production brine not be directed to or stored in on-site pits. These requirements in Part 560 pertain to flowback water and production brine associated with high-volume hydraulic fracturing. The pits referenced by 560.7(a) are reserve pits, which store drilling fluids and cuttings when closed-loop drilling is not required. Use of these pits is limited to drilling that does not use oil-based drilling muds, or polymer-based muds with mineral oil lubricant, and to drilling that does not require an acid-rock mitigation plan. Reserve pits at wells permitted and drilled under Part 560 would be subject to the requirements of proposed 560.6(a)(4), including enhanced construction and maintenance

specifications for pits used for more than one well. There is no 553.1(6) in the proposed regulations; the word “liner” does not appear outside of Part 560.

90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations

Comment 2451:

Section 750-3.21 reads (in part) (2) Construction activities related to high-volume hydraulic fracturing (HVHF) operations that: (i) are tributary to waters of the state classified as AA or AA-s; and (ii) which disturb land with no existing impervious cover; and (iii) which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (USDA) Soil Survey for the surface area where the disturbance will occur. It is our assumption that the proposed regulations are stating, and, if that assumption is incorrect, our assertion that they should state, that the HVHF State Pollutant Discharge Elimination System general permit is not authorized when any one of these conditions are present. Thus, the highlighted "and"s should be "or"s.

Response 2451:

The “and”s in the draft regulations at 6 NYCRR 750-3 are correct, and are consistent with the SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-10-001), which served as the basis for the requirements in the draft HVHF GP and 2011 draft and the revised regulations at 6 NYCRR 750-3. High-volume hydraulic fracturing is ineligible for coverage under the draft HVHF GP where all three of the following are present: discharges from construction activities are tributary to waters of the state classified as AA or AA-s; disturb land with no existing impervious cover; and where the Soil Slope Phase is identified as E or F and the map unit name is inclusive of 25% or greater slope on the USDA Soil Survey for the surface area where the disturbance will occur. The draft HVHF GP also requires the minimization of the disturbance of steep slopes.

Comment 2453:

Section 750.3.21.f.4 - All proposed zones are too low, by a factor of 10x. This is not a mature technology. The record shows that spills, operator errors, storm water flow, impound failures have caused significant environmental damage, with particular impact on drinking water. Some of these violations have caused permanent degradation of water sources. We need larger buffer zones until the methodology and operation proves itself reliable and safe. Then, and only then, the permitting process can gradually reduce those buffer zones.

Response 2453:

The revised regulations, as well as mitigation measures described in the 1992 GEIS and 2011 rdSGEIS, include a broad array of protective measures for water resources. Changes in the setbacks can be found in the revised regulations at 6 NYCRR 750-3.3 (prohibitions) and 750-

3.11 (ineligible for coverage under a stormwater general permit for HVHF operations, but where an individual SPDES permit and site-specific SEQRA review are required).

In most cases, the setbacks are designed to provide an added level of protection for surface spills from a well pad, and thus as related to water resources, setbacks are measured from the closest edge of the well pad. Additionally, setbacks were developed by balancing the protection of the water resource, which is achieved by many measures in addition to setbacks, and the policy in ECL §23 -0301 to allow for the recovery of the natural gas resource and to protect correlative rights. In this regard, setbacks represent an effective risk management tool in the event of a spill. Setbacks can provide the Department and/or the operator of a well the ability to respond to a spill. Thus, the magnitude of the setback should also reflect the magnitude of the potential risk and the potential harm. Consideration in setting the setbacks was given to the designated use of the water resource, such as drinking water supply (and in such cases, population served).

In addition to the mitigation measures identified to prevent spills and potential improper runoff of wastewater, the imposition of a range of setbacks - depending on the nature of the water resource - should be implemented to conservatively add an additional layer of protection to these water resources from significant adverse impacts from potential surface spills or other releases because such setbacks are a tool to prevent a spill from reaching and contaminating critical water resources. This broad range of protective measures, both spill prevention and the setbacks to ensure that any spills that do occur do not contaminate critical resources, taken together, provide an enhanced level of mitigation to prevent potential significant adverse impacts to water resources.

The revised regulations at 6 NYCRR 750-3 and the draft HVHF GP propose measures to prevent spills and releases. Specific BMPs are required for all aspects of high-volume hydraulic fracturing operations (e.g., pit construction and liner specifications; closed-loop systems in certain instances; flowback water to be stored on-site in covered, water-tight tanks; secondary containment for all hazardous substances at the well site, as well as for flowback and piping of wastewater; appropriate pressure-control procedures and equipment; peripheral berm required for the entire well site as a secondary measure for containing any spills and releases; requirement of emergency and spill response plans). In addition to the BMPs, setbacks and other regulatory requirements/controls found in the draft and revised 6 NYCRR Parts 550-559 and draft and revised Part 560, as well as additional mitigation measures required under the 1992 GEIS and proposed in Chapter 7 of the 2011 rdSEGIS and the requirements listed in Appendix 10 of that document, provide additional protections to ensure the environment is protected.

Comment 3014:

The proposed high-volume hydraulic fracturing regulations include both Mineral Resources regulations (6 NYCRR Parts 550-556 and 560) and State Pollutant Discharge Elimination System (SPDES) regulations (6 NYCRR Part 750). In promulgating both Mineral Resources regulations and SPDES regulations, the Department has created needless and irrational duplication in the permitting process. The areas of overlap include: Setbacks - 560.4(a) is the same as 750-3.3(b); Chemical disclosure - 560.3(c) is the same as 750-3.11(e)(1)(ii), 750-3.12(b)(4) (6), and 750-3.13(e); Water well testing - 560.5(d) is the same as 750-3.13(h) and (i); Closed-loop tank system requirement - 560.6(c)(7) is the same as 750-3.4(b)(2) and 750-3.11(h); Prohibition of waste fluid storage in a pit or impoundment - 560.6(c)(27) and 560.7(g)

are the same as 750-3.4(b)(3) and 750-3.11(i); Testing requirements related to waste fluids - 560.7(f) is the same as 750-3.11(i); 45-day removal requirement for waste fluids - 560.7(a) is the same as 750-3.4(b)(5); Requirement to develop a fluid disposal plan - 554.1(c)(1) is the same as 750-3.12(b); Pit requirements - 560.6(a)(4) is the same as 750-3.4(b)(4); Secondary containment - 560.6(c)(26)(i) is the same as 750-3.11(e)(1)(v); Record keeping waste fluids - 560.5(f) and (g) are the same as 750-3.13(f) and (g); Record keeping miscellaneous - 560.6(c)(26)(viii) is the same as 750-3.13(b) - (e); Definitions - 560.2 is the same as 750-3.2. These duplications are also detailed in Appendix A (page 25 of 37) of the comment. The Department should eliminate the duplicative language from the SPDES regulations, or eliminate the new high-volume hydraulic fracturing-specific SPDES regulations altogether.

Response 3014:

The draft regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting. Duplication and consistency have been addressed in the revised regulations, including cross-references to 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 3436:

6 NYCRR 750.3-2(b)(23), this definition of high-volume hydraulic fracturing should be consistent with the definition contained in 560.3(b). The definition should be revised so that it only applies if over 300,000 gallons of fresh water is used, and should not be cumulative.

Response 3436:

The definition of “high-volume hydraulic fracturing” has been revised in 750-3 and is also now consistent with the definition in the revised 6 NYCRR Part 560. The revised definition is as follows: “the stimulation of a well using 300,000 gallons or more of water as the base fluid in the hydraulic fracturing fluid per well completion. In determining whether the 300,000 gallon threshold has been met, the Department will take into account the sum of all water-based fluids, including fresh water and recycled flowback water, used in all HVHF stages.”

Comment 3437:

6 NYCRR 750.3-2(b)(38), this definition of product should be consistent with the definition contained in 560.3(b).

Response 3437:

The definitions in the draft regulations at 6 NYCRR 750-3 and the definitions in draft regulations at 6 NYCRR Part 560 have been changed in the revised regulations for consistency.

Comment 3438:

6 NYCRR 750.3-4(b)(7) and (8), these two sections are duplicative and should be consolidated into one section. Halliburton Energy Services, Inc. (HESI) suggests allowing the use of its Chemistry Scoring Index to meet this requirement.

Response 3438:

The draft regulations at 6 NYCRR 750-3.4 have been revised and re-located. The revised regulations at 6 NYCRR 750-3 state “[t]he owner or operator’s alternative analysis must be in accordance with subparagraph 560.3(d)(1)(vii) of this Title, as adopted on XX, 20XX. This includes documentation to the department’s satisfaction, utilizing existing data and studies, that proposed chemical additives exhibit reduced aquatic toxicity and pose at least as low a potential risk to water resources and the environment as all known available alternatives; or documentation, to the Department’s satisfaction, that available alternative products are not effective in achieving the desired results or economically feasible. The owner or operator must use the proposed alternatives that satisfy the foregoing requirements.” The Department will provide further guidance regarding the specifics of the alternatives analysis.

However, there are two concepts in these sections-one mandates the alternatives analysis and the other mandates the use of less toxic alternatives. Environmentally-friendly alternatives, and the evaluation and use, if feasible, of less toxic alternatives is proposed to be required for each well permit. HESI’s proposed CSI was reviewed by several Divisions within the Department and DOH’s Bureau of Toxic Substance Assessment. Development of an objective scoring system that would fairly evaluate, compare and rank products that are each composed of multiple chemicals is a complex exercise including both product performance considerations and relative risks associated with various site-specific scenarios such as depth of fracturing, surface site characteristics and proximity to water bodies or significant habitats. The requirement to evaluate and use less toxic alternatives achieves the same objective. Upon review, the Department has determined that adoption of HESI’s proposed CSI as part of the well permitting process would not be feasible or appropriate at this time.

Comment 3439:

6 NYCRR 750.3-11(e)(1)(i), Halliburton Energy Services, Inc. (HESI) suggests allowing the use of its Chemistry Scoring Index to meet this requirement.

Response 3439:

See response to Comment 3438.

Comment 3440:

6 NYCRR 750.3-11(e)(1)(ii), the language used in this regulation should be clarified to only apply to the chemical additives, by product name, and not the individual chemical constituents.

Response 3440:

The revised regulations at 6 NYCRR 750-3 continue to require that, at the well site, the owner or operator must maintain a list of the chemical additives used on the well site.

Comment 3441:

6 NYCRR 750.3-12(b), Contents of Fluid Disposal Plan, requiring this level of disclosure at the permit application stage is unwarranted, because the precise additives to be used may change between the time the permit application is submitted, and the time of the actual hydraulic fracturing. Therefore, what is submitted with this application will be subject to change. The

Department should provide a seamless process for changing proposed additives. Moreover, there is no explicit provision in these sections for protection of proprietary confidential business information. The Department should specifically acknowledge that confidential treatment will be accorded to proprietary information, and that such proprietary information need only be disclosed to the Department.

Response 3441:

The revised regulations at 6 NYCRR 750-3 require that the owner or operator must have an approvable plan, which identifies the ultimate disposition of wastewater from high-volume hydraulic fracturing (Fluid Disposal Plan), in accordance with the requirements set forth in revised 6 NYCRR 554.1(c)(1), and ensures compliance with any other law or regulation. An approvable Fluid Disposal Plan must also contain an acceptable contingency plan for disposition or disposal of such fluids that must be implemented when the primary plan is unsafe or impracticable at the time of disposition or disposal. The Fluid Disposal Plan must be modified to cover high-volume hydraulic fracturing wastewater from wells not originally identified. Specifically, the revised regulations at 6 NYCRR 750-3 state “[t]he owner or operator must maintain a Fluid Disposal Plan, as required by 750-3.6(d) of this Part, and any modifications to that Fluid Disposal Plan, including modifications that cover high-volume hydraulic fracturing wastewater from wells not originally identified.” The Fluid Disposal Plan would be available to the public, subject to the limitations of the Freedom of Information Law. Disclosure of chemical additives is otherwise required by revised regulations at 6 NYCRR 750-3.7(k)(1) and referenced revised 6 NYCRR 560.3(d).

Comment 3443:

6 NYCRR 750.3-12(b)(4), this provision requires disclosure of each chemical in the Fluid Disposal Plan. This is burdensome, unwarranted and inconsistent with the requirements contained in the Division of Mineral Resources regulations at 560.3(c). The language should be changed to be consistent with 560.3(c)(1)(i) through (iv).

Response 3443:

See Response to Comment 3441.

Comment 3444:

6 NYCRR 750.3-12(b)(6), this provision requires that the exact chemical composition of any additional additives which have not yet been proposed for use before the Department be set forth in the Fluid Disposal Plan. This provision appears to suggest that the precise formula of new additives be provided to the Department, and does not make any provision for protection of confidential business or trade secret information. For reasons set forth in detail in its referenced comments to the rdSGEIS, Halliburton Energy Services, Inc. (HESI) objects to any requirement to submit the precise chemical formulae for its additives. Furthermore, this section needs to acknowledge that such information may be treated as confidential business or trade secret information, and may be submitted separately by the service company to the Department rather than exclusively by the operator as currently stated. As discussed in HESI's comments on the rdSGEIS, because this information is highly valuable intellectual property, HESI does not disclose this information to its customers/operators.

Response 3444:

See response to Comment 3441.

Comment 3445:

6 NYCRR Section 750.3-12(d)(1)(vi)(c)1, Headworks Analysis Requirements, the disclosure of the constituents and formulae for hydraulic fracturing additives is not scientifically required in order to perform the headworks analysis. Furthermore, this provision does not contain any provision for treatment of the chemical information used in the additives as confidential business information. This provision should be clarified to specify that confidential business information treatment may be warranted. In addition, since the headworks analysis also requires an assay of the concentration of high-volume hydraulic fracturing chemicals present, disclosure of the chemicals used in the additives is unnecessary to perform the headworks analysis.

Response 3445:

The information submitted to the Department as part of a headworks analysis would be available to the public, subject to the limitations of the Freedom of Information Law. For each identified source of flowback water or production brine, the revised regulations at 6 NYCRR 750-3 require a representative assay of the concentrations of chemical constituents present, as well as other constituents that may be present. Additionally, while the chemical additives (referred to in the comment as hydraulic fracturing fluid additives) may not on their own cause an upset, their presence must be evaluated in conjunction with the other contaminants present in this source of wastewater. This evaluation is necessary to determine whether the contaminants are adequately treated and not passing through the treatment system without treatment, as well as to evaluate the potential toxicological effects on the receiving water.

Comment 3447:

6 NYCRR 750.3-13(e), Storm Water Pollution Prevention Plan (SWPPP) requirements, this provision requires that SWPPPs contain a provision to maintain records of chemicals/additives used, and explicitly acknowledges that the chemicals in the additives used may be excluded from the records if the chemicals are entitled to treatment as confidential business information. This language should be incorporated into the sections discussed above. This section should be revised so that the SWPPP need only include provisions that records be maintained on the additives by product name, with the Material Safety Data Sheets (MSDSs) for such additives, and not the individual chemicals themselves. The use of the phrase chemicals/additives is not defined, and is confusing.

Response 3447:

See Response to Comment 3440. The information would be available to the public, subject to the limitations of the Freedom of Information Law.

Comment 3781:

6 NYCRR 750-3.12(b) spells out the required components of a hydraulic fracturing fluid disposal plan that includes requirements for certification by a disposal facility that available

capacity exists for the disposal of wastewaters over the life of the well and identifies a backup disposal location with sufficient capacity. However, the proposed regulations continue to allow disposing hydraulic fracturing wastewaters at publicly owned treatment works (POTWs). High-volume hydraulic fracturing waste should not be treated at POTWs.

Response 3781:

See Response to Comment 3441. POTWs may accept high-volume hydraulic fracturing wastewater so long as the POTW is in compliance with the applicable regulations, which includes obtaining any necessary approvals and permits. The revised regulations at 6 NYCRR 750-3 include requirements that must be met for acceptance of this source of wastewater for disposal at POTWs. The Department's water quality review process for SPDES permit issuance includes evaluation of basin-wide impacts associated with the discharge and is protective of the best usages of the receiving water. Approval to accept high-volume hydraulic fracturing wastewater would only be issued to a POTW following EPA and DEC's review and approval of the facility's application to accept the wastewater. The POTW must have an EPA or DEC-approved pretreatment program prior to applying to accept high-volume hydraulic fracturing wastewater. Pursuant to the General Pretreatment Regulations, and before the POTW is permitted to accept a new waste stream, the POTW must conduct a headworks analysis and submit this analysis for Department and EPA approval. The headworks analysis evaluates the pollutants present in the wastewater against the capabilities of the treatment system and assesses any potential adverse impacts to a treatment system process. If the headwork analysis indicates that the treatment process could be adversely impacted by the pollutants present in the high-volume hydraulic fracturing wastewater, that the high-volume hydraulic fracturing wastewater would not comply with the pass through and interference provisions in 40 CFR Part 403.5, or that the high-volume hydraulic fracturing wastewater may cause a water quality violation in the receiving waterbody, additional treatment would be required to reduce the pollutants of concern to a safe level before the POTW would be permitted to accept the wastewater. Also, the water quality-based effluent limitations in any SPDES permit are calculated using the critical low flow of the receiving water to assure that water quality standards and guidance values are met at all times during the year. All SPDES permits require periodic monitoring to ensure compliance with applicable limits to ensure that water quality standards are met. Discharge limitations in SPDES permits are developed based upon the more stringent of aquatic, water source, or technology standards and are set at levels to ensure that the discharges do not impair water quality standards, including those protective of wildlife and aquatic habitat.

Comment 3784:

6 NYCRR 750-3.13(h), which requires baseline testing and ongoing monitoring provisions should be strengthened to provide better protections for all neighbors of hydraulic fracturing operations and the possibility of swifter remediation attempts should contamination occur. Consider the following: 1) The proposed regulation would require an operator sample residential water wells within 1,000 feet of the well pad (within 2,000 feet if no well is found within 1,000 feet) and provide results to the well owner. There is no reason that this requirement be restricted to residential wells. The aim of the requirement seems to be to assign or remove responsibility if well water nearby a high-volume hydraulic fracturing operation becomes polluted; baseline testing is supported for this reason. Whether a well within 1,000 or 2,000 feet supplies a

residence, a commercial operation or an industrial operation, high-volume hydraulic fracturing owners/operators should be responsible for baseline testing. 2) Regulations should establish minimum contaminate parameters for which owners/operators would be required to test. 3) A minimum monitoring schedule, with additional monitoring required at the discretion of the Department should be included in final regulations. The schedule should include baseline testing prior to site disturbance at the first well on the pad, and prior to drilling commencement at additional wells on multi-well pads; sampling and analysis three months after reaching total measured depth (TMD) at any well on the pad if there is a hiatus of longer than three months between reaching TMD and any other milestone on the well pad that would require sampling and analysis; sampling and analysis three months, six months, and one year after hydraulic fracturing operations at each well on the pad (with the ability for the Department to stipulate that for multi-well pads where drilling and hydraulic fracturing activity is continuous, to the extent that water well sampling and analysis according to the schedule would occur more often than every three months, to simplify the protocol so that sampling and analysis occurs at three month intervals) and sampling annually every year that the well is producing. While some of the above monitoring schedule is proposed in the rdSGEIS, Section 7.1.4.1, minimum standards and annual testing should be mandated to ensure the integrity of the well construction and casing. 4) The proposed regulations would require that the operator maintain the results of the water well tests. The Department is urged to make these results publicly available so that New Yorkers may track pollution caused by high-volume hydraulic fracturing and have a better understanding of water quality in areas where high-volume hydraulic fracturing is occurring, more generally. To this end, the agency could either maintain the results itself or establish a mechanism by which the public could petition the Department to obtain the results on its behalf. The proposed 6 NYCRR 560.5 establishes water well testing as part of the high-volume hydraulic fracturing requirements separate from, but parallel to the State Pollutant Discharge Elimination System (SPDES) permit regulations. The comments made above in reference to the monitoring requirements in the proposed SPDES regulations apply here as well.

Response 3784:

In addition to the requirement that owner or operator conduct residential water well testing, in accordance with the requirements of revised 6 NYCRR 560.5(d), the revised regulations at 6 NYCRR 750-3 require an approvable groundwater monitoring program be developed and implemented. The 2011 rdSGEIS and the revised regulations at 6 NYCRR 560.5(d) include indicator parameters for private water well testing. Should there be an identified impact from that monitoring, additional monitoring may be required and/or analytes may be tested for.

Comment 3785:

Environmental Advocates supports proposed 6 NYCRR 750-3.21, the regulations determining what may or may not be covered under the State Pollutant Discharge Elimination System (SPDES) General Permit, with the exception of 6 NYCRR 750-3.21(f)(4). It is not enough to require an individual SPDES permit for high-volume hydraulic fracturing operations within a principal aquifer. High-volume hydraulic fracturing operations should not be permitted over principal aquifers.

Response 3785:

There are specific factors that support the fact that high-volume hydraulic fracturing in, or within 500 feet of, a Principal Aquifer, may not be covered by a general SPDES permit, instead of being prohibited. Primary water supply aquifers are defined as highly productive aquifers presently being utilized as sources of water supply by major municipal water supply systems, and as such, high-volume hydraulic fracturing is prohibited in those aquifers. Principal Aquifers are aquifers known to be highly productive or whose geology suggests abundant potential water supply, but which are not intensively used as sources of water supply by major municipal systems at the present time. Therefore, in general, Principal Aquifers do not serve major municipal water supply systems and fewer individuals compared to Primary Aquifers. Accordingly, rather than applying an absolute 500-foot prohibition, as the case with Primary Aquifers, high-volume hydraulic fracturing within 500 feet of a Principal Aquifer is not covered by a general SPDES permit. An application to construct a well pad in a Principal Aquifer or within 500 feet of the boundary of the aquifer would require an individual stormwater permit, subject to public notice and comment. As part of the individual permit review process (and the associated site-specific SEQRA review), the appropriateness of placing a well pad in the proposed location would be evaluated and may or may not be permitted based on that site-specific review. If permitted, enhanced mitigation measures would be tailored to the specific application. Among other things, the Department will consider the following factors when considering an application to construct a well pad in a Principal Aquifer or within 500 feet of the boundary of the aquifer: topographical features, such as depressions and overall slope of the land; distance to drinking water supplies and population served; or other uses of the aquifer.

Comment 3838:

Refer to definition (49) in 6 NYCRR 750-3.2, the word "lake" should be inserted in the last line of the definition of "unfiltered surface water supplies" to read "... Skaneateles Lake Drinking Water Supply Watershed." Elsewhere in the documents, the term "Syracuse Watersheds" should appear as "Skaneateles Lake Watershed," to avoid confusion with watersheds in the City of Syracuse.

Response 3838:

The draft regulations at 6 NYCRR 750-3 have been revised to refer to this unfiltered drinking water supply as follows: "Syracuse Drinking Water Supply Watershed."

Comment 3855:

Proposed regulation 750-3.3 (b), and 750-3.21 (f) (4) a High-Volume Hydraulic Fracturing State Pollutant Discharge Elimination System (SPDES) general permit should not authorize operations sited within the following buffers: (1) closer than 1,000 feet from a private water well unless waived by the water well owner; (2) within a the geometric boundary of a primary aquifer and a 2,000-foot buffer from the boundary of a primary aquifer or surface water divide for the aquifer, whichever is closer; (3) within a 100-year floodplain and a 500 foot buffer of the 100-year floodplain; (4) within 500 feet of a wetland; (5) within 2,000 feet of any public water supply (municipal or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), and river or stream intake; (6) within 2,500 feet of any faults or Fracture Intensification Domains that are mapped within 1,000 feet of any public water supply (municipal

or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), and river or stream intake; (7) within 1,000 feet of any active or abandoned salt mine; (8) below a Finger Lake or dry Finger Lake valley and within 500 feet of the Finger Lake; and (9) within 500 feet of a perennial stream.

Response 3855:

See Response to Comment 2453. With respect to water resources, the draft regulations at 6 NYCRR recite where high-volume hydraulic fracturing is prohibited (750-3.3), and where the activity does not qualify for coverage under the stormwater general permit for HVHF operations (750-3.11).

Comment 3858:

Proposed regulation 750-3.12 (d) (1) (vi) (b) references Division of Water Guidance Document 1.3.8.1, Guidance for Acceptance of High-Volume Hydraulic Fracturing Wastewater by Publically Owned Treatment Works. The Department website was searched and while the 1994 edition of 1.3.8 was available, it does not seem applicable. A call was placed to Division of Water and staff there thought there must be a typographical error because there was no guidance document with the number 1.3.8.1. If a new document is to be created, it should be available for review with the rest of the proposed regulations.

Response 3858:

References to guidance documents have been removed from the revised regulations at 6 NYCRR 750-3.

Comment 3894:

The following definition should be added for wetlands under 750-1.2(a)(99): Wetlands means any area 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 Clean Water Act, 33 U.S.C. 1362(7).

Response 3894:

A definition of "wetlands" has been added to the revised regulations at 6 NYCRR 750-3, as "any area regulated pursuant to Article 24 of the Environmental Conservation Law and any other wetlands regulated under Section 404 of 33 U.S.C. 1251, *et seq.*"

Comment 3895:

The definition for Whole Effluent Toxicity, presently at 750-1.2(a)(99), should be renumbered as 750-1.2(a)(100).

Response 3895:

This comment is outside the scope of the regulatory changes proposed.

Comment 3896:

Part 750-1.7(a)(11) should be revised to specifically clarify that wetlands are included in the definition of surface water bodies for the purposes of creating a topographic map. It should be revised as follows: "A topographic map on a scale of approximately one inch equals 2000 feet (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source, depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment storage and disposal facilities; the portion of the mapped area on Indian Lands; and those all wells, springs, other surface water bodies (including wetlands), and drinking water wells listed in public records, depicted on publicly-available resource maps, or otherwise known to the applicant in the map area."

Response 3896:

This comment is outside the scope of the regulatory changes proposed. Where additional requirements related to HVHF operations are necessary, the revised regulations at 6 NYCRR 750-3 include such. Additionally, the draft HVHF GP includes a number of mapping requirements, such as distance to waterbodies. See also response to Comment 3894 regarding the revised definition of wetlands.

Comment 3897:

An additional requirement for an individual State Pollutant Discharge Elimination System (SPDES) permit application should be added to 750-1.7(a), requiring submittal of: "A map of on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the discharge."

Response 3897:

See Response to Comment 3896.

Comment 3898:

Part 750.3.2(6) defines BUD as a Beneficial Use Determination issued by the Department's Division of Materials Management in accordance with 360-1.15. The Department's Division of Water is responsible for ensuring that process water from shale gas extraction, including production brine, are not permitted to run off into streams, creeks, lakes and other bodies of water. As such, the Department's Division of Water would be the more appropriate entity to evaluate whether or not wastewater associated with hydraulic fracturing can be used in road spreading projects. However, the United States Environmental Protection Agency recommends against the use of Beneficial Use Determinations for road-spreading projects and similar applications.

Response 3898:

The revised regulations at 750-3 prohibit the discharge of flowback to the ground, but allow the discharge of drilling fluids, formation fluids and production brine in accordance with the terms and conditions of a BUD. The analysis for the BUD considers the geographic area and/or specific roads on which the production brine can be spread and would take into account impacts to water supply bodies or aquifers in the area. If approved, the BUD would restrict the quantity of brine spread to minimize runoff of excess brine and potential impact to ground and surface waters. Within the Department, the Division of Materials Management is responsible for the issuance of BUDs.

Comment 3899:

Part 750-3.3 indicates the discharges that are prohibited and for which a State Pollutant Discharge Elimination System permit cannot be issued. The federal effluent guidelines at 40 CFR 435.32 establish best practicable control technology currently available (BPT) requirements: There shall be no discharge of waste water pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion or well treatment (i.e., produced water, drilling muds, drill cuttings, and produced sand). The prohibition of any discharge of wastewater pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion or well treatment (i.e., produced water, drilling muds, drill cuttings, and produced sand) should be included in the prohibitions at 750-3.3.

Response 3899:

The prohibited discharges in the draft regulations at 6 NYCRR 750-3.3 refer to siting of well pads for HVHF operations. The revised regulations at 6 NYCRR 750-3 also include requirements for high-volume hydraulic fracturing wastewater disposal, such as “Facilities constructed specifically for the onsite treatment of HVHF wastewater are prohibited from directly discharging to the waters of the State pursuant to 40 CFR Part 435. These onsite facilities are not eligible to obtain a SPDES permit. All HVHF wastewater accepted and treated by these onsite facilities must be either reused, as approved by the department, or transported for offsite disposal at a permitted facility.” Additionally, the revised regulations at 6 NYCRR 750-3 and the draft HVHF GP do not authorize coverage under the HVHF GP for contaminated stormwater discharges from drilling operations that are subject to BPT and BAT guidelines found at 40 CFR 435.

Comment 3900:

Part 750.3-4(b)(3) states that applications for high-volume hydraulic fracturing must include a certification that high-volume hydraulic fracturing flowback fluids will not be directed or stored in a pit or impoundment. The proposed rule does not define pit or impoundment, but does define "reserve pit."

Response 3900:

The Department recognized this concern and revised the regulations at 6 NYCRR 750-3 to state “[f]lowback and production brine are prohibited from being directed to or stored in any reserve pit or freshwater impoundment.”

Comment 3901:

The proposed rule does not include production brine whereas throughout the regulation, flowback water and production brine are referenced together. Part 750.3-4(b)(3) should be reworded as "Certification that high-volume hydraulic fracturing flowback fluids and production brine will not be directed to or stored in a pit, impoundment or reserve pit."

Response 3901:

See Response to Comment 3900.

Comment 3902:

Part 750.3-11(i) requires that flowback water recovered after high-volume hydraulic fracturing operations as well as production brine be tested for naturally-occurring radioactive materials (NORM) which is defined under Part 750-3.2(32) as the radioactivity that can exist naturally in native materials. Part 750.3-11(i) should specify the substances that testing must be completed for. For instance, since water quality standards exist for radium 226, radium 228, gross alpha radiation, and gross beta radiation, Part 750.3-11(i) must specify that at a minimum, radium 226, radium 228, gross alpha radiation and gross beta radiation be tested using approved test methods for wastewater (e.g., those found at 40 CFR Part 136).

Response 3902:

The requirement to test the ground adjacent to the tanks has been removed from the revised regulations at 6 NYCRR 750-3, but is still a requirement of the revised regulations at 6 NYCRR Part 560. See also Response to Comment 3904 regarding testing of HVHF wastewater, including for NORM.

Comment 3903:

Part 750.3-11(i) should not distinguish between flowback water and production brine since, for the purposes of federal direct discharge requirements, the two sources are regulated the same. For wastewater testing, analytical methods and sampling protocols must conform to State Pollutant Discharge Elimination System testing requirements. The section should be rewritten as: Flowback water and production brine is prohibited from being directed to or stored in any pit, pond or impoundment. Covered watertight steel tanks or covered watertight tanks constructed of another material approved by the Department are required for flowback and production brine handling and containment on the well pad. Flowback and production brine water tanks, piping and conveyances, including valves, must be of sufficient pressure rating and be maintained in a leak-free condition.

Response 3903:

See Response to Comment 3899 regarding federal direct discharge requirements. See Response to Comment 3900 regarding reserve pits and impoundments. With respect to requirements for the containment of flowback and production brine, the revised regulations at 6 NYCRR 750-3 cross-reference the revised regulations at 6 NYCRR Part 560.

Comment 3904:

Part 750-3.11 Application of Standards, Limitations and Other Requirements - Flowback water and production brine recovered after high-volume hydraulic fracturing operations must be tested for naturally-occurring radioactive materials (including, at a minimum, radium 226, radium 228, gross alpha radiation and gross beta radiation) prior to removal from the site.

Response 3904:

The revised regulations at 6 NYCRR 750-3 include requirements for the various disposal options for high-volume hydraulic fracturing wastewater. Each of these disposal options includes a requirement to fully characterize the high-volume hydraulic fracturing wastewater and identify the concentrations of chemical constituents present, as well as other parameters that may be present in the high-volume hydraulic fracturing wastewater. This would include NORM. NORM is defined in the revised regulations at 6 NYCRR 750-3.2.

Comment 3905:

Part 750-3.11 Application of Standards, Limitations and Other Requirements - The ground adjacent to the flowback water and production brine tanks must be measured for radioactivity. All testing must be in accordance with protocols satisfactory to the New York State Department of Health and the Department.

Response 3905:

See Response to Comment 3902.

Comment 3906:

Part 750-3.11(k) states that flowback water and production brine shall not be discharged on the ground surface. The provision should also include surface water. For instance, it should read, "(k) Flowback water and production brine shall not be discharged on the ground surface or to surface water."

Response 3906:

See Responses to Comments 3441 and 3900.

Comment 3907:

Part 750-3.12(d)(1)(vi) states the headworks analysis must demonstrate, among other things, that the publicly owned treatment works (POTW) is capable of removing the contaminants expected to be present in the flowback water and production brine, including but not limited to total dissolved solids (TDS), naturally occurring radioactive materials (NORM), barium, bromides, benzene, toluene, ethylbenzene, xylene and chemicals present in the additives used in the development of the wells. Chlorides should be added to the list of parameters that must be included since chlorides are usually present in high concentrations in hydraulic fracturing wastewater and can interfere with biological wastewater treatment. The NORM parameters of radium 226, radium 228, gross alpha radiation, and gross beta radiation should be specified throughout the rule rather than the general term "NORM" so that the correct monitoring and analysis is performed.

Response 3907:

See Responses to Comment 3781 regarding the headworks analysis and Comment 3904 regarding NORM.

Comment 3909:

Part 750-3.12(d)(1)(vi)(c)(3) indicates that each discharge of flowback water and production brine to the headworks of the publicly-owned treatment works shall include an assay of the concentrations of high-volume hydraulic fracturing chemicals present including total dissolved solids, naturally-occurring radioactive materials (NORM), benzene, toluene, ethylbenzene, and xylene. The provision should state that the concentrations must be performed using the approved methods in 40 CFR Part 136 and specify that at a minimum NORM parameters of radium 226, radium 228, gross alpha radiation, and gross beta radiation be included in the analysis.

Response 3909:

See Responses to Comment 3781 regarding the headworks analysis and Comment 3904 regarding NORM. 6 NYCRR 750-2.5(d) requires testing in compliance with 40 CFR Part 136. As stated in the final regulations at 6 NYCRR 750-3.1, "Unless in conflict, superseded or expressly stated otherwise in this Subpart, the provisions set forth in Subpart 750-1 and Subpart 750-2 of this Part shall apply to HVHF operations."

Comment 3910:

Part 750-3.12(d)(4)(i) should be revised to replace "Type II" disposal wells with "Class II" disposal wells.

Response 3910:

The revised regulations at 6 NYCRR 750-3 reference the Underground Injection Control program, in general.

Comment 3911:

Part 750-3.12(d)(5)(iv) should be revised to replace "Sections 1423 and 1425" with "Section 1421".

Response 3911:

The references to Sections 1423 and 1425 are correct.

Comment 3912:

Part 750-3.12(d)(6) states that production brine may be disposed in accordance with the terms and conditions of a Department-approved Beneficial Use Determination. Under 40 CFR 435.32, wastewater from onshore oil and gas extraction, including production brine, cannot be discharged into navigable waters. The Department should not issue Beneficial Use Determinations for road spreading and similar applications.

Response 3912:

See Response to Comment 3898.

Comment 3913:

At 750-3.21(f)(4), the term "Wetland" in the table needs to be qualified as "ECL Article 24 mapped freshwater wetlands."

Response 3913:

See Response to Comment 3894.

Comment 4024:

Section 750-3.21(f)(4): This section is unclear. The word "buffer," is often used interchangeably with the word "setback." Without being defined, it becomes confusing to call something a buffer and then have a process to circumvent the "buffer" by applying for a high-volume hydraulic fracturing individual permit. The section should eliminate the use of the word buffer. If the word buffer is used, then both the words "buffer" and "setback" should appear in the Definitions at 750-3.2.

Response 4024:

The buffers described in the revised regulations at 6 NYCRR 750-3 are distances from water resources. This term is used in revised regulations 6 NYCRR 750-3.11(d) with regard to where HVHF operations are not authorized by the HVHF GP.

Comment 4025:

Section 750-3.21(f)(1) through (4): Construction of a centralized flowback impoundment is presumably included as an "HVHF operation on the ground surface" and is thus prohibited under 750-3.3, Prohibited Activities and Discharges. The Department should confirm that centralized flowback impoundments and their attendant piping are included in the definition of high-volume hydraulic fracturing operations, thereby prohibiting them in the New York City and Skaneateles Lake watersheds and elsewhere, specifically named in (1) through (4). If they are not included in the high-volume hydraulic fracturing definition, they need to be added to the definition of "Construction Phase," which is part of the high-volume hydraulic fracturing definition, or as part of a separate definition of "Appurtenances."

Response 4025:

As set forth in the revised regulations at 6 NYCRR 750-3, construction and use of a centralized flowback impoundment is not eligible for coverage under a stormwater general permit for HVHF operations and so requires an individual SPDES permit and site-specific SEQRA review.

Comment 4026:

Section 750-3.12(d)(5)(v): "Long term" should be given a range of years.

Response 4026:

“Long-term” has been removed from the revised regulations at 6 NYCRR 750-3, but the requirement remains that there be a monitoring program with periodic monitoring for chemical constituents present, as well as other parameters that may be present in the high-volume hydraulic fracturing wastewater.

Comment 4027:

Section 750-3.4(b)(5): Alternative plans should not be approved by the Department to decrease the separation distance that has been stated multiple times - 1,000 feet below the base of fresh groundwater, and at least 2,000 feet below the surface. Having a procedure for alternative plans will put pressure on the Department to review and approve such plans. This could also be point where political pressure could prevail over environmental protection. The job of the Department permit application reviewers will be much easier if the separation distances are absolute.

Response 4027:

The revised regulations at 6 NYCRR 750-3 no longer use the term “alternative plans” for the separation distance. However, the revised regulations do state that: “At a minimum, in order for the department to make a determination that the injection will not result in the degradation of ground or surface water resources pursuant to paragraph 750-3.5(b)(2) of this Part: (1) the top of the target fracture zone, at any point along any part of the proposed length of the wellbore, for HVHF must be deeper than 2,000 feet below the ground surface and must be deeper than 1,000 feet below the base of a known freshwater supply.” Drilling at depths where the Department has not made such a determination would require an individual SPDES permit and site-specific SEQRA review.

Comment 4028:

Section 750-3.4(b)(4)(i): In addition to the certification for pyrite, certification for on-site pits should contain ranges for naturally occurring radioactive materials (NORM) and heavy metal content above which, the operator certifies that only closed loop system will be used. Other heavy metals or metals, in addition to pyrite, could degrade surface drinking water quality, such as arsenic, mercury, beryllium, and chromium-6. Currently the Environmental Protection Agency re-evaluating the Maximum Contaminant Level in drinking water supplies for Chromium-6, which can occur in rocks as Chromium-3 but can change to Chromium-6 in the erosion process or when it comes in contact with chlorine in a drinking water supply system.

Response 4028:

The revised regulations at 6 NYCRR 750-3 required that “A closed-loop tank system must be used instead of a reserve pit to manage drilling fluids and cuttings, in cases set forth in paragraph 560.6(c)(7) of this Title, as adopted on XX, 20XX.” Revised 6 NYCRR 560.6(c)(7)(ii) requires that a closed-loop system be used for “any drilling requiring cuttings to be disposed of off-site.”

Comment 4029:

Section 750-3.3(b)(1): New York City and Skaneateles Lake unfiltered water supply watersheds should be specifically named.

Response 4029:

The revised regulations at 6 NYCRR 750-3 prohibit the siting of well pads for HVHF operations in unfiltered drinking water supply watersheds, which is defined in revised 6 NYCRR 750-3 as follows: "In New York State, this includes the New York City Drinking Water Supply Watershed and the Syracuse Drinking Water Supply Watershed."

Comment 4030:

Section 753-3.2, item 49, Definitions, Unfiltered water supplies means: The Department is urged to add the following words in parenthesis to the definition to avoid confusion: "In New York State, this includes the New York City Drinking Water Supply Watershed and the (City of Syracuse's) Skaneateles (Lake) Drinking Water Supply Watershed."

Response 4030:

See Response to Comment 4029.

Comment 4032:

Section 750-3.2, item 35, Definitions, Partial site reclamation: The word scarified in the construction industry indicates shallow cuts in the earth and is not appropriate for a site where there was heavy industrial activity of the type that will occur on a well pad. Deep ripping will be the best way to alleviate the deep compaction of a well pad. The word scarified should be removed from the definition and wherever else it occurs in your documents. Also, it is not clear in the definition if seeding and mulching is required to meet the definition of "partial site reclamation." Perhaps this can be clarified by connecting the last sentence by use of a semicolon to the prior sentence. "prior to replacement of topsoil; reclaimed areas have been seeded and mulched after topsoil replacement and native vegetative cover reestablished that will ultimately return the site to preconstruction conditions."

Response 4032:

The revised regulations at 6 NYCRR 750-3.2 define Partial Site Reclamation as "(a) when all of the equipment, materials and BMPs associated with the HVHV Phase have been removed, (b) surface disturbances not associated with production activities have been scarified or ripped to alleviate compaction prior to replacement of topsoil, and (c) all the disturbed areas have been stabilized after topsoil replacement, in accordance with the Partial Site Reclamation Plan submitted pursuant to [6 NYCRR Part 560]. Partial reclamation and final reclamation of any well pad and access road must be done in conformance with the plans approved by the department." The Department maintains guidance on deep ripping and decompaction, which would be utilized to determine the degree of restoration of soil porosity necessary based on the previous activity.

Comment 4033:

Section 750-3.2, item 16, Definitions, the following addition in parenthesis is suggested: "Final stabilization means that all soil disturbance activities have ceased, (specified compaction densities have been achieved [which may include compaction of disturbed subgrade and/or

placement or ripping of compacted layers of topsoil], final grading, and a uniform, perennial vegetative cover ..."

Response 4033:

See Response to Comment 4032, regarding the requirements to deep rip and/or scarify in accordance with Department guidance.

Comment 4034:

The Department should check that the definition of "Construction Phase" in Section 750-3.2 includes the construction of centralized flowback impoundments and their attendant piping. This will ensure that such an impoundment could not be constructed in an unfiltered water supply or other prohibited area.

Response 4034:

See Response to Comment 4025.

Comment 4571:

The term is used in 6 NYCRR 750-3.4(b)(3), requiring certification that high-volume hydraulic fracturing flowback fluids will not be directed to or stored in a pit or impoundment. The Department should specify if this is intended to include only the production brine that comes out of the well immediately after completion or re-fracture, or if production brine surfacing long after the initial completion or re-fracture is included as well. We can read the definition either way and we suggest the Department clarify, because this ambiguity could lead to operator uncertainty.

Response 4571:

See Responses to Comments 3900 and 3901. The revised regulations at 6 NYCRR 750-3 include definitions for flowback and production brine.

Comment 5687:

Section 750-3.3(b) bars installation of a well within 4,000 feet of "unfiltered surface water supply watersheds." There is no definition of "surface water supply watersheds". Without a definition, a well proponent could argue that the term only applies to a reservoir as juxtaposed to streams and lakes that "feed" the reservoir. Please clarify the scope of the term.

Response 5687:

See Response to Comment 4029 regarding the definition of an unfiltered drinking water supply. The revised regulations at 6 NYCRR 750-3 include the following prohibitions: "within 2,000 feet of any public (municipal or otherwise) drinking water supply well, reservoir, natural lake, man-made impoundment, or spring; and within 2,000 feet around a public (municipal or otherwise) drinking water supply intake in flowing water with an additional prohibition of 1,000 feet on each side of the main flowing waterbody and any upstream tributary to that waterbody for a distance of one mile from the public drinking water supply intake."

Comment 5688:

Section 750-3.21, (f)(4): The setbacks listed are inadequate. Suggested buffers: at least 1,500 feet from a private well and 4,000 feet from a lake.

Response 5688:

See Response to Comment 2453.

Comment 5691:

Section 750-3.12 (d) of the rdSGEIS states: "On-site facilities constructed specifically for the treatment and reuse of [high-volume hydraulic fracturing] wastewater where the treated water is 100 percent reused for purposes of [high-volume hydraulic fracturing] do not require a [State Pollutant Discharge Elimination System] permit." State Pollutant Discharge Elimination System permits should be required for all wastewater treatment facilities. There should be no loopholes.

Response 5691:

When there is 100% reuse of high-volume hydraulic fracturing wastewater, there is no discharge to a water of the State from a point source requiring a SPDES permit. The revised regulations at 6 NYCRR 750-3 include requirements for recycling of high-volume hydraulic fracturing wastewater. The revised regulations at 6 NYCRR 554.1(c)(1) requires that the owner or operator must state in its plan that it will maximize the reuse and/or recycling of used drilling mud, flowback water and production brine, to the maximum extent feasible.

Comment 5708:

Section 750-3.4 of the rdSGEIS, Requirement to obtain a permit (b)(1): It is possible to remove radium from flowback water and production brine at specialized facilities and licensed facilities exist to accept radium filters and sludges.

Response 5708:

Comment noted. The revised regulations at 6 NYCRR 750-3 provide the requirements for Department approval of the various options for disposal of HVHF wastewater.

Comment 5714:

Section 750-3.11 of the rdSGEIS, Applications of standards, limitations and other requirements (h)(i): Flowback should be tested in an Environmental Laboratory Accreditation Program-certified laboratory, specifically for radium, according to United States Environmental Protection Agency protocols 903.0 or 903.1. Gamma testing for the surrogate Bi-214 should not be permitted.

Response 5714:

See Response to Comment 3909.

Comment 5727:

Part 750-3.3, Prohibited Activities and Discharges (b) Prohibition of high-volume hydraulic fracturing operations on the ground surface should be expanded to include the following areas: (1) closer than [1,000 feet, 5,000 feet] from a private water well unless waived by the water well owner; (2) within a the geometric boundary of a primary aquifer and a [2,000-foot, 4,000-foot, 5,000-foot] buffer from the boundary of a primary aquifer or surface water divide for the aquifer, whichever is closer; (3) within a 100-year floodplain and a 500 foot buffer of the 100-year floodplain; (4) within [500 feet, 1,000 feet] of a wetland; (5) within [2,000 feet, 5,000 feet] of any public water supply (municipal or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), and river or stream intake; (6) within 2,500 feet of any faults or Fracture Intensification Domains that are mapped within 1,000 feet of any public water supply (municipal or otherwise) well, reservoir, natural lake or man-made impoundment (except engineered impoundments constructed for fresh water storage associated with fracturing operations), and river or stream intake; (7) within 1,000 feet of any active or abandoned salt mine; (8) below a Finger Lake or dry Finger Lake valley and within 500 feet of the Finger Lake; (9) within 500 feet of a perennial stream; (10) within 5,000 feet of a principal aquifer; (11) within 5,000 feet of a sole source aquifer; (12) within 7 miles of an unfiltered water supply; and (13) prohibited in MS-4 designated areas. No access roads to drill pads, or pipelines should be permitted through wetlands, wetland buffers, agricultural lands, or state-owned lands.

Response 5727:

See Response to Comment 2453.

Comment 5728:

The term "uncontaminated" should be defined in the State Pollutant Discharge Elimination System permit proposed regulations.

Response 5728:

6 NYCRR 750-1.2 does not contain a definition of "uncontaminated" and the Department does not believe it is necessary to include a definition in the revised regulations at 6 NYCRR 750-3. Also, the commenter does not propose a definition.

Comment 5751:

As a general observation, a number of these proposed regulations (Parts 52, 190, 550-560, 750) are not clear and coherent as required by law. They do not provide the operators (or the monitors) with a clear indication of what is allowed and what is prohibited. They need to be more clearly defined in order to be properly interpreted and withstand the scrutiny and challenges that will be presented by the lawyers and operators of drilling and energy companies.

Response 5751:

The revised regulations at 6 NYCRR 750-3 have been re-written for clarity and consistency.

Comment 5753:

An example of needless confusion in these proposed regulations is in Section 750-3.2 Definitions: (44) Reserve pit means a mud pit in which a supply of drilling fluid has been stored, or a waste pit, usually an excavated pit. It may be lined to prevent soil contamination. This suggests that a reserve pit as defined in this set of regulations does not require a pit liner when, in fact, all subsequent regulations (e.g., see 560.6 (c) (7)) appear to require a liner. To avoid confusion the definition should read, It must be lined with a (specified) liner to prevent soil contamination. These revised regulations should be reviewed in detail and be written as simple, clear directives for the benefit of both the operators and the monitor-regulators.

Response 5753:

A revised definition of “reserve pit” is included in the revised regulations at 6 NYCRR 750-3.2 - “a lined, mud pit in which a supply of drilling fluid has been stored, or a waste pit, usually an excavated pit.” The revised regulations at 6 NYCRR 750-3 do require that “[a]ny reserve pit, drilling pit or mud pit on the well pad must be maintained in a leak free condition and constructed, for any number of wells, in accordance with the requirements set forth in paragraph 560.6(a)(4) of this Title, as adopted on XX, 20XX. Additionally, such pits must be constructed, coated, or lined with materials that are chemically compatible with the substance stored.”

Comment 5760:

750-3.12 Disposal of high-volume hydraulic fracturing flowback and production water, Paragraph (6) of the proposed regulation for the disposal of flowback and production waters presumes that flowback and production water can qualify for a Beneficial Use Determination and be permitted for dust and ice control on roadways; however, this not consistent with rdSGEIS Section 5.13.3.4 which notes that flowback fluids will not be eligible for Beneficial Use Determinations which would be necessary for use for road spreading. Also, Section 7.1.7.2 of the rdSGEIS prohibits production fluids from being spread on roads as well, and states, "the data available to date associated with... naturally occurring radioactive materials... concentrations in Marcellus Shale production brine is insufficient to allow road spreading under a Beneficial Use Determination."

Response 5760:

See Response to Comment 3898.

Comment 5766:

The proposed 560.2(b)(12) definition of partial reclamation differs from the proposed 750-3.2(35) definition. Moreover, the concept of partial site reclamation is unclear in both. This is a very important issue because of the episodic nature of drilling and completion associated with shale development. The proposed definition of partial site reclamation in 750-3.2(b)(35) should be deleted.

Response 5766:

The regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting. The revised regulations at 6 NYCRR 750-3 define Partial Site Reclamation, whereas the regulations at 6 NYCRR Part 560 define Partial Reclamation. Duplication and consistency have been

addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 5767:

The proposed definition in 750-3.2(b)(16) for final stabilization should be deleted as unnecessary. To the extent, however, that the Department elects to move forward with the proposed definition, the reference to other equivalent stabilization measures should be defined or examples should be provided to make it clear that other stabilization techniques are allowable during non-growing seasons.

Response 5767:

The definition of “final stabilization” in the regulations at 6 NYCRR 750-3 has been revised as follows: “all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of at least eighty (80) percent has been established or other equivalent stabilization measures, such as sod, permanent landscape mulches, rock rip-rap or washed/crushed stone, have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.”

Comment 5769:

The proposed regulations do not apply the formation fluids definition in 750-3.2(b)(19). It is recommended that the proposed definition be deleted as unnecessary.

Response 5769:

The revised regulations at 6 NYCRR 750-3 do use the term “formation fluids,” and therefore, it is unnecessary to delete.

Comment 5772:

Defining high-volume hydraulic fracturing Phase and high-volume hydraulic fracturing Operations in the proposed 750-3.2(b)(23)-(24) to include drilling is confusing given the common industry understanding distinguishing drilling and stimulation. It is also counter to the proposed 560.2(b)(8) definition for high-volume hydraulic fracturing. It is recommended that the defined term of high-volume hydraulic fracturing Phase be revised in both 750-3.2(b)(23) and (24) to be the Drilling and high-volume hydraulic fracturing Phase, as well as throughout proposed 750-3, and, further, that the definition of Drilling and high-volume hydraulic fracturing Phase in subsection (b)(23) be amended as follows: any subsequent well drilling, stimulation and re-stimulation event on the same well pad.

Response 5772:

The revised regulations at 6 NYCRR 750-3 define HVHF Phase to be “the phase following Construction Phase Completion and through completion of Partial Site Reclamation. This phase includes well drilling, high-volume hydraulic fracturing, and on-site handling and treatment of HVHF wastewater produced until all wells planned for that well pad have been completed.” Re-stimulation would trigger the requirements of the HVHF Phase in the draft HVHF GP. “HVHF

Operations” are different and broader, and include all the related phases (Construction Phase, HVHF Phase, and Production Phase).

Comment 5774:

The proposed definition for a high-volume hydraulic fracturing general permit in 750-3.2(b)(25) is unnecessary. There should be no permits issued; rather there should be qualification for a multi-sector general permit written for the oil and gas industry. It is recommended that this definition be deleted.

Response 5774:

The Multi-Sector General Permit for Stormwater Discharges from Industrial Activities does not cover HVHF operations. HVHF operations do require coverage under the General Permit for Stormwater Discharges from Construction Activities. The Department created the HVHF GP to cover all phases of HVHF operations and streamline the permitting process.

Comment 5775:

The proposed definition at 750-3.2(b)(34) attempts to combine two terms (i.e., owner and operator). This combined definition conflicts with the existing definitions of these terms set forth in 560.3(ab) and (ad) and, therefore, should be deleted.

Response 5775:

The revised regulations at 6 NYCRR 750-3 utilize the definition of “owner or operator” from 6 NYCRR 750-1.2.

Comment 5777:

The proposed definition of plugged and abandoned in 750-3.2(b)(36) differs from the existing definition in 550.3 (af) and, therefore, should be deleted.

Response 5777:

The regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting. Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to Division of Mineral Resources’ regulations, where appropriate.

Comment 5779:

The proposed definition of production phase in 750-3.2(b)(41) is inconsistent with custom and usage in the industry, is confusing and does not take into account the gaps in time that will take place prior to and in between the drilling of infill wells. Further, all wells planned needs to be clarified to specify whether this requirement applies to a one-well pad and/or a multi-well-pad permit. It is recommended that the defined term of production phase be revised to mean the phase after the Drilling and high-volume hydraulic fracturing Phase.

Response 5779:

The revised regulations at 6 NYCRR 750-3 define “production phase” as “the phase following Partial Site Reclamation through the termination of coverage under an HVHF general permit or termination of an individual HVHF SPDES permit. This phase includes the production of natural gas and the on-site handling and treatment of production brine at the well site.” See also Response to Comment 5772.

Comment 5786:

The Department should delete 750-3.6 as the Department lacks jurisdiction to require an individual State Pollutant Discharge Elimination System permit because there are no discharges to the waters of New York State. Environmental Conservation Law Article 17 prohibits discharges of pollutants into waters of the state without a permit (see Environmental Conservation Law 17-0701, 17-0803, 17-0807[4]), or if such discharges will result in contravening water quality standards (see Environmental Conservation Law 17-0501, 17-0301). The Environmental Conservation Law defines waters of the state, and such include groundwater as well as surface water. Environmental Conservation Law 17-0105(2) (waters of the state shall be construed to include all other bodies of surface or underground water, natural or artificial which are wholly or partially within or bordering the state or within its jurisdiction). Under the plain language of the statute, hydraulic fracturing a well below any groundwater bearing zones cannot be jurisdictional. Because high-volume hydraulic fracturing would occur in formations well below the groundwater table, there is and can be no direct contact with any state waters and, thus, there is no possibility of direct introduction of contaminants (i.e., discharge) to such waters. In most areas of New York State, the groundwater table only extends several hundred feet below the ground surface and rarely, if ever, is found below 1,000 feet below ground surface.

Response 5786:

ECL §17-0701 requires a SPDES permit for anyone to “[m]ake or cause to make or use any outlet or point source for the discharge of sewage, industrial waste or other wastes or the effluent therefrom, into waters of the state.” 6 NYCRR 750-2.1(a)(40) defines groundwater as “waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.”

Comment 5787:

If the Department is going to allow low volume oil and gas development in Filtration Avoidance Determination (FAD) watersheds or other critical drinking watershed across the State it must provide the proper environmental review and justification. In many situations vertical well spacing presents greater surface impacts to drinking water than high-volume hydraulic fracturing. The new regulations should set one standard for all oil and gas activity.

Response 5787:

The regulations at 6 NYCRR 750-3 apply to only high-volume hydraulic fracturing. See Response to Comment 3855. High-volume hydraulic fracturing within the (unfiltered) New York City and Syracuse drinking water supply watersheds may present a risk of causing significant adverse impacts to these water supplies. As the only unfiltered surface supplies of

municipal water in the state, the New York City and Syracuse drinking water supply watersheds are unique and deserve special protection to maintain their Filtration Avoidance Determinations. Losing this designation would mean New York City and Syracuse would be required to spend billions of dollars to build water filtration plants. The heightened sensitivity of these unfiltered watersheds makes the potential for adverse impacts to water quality from sedimentation due to the significant amount of construction activity that is projected to occur during levels of projected peak activity unacceptable. The Department finds that standard stormwater control and other mitigation measures would not fully mitigate the risk of potential significant adverse impacts on water resources from this increased construction activity associated with high-volume hydraulic fracturing. The revised regulations recognize that the increased industrial activity associated with well pad development, road construction and other activities associated with high-volume hydraulic fracturing is inconsistent with the long-term protection of unfiltered surface drinking water supplies. Accordingly, the revised regulations include a prohibition of high-volume hydraulic fracturing in both the New York City and Syracuse drinking water supply watersheds, as well as in a 4,000-foot buffer area surrounding these watersheds.

Comment 5788:

Proposed Express Terms 6 NYCRR Part 750-3.4(b)(6) states, certification that high-volume hydraulic fracturing operations will be conducted only where the top of the fracture zone at all points along the proposed length of the wellbore is greater than both 2,000 feet below the surface and 1,000 feet below the base of fresh groundwater. This is too stringent and will have the effect of making many areas where shale resources are found off-limits to development. Moreover, this requirement has no place in the water regulations, since the water regulations relate to surface activities, not the hydraulic fracturing process itself. In addition to moving this requirement to the minerals regulations, the Department should allow an applicant to demonstrate that there are sufficient confining geologic layers to prevent contamination of the groundwater bearing zone from the proposed hydraulic fracturing.

Response 5788:

The revised regulations at 6 NYCRR 750-3 require that “[t]he owner or operator must submit documentation of the anticipated depth of the top of the objective formation, and the depth of the base of the known freshwater supply, along the proposed length of the wellbore.” Additionally, “the top of the target fracture zone, at any point along any part of the proposed length of the wellbore, for HVHF must be deeper than 2,000 feet below the ground surface and must be deeper than 1,000 feet below the base of a known freshwater supply.” This information, along with other information, is required in order for the department to make a determination that the injection will not result in the degradation of ground or surface water resources.

Comment 5793:

If the Department does attempt to require an individual permit, 6 NYCRR Section 750-3.6(b)(3) needs to be clarified. The Department assigns the American Petroleum Institute number, so the number would not be known until the drilling permit is approved. This would further needlessly restrict the industry because it would indicate that the owner/operator could not submit the drilling permit and the high-volume hydraulic fracturing permit concurrently.

Response 5793:

The revised regulations at 6 NYCRR 750-3 removed the requirement that the API number be submitted as part of a complete permit application. The same would be true for an NOI for coverage under a stormwater general permit for HVHF operations.

Comment 5800:

The Department should provide scientific justification for its determination of setback distances. For example: 750-3.3 (b) (1), 750-3.3 (b) (2), 750-3.3 (b) (4): Increase to two miles and include subsurface activities, as well. Please explain the science behind the stated setback, and base the answer on peer-reviewed papers published by non-industry or industry-affiliated or industry-friendly sources.

Response 5800:

See Response to Comment 3855.

Comment 5806:

The proposed 6 NYCRR part 750 regulations are very confusing in that they seem to imply that a State Pollutant Discharge Elimination System permit is required for high-volume hydraulic fracturing, whereas the regulations specifically exempt that activity (750-1.1(g)). To acknowledge the exemption, the high-volume hydraulic fracturing general permit should reflect New York State's current State Pollutant Discharge Elimination System Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (GP-0-06-002) by requiring the high-volume hydraulic fracturing general permit only for stormwater discharges associated with industrial activity from oil and gas extraction which have had a discharge of a reportable quantity of oil or a hazardous substance for which notification is required under federal regulations. The Department also should modify the high-volume hydraulic fracturing general permit to mirror Pennsylvania's streamlined Erosion and Sediment Control General Permit (ESCGP-1). The Pennsylvania permit requires robust planning for environmental protection along with expedited permit review and authorization. New York should have a similarly expeditious process, consistent with the process that is currently employed in the Multi-Sector General Permit, to avoid time delays that will put New York State at a competitive disadvantage with other shale producing states. Independent Oil and Gas Association estimates that the cost to comply with the stormwater requirements of the proposed regulations will be between \$50,000 and \$100,000 per well pad. This compares to costs ranging from \$25,000 to \$40,000 per well pad in Pennsylvania for a comprehensive, but streamlined regulatory program.

Response 5806:

See Response to Comment 5774. See also the revised Regulatory Impact Statement regarding cost.

Comment 5809:

There should be nothing that is in addition to what is set forth in the stormwater general permit applicable to the oil and gas extraction industry. 750-3.4(a). The general permit should be self-

explanatory and self-implementing. (As further clarification, 750-3.4(b) should be clarified as individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit, since the definition of that permit includes both an individual and a general permit).

Response 5809:

The revised regulations at 6 NYCRR 750-3 state “Unless in conflict, superseded or expressly stated otherwise in this Subpart, the provisions set forth in Subpart 750-1 and Subpart 750-2 of this Part shall apply to HVHF operations.” There are portions of the regulations at 750-1 and 750-2 that apply to HVHF operations.

Comment 5810:

It is unreasonable to require certification of disposal capacity for the life of the well, since shale wells may last for many decades (6 NYCRR Sections 750-3.4 (b)(1), 750-3.12). Instead, the time limit on capacity certification should be no greater than five years of disposal.

Response 5810:

The revised regulations at 6 NYCRR 750-3 no longer require certification of disposal capacity for the life of the well. The revised regulations at 6 NYCRR 750-3 require a Fluid Disposal Plan, identifying the ultimate disposition of HVHF wastewater, as well as a requirement that upon renewal of a SPDES permit, the well owner provide documentation of compliance with the requirements for a Fluid Disposal Plan. Similar regulatory requirements apply to coverage under a stormwater general permit for HVHF operations and renewal of that coverage. See Response to Comment 3441.

Comment 5814:

A separate State Pollutant Discharge Elimination System permit for drilling and completion (750-1.1(g)) is duplicative of the minerals regulations. For the reasons detailed in Independent Oil and Gas Associations Critical Issues Analysis, the Department should not require a State Pollutant Discharge Elimination System permit. Therefore, 750-1.1(b), 750-1.5(a)(6) and 750-3.4 should be deleted. If any separate review is required beyond the review of the qualification for the Multi-Sector General Permit, it should happen contemporaneously with the well permit application, not sequentially.

Response 5814:

See Response to Comment 5774. The regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting.

Comment 5816:

Any application requirements should be contained in the minerals regulations and the singular application requirements should serve as a checklist for a complete application and compliance with the GEIS and the SGEIS. For example, the following water regulations are already covered in the mineral regulations and should be deleted: - 750-3.11(e)(1)(i) - 750-3.11(e)(1)(ii) - 750-3.11(e)(1)(iii) - 750-3.11(e)(1)(v) - 750-3.11(e)(1)(vi) - 750-3.11(e)(1)(vii) - 750-3.11(f) - 750-3.11(h) - 750-3.11(i) - 750-3.11(j) - 750-3.13.

Response 5816:

The regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting. Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 5817:

Part 750-3.4 must not allow open pits for storage of drilling materials.

Response 5817:

Revised regulations at 6 NYCRR 750-3 are consistent with the revised regulations at 6 NYCRR Parts 550-556 and 560, regarding open pits for storage of drilling materials, which includes construction requirements (e.g., liners, time limitation for storage). See Response to Comment 3900.

Comment 5818:

The Department needs to clarify 750-3.4(b)(4)(ii) regarding the volume of on-site pits to specify what creates related tracts. The Independent Oil and Gas Association recommends that this be changed to well pad.

Response 5818:

See Response to Comment 5817.

Comment 5822:

Section 750-3.4(b)(4)(viii) should be deleted as an unnecessary requirement. Alternatively, 750-3.4(b)(4)(viii) should be clarified to explain what chemically compatible with the environment means.

Response 5822:

See Response to Comment 5817.

Comment 5826:

Section 750-3.4(b)(6), which requires a certification that high-volume hydraulic fracturing operations will be conducted only where the top of the fracture zone at all points along the proposed length of the wellbore is greater than both 2,000 feet below the surface and 1,000 feet below the base of fresh groundwater, needs clarification because geologic names for many sequences may carry through larger areas where the action fracture zone may be a subset of this formation; i.e., is the Point Pleasant a separate section of the Utica Shale?

Response 5826:

See Response to Comment 5788.

Comment 5828:

If the Department elects not to delete 750-3.13(f), alternatively, 750-3.1(f) must be clarified because a continuous recording device for all production and flowback is technically difficult and does not seem to be a necessary requirement, given the provision to record the volume of all flowback and production brine (see 750-3.13(g)).

Response 5828:

The Department believes that it is necessary to have accurate information regarding the volume of production and flowback. The revised regulations at 6 NYCRR 750-3 now read “with an automatic continuous recording device or equivalent...” to allow for more flexibility in meeting this requirement.

Comment 5830:

Section 750-3.4(b)(8) requirement for a certification that the applicant will utilize chemical additive products that are efficacious exhibit reduced aquatic toxicity, and pose less risk to water resources and the environment or, as an alternative, documentation to the Departments satisfaction that the available alternative products are not equally effective or feasible restricts competitive operations between service companies and may force the elimination of a competitive environment for services. The regulations should not dictate a specific product based on a generic goal.

Response 5830:

The regulations do not dictate a specific product based on the goal stated. See Response to Comment 3438.

Comment 5831:

750-3.3 Prohibited Activities and Discharges should be modified to read (a) The prohibitions in this section are in addition to those listed in section 750-1.3. The following high-volume hydraulic fracturing (HVHF) activities and discharges are hereby prohibited, and no State Pollution Discharge Elimination System (SPDES) permit shall be issued authorizing any such activity or discharge. All distances noted below are measured from the closest edge of the HVHF well pad to provide a margin of safety. (b) HVHF operations on the ground surface are prohibited in the following areas: (1) Within 500 feet of, and including, a primary aquifer; (2) Within 100-year floodplains; and (3) within 2,000 feet of any public (municipal or otherwise) water supply, including wells, reservoirs, natural lakes or man-made impoundments, and river or stream intakes; and not within 4,000 feet of the intake in an unfiltered public surface water supply watersheds;

Response 5831:

See Response to Comment 3855.

Comment 5832:

Section 750-3.5(b) unjustly allows the Department to change any previously-issued determination in the event that the permittee fails to implement any measure described in the certifications submitted in compliance with 750-3.5. Under this scenario, an operator could

invest millions of dollars in a well only to have their general permit revoked, which would mean that the operator could be subject to an extended permit process to obtain an individual State Pollutant Discharge Elimination System permit. Independent Oil and Gas Association, therefore, recommends that this provision be deleted.

Response 5832:

The revised regulations at 6 NYCRR 750-3 state “The department may change any previously-issued determination in the event that the permittee fails to comply with any requirement described in this subdivision or such injection results in the degradation of ground or surface water resources.” The Department must ensure that the well owner complies with all of the requirements; if not, then the Department must maintain its authority to address non-compliance, which may include revocation of such determination.

Comment 5835:

Section 750-3.6(c), which prohibits an owner or operator from commencing the Construction Phase until its authorization to discharge under the high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit is effective should be deleted. This clause indicates that an owner/operator cannot construct a well pad until the Department approves the discharge plan. There should be one stop shopping for a single permit from the Department. The Division of Minerals should approve all of these activities in order to avoid timing issues.

Response 5835:

The regulations at 6 NYCRR 750-3 are for SPDES permitting, not gas well permitting. In general, all construction activities in New York State subject to the thresholds in the SPDES General Permit for Stormwater Discharges from Construction Activities must be covered under that General Permit prior to any land disturbance. This same concept holds true for HVHF operations, as the revised regulations at 6 NYCRR 750-3 mandate that “HVHF operations cannot commence without a valid HVHF SPDES permit,” and this includes the Construction Phase. The revised regulations at 6 NYCRR 750-3 require that for an individual SPDES permit, the owner or operator must develop and submit a final Comprehensive SWPPP to the department. Similar requirements apply for coverage under a stormwater general permit for HVHF operations.

Comment 5836:

The proposed requirements of 750-3.11(d) that are contemplated prior to submission of the final Notice of Termination appear to be without authority or precedent. Independent Oil and Gas Association, therefore, recommends that the entire subsection be deleted.

Response 5836:

This requirement is consistent with the requirements of the General Permit for Stormwater Discharges from Construction Activities, which applies to all construction activities in New York State subject to the thresholds in the Construction General Permit prior to any land disturbance. The requirements of the Construction General Permit apply to well pads constructed in accordance with the 1992 SGEIS.

Comment 5839:

Section 750-3.11(e)(1)(iv): The owner or operator shall, prior to commencing the high-volume hydraulic fracturing Phase ... (b) ensure that all areas of disturbance have achieved final stabilization should be clarified because an operator cannot still be developing the site and achieve final stabilization. Instead, Independent Oil and Gas Association recommends the language have been stabilized. Further, Independent Oil and Gas Association recommends that language be inserted into subparagraph (c) to account for ongoing stabilization that may be occurring at the site.

Response 5839:

The revised regulations at 6 NYCRR 750-3 do incorporate this concept through the definition of Construction Phase Completion, which means “ when (a) all construction activities in the Construction SWPPP have been completed; (b) all the areas of disturbance have achieved final grade and measures have been applied that will achieve final stabilization; and (c) all post-construction stormwater management practices have been constructed in conformance with the Construction SWPPP and are operational.” The HVHF Phase may commence after this point. The revised regulations at 6 NYCRR 750-3 require that final stabilization must be achieved within four weeks of the implementation of final stabilization measures unless otherwise approved by the department.

Comment 5840:

Section 750-3.11(e)(1)(iv)(c): ensure that all temporary, structural erosion and sediment control measures have been removed indicates that there will be no temporary structures during the high-volume hydraulic fracturing phase. There is a need for temporary erosion design near fracturing tanks and water storage that may be removed post stimulation, making 750-3.11(e)(1)(iv)(c) impractical unless further defined.

Response 5840:

See Response to Comment 5839. Temporary erosion design near tanks and water storage is not associated with the Construction Phase and should be implemented as necessary.

Comment 5841:

The proposed regulations fail to identify what happens when headworks analyses of the flowback or production brine include unlisted contaminants, such as heavy metals. The regulations should require that drilling activity is immediately suspended when flowback or production brine are discovered to include materials not included in the headworks analysis. Drilling activity should not resume before appropriate disposal mechanisms are identified.

Response 5841:

See Responses to Comments 3441 regarding the Fluid Disposal Plan and 3781 regarding the headworks analysis. A drilling permit will not be issued until the well owner has an approved Fluid Disposal Plan. The revised regulations at 6 NYCRR 750-3 require that the headworks analysis must meet the requirements of 40 CFR Part 403, including a representative assay of the

concentrations of chemical constituents present, as well as other parameters that may be present in the HVHF wastewater. As per the revised regulations at 6 NYCRR 750-3, notification must be provided to DEC and EPA of any new introduction of pollutants or substantial change in the volume or characteristics of the HVHF wastewater. 6 NYCRR 750-2.9(a)(2) states “[u]nless the department determines that such permit modification is unnecessary, the noticed Act is prohibited until the permit has been modified pursuant to [6 NYCRR Part 621].”

Comment 5845:

The Department should delete 750-3.21, given the detailed requirements set forth in the proposed general stormwater permit. That being said, any necessary regulations that are not transferred to the minerals regulations should be contained in 750-3.21 alone. In addition, the language should make clear that the regulations govern compliance with the general permit and do not create any new permitting requirements that might be interpreted as being subject to the Uniform Procedures Act and give rise to the right to an adjudicatory hearing. If the Department chooses not to delete 750-3.21, Independent Oil and Gas Association offers the following specific recommendations: - Section 750-3.21(f)(3) high-volume hydraulic fracturing operations where the top of the target fracture zone at any point along the entire proposed length of the wellbore is shallower than 2,000 feet below surface; and where the top of the target fracture zone at any point along the entire proposed length of the wellbore is less than 1,000 feet below the base of a known fresh water supply needs to be made consistent with the recommendations that would allow waivers of these depth and separation requirements based upon a demonstration that confining geologic layers exist that will protect the freshwater bearing zone. - Section 750-3.21(f)(5) cites to Best Available Technology Economically Achievable or Best Practicable Control Technology Currently Available guidelines found at 40 CFR Part 435 which applies in subpart C to onshore drilling. The Department needs to evaluate the scope of this disqualification and put it into the context that contaminated stormwater discharges from oil and gas production sites are not intended. - Because only stormwater will be discharged from high-volume hydraulic fracturing operations and the Department has proposed multiple, independent, redundant safeguards to preclude contamination from leaving the site, 750-3.21(f)(9)-(10) should be deleted. - The proposed 750-3.21(k) would allow the Department to require any discharger authorized to discharge in accordance with the high-volume hydraulic fracturing general permit to apply for and obtain an individual State Pollutant Discharge Elimination System permit. Section 750-3.21(k) also would allow the Department to terminate coverage under the general permit without any basis. As such, an operator could be in the middle of a multimillion dollar investment only to have its general permit coverage revoked, which would require it to obtain an individual State Pollutant Discharge Elimination System permit that could take an extended period of time and be subject to adjudicatory hearings. This type of unfettered discretion should be eliminated from the regulatory proposal. The Department has indicated that this is not intended to provide the agency with the right to require an individual State Pollutant Discharge Elimination System permit after an operator has qualified for a general stormwater permit. Independent Oil and Gas Association, therefore, suggests that the Department add clarifying language that is both necessary and appropriate. - Section 750-3.21(o) states that unless and until a fee is promulgated specifically for the high-volume hydraulic fracturing general permit, high-volume hydraulic fracturing operations are considered a State Pollutant Discharge Elimination System permit for stormwater discharges from construction activity for purposes of assessing State Pollutant Discharge Elimination System general permit fees. The Department lacks any

legal basis for this provision. Independent Oil and Gas Association, therefore, recommends that it be deleted.

Response 5845:

Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate. See Responses to Comment 5788, Comment 3899, and Comment 5774. Existing regulations at 6 NYCRR 750-1.21(e) allows the Department to require an individual SPDES permit or a general permit (included in revised 6 NYCRR 750-3.11(l)(1)). Revised regulations at 6 NYCRR 750-3.11(l)(3) allows the Department to stop work at a well site under certain circumstances. Article 72 of the ECL establishes the fees for SPDES general permits, and as the HVHF GP contains requirements for construction, the applicable fees are those that are in Article 72 for construction activities.

Comment 5846:

Section 750-3.25(d) regarding monitoring of stormwater discharges during the Construction, high-volume hydraulic fracturing and Production Phases needs to be clarified to specify what needs to be monitored and recorded and what needs to be effectively operated. Continuous recording of stormwater discharges is unreasonable and not possible. Also, the reporting requirement would need to specify a timeline. For typical State Pollutant Discharge Elimination System permits, reporting is monthly with permit conditions monitored as required by permits, such as continuous or grab or intermittent. Finally, the Department needs to clarify how this can apply to temporary facilities.

Response 5846:

The specific requirements for monitoring (e.g., parameters, frequency) are not appropriate for inclusion in a regulation and would be contained within an individual SPDES permit or are contained in a stormwater permit for HVHF operations. See Response to Comment 5828. The regulations at 6 NYCRR 750-3 state that “[a]ll stormwater discharges must be monitored, recorded and reported in accordance with the terms and conditions of an applicable HVHF SPDES permit to ensure effective operation of the stormwater controls.” The draft HVHF GP does not require stormwater monitoring during the Construction Phase.

Comment 5847:

The baseline testing contemplated by the stormwater program goes beyond what is required for any other stormwater permit in New York State and exceeds the monitoring requirements for most prominent facilities to manage hazardous substances and hazardous wastes. Independent Oil and Gas Association estimates the cost to conduct all of the benchmark monitoring contemplated by the stormwater regulatory program to be \$50,000 per well pad. This compares to \$5,000 per well pad for compliance with the benchmark testing required under the existing multisector general permit. As noted in other sections of comments, any contamination coming from a well pad is likely to contain chlorides, which is why chlorides is the most common benchmark testing parameter for discharges from a well site. The benchmark testing contemplated by the proposed stormwater program is designed to require each operator to prove the negative; i.e. that no contaminants have been discharged from the site, but that same

objective can be met with the existing benchmark testing requirements. Since a number of small businesses are implicated in this requirement, the Department is legally obligated to look for more cost-effective alternatives, the most logical of which is to continue the existing benchmark testing requirements.

Response 5847:

The Department's objective is to verify compliance with all regulatory and permit requirements and ensure that all the engineering design and BMPs have been effective with an environmental monitoring and sampling program. This concept is consistent with other SPDES permits for stormwater discharges from industrial activities. The frequency of the monitoring is reflective of the amount of activity being conducted on the well site, and as such will be reduced during the Production Phase. The reporting parameters for the benchmark monitoring parameters are associated with various activities that are being conducted on the well site. The Department believes the costs identified in the comment are significantly overestimated. For example the Department estimated the cost utilizing best available information at less than \$1,000 per stormwater sample.

Comment 5848:

Sections 750-3.12(b)(4),(6) regarding the required elements of the proposed Disposal Plan do not provide for confidential business information, which is inconsistent with the way the issue is treated elsewhere in the proposed regulations (see 750-3.13(e)). To resolve this omission, the following should be added to the proposed section 750-3.12: This Disposal Plan may exclude any information that has been identified as confidential business information. A similar concern exists relative to Section 750-3.12(d)(1)(vi)(c) regarding the documentation required for a discharge of flowback water and production brine to the headworks of a Publicly Owned Treatment Works. Thus, the following should be added to section 750-3.12(d)(1)(vi): This documentation may exclude any information that has been identified as confidential business information.

Response 5848:

The information required to be provided to the Department for the headworks analysis or treatability analysis would be available to the public, subject to the limitations of the Freedom of Information Law. See Response to Comment 3441.

Comment 5850:

The Department should not specify disposal options and should encourage recycling and beneficial reuse (750-3.12(d)). Further, 750-3.12(d) should be deleted because it applies to wastewater treatment plant operations rather than oil and gas operations. Alternatively, if the Department does not delete this requirement, 750-3.12(d)(1)(vi), regarding the required demonstration, should be limited to Publicly Owned Treatment Works permitted limits.

Response 5850:

The revised regulations at 6 NYCRR 750-3 do not choose a disposal option and do not encourage one suitable disposal option over another. The revised regulations at 6 NYCRR 750-3

provide the requirements for each of the options to be approved by the Department and where appropriate requirements on the well owner or operator for disposal of HVHF wastewater. See Response to Comment 3441.

Comment 5854:

Section 750-3.12(d)(1)(vi) requirement that the headworks analysis must demonstrate, among other things, that the Publicly Owned Treatment Works is capable of removing the contaminants expected to be present in the flowback water and production brine, including but not limited to Total Dissolved Solids, naturally occurring radioactive materials, barium, bromides, benzene, toluene, ethylbenzene, xylenes, and chemicals present in the additives used in the development of the wells is too open ended and too restrictive. Publicly Owned Treatment Works are required to treat influent to meet discharge limitations and not to remove all of the contaminants in the influent. Independent Oil and Gas Association, therefore, recommends that the Department revisit this requirement to narrow the requisite demonstration and the requisite level of treatment.

Response 5854:

The Department recognized this concern and the revised regulations at 6 NYCRR 750-3 require that the headworks analysis must demonstrate that the HVHF wastewater will not cause a violation of the POTW's effluent limits or sludge disposal criteria, and will not result in pass through of substances present in the HVHF wastewater, or adversely affect the POTW's treatment process. See also Response to Comment 3481 regarding the headworks analysis, generally.

Comment 5855:

Section 750-3.12(d)(1)(vi)(c) regarding each discharge of flowback water should be plural. Otherwise, it would limit flowback to individual wells with no comingling on a multiple well pad. In addition, 750-3.12 (d)(1)(vi)(c)(3) suggests that the regulations will require a listing of the concentrations of each chemical in the flowback relating to the same list of chemicals supplied as used in high-volume hydraulic fracturing treatment. This is unnecessary given the chemical analysis proposed in this section.

Response 5855:

The revised regulations at 6 NYCRR 750-3 provide the requirements for each of the disposal, treatment or recycling options to be approved by the Department and where appropriate requirements on the well owner or operator for disposal of HVHF wastewater. See Response to Comment 3441.

Comment 5857:

Section 750-3.12(d)(3)(ii) which prohibits any remaining residuals at the site following completion of well development is unclear. Independent Oil and Gas Association recommends that the section be clarified to indicate whether this is the completion phase or the production phase.

Response 5857:

The revised regulations at 6 NYCRR 750-3 state “[p]rior to acceptance of any HVHF wastewater, the onsite facility must demonstrate to the department that it has an approved method of disposal of residuals in compliance with Parts 360, 364, 380, and 381 of this Title and subdivision 750-2.8(e) of this Part.” This requirement is independent of the phase of HVHF operations.

Comment 5859:

Section 750-3.12(d)(5) regarding the injection of production brine into the strata from which it was produced pursuant to a State Pollutant Discharge Elimination System permit is unnecessary and should not be applied to well stimulation. Independent Oil and Gas Association, therefore, recommends that it be deleted.

Response 5859:

The requirements for deep well injection in the revised regulations at 6 NYCRR 750-3 do not apply to well stimulation, but are rather for the disposal of HVHF wastewater.

Comment 5860:

Section 750-3.12(d)(5)(v), which purports to require a long-term monitoring program should be deleted, as a monitoring well is not required under the regular underground program, as outlined in 750-3.12(d)(5). Alternatively, long-term monitoring should only be required where there has been a spill that requires reporting and the nature and extent of the monitoring should be based upon the site specific circumstances.

Response 5860:

For deep well injection, the revised regulations at 6 NYCRR 750-3 require “(iii) installation of upgradient and downgradient monitoring wells and a monitoring program with periodic monitoring for chemical constituents present, as well as other parameters that may be present in the HVHF wastewater.” The department has determined that this is an appropriate requirement to ensure the protection of groundwater resources from deep well injection.

Comment 5861:

The proposed regulations should clarify that issuance of a State Pollution Discharge Elimination System permit does not preclude the need to comply with local stormwater management laws adopted in accordance with the Department's Municipal Separate Storm Sewer Systems requirements.

Response 5861:

It is not appropriate for the Department’s regulations for HVHF operations to clarify the application of local laws. The Department’s MS4 General Permit may contain separate requirements. The preemption of local regulation is governed pursuant to ECL §23-0303(2), which provides that the Department’s Oil, Gas and Solution Mining Law supersedes all local laws relating to the regulation of oil and gas development except for local government jurisdiction over local roads or the right to collect real property taxes. The scope of that preemption will be determined by the courts. However, ECL §23-0305(13) requires every

person granted a permit to drill to notify any affected local government and surface owner prior to commencing operations.

Comment 5865:

Marcellus Shale cuttings containing pyrite would be allowed to be buried on site if an approved alternate disposal plan were submitted. No mention is made in the proposed regulations as to what constitutes an alternate plan, and no examples are provided. Potential acid rock leaching could result if an appropriate disposal and containment plan is not properly implemented. Consequently, United States Fish and Wildlife recommends that the proposed regulations be revised to include this information.

Response 5865:

The revised regulations at 6 NYCRR 750-3 require “[a] closed-loop tank system must be used instead of a reserve pit to manage drilling fluids and cuttings, in cases set forth in paragraph 560.6(c)(7) of this Title, as adopted on XX, 20XX.” Acid rock drainage (ARD) mitigation plans may be designed to neutralize acid drainage through the emplacement of basic carbonate materials (e.g., waste lime or limestone cuttings) prior to on-site burial. The pyritic drill cuttings and the carbonate materials would be mixed thoroughly and compacted prior to reclamation of the pit area. This method was demonstrated to be effective in an ARD-abatement project jointly conducted by Penn DOT and PADEP during construction of U.S. Route 22 near Lewiston, PA in 2004.

Comment 5867:

It is proposed that waste fluids be removed from the drilling site within 45 days of well completion. United States Fish and Wildlife questions why this time period is so long. Some states (ex/ Virginia) require removal of waste fluids immediately upon well completion. This would reduce the likelihood of spills or accidents on the well site and adjacent areas, and the corresponding risk of release on nearby resources. United States Fish and Wildlife recommends that the proposed regulations be revised to require removal of waste fluids immediately if possible, or within seven days at a maximum, in order to minimize the likelihood of accidental exposure.

Response 5867:

The revised regulations at 6 NYCRR 750-3 require “The owner or operator must remove all drilling fluid, formation fluid, or flowback from the well site consistent with paragraph 560.6(b)(2) of this Title, as adopted on XX, 20XX, and subdivision 560.7(a) of this Title, as adopted on XX, 20XX.” The 45-day requirement is in existing regulations from Division of Mineral Resources.

Comment 5870:

A Stormwater Pollution Discharge Elimination System permit is proposed to be required for high-volume hydraulic fracturing as outlined in Section 750 of 6 NYCRR. Areas to be excluded from drilling are listed in Section 750-3.3. The current proposed regulations require a 150 foot well setback from aquatic areas, but the setback may be reduced if a site specific review is

undertaken. United States Fish and Wildlife believes that sensitive areas, such as aquatic vegetation communities, should be provided adequate buffers so that construction activities, spills, etc., do not impact water quality and habitat. The Delaware River Basin Commission (DRBC) has proposed a minimum buffer of 300 feet from wetlands in that watershed (DRBC 2011). To be consistent with the Delaware River Basin Commission and more protective, it is recommended that the Department adopt the distance of a 300 foot setback from aquatic habitat (streams, lakes, etc.).

Response 5870:

See Response to Comment 2453. The revised regulations at 6 NYCRR 750-3 require an individual SPDES permit, and site-specific SEQRA reviews, for HVHF operations within 300 feet of wetlands and “perennial or intermittent streams, as described in Parts 800-941 of this Title, storm drains, lakes, or ponds.”

Comment 5872:

Support for the Department's proposal requiring the preparation of a hydraulic-fracturing specific general stormwater permit for gas drilling operations addressing potential impacts to stormwater on a case-by-case basis. Assuming realistic criteria and thresholds are established within the general permit, implementation of this process could significantly streamline the permitting process from both the applicants and the permitting agency's perspective.

Response 5872:

Comment noted.

Comment 5873:

Requirements for Stormwater Pollution Discharge Elimination System permits are found in Section 750-3.11 (e)1(i) and include a review of less toxic chemical alternatives to existing hydraulic fracturing fluids used in most wells. A driller is required to investigate the toxicity, mobility, and volume of available alternatives. United States Fish and Wildlife supports the Department's position to seek less toxic chemical alternatives; however, the regulations should state that the use of less toxic alternatives be used. Further, the proposed regulations are not clear on what specific information is being sought. It is not clear if the Department is looking for toxicity data related to a certain type of organism or representatives of many. For example, data may be available for toxicity of a specified chemical to aquatic invertebrates but not plants, herpetofauna, fish, mammals, or birds. Please revise the regulations to be more specific. Alternatively, the Department could produce a separate document which specifies the parameters needed for alternative chemical review. Furthermore, in the event that the requested data are unavailable, the proposed regulations are unclear as to what would occur in that situation. It should be clearly stated that additional studies, such as bioassays, may be warranted for alternate additives, if insufficient information currently exists. United States Fish and Wildlife offers assistance to the Department to work on this issue with industry.

Response 5873:

See Response to Comment 3438.

Comment 5874:

Section 750-3.12 discusses disposal of hydraulic fracturing flowback fluid and production water. Flowback fluid and production brine are required to be disposed of properly over the life of the well. The driller is expected to certify that a treatment and disposal facility will be able to handle the projected amount of fluids; however, it is unclear how the ongoing capacity of such facilities will be documented at any given time. United States Fish and Wildlife recommends that flowback fluids be traceable (for example, dyes could be required) in the event that spills, migration, or release occurs in the environment. The addition of a dye would allow regulators to confirm the origin of the fluid and make a comparison to naturally occurring chemical compounds, such as methane. United States Fish and Wildlife recommends the Department require the use of dyes in drilling fluids so that flowback water and production brine may be traceable.

Response 5874:

See Response to Comment 3441 regarding the Fluid Disposal Plan. The Department anticipates utilizing a waste tracking form, which will be completed and maintained by generators, haulers and receivers of all flowback water associated with HVHF operations. See regulations at 6 NYCRR 560.5(f) and (g).

Comment 5878:

The Department proposes to allow production brine to be disposed of in injection wells, in accordance with a Beneficial Use Determination or by other means proposed by the permittee. A Beneficial Use Determination is not described in Section 750-3.12 (6) nor are examples provided. However, a common use in Pennsylvania is to spread the production brine on roads in winter to melt ice and snow (Pennsylvania Department of Environmental Protection 2011b). United States Fish and Wildlife are concerned that this use has not been properly studied to determine the short or long term effects of production brine on fish and wildlife or their habitats. To our knowledge, no adequate studies have been conducted on the toxicity of production brine in New York. Further, no studies have been conducted on the cumulative effects of brine on water quality. United States Fish and Wildlife recommends that a Beneficial Use Determination not be issued for any production brine until an adequate study has been completed on the effects to fish and wildlife.

Response 5878:

See Response to Comment 3898 regarding BUDs. For clarification, beneficial use determinations granted under 6 NYCRR 360-1.15 are not for disposal but for the acceptable reuse of a solid waste.

Comment 5880:

Currently, the draft regulations allow for the driller to maintain a record on water use, chemical use, and the volume of flowback fluids and production brine delivered from the well. Although records of the fluids and chemicals used and produced on each well pad must be provided upon request to the Department, there appears to be no direct oversight of the record keeping or

compliance inspection schedule. It is not clear how often, if at all, the drillers records will be checked for accuracy. United States Fish and Wildlife recommends that the proposed regulations be revised to provide for regular inspection of these records by the Department. This will provide a check and balance approach to ensure that appropriate information is collected and proper procedures are being followed.

Response 5880:

The revised regulations at 6 NYCRR 750-3 include an appropriate level of monitoring requirements, which detail HVHF operations from the amount of water used for well stimulation through the ultimate disposition of any HVHF wastewater. The Department anticipates conducting inspections for compliance with regulations and permit conditions, including monitoring requirements.

Comment 5881:

All wastewater must be measured and tracked offsite to a disposal facility according to the proposed regulations in Section 750-3.13 (g). Flowback water must be tested for naturally occurring radioactive materials and chemical composition. Again, the proposed regulations do not require submittal of this data to the Department unless requested. United States Fish and Wildlife recommends that these data be compiled in a database where the Department has a permanent record and can reference the information quickly, if needed. The information could be submitted through a secure internet site to protect sensitive information but be accessible to relevant agencies. This database could also contain records of drinking water wells located in the vicinity of gas well drilling activity. United States Fish and Wildlife believes this information would assist the Department in understanding the chemical composition of flowback water and determine if effective disposal methods are being employed.

Response 5881:

See Responses to Comment 3441 regarding the Fluid Disposal Plan, Comment 3781 regarding headworks analysis, Comment 5874 regarding waste tracking, and Comment 3909 regarding testing protocol.

Comment 5882:

Many requirements are listed in Section 750-3.21 for a Stormwater Pollution Discharge Elimination System General Permit. The general permit is not eligible for projects which affect a listed or proposed threatened or endangered species or its designated critical habitat. This section of the draft regulations is not clear because it is not stated whether this language refers to State and/or Federally-listed species. As United States Fish and Wildlife stated in our current comments on the rdSGEIS, the Department should include provisions in the permit application process and regulations which require an applicant or sponsor of a drilling site to contact our office to determine if Federally-listed species could be affected by a proposed gas well.

Response 5882:

"Endangered Species" is defined in 6 NYCRR Part 182.2 as follows: (e) 'Endangered species' are species that: (1) are native species in imminent danger of extirpation or extinction in New

York based on the criteria for listing in section 182.3(b) of this Part and that are listed as endangered in subdivision (a) of section 182.5 of this Part; or (2) are species listed as endangered by the United States Department of the Interior in the Code of Federal Regulations (50 CFR part 17).

Comment 5886:

The high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit is an individual permit that in itself requires a State Environmental Quality Review determination as identified in paragraph 750-3.6(b)(1).

Response 5886:

That language has been removed from the revised regulations at 6 NYCRR 750-3. The revised regulations provide that “[w]here required, all necessary department permits subject to the Uniform Procedures Act have been obtained, unless the department determines otherwise pursuant to paragraph 621.3(a)(4) of this Title.”

Comment 5888:

Requirements for Publicly Owned Treatment Works shouldn't be in Part 750-3.12. Their inclusion makes the regulation confusing; they are not germane to the disposal of flowback water by a high-volume hydraulic fracturing well. Federal regulations are improperly cited in this section as materials incorporated by reference (see Part 750-1.24 of this Title) should appear after each reference.

Response 5888:

POTWs are potential options for the disposal of HVHF wastewater provided the requirements of revised regulations at 6 NYCRR 750-3.12 are satisfied. See also Response to Comment 3781 regarding a headworks analysis.

Comment 5890:

The Beneficial Use Determination is a Solid Waste Program. This paragraph 750-3.12(d)(6), if adopted, should be in Part 360-1.15 and cross referenced in Part 750-12.3(d)(6).

Response 5890:

See Response to Comment 3898 regarding BUDs.

Comment 5892:

The high-volume hydraulic fracturing Storm Water Pollution Prevention Plan with additives to be provided and with the permit application should be taken as general. Operators cannot specify service companies and additives prior to the permit and expect to pump those additives specified during the stimulation. Furthermore, operations on the well may dictate a treatment change during the course of performing work. Flexibility should be allowed regarding chemicals and additives to be used.

Response 5892:

The revised regulations at 6 NYCRR 750-3 require “The owner or operator must ensure that the Comprehensive SWPPP is implemented. This includes any changes made to the Comprehensive SWPPP.” This would include any modifications to the chemicals used on site.

Comment 5893:

6 NYCRR Part 750-12.3(d)(6) states: (6) The provisions below apply to disposal of production brine in accordance with the terms of a Department-approved Beneficial Use Determination. Production brine may be disposed in accordance with the terms and conditions of a Department-approved Beneficial Use Determination. In addition to the requirements listed in 6 NYCRR Parts 360 and 364, the following information shall also be presented as part of the application for the Beneficial Use Determination: radiologic limits; contaminant limits; and operational requirements such as maximum brine application frequency and maximum brine application rate. Comment: This is a Solid Waste Program. If adopted, should be in Part 360-1.15 and Part 364.

Response 5893:

See Response to Comment 3898 regarding BUDs. For clarification, beneficial use determinations granted under 6 NYCRR 360-1.15 are not for disposal but for the acceptable reuse of a solid waste.

Comment 5895:

The NYCRR should be revised at 6 NYCRR 750-3.3, 6 NYCRR 750-3.2, 6 NYCRR 553.2, and 6 NYCRR 560.4 to provide consistent setback requirements that are protective of water sources, including rivers, streams, lakes, and private water supplies.

Response 5895:

See Response to Comment 2453 regarding setbacks. Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 5898:

6 NYCRR 750.3.3 should be amended to require a 5,000 foot setback from the closest edge of a wellpad to any public or private water well and domestic water supply springs.

Response 5898:

See Responses to Comment 2453 regarding setbacks, and 3784 regarding private water well testing.

Comment 5899:

For multi-well pads and high-volume hydraulic fracturing well pads, the site disturbance associated with such operations should be separated by a 5,000 foot buffer from the boundary of any state forest, state park or wildlife management area. This would require an amendment of the currently proposed language of 6 NYCRR Sections 560 and 6 NYCRR 750-3-3.

Response 5899:

This comment, regarding setbacks from state forest, state parks and wildlife management areas, is outside the scope of the revised regulations at 6 NYCRR 750-3. However, see Response to Comment 2453 regarding setbacks from water resources. See also Response to Comment 5726 in **Category 92 (Part 190)**. The Department's regulatory prohibition on surface disturbances associated with high-volume hydraulic fracturing on reforestation lands and wildlife management areas is based in part upon the unique legislative and legal constraints that apply to these State-owned lands. Private lands buffering State-owned lands are not subject to the same legal constraints and legislative protections afforded to these State-owned lands. Despite this, the Department recognized concerns regarding potential unmitigated impacts to terrestrial habitats and permit conditions may be imposed pursuant to the draft SGEIS to protect habitats of utmost concern in New York, namely large blocks of forests and grasslands that support declining species that may be located on buffer lands identified in this comment.

Comment 5903:

As a result of recent storm events, when the Departments floodplain maps are updated, 6 NYCRR Sections 500 and 750.3 should be amended to prohibit high-volume hydraulic fracturing within 200-year floodplains.

Response 5903:

See Response to Comment 2453 regarding setbacks from water resources generally. Note that the revised regulations include an increased setback of 300 feet from perennial or intermittent streams, as described in Parts 800-941 of this Title, storm drains, lakes, or ponds. HVHF operations within this setback would not be eligible for coverage under a stormwater general permit for HVHF operations, and thus, would require an individual SPDES permit and a site-specific SEQRA review.

Comment 5906:

The regulatory buffer between any wetland identified and protected as a wetland under New York States Freshwater Wetlands Program should be not less than 750 feet from the edge of the well pad to the wetland area and all well pads proposed to be located between 750 and 1,500 feet from said wetland should be subject to a site-specific State Environmental Quality Review Act review. The proposed language of 6 NYCRR sections 560 and 750.3 should be amended accordingly.

Response 5906:

See Response to Comment 3894.

Comment 5909:

Part 750-3.21(g) lists activities that are ineligible for coverage under the general permit, but may be eligible for coverage under an individual State Pollutant Discharge Elimination System permit. These proposed activities include construction of a centralized open air flowback impoundment, construction of high-volume hydraulic fracturing on steep slopes, high-volume hydraulic fracturing operations at certain depths of hydraulic fracturing and high-volume hydraulic fracturing operations within certain buffers to water resources. Adirondack Mountain

Club strongly opposes all of these proposed variances from Part 750-3.21 standards which were designed to protect New York States surface and groundwater resources. 750-3-21(a) must be amended to preclude these high-volume hydraulic fracturing activities under any and all circumstances.

Response 5909:

HVHF operations within these setbacks would not be eligible for coverage under a stormwater general permit for HVHF operations, but would require an individual SPDES permit and a site-specific SEQRA review. That process would be subject to public participation, and would potentially include additional mitigation measures or requirements.

Comment 5910:

Part 750-3.21 should be amended to prohibit an applicant from proposing a well pad within 2,000 feet of a principal aquifer because the groundwater table in the principal aquifers is overlain with sand and gravel and generally ranges from zero to 20 feet below the ground. Because these aquifers are often located in unconsolidated sand and gravel deposits, the high permeability of soils that overlie principal aquifers and shallow depth to the water table make these aquifers highly vulnerable to contaminations from spills, accidents, and wastewater/produced water overflows of high-volume hydraulic fracturing operations. The 500 foot buffer proposed in the SGEIS is woefully inadequate and must be replaced by the said 2,000 foot buffer.

Response 5910:

See Responses to Comment 3785 regarding Principal Aquifers and Comment 2453 regarding setbacks generally. HVHF operations within 500 feet of a Principal Aquifer would not be eligible for coverage under a stormwater general permit for HVHF operations, but would require an individual SPDES permit and a site-specific SEQRA review. That process would be subject to public participation, and would potentially include additional mitigation measures or requirements.

Comment 5911:

6 NYCRR Part 750 should be amended to require a buffer of no less than 2,000 feet between a well pad and the edge of a principal or primary aquifer.

Response 5911:

See Response to Comment 5910.

Comment 5914:

750.1 and 750.3: General Comment Pertaining to Disposal of All Wastes from Hydraulic Fracturing Operations: Flowback and production brine should be treated and disposed of as hazardous waste, or maintained in tanks. They should not be treated at any publicly owned treatment works and treated wastes should never be released to the environment, nor should any of them or their derivatives be put in a landfill. (This change should also be included in 750-3.4 (b) (1-2), 750-3.11 generally, and 750-3.11 (f)).

Response 5914:

See Responses to Comment 3781 regarding headworks analyses, and Comment 3441 regarding Fluid Disposal Plans. Currently, “drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy” are excluded from being regulated as a hazardous waste in both federal law and federal and state regulations (42 U.S.C. 6921 (b)(2)(A), 40 CFR 261.4(b)(5), 6 NYCRR 371.1(e)(2)(v)). This is commonly referred to as the “extraction and production” (E&P) exclusion. This exclusion has existed since the beginning of the RCRA regulatory program and was included verbatim in the New York regulations when USEPA delegated the RCRA program to New York. The exclusion was conditionally included in the RCRA statute by Congress (Section 3001(b)(2)(A)). Congress required USEPA to study these wastes and determine whether they should be regulated as hazardous waste or not. USEPA reported to Congress in 1988 and concluded that regulation of E&P wastes as hazardous waste was not warranted. USEPA provided several reasons for their conclusion (53 FR 25446):

- existing state and federal regulatory programs (including the Solid Waste Disposal Act, Safe Drinking Water Act, Clean Air Act, and Oil Pollution Act) provided adequate controls for the disposal of these wastes;
- given that billions of barrels (volumes approaching one trillion gallons per year) of these wastes are generated per year nationally, regulating these wastes under RCRA would cause a severe impact on oil and gas production in the United States;
- insufficient commercial treatment capacity would create serious short-term implementation problems; and
- regulating these wastes under RCRA would inhibit the exploration for new oil, gas, and geothermal energy deposits.

The revised regulations and draft HVHF GP include provisions to prevent significant adverse impacts from mismanagement of high-volume hydraulic fracturing wastes. Wastes must be handled and stored in ways to minimize the potential for releases (e.g., secondary containment for flowback fluids; drilling operations must conform to setback requirements; transportation must be carried out by haulers permitted under Part 364; the disposal of wastes must be tracked from generation to disposal using a Drilling and Production Waste Tracking Form; and disposal of waste fluids must be in accordance with a variety of requirements, particularly those under SPDES.

Regulating high-volume hydraulic fracturing wastes as hazardous wastes would unnecessarily increase the cost of regulation with little, if any, additional environmental benefit. It would also likely eliminate the recycling of flowback water. The revised regulations at 6 NYCRR 554.1(c)(1) requires that the owner or operator must state in its plan that it will maximize the reuse and/or recycling of used drilling mud, flowback water and production brine, to the maximum extent feasible.

Comment 5923:

750-3.4 (b) (5): 45 days should be reduced to two weeks.

Response 5923:

See Response to Comment 5867 regarding the 45-day requirement.

Comment 5926:

750-3.4 (b): No alternative plans should be allowed.

Response 5926:

The requirements related to alternative plans has been removed from the revised regulations at 6 NYCRR 750-3.

Comment 5929:

750-3.4 (b) (4) Nothing but fresh water should ever be allowed in any pits, with no exceptions.

Response 5929:

The revised regulations at 6 NYCRR 750-3 require that “A closed-loop tank system must be used instead of a reserve pit to manage drilling fluids and cuttings, in cases set forth in paragraph 6 NYCRR 560.6(c)(7), as adopted on XX, 20XX.” A closed-loop system is required for horizontal drilling in the Marcellus Shale unless an acid rock drainage mitigation plan for on-site burial of such cuttings is approved by the department; and any drilling requiring cuttings to be disposed of off-site.

Comment 5930:

750-3.4 (b) (6) No alternative plans should be allowed.

Response 5930:

See Response to Comment 5926.

Comment 5932:

750-3.4 (b) (8): Only non-toxic chemicals should be allowed in hydraulic fracturing. If drilling cannot be done without toxins, it should not be done at all.

Response 5932:

See Response to Comment 3438 regarding the alternatives analysis.

Comment 5933:

Part 750.3.21 (1) (2) (2) should be amended as follows: In the event a new high-volume hydraulic fracture (HVHF) general permit is not issued prior to termination of the current HVHF general permit, [and where no modifications have been made pursuant to the current HVHF general permit], then the owner or operator may continue to operate and discharge in accordance with the terms and conditions of the current HVHF general permit until such time as a new HVHF general permit is issued.

Response 5933:

The draft regulations at 6 NYCRR 750-3 did not contain the language “and where no modifications have been made pursuant to the current HVHF general permit.” The revised regulations at 6 NYCRR 750-3 state “In the event a new HVHF general permit is not issued prior to termination of the current HVHF general permit, the owner or operator may continue to operate and discharge in accordance with the terms and conditions of the current HVHF general permit until such time as a new HVHF general permit is issued.”

Comment 5936:

750-3.11 (i) Any other allowable tank materials should be written into the regulation right now and here and the public given another chance to comment on them. They should not be left to the Departments discretion.

Response 5936:

Flexibility in the revised regulations at 6 NYCRR 750-3 is necessary to allow for improvements in technology, but the regulations do require that the tanks must be covered and watertight. See also Response to Comment 3903 regarding materials storage.

Comment 5941:

750-3.12 (b) All Fluid Disposal Plans should be fully disclosed to the public, with nothing held back. All ingredients of all products with Chemical Abstracts Service numbers should be disclosed, as well as results from testing for heavy metals, total dissolved solids, and radioactivity, which should be required. This information should be posted on the Department website by well, at least three days before the fluid will be disposed of, accessible to the general public.

Response 5941:

See Response to Comment 3441 regarding Fluid Disposal Plans.

Comment 5942:

The proposed regulations are not clear and coherent as required by law. They do not provide the operators, monitors or the public with a clear indication of what is allowed and what is prohibited. The regulations need to be more clearly defined in order to be properly interpreted and withstand the scrutiny and challenges that will be presented by the lawyers and operators of drilling and energy companies.

Response 5942:

The regulations at 6 NYCRR 750-3 have been revised in terms of organization and for clarity. Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 5943:

750-3.12 (d) (1) (iv): No State Pollutant Discharge Elimination System permits should be modified to accommodate flowback or production brine. It should be taken to a certified hazardous waste disposal site.

Response 5943:

See Response to Comment 5914 regarding hazardous waste.

Comment 5945:

750-3.12 (d) (1) (vi): This section should read that the publicly owned treatment works is capable of completely removing the contaminants.

Response 5945:

That language has been changed in the revised regulations at 6 NYCRR 750-3. See Response to Comment 3781 regarding headworks analyses. The revised regulations at 6 NYCRR 750-3 state “The headworks analysis must demonstrate that the HVHF wastewater will not cause a violation of the POTW's effluent limits or sludge disposal criteria, and will not result in pass through of substances present in HVHF wastewater, or adversely affect the POTW's treatment processes.”

Comment 5946:

750-3.12 (d) (4 through 6): No injection well disposal of hydraulic fracturing waste should be allowed in New York State because they can cause earthquakes, which the public should not be subjected to.

Response 5946:

The comment is outside the scope of the regulations. A SPDES permit is required for deep well inject, and with that permitting process, a site-specific SEQRA review would be conducted. However, the revised regulations at 6 NYCRR 750-3 do contain the requirements to obtain a SPDES permit for deep well injection. A geotechnical survey is required by the revised regulations at 6 NYCRR 750-3 to ascertain the ability of the disposal strata to accept and retain the injected fluid will include an analysis of any known faults in the area. The Department characterizes the risks of earthquakes from high-volume hydraulic fracturing and deep well injection as extremely low and concludes there is essentially no increased risk to the public, infrastructure or natural resources from induced seismicity.

Comment 5948:

750-3.12 (d) (7): No other disposal options should be allowed unless they are set out in detail in these regulations and the public has a chance to comment on them in a later comment session.

Response 5948:

See Response to Comment 3441 regarding Fluid Disposal Plans. The revised regulations at 6 NYCRR 750-3 no longer contain an explicit statement that other disposal options can be proposed. The revised regulations at 6 NYCRR 750-3 do not choose a disposal option and do not encourage one suitable disposal option over another. The revised regulations at 6 NYCRR

750-3 provide the requirements for each of the options to be approved by the Department and where appropriate requirements on the well owner or operator for disposal of HVHF wastewater.

Comment 5950:

750-3.13: All of this information under (b), (c), (d), (e), (f), (g) should be posted on the Department website within a week of its occurrence (or at a reasonable interval - such as monthly - for continuous measures), readily available to the public without special request.

Response 5950:

All documents submitted to the Department would be available to the public, subject to the limitations of the Freedom of Information Law. Additionally, the draft HVHF GP contains the following “The NOI, SWPPP and inspection reports required by this general permit are public documents that the owner or operator must make available for review and copying by any person within five (5) business of the owner or operator receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester’s expense.”

Comment 5951:

750-3.12 (h): All water wells within one mile should be tested to allow for a margin of error.

Response 5951:

The revised regulations at 6 NYCRR 750-3 state “[t]he owner or operator must conduct residential water well testing in accordance with the requirements of subdivision 560.5(d) of this Title, as adopted on XX, 20XX, except that copies of test results and documentation related to delivery of test results to owners of water wells must be sent to the NYSDOH.” Additionally, “[t]he department may require that an approvable groundwater monitoring program be developed and implemented.”

Comment 5953:

750-3.12 (i): Results of all water tests must be made available to the public so they can track contamination events and neighbors can be alerted. This information is vital to public health and must not be kept secret.

Response 5953:

See Response to Comment 5951 regarding residential water well testing and groundwater monitoring. All documents submitted to the State would be available to the public, subject to the limitations of the Freedom of Information Law.

Comment 5954:

750-3.14 (c): No time interval for compliance should be allowed. No discharge should be allowed if standards set are not being met.

Response 5954:

The revised regulations at 6 NYCRR 750-3 no longer specify additional requirements for waterbodies with approved TMDLs. A SPDES permit issued for high-volume hydraulic fracturing will address compliance with any applicable TMDLs.

Comment 5955:

750-3.21 (g): Please set out specific criteria (other than information lacking) under which permits will be denied or accepted. These regulations present a long list of required information, but not how permits will be treated based on the information presented. The public needs to know very specifically what the company will and will not be allowed to discharge, and where.

Response 5955:

If a discharge is eligible for coverage under a stormwater general permit for HVHF operations, then coverage will be effective after a specified time period. There is no acceptance or denial by the Department regarding coverage under a general SPDES permit. Further details about general permit coverage are contained in the draft HVHF GP. However, there are regulatory requirements that would allow the Department to require an individual SPDES permit instead of a general SPDES permit. The revised regulations at 6 NYCRR 750-3 state “(1) As set forth in subdivision 750-1.21(e) of this Part, the department may require any owner or operator authorized to discharge in accordance with an HVHF general permit to apply for and obtain an individual SPDES permit or apply for authorization to discharge in accordance with another general permit. (2) The department may suspend, terminate, or deny an owner’s or operator’s coverage under an HVHF general permit if the department determines that the Comprehensive SWPPP does not meet any HVHF general permit requirements.”

Comment 5957:

750-3.21 (n): All suspensions, terminations, stop work orders, and findings of non-compliance must be posted on the Departments website and made accessible to the public without request within three days.

Response 5957:

The comment does not provide the legal basis for this requirement. All documents within the Department’s possession would be available to the public, subject to the limitations of the Freedom of Information Law.

Comment 5958:

750-3.21 (l) (2): No continuance of discharge should be allowed before a permit is renewed. Since the Department has promised not to proceed until the Department staffing is adequate, this should never be a problem, and all permits should be either renewed or rejected on time.

Response 5958:

Section 401 of the State Administrative Procedure Act (SAPA) allows a permit to be continued where there has been a timely and sufficient application for renewal. This would apply to both general and individual SPDES permits. For a general SPDES permit, no new dischargers would be allowed to obtain coverage under any SAPA-extended general SPDES permit.

Comment 5959:

750-3.21 (l) (1): The permit should be required to be renewed every year. Cumulative discharges of pollutants in an area may increase dramatically as numerous wells are dug, so the discharge limits for pollutants should at least be re-evaluated every year.

Response 5959:

New York State law and regulation allow SPDES permits for discharges to surface waters to be issued for up to five years. ECL §70-0117, as well as 6 NYCRR 750-1.21, address the use of SPDES general permits. The revised regulations at 6 NYCRR 750-3 also address a SPDES general permit for high-volume hydraulic fracturing. High-volume hydraulic fracturing operations are appropriately regulated through a general permit because they (1) involve the same or substantially similar types of operations; (2) discharge the same types of pollutants; (3) require the same effluent limitations or operating conditions; (4) require the same or similar monitoring; and (5) will result in minimal adverse cumulative impacts. As high-volume hydraulic fracturing operations are generally consistent from well site to well site, utilizing similar industrial processes and materials, the Department has determined that a general permit adequately addresses potential sources of contamination of water resources from high-volume hydraulic operations when a well site is operated in accordance with general permit conditions, and in compliance with monitoring, reporting and SWPPP requirements.

Comment 5963:

The Department should build, over time, a list of "Alternative Chemical Addition" products that have been deemed appropriate to meet the criteria of Proposed 750-3.4(B)(7) and (8), thereby creating an incentive of a streamlined application process if chemical additives on this list are used.

Response 5963:

See Response to Comment 3438 regarding the alternatives analysis. The Department agrees that streamlining the application process is positive. A list of alternative chemical additives may be included in guidance related to that analysis.

Comment 5964:

The requirements of 750-3.12 (D) should also apply to spreading of produced brine on the roads.

Response 5964:

See Response to Comment 3898 regarding BUDs.

Comment 6060:

Subpart 750-3, (high-volume hydraulic fracturing) 730-3.3 Prohibited Activities and Discharges: "All distances noted below are measured from the closest edge of the [high-volume hydraulic fracturing] well pad to provide a margin of safety.... (2) within 500 feet of, and including a primary aquifer; ... (4) within 2,000 feet of any public (municipal or otherwise) water supply, including wells, reservoirs, natural lakes or man-made impoundments, and river or stream

intakes." There appears to be an inconsistency with the statements above in 750-3.3 with the statements that follow in 750-3.21. 750-3.21 high-volume hydraulic fracturing State Pollutant Discharge Elimination System General Permits: "(f) The following are not authorized by the [high-volume hydraulic fracturing State Pollutant Discharge Elimination System] general permit: ... (4) [high-volume hydraulic fracturing] operation sited within the following buffers (calculated from the closest edge of the gas well pad): [The following is provided in table format in the OCR comment] Principal Aquifer (500 feet); Private Water wells (500 feet); Wetland (100 feet); Storms, drains, lakes, or ponds, and perennial or intermittent streams, as described in 6 NYCRR Parts 800-910 P (150 feet); Perennial or intermittent streams as described in 6 NYCRR Parts 800-910, and that are tributary to surface public drinking water supplies (500 feet)" The inconsistency does not state in the table "within 2,000 feet of any public (municipal or otherwise) water supply, including wells, reservoirs, natural lakes or man-made impoundments, and river or stream intakes."

Response 6060:

See Response to Comment 2453 regarding setbacks generally. There are two different provisions in the regulations-one is for prohibitions and the other is for where HVHF operations are ineligible for coverage under a general permit.

Comment 6815:

The following sections should be deleted: Section 750-3.12 (b); Section 750-3.12 (c); Section 750-3.21 (f) (3); Section 750-3.21 (f) (4); Section 750-3.21 (f) (9); Section 750-3.21 (f) (10); and Section 750-3.21 (o).

Response 6815:

The revised regulations at 6 NYCRR 750-3 have been revised for organization and for clarity. Additionally, duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 6819:

Subdivision (g) should be revised to state: (g) High-volume hydraulic fracturing operations, as defined in Section 750-3.2, do not require a permit for the stimulation process itself, but the construction and operation of a well pad and access road require either an individual State Pollutant Discharge Elimination System permit in accordance with Subpart 750-3 or a general permit in accordance with subpart 750-3.21.

Response 6819:

The revised regulations at 6 NYCRR 750-3 no longer contain the specific language in (g). However, a SPDES permit is required for HVHF operations, which includes the Construction Phase, HVHF Phase and Production Phase.

Comment 6824:

The definitions in Section 750-3.2 should be revised to state: (1) Comprehensive Stormwater Pollution Prevention Plan means the combined Construction Stormwater Pollution Prevention

Plan and high-volume hydraulic fracturing Stormwater Pollution Prevention Plan. (2) Construction phase means the construction of access roads, well pad, and other appurtenances. (3) Construction Stormwater Pollution Prevention Plan means the stand alone stormwater pollution prevention plan that includes best management practices and other requirements to control the pollution of stormwater during construction and post-construction. (4) Drilling High-Volume Hydraulic Fracturing Phase (Drilling and high-volume hydraulic fracturing Phase) means 1) the phase between the construction project completion and the Production Phase; and 2) any subsequent well drilling, stimulation or re-stimulation event on the same well pad. This includes well drilling, high-volume hydraulic fracturing, well stimulation and on-site handling and treatment of return flow. (5) High-Volume Hydraulic Fracturing Operations (high-volume hydraulic fracturing Operations) means: (i) Construction Phase; (ii) Drilling and high-volume hydraulic fracturing Phase; and (iii) the Production Phase. (6) high-volume hydraulic fracturing general permit means a State Pollutant Discharge Elimination System permit issued pursuant to section 750-3.21 of this Part. (7) high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit means an individual or general State Pollutant Discharge Elimination System permit for high-volume hydraulic fracturing activities. (8) high-volume hydraulic fracturing Stormwater Pollution Prevention Plan means the stormwater pollution prevention plan required by a State Pollutant Discharge Elimination System permit that includes structural and non-structural best management practices and other requirements to control the pollution of stormwater during the Drilling and high-volume hydraulic fracturing Phase and the Production Phase. (9) Production phase means the phase after the Drilling and high-volume hydraulic fracturing Phase through termination of coverage under the high-volume hydraulic fracturing general permit. This phase begins when the Drilling and high-volume hydraulic fracturing phase has been completed for all wells planned for that well pad and partial site reclamation has been completed.

Response 6824:

Several changes have been made to the definitions in the revised regulations at 6 NYCRR 750-3 for organization and/or clarity within the regulations. Several changes have also been made to the definitions in the revised regulations at 6 NYCRR 750-3 to eliminate redundancy with and/or for consistency with the revised draft regulations at 6 NYCRR Parts 550-556 and 560, where appropriate. See the revised regulations at 6 NYCRR 750-3 for specific changes to the definitions in the comment.

Comment 6826:

All text in Part 750-3.3, Prohibited Activities and discharges, should be deleted.

Response 6826:

The revised regulations at 6 NYCRR 750-3 continue to include the prohibited activities and discharges. The Department believes it is necessary to include the prohibitions in the regulations to protect the specified water resources. The comment does not provide any basis for removing that section of the regulations.

Comment 6828:

750-3.6 should be revised to state: The requirements in this section are in addition to those listed in section 750-1.6. (a) Prior to obtaining an individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit, an owner or operator must first develop a Comprehensive Stormwater Pollution Prevention Plan, which includes both the Construction Stormwater Pollution Prevention Plan and high-volume hydraulic fracturing Stormwater Pollution Prevention Plan. (b) All of the following criteria must be satisfied in order for an owner or operator to obtain an high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit: (1) Project review pursuant to State Environmental Quality Review Act has been satisfied, where applicable; (2) Where required, all necessary Department permits subject to the Uniform Procedures Act have been obtained, unless otherwise notified by the Department pursuant to Part 621 of this Title; and (3) A complete Notice of Intent, which contains the well permit American Petroleum Institute number, has been submitted to the Department by the owner or operator.

Response 6828:

The revised regulations at 6 NYCRR 750-3 with respect to individual SPDES permit requirements have been re-written. Several changes have been made for organization and/or clarity within the regulations. Several changes have also been made to eliminate redundancy with and/or for consistency with the revised draft regulations at 6 NYCRR Parts 550-556 and 560, where appropriate. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment.

Comment 6829:

Section 750-3.11 should be revised to state: The regulations in this section are in addition to those listed in section 750-1.11. (a) The Construction Stormwater Pollution Prevention Plan shall include erosion and sediment control practices designed in conformance with the Department's technical standards (750-3.24 of this Part) or the equivalent. (b) The owner or operator must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the Construction Stormwater Pollution Prevention Plan are maintained in effective operating condition at all times. (c) The owner or operator must ensure that, where post-construction stormwater management practices are required, such practices are operated and maintained until the Notice of Termination is submitted to the Department. (d) The high-volume hydraulic fracturing Stormwater Pollution Prevention Plan must, at a minimum, include the high-volume hydraulic fracturing Stormwater Pollution Prevention Plan General Requirements listed in subparagraph (1) below, Structural Best Management Practices, Non-structural BMPs, and Activity-Specific Stormwater Pollution Prevention Plan Requirements. (1) The following conditions apply to all owners or operators of high-volume hydraulic fracturing operations: (i) Construction Project Completion - The owner or operator shall, prior to commencing the Drilling and high-volume hydraulic fracturing Phase, (a) develop and implement measures to ensure all construction activities identified in the Construction Stormwater Pollution Prevention Plan have been completed, (b) ensure that all areas of disturbance have been stabilized, (c) ensure that all temporary, structural erosion and sediment control measures have been removed (unless they are still being utilized as part of the stabilization process), and (d) ensure that all post-construction stormwater management practices have been constructed in conformance with the Construction Stormwater Pollution Prevention Plan and are operational. (e) The owner or operator must have a Spill Prevention Control and

Countermeasure Plan on-site through all phases of the high-volume hydraulic fracturing operation (Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and Production Phase). The Spill Prevention Control and Countermeasure Plan must include an explanation of existing or planned material handling procedures, storage requirements, secondary containment, and equipment (e.g., diversion valves), that are intended to minimize spills or leaks at the site. Measures for cleaning up spills or leaks must be consistent with the procedures for petroleum bulk storage, chemical bulk storage or hazardous waste management in the Environmental Conservation Law and implementing regulations. Quantities and types of equipment specified in the Spill Prevention Control and Countermeasure Plan shall be present on site at all times.

Response 6829:

The revised regulations at 6 NYCRR 750-3 with respect to the application of standards, limitations and other requirements have been re-written. Several changes have been made for organization and/or clarity within the regulations. Several changes have also been made to eliminate redundancy with and/or for consistency with the revised draft regulations at 6 NYCRR Parts 550-556 and 560, where appropriate. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment.

Comment 6832:

The title of section 750-3.12 should be revised to Disposal of high-volume hydraulic fracturing produced water.

Response 6832:

The revised regulations at 6 NYCRR 750-3 must address the disposal of all wastewater associated with high-volume hydraulic fracturing. Therefore, the title is correct. The revised regulations at 6 NYCRR 750-3 refer to “HVHF wastewater,” which is defined in the revised regulations as “liquid waste consisting of one or more of the following: drilling fluids, formation fluids, flowback, or production brine.”

Comment 6833:

Section 750-3.12 (a) should be revised to state: (a) The high-volume hydraulic fracturing permittee must demonstrate that all produced water generated by the facility will be treated, recycled, or otherwise properly disposed for a period of time not less than five years for the date the well is spud. Once active high-volume hydraulic fracturing operations at the site have ceased and the gas well(s) are in the production phase, the permittee must continue to properly collect and dispose of all produced water generated at the site.

Response 6833:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing. The revised regulations at 6 NYCRR 750-3 state “All HVHF wastewater must be treated, recycled, or otherwise properly disposed through the life of the well in accordance with all applicable federal and state laws.” See also Response to Comment 3441 regarding the Fluid Disposal Plan.

Comment 6834:

Section 750-3.12 (d) should be revised to state: The disposal options for produced water are listed below.

Response 6834:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing.

Comment 6835:

Section 750-3.12 (1) should be revised to state: (1) The provisions listed below apply to offsite disposal at publicly owned treatment works located within New York State:

Response 6835:

The revised regulations at 6 NYCRR 750-3 only apply to activities within New York State so that the suggested additional language is already implied.

Comment 6836:

Section 750-3.12(1)(v) should be revised to state: (v) Produced water from flowback operations and water produced during the production phase from wells permitted pursuant to this Part may be accepted by publicly owned treatment works only where such publicly owned treatment works have approved pretreatment or mini-pretreatment programs in subparagraphs (iii) and (iv) of this paragraph.

Response 6836:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing. The revised regulations at 6 NYCRR 750-3 provide that “HVHF wastewater may be accepted only by a POTW that has a valid SPDES permit and a pretreatment program approved by EPA or a mini-pretreatment program approved by the department, and is permitted by the department to accept HVHF wastewater.”

Comment 6837:

Section 750-3.12(1)(vi) should be revised to state: (vi) Prior to being allowed to accept produced water including water produced during flowback operations, the publicly owned treatment works must perform a headworks analysis for this wastewater source and submit such analysis to the Department and United States Environmental Protection Agency for approval. Such wastewater may only be accepted by the publicly owned treatment works if the headworks analysis meets the requirements of 40 CFR Part 403 and the State Pollutant Discharge Elimination System permit for such publicly owned treatment works. The headworks analysis must demonstrate, among other things, that the publicly owned treatment works is capable of removing the contaminants expected to be present in the produced water, including but not limited to Total Dissolved Solids, naturally occurring radioactive materials, barium, bromides, benzene, toluene, ethylbenzene, xylene, and chemicals present in the additives used in the development of the wells. The headworks analysis process includes the following steps: (a) upon submittal and

approval of the headworks analysis, the Department may modify the publicly owned treatment works State Pollutant Discharge Elimination System permit to include appropriate monitoring and effluent limits for this wastewater source. The State Pollutant Discharge Elimination System permit for the publicly owned treatment works shall include specific discharge limitations and monitoring requirements, including routine reporting of monitoring results; (b) The Department's procedures for publicly owned treatment works acceptance of high-volume hydraulic fracturing wastewater discharges are detailed in Division of Water Guidance Document 1.3.8.1, Guidance for Acceptance of high-volume hydraulic fracturing Wastewater by publicly owned treatment works; (c) The permittee may discharge produced water from either flowback operations or the production phase to the headworks of a publicly owned treatment works only if such publicly owned treatment works has undertaken an approved headworks analysis and modified its State Pollutant Discharge Elimination System permit in accordance with subparagraphs (i) - (viii) of this paragraph. Each discharge of produced water to the headworks of the publicly owned treatment works shall include the following documentation: 1. The manifest stating the source well of the wastewater, the identity of the high-volume hydraulic fracturing permittee, and all products used in the hydrofracturing of the well; 2. The volume of wastewater to be discharged; and 3. An assay of the concentrations of high-volume hydraulic fracturing chemicals present, including total dissolved solids, naturally occurring radioactive materials, benzene, toluene, ethylbenzene, and xylene.

Response 6837:

The section of the regulations at 6 NYCRR 750-3 regarding disposal at a POTW has been re-written for clarity and organization. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment. References to guidance documents have been removed from the revised regulations at 6 NYCRR 750-3.

Comment 6843:

Section 750-3.12(1)(vii) should be revised to state: Section (vii) Should the publicly owned treatment works meet all requirements of this subpart, any produced water treated by such publicly owned treatment works must be introduced to the headworks of the publicly owned treatment works and receive full treatment unless otherwise expressly approved by the Department. The introduction to Section 750-3.12(2) should be revised to state: (2) The provisions below apply to offsite disposal at privately owned industrial treatment facilities located within New York State:

Response 6843:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing. The revised regulations at 6 NYCRR 750-3 state “[a]ny HVHF wastewater to be treated by the POTW must be introduced to the headworks of the POTW, unless otherwise permitted by the department.” See also Response to Comment 3781 regarding headworks analyses. The revised regulations at 6 NYCRR 750-3 only apply to activities within New York State so that the additional suggested language is already implied.

Comment 6844:

Section 750-3.12(2)(ii) should be revised to state: (ii) Each discharge of produced water to these treatment facilities shall include the following documentation: (a) The manifest stating the source well of the high-volume hydraulic fracturing wastewater, identity of the high-volume hydraulic fracturing permittee, and the high-volume hydraulic fracturing products used in the hydrofracturing of the well, as well as any other information required under 6 NYCRR Part 560; (b) The volume of high-volume hydraulic fracturing wastewater to be discharged, both per unit time and total volume from that source; and (c) An assay of the concentrations of high-volume hydraulic fracturing chemicals present, including total dissolved solids, naturally occurring radioactive materials, benzene, toluene, ethylbenzene, and xylene.

Response 6844:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing.

Comment 6845:

Section 750-3.12(2)(iii)(b) should be revised to state: (b) Privately owned offsite high-volume hydraulic fracturing wastewater treatment facilities constructed specifically for the treatment and disposal of wastewater, which treat produced water from flowback operations and the production phase for reuse may or may not have an associated discharge of wastewater to the waters of the State.

Response 6845:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing. The revised regulations at 6 NYCRR 750-3 state “Facilities constructed specifically for the onsite treatment of HVHF wastewater are prohibited from directly discharging to the waters of the State pursuant to 40 CFR Part 435. These onsite facilities are not eligible to obtain a SPDES permit. All HVHF wastewater accepted and treated by these onsite facilities must be either reused, as approved by the department, or transported for offsite disposal at a permitted facility.

Comment 6846:

The introduction to Section 750-3.12(3) should be revised to state: (3) The provisions below apply to on-site and off-site treatment and recycling with no associated discharge to ground or surface waters. On-site and off-site facilities constructed specifically for the treatment and reuse of high-volume hydraulic fracturing wastewater where the treated water is 100 percent reused for purposes of high-volume hydraulic fracturing do not require a State Pollutant Discharge Elimination System permit.

Response 6846:

As per 6 NYCRR Part 750, if there is no discharge from off-site treatment and recycling, no SPDES permit would be required. The revised regulations at 6 NYCRR 750-3 do address onsite treatment and reuse as there are specific requirements that do apply to onsite treatment and recycling within the oil and gas industry.

Comment 6847:

Section 750-3.12(3)(ii) should be revised to state: (ii) No residuals may remain at the high-volume hydraulic fracturing site following completion of well development in accordance with 554.1(c)(3) of this Title. (a) No discharge of wastewater to the ground or surface waters of the State is permitted for on-site or off-site treatment and recycling. (b) The facility shall be maintained and construction and stormwater managed in compliance with the on-site equipment requirements contained in the high-volume hydraulic fracturing General Permit and the regulations listed under section 750-3.4 above.

Response 6847:

See Response to Comment 6846 regarding offsite treatment and reuse. The revised regulations at 6 NYCRR 750-3 with respect to the disposal of wastewater from high-volume hydraulic fracturing have been re-written. Several changes have been made for organization and/or clarity within the regulations. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment.

Comment 6848:

Section 750-3.12(4)(ii)(a) should be revised to state: (a) Full characterization of disposal strata water quality for compatibility with produced water to be injected into it.

Response 6848:

See Response to Comment 6832 regarding wastewater associated with high-volume hydraulic fracturing. The revised regulations at 6 NYCRR 750-3 with respect to the disposal of wastewater from high-volume hydraulic fracturing have been re-written. Several changes have been made for organization and/or clarity within the regulations. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment for deep well injection.

Comment 6850:

The introductory text to Section 750-3.12(5) should be revised to state: (5) The provisions below apply to injection of produced water into the strata from which it was produced pursuant to a State Pollutant Discharge Elimination System permit. Notwithstanding the requirements listed in 6 NYCRR 556.5, the injection of produced water described in 6 NYCRR 556.5 is regulated pursuant to this Subpart and requires a State Pollutant Discharge Elimination System permit. The following information is required as part of the State Pollutant Discharge Elimination System permit application:

Response 6850:

See Response to Comment 6848 regarding deep well injections.

Comment 6851:

Section 750-3.12(5)(iii) should be revised to state: iii. A water quality analysis of the produced water from flowback operations for high-volume hydraulic fracturing chemicals.

Response 6851:

See Response to Comment 6848 regarding deep well injection.

Comment 6852:

Section 750-3.12(6) should be revised to state: (6) The provisions below apply to disposal of produced water in accordance with the terms of a Department-approved Beneficial Use Determination. Produced water may be disposed in accordance with the terms and conditions of a Department-approved Beneficial Use Determination. In addition to the requirements listed in 6 NYCRR Parts 360 and 364, the following information shall also be presented as part of the application for the Beneficial Use Determination: radiologic limits; contaminant limits; and operational requirements such as maximum brine application frequency and maximum brine application rate.

Response 6852:

See Response to Comment 3898 regarding BUDs. For clarification, beneficial use determinations granted under 6 NYCRR 360-1.15 are not for disposal but for the acceptable reuse of a solid waste.

Comment 6853:

The title of Section 750-3.13 should be revised to: Monitoring requirements in Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6853:

The monitoring requirements of the revised regulations at 6 NYCRR 750-3 are applicable to both individual SPDES permits and general SPDES permits for HVHF operations. See the specific revised regulatory requirement for the stormwater general permit for HVHF operations that cross-references the monitoring requirements.

Comment 6854:

Section 750-3.13 (b) should be revised to: (b) For the Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and the Production Phase, all stormwater discharges must be monitored, recorded and reported in accordance with the terms and conditions of applicable individual or general permits to ensure effective operation.

Response 6854:

“HVHF Phase” is defined in the revised regulations at 6 NYCRR 750-3 and is the appropriate term to include in this regulatory requirement with regard to monitoring. The revised regulations at 6 NYCRR 750-3 do not call out the specific phases but are still applicable to all phases of HVHF operations (“All stormwater discharges must be monitored, recorded and reported in accordance with the terms and conditions of an applicable HVHF SPDES permit to ensure effective operation of the stormwater controls.”)

Comment 6855:

Section 750-3.13 (c) through (i) should be deleted. The title of Section 750-3.14 should be revised to: Schedules of compliance and other requirements in issued Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6855:

The Department believes that all the monitoring suggested to be deleted by the commenter is necessary for adequate oversight of HVHF operations. The monitoring requirements of the revised regulations at 6 NYCRR 750-3 are applicable to both individual SPDES permits and general SPDES permits for HVHF operations. See the specific revised regulatory requirement for the stormwater general permit for HVHF operations that cross-references the monitoring requirements.

Comment 6856:

Section 750-3.13 (b) should be revised to: (b) If stormwater discharges to a Clean Water Act 303(d) listed impaired water, when an individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit is obtained, the owner or operator must by application of its Comprehensive Stormwater Pollution Prevention Plan ensure no increase in the discharged mass loading of the listed pollutant of concern to the 303(d) listed water. The 303(d) list is updated approximately every two years.

Response 6856:

The revised regulations at 6 NYCRR 750-3 no longer specify additional requirements for impaired waterbodies. A SPDES permit issued for high-volume hydraulic fracturing will address compliance with any applicable CWA section 303(d) listing.

Comment 6857:

The title of Section 750-3.15 should be revised to 750-3.15 Duration of Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6857:

New York State law and regulation allow SPDES permits for discharges to surface waters to be issued for up to five years. The revised regulations at 6 NYCRR 750-3 contain a separate section on the duration of a stormwater general permit for HVHF operations. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations.

Comment 6858:

The title of Section 750-3.16 should be revised to: 750-3.16 Renewal of Existing Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6858:

The revised regulations at 6 NYCRR 750-3 contain a separate section on the renewal of a stormwater general permit for HVHF operations. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and may have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations.

Comment 6859:

The title of Section 750-3.17 should be revised to: 750-3.17 Transfer of Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6859:

The revised regulations at 6 NYCRR 750-3 contain a separate section on the transfer of coverage under a stormwater general permit for HVHF operations. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and may have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations.

Comment 6860:

The title of Section 750-3.18 should be revised to: 750-3.18 Modification of Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6860:

The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. Additionally, the revised regulations at 6 NYCRR 750-3 state “Unless in conflict, superseded or expressly stated otherwise in this Subpart, the provisions set forth in Subpart 750-1 and Subpart 750-2 of this Part shall apply to HVHF operations.” This would include modifications to SPDES permits.

Comment 6861:

The title of Section 750-3.20 should be revised to 750-3.20 Denial, Suspension or Revocation of Individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permits.

Response 6861:

The revised regulations at 6 NYCRR 750-3 contain a separate section on the denial, suspension or revocation of coverage under a stormwater general permit for HVHF operations. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations.

Comment 6862:

Section 750-3-20 should be revised to state: The regulations listed in section 750-1.20 apply to this section. In addition to the criteria set forth in Section 621-13 and Section 750-1.20, the Department may deny, suspend, or revoke an individual high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit if the Department determines that the permittee has failed to implement any measures certified pursuant to Section 750-3.4, or otherwise violated any provision of this sub-part.

Response 6862:

See Response to Comment 6861.

Comment 6863:

Section 750-3.21 (b) should be revised to state: (b) Discharges from high-volume hydraulic fracturing operations (the Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and the Production Phase), may be authorized in accordance with a State Pollutant Discharge Elimination System high-volume hydraulic fracturing general permit.

Response 6863:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations.

Comment 6864:

Section 750-3.21 (f) (1) should be revised to state: (f) The following are not authorized by the high-volume hydraulic fracturing State Pollutant Discharge Elimination System general permit: (1) Construction of a centralized impoundment for produced water from flowback or production operations.

Response 6864:

Flowback and production brine are prohibited from being directed to or stored in any reserve pit or freshwater impoundment. For containment of flowback and production brine, unless otherwise approved by the department, the owner or operator must follow the requirements set forth in revised regulations at 6 NYCRR Part 560, which indicate that covered watertight steel, or covered watertight tanks constructed of another material approved by the Department, are required for production brine handling and containment on the well pad. See Response to Comment 3903. The revised regulations at 6 NYCRR Part 750-3 do not allow the construction and use of a centralized flowback impoundment to obtain coverage under a stormwater general permit for HVHF operations, and would require authorization under an individual SPDES permit with a site-specific SEQRA review.

Comment 6865:

Section 750-3.21 (g) (4) should be revised to state: (4) An owner or operator shall not begin the Drilling and high-volume hydraulic fracturing Phase until the Department is notified that the Construction Phase is complete.

Response 6865:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[a]n owner or operator may not commence any construction activities related to HVHF operations until its authorization to discharge under the HVHF general permit is effective.” The specific requirements as to when different phases of HVHF operations may occur will be contained in a stormwater general permit for HVHF operations.

Comment 6866:

Section 750-3.21 (g) (5) should be revised to state: (5) An owner or operator shall not begin the Production Phase until the Department is notified that the Drilling and high-volume hydraulic fracturing Phase is complete.

Response 6866:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[a]n owner or operator may not commence any construction activities related to HVHF operations until its authorization to discharge under the HVHF general permit is effective.” The specific requirements as to when different phases of HVHF operations may occur will be contained in a stormwater general permit for HVHF operations.

Comment 6867:

Section 750-3.21 (h) should be revised to state: (h) The owner or operator shall ensure that the provisions of the Construction Stormwater Pollution Prevention Plan are implemented from the commencement of the Construction Phase through the Drilling and high-volume hydraulic fracturing Phase. This includes any changes made to the Construction Stormwater Pollution Prevention Plan.

Response 6867:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[t]he owner or operator must ensure that the Comprehensive SWPPP is implemented. This includes any changes made to the Comprehensive SWPPP.” The specific requirements as to when different phases of HVHF operations may occur will be contained in a stormwater general permit for HVHF operations.

Comment 6868:

Section 750-3.21 (i) should be revised to state: (i) The owner or operator shall ensure that the provisions of the high-volume hydraulic fracturing Stormwater Pollution Prevention Plan are implemented from the commencement of the Drilling and high-volume hydraulic fracturing Phase through the Production Phase, until the Notice of Termination has been submitted to the Department. This includes any changes made to the high-volume hydraulic fracturing Stormwater Pollution Prevention Plan.

Response 6868:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[t]he owner or operator must ensure that the Comprehensive SWPPP is implemented. This includes any changes made to the Comprehensive SWPPP.” The specific requirements as to when different phases of HVHF operations may occur will be contained in a stormwater general permit for HVHF operations.

Comment 6869:

Section 750-3.21 (k) should be revised to state: (k) As set forth in subdivision 750-1.21(e) of this Title, unless coverage has been obtained under the general permit, the Department may require any discharger authorized to discharge in accordance with the high-volume hydraulic fracturing general permit to apply for and obtain an individual State Pollutant Discharge Elimination System permit or apply for authorization to discharge in accordance with another general permit.

Response 6869:

The Department retains the discretion to require an individual permit for an owner or operator who currently holds a stormwater general permit to address, for example, non-compliance with provision of that general permit. The revised regulations at 6 NYCRR state “As set forth in subdivision 750-1.21(e) of this Part, the department may require any owner or operator authorized to discharge in accordance with an HVHF general permit to apply for and obtain an individual SPDES permit or apply for authorization to discharge in accordance with another general permit.”

Comment 6870:

Section 750-3.21 (n) (3) should be revised to state: (3) Upon a finding of significant non-compliance with the practice described in the high-volume hydraulic fracturing Stormwater Pollution Prevention Plan, the Department may order an immediate stop to all activity associated with Drilling and high-volume hydraulic fracturing Phase or the Production Phase until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the owner or operator. A permittee must comply with all terms of a stop work order issued pursuant to this paragraph (3).

Response 6870:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “Upon a finding of significant non-compliance with the Comprehensive SWPPP, the department may order an immediate stop to all activity at the well until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the owner or operator. “

Comment 6871:

Section 750-3.25 (d) should be revised to state: (d) For the Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and the Production Phase, all stormwater discharges must be monitored and recorded to ensure effective operation.

Response 6871:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[a]ll stormwater discharges must be monitored, recorded and reported in accordance with the terms and conditions of an applicable HVHF SPDES permit to ensure effective operation of the stormwater controls.”

Comment 6873:

Section 750-3.25 (e) should be revised to state: (e) For the Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and the Production Phase, all stormwater discharges must be reported to ensure compliance with applicable statutes, regulations and high-volume hydraulic fracturing general permit conditions. For the Construction Phase, Drilling and high-volume hydraulic fracturing Phase, and the Production Phase, all best management practices must be maintained in an effective operating condition. All best management practices must be inspected to ensure that they are in effective operating condition. Records must be kept of all inspections. As determined by the Department, records of inspections must be reported to the Department on a frequency adequate to prove effective operating condition of all best management practices.

Response 6873:

“HVHF Phase” is part of “HVHF operations” and both are defined in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written, and have been consolidated into other sections of the revised regulations. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 state generally that “[a]ll stormwater discharges must be monitored, recorded and reported in accordance with the terms and conditions of an applicable HVHF SPDES permit to ensure effective operation of the stormwater controls.”

Comment 6912:

Fluids Issue: Water regulations for high-volume hydraulic fracturing flowback and production water unclear as to off-site recycling: Proposed 6 NYCRR 750-3.12 recognition that private off-site no-discharge recycling facilities do not require State Pollutant Discharge Elimination System permits should not be limited only for "reuse in permitted high-volume hydraulic fracturing operations," since in the case of wastewater treated by CARES Regional Environmental Services, LLC, the resulting product will be as pristine as rainwater and useful for any number of applications. See 7503.12(d)(2)(iv).

Response 6912:

See Response to Comment 6846 regarding off-site recycling facilities.

Comment 6926:

750-3.2(b)(1): An access road may also be a reconstructed road used to provide access for high-volume hydraulic fracturing activities.

Response 6926:

The department did not make any changes to the definition of "access road" as it believes the existing definition is adequate and accurate.

Comment 6927:

750-3.2 (b)(15): Drilling fluid often includes chemicals mixed with mud, water or air.

Response 6927:

The definition of "drilling fluid" has been revised to mean "mud, water, brine, or other fluid, including air, pumped down the drill string which acts as a lubricant and coolant for the drill bit and is used to carry rock cuttings back up the wellbore. It may also be used for pressure control in the wellbore and to drive a mud motor and bit for directional drilling."

Comment 6928:

750-3.2 (b)(16): Final stabilization should explicitly include language about use of native or naturalized plants as the preferred cover.

Response 6928:

The definition of "final stabilization" has been revised to mean "all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of at least eighty (80) percent has been established or other equivalent stabilization measures, such as sod, permanent landscape mulches, rock rip-rap or washed/crushed stone, have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement." Further detail regarding partial site reclamation is contained in the draft HVHF GP (e.g. seeded and mulched after topsoil replacement and vegetative cover reestablished that will ultimately return the well site to pre-construction conditions.")

Comment 6930:

750-3.2(b)(18): Flowback includes chemicals and naturally occurring radioactive materials from some formations where high-volume hydraulic fracturing is to be utilized.

Response 6930:

Comment noted. The definition of “flowback” has not changed from the draft regulations to the revised regulations at 6 NYCRR 750-3.

Comment 6931:

750-3.2(b)(20): Freeboard applies to structures designed to hold water and both naturally-occurring and human-added chemicals. Freeboard will not eliminate all risk of overflow, but is intended to reduce that risk.

Response 6931:

Comment noted. The definition of “freeboard” has been revised to mean “the distance between the maximum water surface elevation anticipated in design and the top of retaining banks or structures. Freeboard is provided to prevent overtopping due to unforeseen conditions.”

Comment 6932:

750-3.2(b)(21): Geomembrane should have a minimum thickness and performance standards as part of the definition.

Response 6932:

The revised regulations at 6 NYCRR 750-3 no longer contain a definition for “geomembrane.”

Comment 6933:

750-3.2(b)(22): The 1992 GEIS defined hydraulic fracturing as those operations using approximately 80,000 gallons of water for fracturing a gas well. Section 6.10 (p. 6-289) of the rdSGEIS (2011) discloses the differences between traditional fracturing operations and high-volume hydraulic fracturing operations. The proposed 300,000-gallon threshold should not be used as the operational high-volume hydraulic fracturing threshold. The threshold volume for high-volume hydraulic fracturing should be 100,000 gallons.

Response 6933:

See Response to Comment 3436.

Comment 6934:

750-3.2(b)(23): "Any subsequent re-stimulation event" is a refracture. This should not be permitted with the initial permit review, but should instead be dependent on satisfactory compliance with the initial activities.

Response 6934:

The definition of “high-volume hydraulic fracturing phase” has been revised to mean “the phase following Construction Phase Completion and through completion of Partial Site Reclamation. This phase includes well drilling, high-volume hydraulic fracturing, and on-site handling and treatment of HVHF wastewater produced until all wells planned for that well pad have been completed.”

Comment 6935:

750-3.2(b)(28): High density polyethylene plastic should have a minimum thickness and performance standards as part of the definition.

Response 6935:

The revised regulations at 6 NYCRR 750-3 no longer contain a definition for “HDPE.”

Comment 6936:

750-3.2(b)(30): Unless the Department proposes not to allow them, the definition of "hydraulic fracturing" should include chemicals, along with proppant.

Response 6936:

See Response to Comment 6933 for the definition of “high-volume hydraulic fracturing.” Also note the definitions in the revised regulations at 6 NYCRR 750-3 of “chemical additive” (a substance composed of one or more chemical constituents that is intentionally added to a base fluid) and “proppant” (a material such as sand or ceramic particles that is carried in suspension by the fracturing fluid and that serves to keep the induced fractures open when fracturing fluid is withdrawn after a fracture treatment.”).

Comment 6937:

750-3.2(b)(35): Partial site reclamation should explicitly include language about the use of native or naturalized plants as the preferred cover.

Response 6937:

See Response to Comment 6928 regarding “final stabilization” and “partial site reclamation.”

Comment 6939:

750-3.2(b)(36): "Plugged and abandoned"... The definition should explicitly state that they are done in compliance with the Department's Well Plugging Permit requirements.

Response 6939:

The revised regulations at 6 NYCRR 750-3 state “The owner or operator must plug and abandon the gas wells pursuant to Part 555 of this Title, as adopted on XX, 20XX, prior to terminating an HVHF SPDES permit, unless otherwise approved by the Department. Prior to plugging and abandonment, the owner or operator must notify the department and modify the HVHF SWPPP to include stormwater controls during plugging and abandonment operations and any reclamation done in accordance with subdivision 560.7(l) of this Title, as adopted on XX, 20XX.”

Comment 6940:

750-3.2 (b)(43): Reclaimed or reclamation should explicitly include language about the use of native or naturalized plants as the preferred vegetative cover.

Response 6940:

See Response to Comment 6928 regarding “final stabilization” and “partial site reclamation.”

Comment 6941:

750-3.2(b)(44): Reserve pits should be double-lined, with a passive leak detection system.

Response 6941:

The revised regulations at 6 NYCRR 750-3 states “Any reserve pit, drilling pit or mud pit on the well pad must be maintained in a leak free condition and constructed in accordance with the requirements set forth in paragraph 560.6(a)(4) of this Title, as adopted on XX, 20XX. Additionally, such pits must be constructed, coated, or lined with materials that are chemically compatible with the substance stored.”

Comment 6950:

750-3.2(b)(55): The Department should explicitly state whether re-fracturing is considered a work over operation.

Response 6950:

A workover is not always “refracturing.” The definition of “workover” has been revised to mean “any downhole operation in an existing well performed after initial completion that is designed to sustain, restore or increase efficiency, make the well safer, or correct a known or potential environmental hazard.” Re-fracturing would be used to restore or increase efficiency. See also Response to Comment 6933 regarding the definition of “high-volume hydraulic fracturing.”

Comment 6952:

750-3.3(b): Setback distances should be explicitly stated as horizontal distance. Also, the buffer for a primary and principle buffer distances should be extended and brought into alignment with the buffer for public water supplies since both are irreplaceable resources for future economic development in New York State.

Response 6952:

The revised regulations at 6 NYCRR 750-3 do state “All distances noted above are measured from the closest edge of the HVHF well pad.” See also Responses to Comment 2453 regarding setbacks and Comment 3785 regarding Principal Aquifers.

Comment 6953:

750-3.3(b): High-volume hydraulic fracturing should be prohibited within 500 feet of principal aquifers. High-volume hydraulic fracturing should be prohibited within 500 feet of any water course.

Response 6953:

See Responses to Comments 2453 and 3855 regarding setbacks, and Comment 3785 regarding Principal Aquifers.

Comment 6954:

750-3.3(b)(2): High-volume hydraulic fracturing should be prohibited within 2000 feet of primary aquifers. Horizontal legs of high-volume hydraulic fracturing drilling should be prohibited from extending beneath primary aquifers. Horizontal legs of high-volume hydraulic fracturing wells should only be allowed to be drilled under principal aquifers after undergoing site-specific State Environmental Quality Review that incorporates at least 20 years of groundwater monitoring in similar surrounding geology where high-volume hydraulic fracturing operations have occurred and that confirm no transmission of high-volume hydraulic fracturing contaminants to groundwater resources.

Response 6954:

See Responses to Comments 2453 and 3855 regarding setbacks. The revised regulations at 6 NYCRR 750-3 do state “All distances noted above are measured from the closest edge of the HVHF well pad.” In addition to the requirement that owner or operator conduct residential water well testing, in accordance with the requirements of revised 6 NYCRR 560.5(d), the revised regulations at 6 NYCRR 750-3 require an approvable groundwater monitoring program be developed and implemented. Also, the 2011 rdSGEIS discusses mitigation measures to protect groundwater resources from contamination due to migration of fluids and gas.

Comment 6955:

750-3.4(b): All owner/operators should be required to obtain a State Pollution Discharge Elimination System permit, there should not be a provision for coverage under a general State Pollution Discharge Elimination System permit.

Response 6955:

ECL §70-0117, as well as 6 NYCRR 750-1.21, address the use of SPDES general permits. The revised regulations at 6 NYCRR 750-3 also address a SPDES general permit for high-volume hydraulic fracturing. High-volume hydraulic fracturing operations are appropriately regulated through a general permit because they (1) involve the same or substantially similar types of operations; (2) discharge the same types of pollutants; (3) require the same effluent limitations or operating conditions; (4) require the same or similar monitoring; and (5) will result in minimal adverse cumulative impacts. As high-volume hydraulic fracturing operations are generally consistent from well site to well site, utilizing similar industrial processes and materials, the Department has determined that a general permit adequately addresses potential sources of contamination of water resources from high-volume hydraulic operations when a well site is operated in accordance with general permit conditions, and in compliance with monitoring,

reporting and SWPPP requirements. Note the prohibitions in the revised regulations at 6 NYCRR 750-3, as well as the instances where HVHF operations are not eligible for coverage under a general permit.

Comment 6956:

750-3.4(b)(1) and 750-3.12(a): Given the nature of anticipated high-volume hydraulic fracturing operations, how can a disposal plant know their capacity relative to a high-volume hydraulic fracturing well without knowing if/how many re-fracture events will be necessary and on what frequency (specific times)? It would make more sense that operators must comply with this measure for each stimulation and the Department must permit high-volume hydraulic fracturing operations with management of the waste stream, accounting for cumulative volume as well as efficiencies as part of their ongoing permitting process. If 750-3.12(a) remains, the waste management certification and associated responsibility must be attached to that particular well" with responsibility (and funding) provided by the owning interest.

Response 6956:

Each treatment facility that proposes to accept HVHF would need to include the treatment system capacity for accepting HVHF wastewater as part of their SPDES permit application (e.g., POTW headworks analysis, private industrial treatment facility treatability analysis). See Responses to Comment 3441 regarding Fluid Disposal Plans and Comment 3781 regarding headworks analyses.

Comment 6957:

750-3.4(b)(2): Realistically, operators cannot certify that there will be no significant adverse water quality impacts related to Marcellus and other formation cuttings. As a passive way of addressing that reality, the Department should not allow anything but closed loop systems for any high-volume hydraulic fracturing cuttings.

Response 6957:

See Response to Comment 4028 regarding "closed-loop systems."

Comment 6958:

750-3.4(b)(4): There should not be provisions for using on-site pits; closed loop tank systems should be required and all cuttings should be landfilled.

Response 6958:

See Responses to Comment 4028 regarding "closed-loop systems" and Comment 6941 regarding leak free pits.

Comment 6959:

750-3.4(b)(4)(i): In the interest of protecting public health and natural resources over the long-term unless the Department requires individual Chemical Abstracts Service identification (or equivalent) for every constituent in each additive and the New York State Department of Health

certifies they pose no risk to human health and the environment, no drilling fluid or cuttings should be stored in pits. They should be managed with closed loop systems. Suitable waste should be disposed of in a permitted landfill.

Response 6959:

See Responses to Comment 4028 regarding “closed-loop systems” and Comment 6941 regarding leak free pits.

Comment 6964:

750-3.4(b)(4)(ii): In this context, a "tract" of land is undefined. Impoundments should have setbacks from neighboring property boundaries, especially in the case of non-leasing neighbors, lest they leach or decrease property values.

Response 6964:

“Tract” is no longer used in the revised regulations at 6 NYCRR 750-3. The revised regulations at 6 NYCRR Part 750-3 do not allow the construction and use of a centralized flowback impoundment to obtain coverage under a stormwater general permit for HVHF operations, and would require authorization under an individual SPDES permit with a site-specific SEQRA review.

Comment 6965:

750-3.4(b)(4)(v): Pits should be double-lined, with a functioning passive leak detection system to protect human and environmental health.

Response 6965:

See Responses to Comment 4028 regarding “closed-loop systems” and Comment 6941 regarding leak free pits.

Comment 6966:

750-3.4(b)(4)(viii): It will be challenging if not impossible for operators to comply with this provision if all chemicals used in additive products are not clearly and uniquely identified by name and Chemical Abstracts Service number or equivalent. The department should not allow additives for which it has not collected this information and screened it with New York State Department of Health.

Response 6966:

The revised regulations at 6 NYCRR 750-3 requires that “[t]he owner or operator’s disclosure of hydraulic fracturing fluid must be in accordance with subparagraph 560.3(d) of this Title, as adopted on XX, 20XX, except that documentation must be submitted to the Department’s satisfaction, that the proposed chemical additives exhibit reduced aquatic toxicity and pose at least as low a potential risk to water resources and the environment as all available alternatives; or documentation, to the Department’s satisfaction, that available alternative products are not effective in achieving the desired results or economically feasible.”

Comment 6967:

750-3.4(b)(5): This provision implies that the only reason the Department would grant an exception would be if fluids are to be used as part of a recycling plan. While that is commendable, it translates to the fact that those fluids continue to present some risk on-site. As such, this is further justification for requiring management of those fluids in closed loop systems.

Response 6967:

See Responses to Comment 4028 regarding “closed-loop systems” and Comment 5867 regarding removal of HVHF wastewater from the well site.

Comment 6968:

750-3.4(b)(6): There should be no provisions for allowing alternative plans where fractures will be less than 2,000 feet below ground or 1,000 feet below fresh water zone. Microfractures resulting from high-volume hydraulic fracturing operations must be monitored to determine their actual depth at each well. Water quality should also be monitored to determine the actual extent (bottom depth) of the fresh water zone.

Response 6968:

See Response to Comment 4027 regarding alternative plans.

Comment 6969:

750-3.4(b)(8): The toxicity of chemical additives must be determined by the New York State Department of Health and the Department's Division of Water.

Response 6969:

See Response to Comment 3438 regarding the alternatives analysis.

Comment 6970:

750-3.5(b): This provision must be based on documenting existing (e.g. baseline) water quality conditions for groundwater and surface water conditions, prior to high-volume hydraulic fracturing operations. The Department has not disclosed how a legally defensible baseline for either resource will be established. It should implement a protocol similar to that proposed for water well testing, or fund a citizen-based program similar to its Citizens Statewide Lake Assessment Program monitoring program. It cannot allow high-volume hydraulic fracturing operations to be permitted in New York State without first disclosing what will be accepted as legally defensible baseline groundwater and surface water quality. Especially in light of the fact that the Department has not presented any objective monitoring of mitigation effectiveness since the implementation of the 1992 GEIS rules, it cannot be assumed that compliance with mitigation requirements will prevent degradation of these resources.

Response 6970:

The revised regulations at 6 NYCRR 750-3 include new language regarding the Department's determination that groundwater or surface water quality will not be degraded. In addition to the

requirement that the owner or operator conduct residential water well testing, in accordance with the requirements of revised 6 NYCRR 560.5(d), the revised regulations at 6 NYCRR 750-3 require an approvable groundwater monitoring program to be developed and implemented. Also, the 2011 rdSGEIS discusses mitigation measures to protect groundwater resources from contamination due to migration of fluids and gas.

Comment 6971:

750-3.11(d)(1&2) : Maintenance agreements with municipalities must be for the remaining life of an improved road, and not just as long as industrial traffic uses it. The Pennsylvania Center for Dirt and Gravel Roads makes this recommendation to municipalities because the upgraded road (wider surface area, bigger drainage structures, etc.) requires proportionally more maintenance funds than most rural municipalities have available.

Response 6971:

The revised regulations at 6 NYCRR 750-3 state generally that “[p]rior to terminating an HVHF SPDES permit, the owner or operator must ensure the continued operation and maintenance of the post-construction stormwater management practices.” This means that operation and maintenance of that practice must be continued after termination of the SPDES permit or coverage under a stormwater general permit for HVHF operations.

Comment 6972:

750-3.11(d)(3): It should be stipulated that the stormwater operation and maintenance plan will be funded by the owning interest of the high-volume hydraulic fracturing gas well in perpetuity. Corporations must not be allowed to walk away from this long-term responsibility.

Response 6972:

See Response to Comment 6971 regarding stormwater practices. The revised regulations do not dictate the details of the operation and maintenance plans, only the goal that the practices be operated and maintained.

Comment 6973:

750-3.11(e)(1)(i): This requirement makes no stipulation of threshold responses whereby use of alternative additives would be required. It does not serve as an understandable regulation without detailing precisely what criteria must be evaluated and how the Department would use this evaluation in its permitting process. Cost is not explicitly listed as part of the feasibility evaluation. If a measurable public health, water quality or air quality advantage can be obtained using alternative additives, they should be required.

Response 6973:

See Response to Comment 3438. Also, the regulations do not dictate a specific product based on the goal stated.

Comment 6975:

750-3.11(e)(1)(ii): Chemical Abstracts Service or unique equivalent identification should be provided along with the quantity of each chemical used in the additives to protect public and environmental health. In addition, this required inventory should be updated monthly as supplies will vary based on well pad activity.

Response 6975:

See Response to Comment 6966 regarding disclosure. Additionally, the revised regulations at 6 NYCRR 750-3 require that “[a]t the well site, the owner or operator must maintain a list of the chemical additives used on the well site.”

Comment 6976:

750-3.11(h): Unless the Department requires a chemical accounting of the additives used to prepare the drilling fluids, such as Chemical Abstracts Service identification, or equivalent, drilling fluid should be stored only in on-site, covered tanks and not in reserve pits. This would likely increase the ground disturbance needed to accommodate needs at the well pad. Under no circumstances should cuttings be buried on-site. Chautauqua County has a documented case of cuttings that contaminated groundwater due to leaching.

Response 6976:

See Responses to Comment 4028 regarding “closed-loop systems” and Comment 6941 regarding leak free pits.

Comment 6978:

750-3.11(j): Flowback and production brine should be sampled and analyzed by a state-certified laboratory to document its composition for as a way to protect public and environmental health.

Response 6978:

NYS Public Health section 502 requires all labs that analyze environmental samples to be certified by the Environmental Laboratory Approval Program (ELAP).

Comment 6998:

750-3.12(b)(3); This provision could help to build knowledge of flowback composition on a regional basis if sufficient sampling were required (according to standard state-certified laboratory protocols). The Department should include required monitoring on a frequency sufficient to fully characterize flowback over time on a per-well basis (including that generated from re-fractures) as part of this provision.

Response 6998:

See Response to Comment 6978 regarding certified laboratories. For disposal at a treatment facility in New York State (e.g., POTW, private industrial treatment facility), the revised regulations at 6 NYCRR 750-3 require that each source of high-volume hydraulic fracturing wastewater be characterized. Additionally, there must be a demonstration that the high-volume hydraulic fracturing wastewater will not cause a violation of the facility’s effluent limits or

sludge disposal criteria, and will not result in pass through of substances present in high-volume hydraulic fracturing wastewater, or adversely affect the facility's treatment processes. If there is a change in the characteristics of the high-volume hydraulic fracturing wastewater, then the characterization must be repeated.

Comment 6999:

750-3.12(b)(4&6): The Department should clarify this provision to require the Chemical Abstracts Service (or equivalent) for each chemical and their respective amounts in a proposed additive. No additives should be approved in New York State that have not undergone this disclosure and approval by New York State Department of Health prior to permitting. Drilling companies have leases to conduct operations and develop the gas resource. That leased right should not preclude public disclosure of chemicals used to do so especially when gas recovery includes resources under non-leased properties. The Department should provide disclosure to the public of any chemicals used in a particular well.

Response 6999:

See Response to Comment 6966 regarding disclosure. Additionally, the revised regulations at 6 NYCRR 750-3 require that "[a]t the well site, the owner or operator must maintain a list of the chemical additives used on the well site." Documents and/or information in the Department's possession would be available to the public, subject to the limitations of the Freedom of Information Law.

Comment 7000:

750-3.12(d): Disposal of high-volume hydraulic fracturing flowback water or production brine at publicly owned treatment works or other industrial treatment facilities should be prohibited unless they are capable of treating chlorides, bromides and total dissolved solids to meet drinking water standards.

Response 7000:

See Response to Comment 3781 regarding the headworks analysis. As per the revised regulations at 6 NYCRR 750-3, similar requirements apply to other disposal options such as private industrial treatment facilities and deep well injection.

Comment 7001:

750-3.12(d)(1)(vi)(c)(3) and 750-3.12(d)(2)(ii)(c): The Department does not disclose the frequency of testing required for discharging into a publicly owned treatment works. Testing frequency needs to be sufficient to ensure that public and environmental health are upheld during the treatment and release/disposal of flowback and production brine. Based on experience in Pennsylvania, bromide should be included among the constituents tested both into and out of publicly owned treatment works.

Response 7001:

Testing parameters and frequency will be included in the SPDES permit for the facility.

Comment 7002:

750-3.12(d)(4): Use of injection wells to dispose of high-volume hydraulic fracturing wastewater should undergo site-specific State Environmental Quality Reviews to provide for public comment. Injection of fluids into bedrock reservoirs has been shown to cause earthquakes, therefore injection wells must undergo the public review and comment process, which is not incorporated into the United States Environmental Protection Agency Underground Injection Control program.

Response 7002:

The revised regulations at 6 NYCRR 750-3 require that “HVHF wastewater may be accepted only by a deep well injection facility that has a valid SPDES permit and is permitted by the department to accept HVHF wastewater.” A site-specific SEQRA review would be part of the SPDES permitting process.

Comment 7003:

750-3.12(d)(4)(d): Nested up-gradient and down-gradient groundwater monitoring wells should be required for all disposal wells accepting high-volume hydraulic fracturing wastewater.

Response 7003:

The revised regulations at 6 NYCRR 750-3 state that the Department may require the “installation of upgradient and downgradient monitoring wells and a monitoring program with periodic monitoring for chemical constituents present, as well as other parameters that may be present in the HVHF wastewater.”

Comment 7004:

750-3.12(d)(6): Production brine contains high levels of numerous contaminants including chloride, bromide, sodium, heavy metals (lead, arsenic, barium) and volatile organic chemicals (toluene, benzene, phenols, etc.). Road spreading of production brine is not an environmentally sound practice and should not be considered under any circumstances for high-volume hydraulic fracturing or traditional vertical wells. The Department approved Beneficial Use Determination for production brine disposal must be re-evaluated and undergo State Environmental Quality Review with an appropriate public review and comment period.

Response 7004:

See Response to Comment 3898 regarding BUDs.

Comment 7005:

750-3.12(d)(7): It is inappropriate in a generic permitting process not to disclose what other options for production brine disposal the Department would approve. Any other or future disposal options should undergo State Environmental Quality Review with an appropriate public review and comment period.

Response 7005:

The revised regulations at 6 NYCRR 750-3 do not choose a disposal option and do not encourage one suitable disposal option over another. The revised regulations at 6 NYCRR 750-3 provide the requirements for each of the options to be approved by the Department and where appropriate requirements on the well owner or operator for disposal of HVHF wastewater. See Response to Comment 3441, regarding the Fluid Disposal Plan.

Comment 7006:

750-3.13: Reports documenting quantities of water and their sources should be made available to the public via a website utilizing Geospatial Information System technology georeferencing data about water withdrawals/sources, where/how used and its disposition. This database must be maintained in an up-to-date fashion.

Response 7006:

The revised regulations at 6 NYCRR 750-3 require that the HVHF SWPPP include “the volume of all water delivered for use at the well site from each source. Records must be maintained identifying each truck/pipeline delivery of water and the source of the water.” The Department does not believe it is necessary to put such information on a website utilizing GIS. In addition to information that may be disclosed, subject to the limitations of the Freedom of Information Law, the draft HVHF GP requires that “The NOI, SWPPP and inspection reports required by this general permit are public documents that the owner or operator must make available for review and copying by any person within five (5) business of the owner or operator receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester’s expense.”

Comment 7008:

750-3.12: Gas well owners/operators or the Department should be required to post permit information on a public website (using Geospatial Information System technology) along with a proposed schedule of drilling activities and trucking routes at least 30 days in advance of drilling. Actual drilling activity dates should then be updated as drilling and high-volume hydraulic fracturing proceeds.

Response 7008:

This comment is outside the scope of the 6 NYCRR 750-3 regulations, as it is not related to the protection of water resources. However, documents and/or information in the Department’s possession would be available to the public, subject to the limitations of the Freedom of Information Law.

Comment 7009:

750-3.13(g): Any non-sanitary wastewater leaving the site should be weighed and documented at least twice by two different state- certified scales. One scale should be as close to the point of origin as practical and one should be at the receiving facility.

Response 7009:

The Department does not believe that the suggested edits to the regulations are required. However, the revised regulations at 6 NYCRR 750-3 do require that the HVHF SWPPP include documentation of “the volume of all sanitary and non-domestic wastewater produced onsite. The HVHF SWPPP must also include a transportation record, which may also be required by Part 364 of this Title, of all sanitary and non-domestic wastewater leaving the well pad. The transportation record must include the volume of all sanitary and non-domestic wastewater shipped offsite by individual trucks and/or pipeline, as well as the destination of the receiving facility(ies), and associated permit number if applicable.”

Comment 7011:

750-3.13(h): Sampling should be of any water supply, not just private water wells. All water wells within 3,000 feet of a drill pad or within the anticipated length of the horizontal drill leg, whichever is greatest, should be sampled and tested.

Response 7011:

See Response to Comment 3784 regarding private water well testing and groundwater monitoring.

Comment 7012:

750-3.13(h): A list of analytes to test private water supplies for must be included in the regulations.

Response 7012:

A list of the analytes to test private water supplies is included in the 2011 rdSGEIS and is not appropriate for inclusion in regulations, as such is too prescriptive and would not allow for necessary alternative or additional analytes.

Comment 7013:

750-3.13(h): Water well test results should be maintained in a database and made available to New York State Department of Health and local health departments.

Response 7013:

The revised regulations at 6 NYCRR 750-3 state “The owner or operator must conduct residential water well testing in accordance with the requirements of subdivision 560.5(d) of this Title, as adopted on XX, 20XX, except that copies of test results and documentation related to delivery of test results to owners of water wells must be sent to the New York State Department of Health.”

Comment 7014:

750-3.13(i): In order to protect industry and the water supply owner, all aspects of water testing, including collection, should be conducted by an Environmental Laboratory Accreditation Program-certified laboratory, with legally defensible chain-of-custody documentation in the event the data is needed in court. All test results should be shared with the local health

department. The Department should coordinate the creation of a database accessible by their counterparts, and State and local health departments in both New York and Pennsylvania to facilitate informed and timely investigation of water contamination complaints.

Response 7014:

See Responses to Comment 6978 regarding ELAP, and Comment 7013 regarding disclosure to NYSDOH.

Comment 7015:

750-3.14(c): Total maximum daily loads are often conducted / modeled based on certain flow conditions. Water withdrawals from total maximum daily load watersheds may change the operating assumptions for load allocations and could realistically increase concentrations of pollutants. The phrase total maximum daily load is mentioned only once in the rdSGEIS and no mitigation has been developed to account for this possibility.

Response 7015:

See Response to Comment 5954 regarding TMDLs.

Comment 7016:

750-3.14(c): Owner/operators should be required to meet total maximum daily load standards as soon as the high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit is obtained.

Response 7016:

See Response to Comment 5954 regarding TMDLs.

Comment 7017:

750-3.21(e)(8): Remove "(unless all spilled material has been removed)."

Response 7017:

That language has been removed from the revised regulations at 6 NYCRR 750-3. However, that requirement still applies because it is included in existing regulations at 6 NYCRR 750-1.2(a)(27). Note that the revised regulations at 6 NYCRR 750-3 state "[u]nless in conflict, superseded or expressly stated otherwise in this Subpart, the provisions set forth in Subpart 750-1 and Subpart 750-2 of this Part shall apply to HVHF operations."

Comment 7019:

750-3.21(f)(2)(iii): This provision should be modified to better align with the Soil Slope Phases E& F, as called for here. Since 'E' is used to describe slopes 9-15%, the more appropriate slope class within the soil name to use as the criteria would be 10% (versus 25%). In terms of stormwater management, while operationally making things more challenging for the industry, it could better protect water resources in New York State.

Response 7019:

See Response to Comment 2451 regarding steep slopes.

Comment 7020:

750-3.21(f)(3): These depths are inadequate and should be increased to protect fresh water aquifers.

Response 7020:

That language has been removed from the revised regulations at 6 NYCRR 750-3. However, see Responses to Comments 4027 and 5788 regarding the depth of drilling.

Comment 7021:

750-3.21(f)(4): These setback distances should be adjusted upward for slope considerations, especially for wetlands, storm drains, lakes, or ponds, and perennial or intermittent streams. At a minimum, these 'setback' for stormwater discharges should be doubled when slope of the land between the well pad and the resource of concern is 10% or greater. This would differ from Section 3.21(f)(2)(iii) above in that this provision applies to discharges to the land area between the gas well pad and the resource of concern whereas the former applies to discharges from construction activities themselves on steeper slopes.

Response 7021:

See Response to Comment 2453 regarding setbacks generally. There are two different provisions in the regulations-one is for prohibitions and the other is for where HVHF operations are ineligible for coverage under a general permit.

Comment 7022:

750-3.21(f)(4): This chart should include primary aquifer buffer of 2,000 feet and buffers from all other water courses should be increased from 150 to 500 feet.

Response 7022:

See Response to Comment 2453 regarding setbacks generally. There are two different provisions in the regulations-one is for prohibitions (e.g., primary aquifers maintained at 500 feet) and the other is for where HVHF operations are ineligible for coverage under a general permit (e.g., distance from other water courses increased to 300 feet).

Comment 7023:

750-3.21(g): When these milestones are reported to the Department they should also be updated on a public web site.

Response 7023:

Several changes have been made for organization and/or clarity within the regulations. See the revised regulations at 6 NYCRR 750-3 for specific changes in the comment. For example, a

Comprehensive SWPPP must be developed and a complete NOI must be submitted to the Department even before coverage under a stormwater general permit for HVHF operations can be obtained. Other requirements, occur after coverage is obtained and submission to the Department is dictated by the terms of the stormwater general permit for HVHF operations. Documents and/or information in the Department's possession would be available to the public, subject to the limitations of the Freedom of Information Law. Additionally, pursuant to the draft HVHF GP "The NOI, SWPPP and inspection reports required by this general permit are public documents that the owner or operator must make available for review and copying by any person within five (5) business of the owner or operator receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester's expense."

Comment 7024:

750-3.21(l)(2): The Department has a proposed protocol for obtaining / extending coverage under the high-volume hydraulic fracturing permit. This provision should be amended by removing the first sentence.

Response 7024:

The process for continuing coverage under an existing stormwater general permit for HVHF operations is necessary for clarity about what operations are covered and what operations are not. This process is consistent with other Department general SPDES permits.

Comment 7025:

750-3.21(n)(2&3): Remove the word "significant" from the first sentence. It is a subjective term; removing it provides the authority and option to the Department to stop work for any instance of non-compliance. It does not obligate them to do so but allows for the possibility.

Response 7025:

The use of "significant" is to avoid the circumstance where the Department has the authority to stop work for any instance of non-compliance. The revised regulations at 6 NYCRR 750-3 include the procedures for the issuance of stop work orders.

Comment 7029:

Proposed Express Terms 6 NYCRR Parts 750.1 and 750.3: Section 750-3.2 - The definitions in this section do not necessarily match the definitions for the same terms in Section 560. For example, the definitions of high-volume hydraulic fracturing are different. In addition, there are definitions included in this section that are not included in Section 560, and vice versa, even though the terms are used in both sections. (32) The definition of naturally occurring radioactive materials be modified to read: "any naturally occurring radioactive materials not subject to regulation under the Atomic Energy Act, whose radionuclide concentrations have been enhanced by human activities such that potential risk to human health or the environment are increased." Consistent with the State Review of Oil and Natural Gas Regulations guidelines, these regulations should establish risk-based numerical action levels above which naturally occurring radioactive material is regulated taking into consideration the risk of exposure to human health

and the environment. (37) The same comments apply to the definitions for primary and principal aquifers in this section of the proposed regulations. (46) The definition of stimulation should be modified to read "the act of attempting to increase" a well's productivity, as not all stimulation operations are successful. (57) The definition of a well site needs some limitation, as the phrase "any other areas directly or indirectly impacted" is so broad as to include all gathering lines that connect the well with larger transmission lines, for example.

Response 7029:

Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 7032:

Section 750-3.3 (b) The setbacks listed in this subsection should be broadened in two ways. First, under subsection (4), the distance should be extended to 3,000 feet. Second, the list of areas in this subsection should include private water wells, as is done in Section 560.4, and not be limited to public water supply wells.

Response 7032:

Duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate. See Response to Comment 2453 regarding setbacks.

Comment 7036:

Section 750-3.4 (b): (1) Under this subsection, "documentation" should be changed to "Certified statement," as the term documentation could include almost any document, whether accurate or not. Moreover, the remaining subsections under this section require certification for other items that are required as part of the high-volume hydraulic fracturing permit application. For this reason, certification should also be required here. (2) The allowance of on-site pits for disposal of cuttings should simply be removed from this subsection, so that closed loop drilling is required for all applications. (4) If pits continue to be allowed under this subsection, a requirement should be added that written landowner consent be obtained, with specific description as to the nature and risks of long-term on-site burial. Under subsection (viii), the language that materials be "chemically compatible with the substance stored and the environment" requires something that cannot be readily documented or shown. This language should be modified to indicate whether this refers to their breakdown into nontoxic substances, or their ability to withstand exposure to sunlight, etc., and how this is to be demonstrated by the operator. (6) The certification that high-volume hydraulic fracturing operations will take place at least 1,000 feet below the base of fresh groundwater requires a geologic and/or seismic evaluation in order to have any actual meaning in this subsection. Such an evaluation must consider whether that 1,000 foot interval is impervious to the movement of all fluids, for example, and what the factual basis for the certification is. (7) The evaluation of chemical alternatives in this subsection must be carried out by someone with an advanced degree in chemistry or similar background. Otherwise, the evaluation is essentially useless, as any technician could provide this evaluation with no consequence if they were inaccurate or lacking

in knowledge of basic chemistry. (8) The certification required by this subsection is laudable, but needs to be made by someone with technical training and/or a degree in chemistry, hydrology or geochemistry to have any real meaning. To show reduced aquatic toxicity, or to show that something poses less risk to water resources and the environment requires scientific training in those areas, and is not credible when asserted by a petroleum geologist or engineer, for example. In addition, the language allowing documentation of less effectiveness or feasibility "to the Department's satisfaction" should either be removed or strengthened to require a showing of technical infeasibility as the only exception. Based upon experience in other states, if not removed, this 'loophole' will quickly swallow the requirement, as industry will not make the effort to provide this certification and will, as a matter of course, simply assert infeasibility.

Response 7036:

See Responses to Comment 3441 regarding Fluid Disposal Plans, Comment 4028 regarding closed-loop systems, and Comment 6941 regarding leak free pits, Comments 4027 and 5788 regarding depth of drilling, and Comment 3438 regarding the alternatives analysis.

Comment 7039:

Section 750-3.6 (a): The following modified language is suggested for this subsection: "Prior to submitting an high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit application, an owner or operator must first develop and submit a Comprehensive Stormwater Pollution Prevention Plan....." This would more accurately reflect the intent that these requirements are part of the application process.

Response 7039:

The revised regulations at 6 NYCRR 750-3 have been re-written. Several changes have been made for organization and/or clarity within the regulations. The revised regulations at 6 NYCRR 750-3 require that a Comprehensive SWPPP be developed and submitted as part of the individual SPDES permit application.

Comment 7042:

Section 750-3.11 (e) (1) (i) As the counterpart to Section 750-3.4 (8), the analysis of the criteria for evaluating chemical alternatives with lower toxicity, etc., must be carried out by someone with advanced scientific training and expertise. An operator cannot simply be allowed to "consider" the criteria; there must be a careful discussion of each criterion, or this requirement becomes meaningless. (i) Given the presence of significant naturally occurring radioactive materials in numerous Marcellus gas well flowback fluids, the requirement that flowback fluids be tested for naturally occurring radioactive materials is support. However, the regulation provides no guidance or numeric standards for when levels of naturally occurring radioactive materials require further action. In addition, the regulations need to require that the naturally occurring radioactive materials testing results be reported to the Department. This section should also require that, if significant levels of naturally occurring radioactive materials are found in flowback fluids, then the well equipment must also be tested for naturally occurring radioactive materials, as naturally occurring radioactive materials may deposit on pipes, tanks, valves and other producing or processing equipment.

Response 7042:

See Responses to Comment 3438 regarding the alternatives analysis, and Comment 3904 regarding testing of flowback and production brine.

Comment 7043:

Section 750-3.12 (b) The reference to 750-3.5(a) may be in error here, as that draft section has no narrative requirements. (1) There is support for the inclusion of a certification requirement by the operators of a proper disposal facility that available capacity exists for the projected amount of flowback and production brine over the projected life of a well. (4) The language in this subsection should be modified to require identification of all chemicals and additives, with the word "products" deleted. (5) This subsection should be broadened to require the posting to a publicly accessible website all the chemicals used and their concentrations, regardless of whether they have a Material Safety Data Sheet or not. The Material Safety Data Sheets have numerous accuracy issues and only cover about half of the chemicals used during hydraulic fracturing, so the regulations need to address those chemicals without Material Safety Data Sheets as well. (d) (4) (i) and (ii) Injection well permits should be placed under Class or Type I wells, due to the need for complete seismic surveys in the area of the well. Recent experiences in Ohio and Arkansas show that the pressurized injection of waste in areas with active fault systems can result in earthquakes. In order to avoid this risk in the Marcellus region, seismic surveys should be required as part of the geotechnical information regarding "the ability of the disposal strata to accept and retain the injected fluid."

Response 7043:

The revised regulations at 6 NYCRR 750-3 have been re-written. Several changes have been made for organization and/or clarity within the regulations. See response to Comment 6966 regarding chemical disclosure. See Response to Comment 5946 regarding deep injection wells and seismicity.

Comment 7044:

750-3.1(b)(9) should read as follows: Chemical constituents means a discrete chemical with its own specific name or identity such as a Chemical Abstracts Service number which is contained within an additive product or which is formed as a consequences of such additive products' use in high-volume hydraulic fracturing operations.

Response 7044:

The definition of "chemical constituents" has not changed in the revised regulations at 6 NYCRR 750-3, as chemical constituents is meant to identify what is utilized in high-volume hydraulic fracturing and not that which is formed as a result of high-volume hydraulic fracturing.

Comment 7046:

Section 750-3.13 (e) The language in this subsection should be modified to require that the records include all chemicals, with no exclusions for confidential business information, or otherwise. If an operator wishes to make a trade secret claim for a specific chemical, the

regulation should require a specific exemption request be made to the Department, with justification for the claim based upon the factors listed for such claims in the federal Emergency Planning and Community Right to Know Act. (h) The regulation should require that the operator sample and test all residential water wells within 3,000 feet of the well pad. Sampling should be required no more than 60 days prior to commencement of operations, and following completion of operations, at intervals of 60 days, 1 year and 5 years, at a minimum.

Response 7046:

Documents and/or information in the Department's possession would be available to the public, subject to the limitations of the Freedom of Information Law. See also Response to Comment 3784 regarding private water well testing and groundwater monitoring.

Comment 7047:

Section 750-3.20 The regulation should be changed to read that the Department shall deny, suspend, or revoke a high-volume hydraulic fracturing State Pollutant Discharge Elimination System permit, if the permittee fails to implement any measures certified or otherwise violates the regulations.

Response 7047:

The revised regulations at 6 NYCRR 750-3 with respect to this comment have been re-written. With respect to denial, suspension or revocation of a SPDES permit, the revised regulations state "The requirements in this section are in addition to those listed in section 750-1.20 of this Part, unless in conflict, superseded or expressly stated otherwise in this section. (b) The department may deny, suspend, or revoke an HVHF SPDES permit if the permittee violates any provision of this Subpart."

Comment 7048:

Section 750-3.21 (f) (4) The regulation should be modified to prohibit high-volume hydraulic fracturing operations within 3,000 feet of private water wells. In addition, this subsection should be made consistent with the high-volume hydraulic fracturing operations prohibition distances listed in Section 750-3.3(b).

Response 7048:

See Response to Comment 2453 regarding setbacks. The setback from private water wells was incorrectly placed in the draft regulations at 6 NYCRR 750-3 specifying where HVHF operations are ineligible for coverage under a general permit. The revised regulations at 6 NYCRR 750-3 correctly include the setback from private water wells within the prohibitions.

Comment 7053:

750-3.1(b)(32): The Department should develop a list of specific constituents for testing as naturally occurring radioactive materials in New York State so that those treating flowback and production water (and resulting residuals) know which naturally occurring radioactive materials parameters to test for.

Response 7053:

See Response to Comment 3904 regarding required analysis for disposal options, including testing for NORM.

Comment 7054:

750-3.1(b)(38): Please clarify what "Product" is intended to address above and beyond Chemical Additive and Chemical Constituent. To the extent "Product" is less inclusive than Chemical Additive and Chemical Constituent use of the broader term is recommended to require as much information as possible regarding the make-up of flowback and production waters.

Response 7054:

The definitions of "product," "chemical additive" and "chemical constituent" are in the revised regulations at 6 NYCRR 750-3. See also Responses to Comment 3904 regarding required analysis for disposal options, and Comment 3781 regarding headworks analyses and the characterization required for such.

Comment 7055:

750-3.4(b)(1): It is not clear whether or not a "legally permissible disposal facility" must be in New York State or could be elsewhere. If not limited to using treatment and/or disposal facilities in New York State (which would be subject to the Department jurisdiction), would it be acceptable to ship waste to another state that would allow disposal by methods not considered legally permissible in New York State? At a minimum, if out-of-state treatment and/or disposal is permitted, it should, at a minimum, be via means which are "legally permissible" in New York State.

Response 7055:

The SPDES regulations apply to New York State permitted facilities. See also Response to Comment 3441 regarding Fluid Disposal Plans.

Comment 7056:

750-3.11(i): All water should be fully and adequately characterized for treatment/disposal purposes (including, but not limited to, naturally occurring radioactive materials) prior to leaving the site.

Response 7056:

See Response to Comment 3441 regarding Fluid Disposal Plans. For disposal at a treatment facility in New York State (e.g., POTW, private industrial treatment facility), the revised regulations at 6 NYCRR 750-3 require that each source of high-volume hydraulic fracturing wastewater be characterized. Additionally, there must be a demonstration that the high-volume hydraulic fracturing wastewater will not cause a violation of the facility's effluent limits or sludge disposal criteria, and will not result in pass through of substances present in high-volume hydraulic fracturing wastewater, or adversely affect the facility's treatment processes. If there is

a change in the characteristics of the high-volume hydraulic fracturing wastewater, then the characterization must be repeated.

Comment 7057:

750-3.12(b)(1) and (b)(2): The method for treatment and/or disposal should be via a Department-approved method, whether or not such treatment or disposal occurs in New York. If facilities providing flowback and production water treatment or disposal services have subsequent compliance issues the permittee should be required to identify/certify as to a new facility(s) to provide such services.

Response 7057:

The SPDES regulations apply to New York State permitted facilities. See Response to Comment 3441 regarding Fluid Disposal Plans.

Comment 7058:

750-3.12(d)(1): Publicly owned treatment works accepting flowback and production water should demonstrate that it has an approved method for residuals disposal. This should specifically include methods to address the potential presence of naturally occurring radioactive materials in such residuals.

Response 7058:

The revised regulations at 6 NYCRR 750-3 state “Prior to being permitted to accept HVHF wastewater the POTW must demonstrate that it has an approved method for transport and disposal of residuals in compliance with Parts 360, 364, 380 and 381 and subdivision 750-2.8(e) of this Part.”

Comment 7059:

750-3.12(d)(2): Privately owned industrial treatment facilities seeking approval to accept flowback and production water should be held to the same level of treatment, oversight, and regulatory compliance as approved publicly owned treatment works.

Response 7059:

The revised regulations at 6 NYCRR 750-3 include requirements for privately owned industrial treatment facilities to accept flowback and production brine. The details of the regulatory requirements for a headworks analysis for POTWs and the treatability analysis for privately owned industrial treatment facilities are included in the revised regulations. For any disposal option, discharge limitations in SPDES permits are developed based upon the more stringent of aquatic, water source, or technology standards and are set at levels to ensure that the discharges do not impair water quality standards, including those protective of wildlife and aquatic habitat.

Comment 7060:

750-3.12(d)(4): The Department should require permittees seeking to use out-of-state deep well injection as a means to dispose of flowback and production water to meet the same substantive requirements as in-state deep well injection disposal.

Response 7060:

The SPDES regulations apply to New York State permitted facilities. See Response to Comment 3441 regarding a Fluid Disposal Plan.

Comment 7061:

750-3.12(d)(6): The Department should consider using the beneficial use determination process to allow for the reuse of treated flowback and production water in the high-volume hydraulic fracturing process, thereby conserving water resources in New York State.

Response 7061:

See Response to Comment 3898 regarding BUDs.

Comment 7062:

Section 750-1.1 (b)(2): This section references sections 750-1.4 and 750-3.4, while it seems the correct sections for prohibited discharges should be 750-1.3 and 750-3.3.

Response 7062:

The revised regulations at 6 NYCRR 750-3 have been re-written. Several changes have been made for organization and/or clarity within the regulations. Several changes have also been made to eliminate redundancy with and/or for consistency with the revised draft regulations at 6 NYCRR Parts 550-556 and 560, where appropriate. See the revised regulations at 6 NYCRR 750-3 for specific changes mentioned in the comment.

Comment 7064:

750-3.11 (k): seems to preclude that high-volume hydraulic fracturing production water could be tested and proven safe to use as a traction agent on roadways. is this the intent, to never allow high-volume hydraulic fracturing production water to be used as roadway brine, no matter how good the quality might be?

Response 7064:

See Response to Comment 3898 regarding BUDs.

Comment 7065:

750-3.12(d)(1)(vi): Implies that a publicly owned treatment work must be able to "remove" total dissolved solids in order to accept high-volume hydraulic fracturing production water. A publicly owned treatment work will precipitate some less desirable ions and dilute the remaining salts, but certainly will not "remove" total dissolved solids. What is the intent of this section, treatment or removal?

Response 7065:

That language has been removed. The revised regulations at 6 NYCRR 750-3 state “The headworks analysis must demonstrate that the HVHF wastewater will not cause a violation of the POTW's effluent limits or sludge disposal criteria, and will not result in pass through of substances present in HVHF wastewater, or adversely affect the POTW's treatment processes.”

Comment 10239:

6 NYCRR 750-3.4(b)(8): Is the absence of a comma after "efficacious" intentional?

Response 10239:

The absence of a comma in this context was not intentional. However, duplication and consistency have been addressed, including cross-references in the revised 6 NYCRR 750-3 to the revised 6 NYCRR Parts 550-556 and 560, where appropriate.

Comment 10240:

6 NYCRR 550.2 and 750-3.2: The Department should include a definition of "downhole operation". It is undefined in the regulation.

Response 10240:

Including a definition of the term “downhole operation” is not appropriate for inclusion in the revised regulations at 6 NYCRR 750-3.

Comment 10241:

6 NYCRR 750-3.210(10): Add ", the National Park Service," after " Office of Parks, Recreation, and Historic Preservation (OPRHP)"

Response 10241:

The Department does not believe it necessary to make the suggested change as the Department deals directly with the New York State OPRHP, and not National Park Service.

Comment 10242:

6 NYCRR 750-3.2(b)(34): This definition does not appear to fully account for the possibility that the owners of the surface and of the mineral estates may differ

Response 10242:

The definition of “owner/operator” has been removed from the revised regulations at 6 NYCRR 750-3 as the definition of “owner or operator” is included in the existing regulations at 6 NYCRR 750-1.2.

Comment 10243:

6 NYCRR Part 750-3.4(b)(1): The precise meaning of "available capacity" should be specified. High-volume hydraulic fracturing well drilling is only one part of the total impact. Well drilling

may necessitate the development of new access roads. These roads are often unpaved and gravel-covered. The voluminous heavy truck traffic pushes stones and gravel into nearby streams and wetlands. There will be extra runoff during storm events. The Department nowhere specifies how this possibly serious contamination of nearby bodies of water will be mitigated by the owner or operator. The Department should also analyze the environmental impacts on forests due to their segmentation if access roads, pipes and drill pads were permitted, and base their analysis on the best available scientific research.

Response 10243:

“Available capacity” in this context is related to the disposal of high-volume hydraulic fracturing wastewater. See Response to Comment 3441 regarding Fluid Disposal Plans.

Comment 10244:

6 NYCRR Part 750-3.11 There should be no risks that contribute to aquatic toxicities being above Maximum Contaminant Levels (MCLs). Merely replacing toxic chemicals by others that are less toxic is unacceptable. One way to achieve acceptable levels (i.e., below MCL levels) is to follow our recommendations that restrict the proximity of drilling wells to sensitive water resources (see 750-3.3(b)).

Response 10244:

With respect to the disposal of high-volume hydraulic fracturing wastewater, discharge limitations in SPDES permits are developed based upon the more stringent of aquatic, water source, or technology standards and are set at levels to ensure that the discharges do not impair water quality standards, including those protective of wildlife and aquatic habitat. See also Responses to Comment 3438 regarding an alternatives analysis, and Comment 2453 regarding setbacks from water resources.

Comment 10245:

6 NYCRR Part 750-3.11 (e)(1)(iii) What is the protocol for cases where Naturally Occurring Radioactive Material (NORM) is above acceptable levels? Will the Department be able to guarantee sufficient manpower to properly oversee these projects? Regulations without proper oversight are meaningless.

Response 10245:

See Responses to Comment 3904 regarding NORM testing, Comment 3441 regarding Fluid Disposal Plans, and Comment 3781 regarding headworks analyses.

Comment 10246:

6 NYCRR Part 750-3.12 The capability of a facility to "properly dispose" of its waste will depend, to large extent, on how that waste is classified. "Hazardous" waste disposal requires more stringent criteria than "industrial" waste disposal. Due to the high levels of radioactivity in many New York State Marcellus shale wells, these wastes should be classified as "hazardous", and disposed of accordingly. Other hazardous waste will be generated when well piping becomes coated and clogged with radioactive brine. How to dispose of these pipes could become a major

problem after a period of use as short as five years. Safe disposal or safe reuse of thousands of feet of radioactive piping should be included. It is of the utmost importance that the disposal of these wastes be performed in such a manner as to not endanger public health and safety. Workers at the site and nearby residents are especially at risk. The Department appears to have no detailed plan if no contingent location has been identified in the permittee's Fluid Disposal Plan. The Department must ensure that the permittee has the means to dispose of hazardous waste, prior to granting a high-volume hydraulic fracturing permit.

Response 10246:

See Responses to Comment 5914 regarding hazardous waste, Comment 3441 regarding Fluid Disposal Plans, and Comment 3904 regarding testing for NORM.

Comment 10247:

6 NYCRR Part 750-3.13 Residential wells should be tested for all the chemicals that will be used during the high-volume hydraulic fracturing process in order to determine whether or not those chemicals are pre-existing in the wells. These wells should be tested at annual intervals for as long as the Department deems necessary. Wells up to a distance of 5,000 feet from the edge of the well pad should be tested. The costs of the testing should be shared among the drilling company, the individual well-owner, and the Department.

Response 10247:

See Response to Comment 3784 regarding private water well testing and groundwater monitoring.

Comment 10248:

6 NYCRR Part 750-3: The provisions for disposal at privately owned industrial treatment facilities are of particular concern. These facilities would be regulated as industrial wastewater treatment plants, which must obtain a State Pollutant Discharge Elimination System (SPDES) permit for direct discharges of treated wastewater but are generally more lightly regulated than publicly-owned treatment works (POTWs) (for example, pursuant to Part 650, operators of wastewater treatment plants are not required to meet certification requirements). The regulations of Environmental Protection Agency and the Department are based on a model that recognizes that Publicly-Owned Treatment Works aggregate waste from numerous sources but generally regulates industrial permittees only as single-site waste producers. As a result, several potentially important protections for groundwater and surface waters in Publicly-Owned Treatment Works regulations may not be addressed for private facilities. These include: standards for how waste fluids must be stored prior to treatment potentially, without explicit regulatory provisions private treatment sites could become long-term storage sites for waste fluids in tank farms or even open pits; insufficient requirements for secondary containment and spill prevention; certain locational issues (such as location within 100-year floodplains): requiring well operators to submit a contingency plan if a private treatment plant is the primary fluid disposal option; and an influent radium limit for private treatment plants. Beyond this, the proposed rules appear to create a major loophole for privately owned offsite high-volume hydraulic fracturing wastewater treatment facilities constructed specifically for the treatment and disposal of wastewater, which treat flowback water and production brine for reuse. Such facilities may or may not have an

associated discharge of wastewater to the waters of the State. Per proposed Section 750-3.12(d)(2)(iv), those that do not include such discharges "do not require a State Pollutant Discharge Elimination System (SPDES) permit, unless other ancillary discharges are generated as part of the treatment system." This language would appear to preclude the need for any individual State Pollutant Discharge Elimination System (SPDES) permit or for any high-volume hydraulic fracturing State Pollutant Discharge Elimination System (SPDES) general permit. Without any permit requirement, it is not clear what if any operational requirements will apply to a "reuse facility," or how and by whom such requirements would be enforced. For example, the proposed rules specify that the facility must demonstrate an approved method for residuals disposal but with no permit and therefore no permit-issuing official, it is unclear when and to whom this demonstration must be made. Also, without any permit proceeding, the requirements of the Department's environmental justice policy would not apply to such facilities. The proposed rules also fail to define or otherwise limit what is intended by "recycling" or "reuse" of treated water from private off-site or on-site facilities. Furthermore, the proposal does not clearly address whether a service company providing on-site recycling is bound by the same regulatory standards as the well owner/operator. The Department should ensure that all private treatment facilities handling high-volume hydraulic fracturing are regulated in a manner which is consistent with mitigation measures deemed necessary for drilling sites and Publicly-Owned Treatment Works and protect public health and the environment. In addition, consideration should also be given to requiring such facilities to provide financial surety bonds.

Response 10248:

The revised regulations at 6 NYCRR 750-3 with respect to disposal options (e.g., POTWs, privately owned industrial treatment facilities, and recycling) have been re-written. Several changes have been made for organization and/or clarity within the regulations. See the revised regulations at 6 NYCRR 750-3 for specific changes mentioned in the comment. See also Response to Comment 7059 regarding POTWs and privately owned industrial treatment facilities.

Comment 5928:

If during "the projected life of the well" the operator wants to change the approved "fluid disposal plan" including possibly changing the "proper disposal facility", the regulations should address how this request and approval process will proceed (whether it will be similar, or a repetition of the original approval process). This process should be streamlined, since the review by the Department of the properties of the flowback and production waters has already been done.

Response 5928:

See response to Comment 3441 regarding a Fluid Disposal Plan.

Comment 2492:

[6 NYCRR Part 750-3.11(e)(1)(i)] The Owner or Operator should not be allowed to self regulate such an important factor as the chemical components in the high-volume hydraulic fracturing water supply. A board of independent experts or regulators should decide what chemicals, if any, should be allowed.

Response 2492:

See Response to Comment 3438 regarding the alternatives analysis.

Comment 3160:

Best Management Practices (BMPs) are stated as mandatory control measures. This approach is inconsistent with the typical usage of BMPs as recommended measures and would foreclose use of more efficient or protective alternative measures. The proposed regulations and related requirements should be revised to utilize BMPs in their intended form as recommended measures to be utilized where appropriate, not as mandatory, inflexible requirements.

Response 3160:

The revised regulations at 6 NYCRR 750-3 state “The owner or operator must keep the HVHF SWPPP current so that at all times it accurately documents the applicable BMPs for HVHF operations.” Specific BMP requirements will be contained in the stormwater SPDES permit.

Comment 4322:

Section 750-3.11(d)(1), (3), and (4) of the Proposed Express Terms 6 NYCRR Part 750.3: If such responsibility is accepted by a municipality, private owner, or institution, the operating company should be required to make a payment to the entity of sufficient amount so that the earnings from the principal will fund the maintenance of the stormwater management practice indefinitely. Some municipalities and homeowner associations now accept stormwater practices from developers only to find out later that they cannot afford to do the proper maintenance on the practice. This has been an increasing problem and has been mentioned several times at regional meetings by Department personnel.

Response 4322:

See Response to Comment 6971 regarding operation and maintenance of stormwater practices.

**91: Part 52, Use of State Lands Administered by the
Division of Fish, Wildlife and Marine Resources**

Comment 2871:

Because units and areas of the National Park System have nationally significant resources and ownership rights vary, the National Park Service requests that National Park Service lands be offered the same protections as State-owned lands in New York. The proposed revisions to 6 NYCRR 52.3 and to 190.8(ag), for example, could be additionally revised to read as follows: Notwithstanding any other provision of this title, surface disturbance associated with the drilling of a natural gas well subject to Part 560 of this Title on State lands or on lands under the management or control of the United States National Park Service subject to the civil jurisdiction of the state of New York is prohibited and no permit shall be issued authorizing such activity. This prohibition shall apply to any pre-existing leases and any new leases for oil and gas development on State lands and on lands under the management or control of the United States

National Park Service that are subject to the civil jurisdiction of the state of New York. This prohibition, however, does not extend to access to subsurface resources under State or National Park lands from adjacent private areas. This prohibition may be waived where the Department finds that it would effectuate a taking of valid property interests in oil and gas.

Response 2871:

See response to comment 2872 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. In addition, the draft SGEIS provides for enhanced site-specific mitigation with respect to proposed well locations, including those on National Park Service lands. Section 7.9 of the SGEIS would require a site-specific analysis to mitigate impacts on visual resources or visually sensitive areas, which would be developed in accordance with the Department's Program Policy DEP-00-2, Assessing and Mitigating Visual Impacts. This policy would be implemented as part of the state permitting process for specific applications to address the visual impacts of high-volume hydraulic fracturing projects on scenic areas. Program Policy DEP-00-2 is designed to complement the state permitting process for specific applications, which addresses all well pads and other activities associated with high-volume hydraulic fracturing, and includes a process for identifying and incorporating the concerns that local jurisdictions may express for local scenic areas. This requirement would provide meaningful site-specific mitigation measures to reduce or eliminate visual impacts on National Park Service lands.

Comment 5759:

6 NYCRR 25.6: Bans on Drilling in State-Owned Land is not adequate. While New York State will prohibit well pads above ground they will allow drilling under these same lands. This should not be allowable. Well pads should be set back far enough from New York State-owned lands to prevent drilling under these lands (one mile to several miles). The ban on drilling should also be extended to New York state preservation land.

Response 5759:

See response to comments 5726 and 5746 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. With respect to Forest Preserve lands, the New York State Constitution already prohibits leasing of these lands, which not only prohibits surface disturbance, but also prohibits the leasing or alienation of subsurface lands. Therefore, a regulatory ban on drilling on these lands is unnecessary.

Comment 5761:

6 NYCRR 52.3: The prohibition of any surface activity related to gas drilling on any New York State lands should remain in the regulations, and should be expanded to include seismic testing.

Response 5761:

The Department agrees that the prohibition of surface disturbances associated with high-volume hydraulic fracturing should be codified by regulation. Parts 6 NYCRR 52 and 190 prohibit such

activity. With respect to seismic testing, guidelines for seismic testing on Department administered state-owned land are accessible on the Department's website at <http://www.dec.ny.gov/lands/64567.html> for reference. These guidelines would minimize adverse environmental impacts caused by seismic testing and would ensure that such testing would be undertaken in a manner so as not to be inconsistent with the purposes for which these State lands were acquired. See response to comment 5871.

Comment 5770:

6 NYCRR 52.3: Since the prohibition does not protect subsurface resources located under New York State-owned lands, New York and its citizens should be compensated for removal of subsurface resources located under these Lands. The Department should assess the impacts on these resources.

Response 5770:

The State would be compensated for the extraction of mineral resources from under State lands, through leasing subsurface access rights and royalty payments.

Comment 5797:

The Department should prohibit horizontal hydraulic fracturing next to or under New York State controlled bodies of water administered by the Division of Fish, Wildlife, and Marine Services. Drilling gas wells is a textbook way to introduce methane into such bodies of water. As written, the proposed regulations would allow horizontal shale gas wells to be drilled under New York State lakes, which include all of the lakes in the state except the New York City reservoirs. This means that a horizontal shale well could be drilled under Lake Cayuga, Lake Otsego etc., so long as the well pad is setback 2,000 feet away from the lake shore. Since horizontal shale wells can run laterally more than 2,000 feet, this would effectively enable a gas well to go under the lake bed; which would make it highly likely that the lake water would be gassed with methane and polluted with runoff from the well pad.

Response 5797:

See response to Comments 5726 and 5746 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. With respect to waterbodies, see Response to Comments 2453, 3855 and 5687 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**.

Comment 5858:

The Departments proposed regulatory changes to 6 NYCRR 190 and 52 are hardly adequate to protect sensitive fish and wildlife habitats. Best Management Practices are not meaningful in that such practices are not defined in the regulations, and gas operators will have little guidance to

prevent or minimize impacts. The Department is urged to define these Best Management Practices in the regulation.

Response 5858:

The prohibition of surface disturbances associated with high-volume hydraulic fracturing, codified in 6 NYCRR Parts 52 and 190, is not the only measure that will protect sensitive habitats. The Department does not agree that the draft SGEIS fails to adequately address potential significant adverse impacts to sensitive fish and wildlife habitats. Indeed, the Department recognized concerns regarding potential unmitigated impacts to terrestrial habitats and included requirements in Section 7.4 of the SGEIS to protect habitats of utmost concern in New York, namely large blocks of forests and grasslands that support declining species. Section 7.4.1.2 includes measures designed to prevent or minimize impacts from fragmentation by preserving existing large blocks of habitats identified in Grassland and Forest Focus Areas, including such areas that are privately-owned. In addition, best management practices are included in Section 7.4.1.1 to reduce impacts at individual well sites. Moreover, many of the BMPs and mitigation measures contained in the SGEIS would be enforceable when included as permit conditions. These mitigation measures along with the regulatory prohibition of surface disturbance on Department administered state-owned lands, and the constitutional protections applicable to Forest Preserve lands, will further protect and mitigate habitat impacts (See section 7.4.4).

Comment 5864:

It is preferred that hydraulic fracturing not be prohibited on New York State-owned lands and would be a meaningful compromise. The compromise may lead to a successful outcome for those strongly in favor of hydraulic fracturing in the Marcellus Shale resource.

Response 5864:

The type and level of activity from surface disturbance associated with high-volume hydraulic fracturing is likely to lead to impacts that would be inconsistent with the provisions of the ECL governing these lands. See response to Comment 3763 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. However, because the Department has determined that it is not necessary to prohibit subsurface access to mineral resources underneath State lands from adjacent private lands (Parts 52 and 190 would only prohibit surface disturbances associated with high-volume hydraulic fracturing), the State would be able to realize revenue from the leasing of subsurface rights for the extraction of mineral deposits situated under State lands that can be reached by subsurface wellbores. See response to Comment 5746 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**.

Comment 5871:

The Department should amend Parts 52 and 190 of 6 NYCRR to prohibit the leasing of New York State-owned land for surface and subsurface activities associated with high-volume

hydraulic fracturing. This prohibition would expressly prevent the Department from leasing New York State land to allow subsurface access to state owned natural gas and other mineral rights from locations adjacent to state owned land. High-volume hydraulic fracturing is inconsistent with the state's policies of forest and wildlife stewardship as set forth in Article XIV section 3 of the State Constitution. Subsurface drilling would deposit hazardous wastes (comprised of the high-volume hydraulic fracturing chemicals) permanently on State lands. The potential exists for these wastes to contaminate surface resources. That potential is increased by a number of factors which include migration through existing or future fissures created by seismic activity, human or mechanical error or abandoned wells acting as conduits to the surface.

Response 5871:

See response to Comments 5726 and 5746 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. With respect to migration of drilling fluids, a summary of potential seismicity impacts is included in Section 6.13.2 of the draft SGEIS. This section of the document characterizes the risks as relatively low level and explains why there is essentially no increased risk to the public, infrastructure or natural resources from induced seismicity related to hydraulic fracturing. Seismic monitoring systems are already in place for New York and are described in Section 4.5.5. There are forty seismograph locations located in NY and six surrounding states (CT, DE, MD, NJ, PA, and VT). In NY, there are sites in Albany, NYC, Cobleskill, Lake Ozonia, Binghamton, and two secondary schools, three colleges, and 15 universities across the states. Finally, Section 8.4 of the Final SGEIS concludes that adequate well design prevents contact between fracturing fluids and fresh groundwater sources, and text in Chapter 6 along with Appendix 11 on subsurface fluid mobility explains why groundwater contamination by migration of fracturing fluid is not a reasonably foreseeable impact. Chapter 7, the Proposed Supplementary Permit Conditions (SGEIS Appendix 10), and the proposed regulations - Parts 750-3 and 560 - also include a number of mitigation measures that will be used to prevent and contain surface spills.

Comment 5915:

The Departments grounds for prohibiting drilling in New York State Forests, which are based on the likelihood that fish and game will be consuming pollutants from the process and be physically displaced from their habitats, is unacceptable.

Response 5915:

The Department respectfully disagrees. The proposed prohibition of surface disturbances associated with high-volume hydraulic fracturing is consistent with several provisions of the State Constitution and the ECL related to acquiring lands for forest and wildlife conservation, protecting watersheds, preserving unique ecological communities, and providing recreational opportunities to New Yorkers. As discussed in Section 6.4.4 of the draft SGEIS, the anticipated surface impacts relating to forest fragmentation, increased truck traffic, noise and light pollution could degrade wildlife habitat and public recreation experiences of New Yorkers. For example, the drilling and trucking activities disturb the tranquility found on these lands and can cause significant noise impacts. Also, many State forest roads serve as recreational trails for bicyclists,

horseback riders, snowmobilers and others. The level of truck traffic associated with high volume hydraulic fracturing could present potential safety issues, and could significantly degrade the experience for users of these roads. See response to Comment 5934.

Comment 5924:

The Department should prohibit high-volume hydraulic fracturing gas drilling and drilling infrastructure on all state parks, state forests and wildlife management areas. Neither New York State, nor any agency of the state should be allowed to lease the oil and gas rights under state parks and Department managed public lands. The Department's proposed regulations prohibiting gas drilling activities on public lands should also be expanded to prohibit gas pipeline networks, pipeline access roads and compressor stations. The unnecessary leasing of state-owned gas rights will encourage the routing of pipelines over state lands and promote more intensive gas drilling on adjoining private forests. In addition, there should be at least a 2,000 foot buffer (measured from the end of a potential horizontal fracture) around state lands.

Response 5924:

See responses to Comments 2872 and 5726 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests.** . With respect to pipelines, the Department disagrees that an absolute prohibition is necessary to ensure that these State-owned lands are managed in a consistent manner and purposes for which they were acquired. Specifically, pipelines will be permitted on State-owned lands only if certain provisions of the ECL are met, and in compliance with a tract assessment in an approved Unit Management Plan. In this regard, any activity proposed on State-owned land must be consistent with the ECL, the purposes for which the land was acquired, as well as the Department's Strategic Plan for State Forest Management. A determination to permit this activity would also be subject to its own site-specific review. Such safeguards, along with the prohibition of other surface activities would minimize adverse environmental impacts to the maximum extent practicable.

Comment 5934:

New York State land should be for providing recreational use for its residents and wildlife habitat and never for commercial purposes.

Response 5934:

With respect to commercial activities other than natural gas extraction through the process of high-volume hydraulic fracturing, the comment is beyond the scope of this rule making proposal. However, as more fully discussed in the Regulatory Impact Statement, various funding sources, the ECL, and the New York State Constitution govern public use and the Department's management of State lands under its jurisdiction. For the most part the Department has acquired land for public recreation and wildlife habitat; however, the ECL authorizes the Department to manage certain land classifications such as reforestation areas for commercial purposes such as timber production and oil and gas development to the extent that such uses do not interfere with public recreation.

Comment 5938:

We recommend that consideration be given in the proposed regulations to activities on adjoining lands which could indirectly affect the State-owned lands. Particularly, disturbance from lighting, noise, pollution, erosion, and construction activities should be included in the Department's analysis of potential impacts when permits are being reviewed for adjacent lands. Likewise, the Department should analyze the potential disturbance and degradation of non-State land such as National Parks, National Wildlife Refuges, and Natural Areas, etc., which may also be affected by adjacent drilling activities. Of particular concern is the potential for spills, leaks, and runoff of fracturing fluids and chemicals when drilling is occurring upslope from protected lands. A sufficient buffer should be put in place around these areas. We recommend the Department analyze fluid spill and release data from other states (Pennsylvania, Wyoming, North Dakota, Texas, etc.) which have had high-volume hydraulic fracturing of gas wells to determine the maximum distance at which spills and releases have had an effect on aquatic habitat. Buffer distances could be adjusted for topographic features, roads, and other factors which may affect fluid transport.

Response 5938:

See response to Comment 2871 and comments 5726 and 5746 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. See also Response to Comment 2453 in Category **90: Part 750, State Pollutant Discharge Elimination System (SPDES) Permits including permits for High Volume Hydraulic Fracturing Operations**.

Comment 5939:

The proposed 6 NYCRR Part 52 conflict[s] with the States clearly articulated policy objectives to promote the ultimate recovery of the resource and prevent waste. Indeed, this policy objective is articulated in two separate state statutes. New York Environmental Conservation Law 23-0301 declares that it is in the public interest to provide for the operation and development of oil and gas properties in such a manner that a greater ultimate recovery of oil and gas may be had, and that the correlative rights of all owners and the rights of all persons including landowners and the general public may be fully protected. Likewise, New York Energy Law 3-101(5) declares that it is part of the energy policy of New York State to foster, encourage and promote the prudent development and wise use of all indigenous state energy resources including, but not limited to on-shore oil and natural gas[and] natural gas from Devonian shale formations. In addition Article 23, Title 11 specifically authorizes the Department to lease state lands for natural gas development. Given the foregoing, Independent Oil and Gas Association recommends that Part 52 be deleted as it collectively eliminates the efficient development of the States indigenous energy resources. Alternatively, Independent Oil and Gas Association recommends that 52.3 be amended as proposed in Exhibit A (A copy of the Proposed Express Terms 6 NYCRR Parts 52 and 190 Use of State Lands Administered by the Division of Fish, Wildlife and Marine Resources and Use of State Lands; Proposed Express Terms 6 NYCRR Parts 550 through 556 and 560 Subchapter B: Mineral Resources; and Proposed Express Terms 6 NYCRR Parts 750.1 and 750.3 Obtaining a State Pollutant Discharge Elimination System Permit and high-volume

hydraulic fracturing with Independent Oil and Gas Association of new York's proposed changes submitted in track changes) to only prohibit development on State lands in the Forest Preserve.

Response 5939:

Other sections of State law require the State to balance the development of mineral resources with the protection of natural resources. The proposed regulations accomplish this balance by allowing access to the mineral resources underneath State lands while also protecting the natural resources found on the surface of those lands and the use of those lands by the public. See response to Comment 5934.

Comment 5968:

Part 52.3 and Part 190, Use of State Lands: It is agreed that the added provision that surface disturbance associated with the drilling of a natural gas well subject to Part 560 on State owned lands is prohibited and no permit shall be issued authorizing such activity.

Response 5968:

Comment noted.

Comment 5969:

It is commendable that drilling will not be permitted on lands under the care of the Division of Fish, Wildlife, and Marine Resources. However, fish and game do not remain within the boundaries of those areas.

Response 5969:

The flora and fauna of the State would be protected not only by the proposed regulations, but also by the mitigation measures in the draft SGEIS. See response to Comment 5858.

Comment 5972:

A confusing section of the regulations concerns State Lands. The amendment of Part 52: The use of State Lands prohibits drilling on lands administered by the Division of Fish, Wildlife and Marine Resources is clear. However, the protection of other state lands administered by the Division of State Lands and Forest, Division of Operations and the State Parklands is much less clear. These amendments are clearly not compliant with the intent of State Administrative Procedures Act. Similarly, even though the rdSGEIS discusses at some length the avoidance of drilling in state parks (Sections 1.7.14 and 2.4.12.2), the regulations do not address banning such drilling in State Parks. The Department is the state agency responsible for protecting the environment of New York State against the effects of drilling for gas and oil and, therefore, these regulations should have a comprehensive statement regarding all state lands in the regulations set out for both the drillers and the monitors. If permits will not be allowed in lands administered by

the Department and in State Parks, then that should be stated clearly in these regulations. This should not be a parochial, departmental set of regulations.

Response 5972:

The Department has determined that the government entities having jurisdiction over other publicly-owned lands should decide whether or not to prohibit the use of high-volume hydraulic fracturing on those lands. The government entity with jurisdiction over their public lands has the authority to make and enforce such a determination, and they would be most familiar with the management needs, public purposes, and the acquisition funding relating to such public lands. Should other government agencies adopt regulations prohibiting high-volume hydraulic fracturing on lands under their jurisdiction, the State's permitting process would recognize such prohibitions. See response to Comment 2872 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**. Furthermore, OPRHP currently has a policy that would prohibit surface activity associated with high-volume hydraulic fracturing on New York State park lands.

Comment 6804:

Part 52.3 should be revised to state: Notwithstanding any other provision of this title, surface disturbance associated with the drilling of a natural gas well subject to Part 560 of this Title on State lands is prohibited within the Forest Preserve and no permit shall be issued authorizing such activity. This prohibition shall apply to any pre-existing leases and any new leases issued for oil and gas development on State lands in the Forest Preserve. Nothing herein shall prohibit subsurface access to subsurface resources located under State lands from adjacent private areas or surface disturbance on State forest and Wildlife Management areas.

Response 6804:

Such a provision is unnecessary. The New York State Constitution already prohibits leasing Forest Preserve lands, which not only prohibits surface disturbance, but also prohibits the leasing or alienation of subsurface lands. See response to Comment 5759.

Comment 6052:

High-Volume Hydraulic Fracturing Proposed Regulations, 6 NYCRR Parts 52 and 190: The proposed regulations should include protection of State lands and surface waters from contamination of off-site hydraulic fracturing operations or transportation of waste products. No flow-back water or chemicals used in the fracturing process should be allowed to reach rivers, creeks streams, ponds, etc. There also needs to be an established setback of hydraulic fracturing operations from State land property. A recommended minimum setback is 2,640 feet from State and Federal Lands (such as the Finger Lakes National Forest on the east side of Seneca Lake) and waterways.

Response 6052:

The comment is outside the scope of 6 NYCRR Parts 52 and 190, which address surface disturbances associated with high-volume hydraulic fracturing on Department administered State-owned lands. However, Sections 6.1.3 and 6.1.5 of the draft SGEIS recognize the potential impacts to surface water bodies or groundwater from an uncontained and unmitigated surface spill, leak or release of fluids, containing chemicals or petroleum, from high-volume hydraulic fracturing well pad operations. Specifically, accidents, construction activity, stormwater runoff from high-volume hydraulic fracturing, or improper chemical, petroleum or wastewater handling, could result in a degradation of drinking water supplies. See Sections 6.1.3.4 and 6.1.5 of the SGEIS. The SGEIS specifically recognizes that partial mitigation would be unacceptable due to the potential consequences posed by such impacts, and therefore, in addition to the mitigation measures identified to prevent spills and potential improper runoff of wastewater, also recommends the imposition of a range of setbacks - depending on the nature of the drinking water supply - to conservatively add an additional layer of protection to these drinking water supplies from significant adverse impacts from potential surface spills or other releases. Section 7.1.11 of the SGEIS; see Section 7.1.5 of the SGEIS. This broad range of protective measures, both spill prevention and setbacks, taken together, provide an enhanced level of mitigation to prevent potential significant adverse impacts to waterbodies. See response to Comment 5871. With respect to setbacks from State and Federal lands, see response to Comments 2871 and 5726 in Category **92: Part 190, State Lands administered by the Division of Lands and Forests**.

92: Part 190, State Lands administered by the Division of Lands and Forests

Comment 2872:

Because units and areas of the National Park System have nationally significant resources and ownership rights vary, the National Park Service (NPS) requests that NPS lands be offered the same protections as State-owned lands in New York. The proposed revisions to 6 NYCRR 52.3 and to 190.8(ag), for example, could be additionally revised to read as follows: Notwithstanding any other provision of this title, surface disturbance associated with the drilling of a natural gas well subject to Part 560 of this Title on State lands or on lands under the management or control of the U.S. National Park Service subject to the civil jurisdiction of the state of New York is prohibited and no permit shall be issued authorizing such activity. This prohibition shall apply to any pre-existing leases and any new leases for oil and gas development on State lands and on lands under the management or control of the U.S. National Park Service that are subject to the civil jurisdiction of the state of New York. This prohibition, however, does not extend to access to subsurface resources under State or National Park lands from adjacent private areas. This prohibition may be waived where the Department finds that it would effectuate a taking of valid property interests in oil and gas.

Response 2872:

The Department has determined that the government entities having jurisdiction over other publicly-owned lands should decide whether or not to prohibit the use of high-volume hydraulic fracturing on the surface of those lands. The government entity with jurisdiction over their public lands has the authority to make and enforce such a determination, and would be most familiar with the management needs, public purposes, and the acquisition funding relating to

such public lands. Should other government agencies adopt regulations prohibiting high-volume hydraulic fracturing on the surface of lands under their jurisdiction, the State's permitting process would recognize such prohibitions.

Comment 3763:

6 NYCRR Part 190 Use of State Lands - The proposed revision to 190.8 prohibit surface disturbance associated with the drilling of natural gas wells where high-volume hydraulic fracturing is planned. As the drilling of all oil and gas wells involve surface disturbance to some extent in the construction of access roads, well pads, and other associated facilities with the corresponding adverse impact on forest habitats and public recreational use (see pages 6-90 through 6-91 of the rdSGEIS), all natural gas wells should be covered by this restriction.

Response 3763:

The draft SGEIS details how potential adverse impacts from high-volume hydraulic fracturing drilling activities are significantly greater than those impacts resulting from "traditional" non-high-volume hydraulic fracturing drilling activities. For example, high-volume hydraulic fracturing activities disturb significantly larger land areas for a greater period of time. It is also anticipated that there would be a significant increase in truck traffic compared to "traditional" drilling activities. Historically, the level of disturbance from "traditional" drilling technology has been minimal, allowing State lands to be managed for the purposes for which they were acquired, as required under Section 9-0507 of the ECL. The type and level of activity associated with high-volume hydraulic fracturing is likely to lead to a significant increase in acreage that would be converted to non-forest use in the form of well pads and roads, and the concomitant nighttime lighting, noise and other impacts would collectively be inconsistent with the provisions of the ECL governing these lands.

Comment 5726:

The Department should prohibit high-volume hydraulic fracturing and drilling infrastructure on all state lands, including, parks, state forests and wildlife management areas. Some suggest all State lands should be protected by a no-drill buffer (4 mile).

Response 5726:

The Department's regulatory prohibition on surface disturbances associated with high-volume hydraulic fracturing on reforestation lands and wildlife management areas is based in part upon the unique legislative and legal constraints that apply to these State-owned lands. See response to Comment 2872. Private lands buffering State-owned lands are not subject to the same legal constraints and legislative protections afforded to these State-owned lands. Despite this, the Department recognized concerns regarding potential unmitigated impacts to terrestrial habitats and permit conditions may be imposed pursuant to the draft SGEIS to protect habitats of utmost concern in New York, namely large blocks of forests and grasslands that support declining species that may be located on buffer lands identified in this comment. Furthermore, OPRHP currently has a policy that would prohibit surface activity associated with high-volume hydraulic

fracturing on New York State park lands and currently does not permit any drilling on its lands, with the exception of Allegheny State Park.

Comment 5731:

The proposed regulation needs to be clarified. Proposed additions or changes to the proposed regulations are as follows: Paragraphs (14) and (15) of subdivision 190.1(b) of 6 NYCRR are renumbered as (15) and (16) and a new paragraph (14) added to read as follows: Subdivision 190.1(b) refers to fires. The appropriate subdivision is 190.0. (14) 'Surface disturbance' shall mean any actions taken to alter the existing vegetation or soil of a well site or pipelines, such as clearing, grading, filling, and excavating. A new subdivision (ag) should be added to section 190.8 of 6 NYCRR to read as follows: (ag) Notwithstanding any other provision of this title, surface disturbance associated with the drilling of a natural gas well and pipelines subject to Part 560 of this Title on State owned lands is prohibited and no permit shall be issued authorizing such activity. This prohibition shall apply to any pre-existing and new leases issued for oil and gas development on State owned lands. This prohibition shall not apply to subsurface access to subsurface resources located under State owned lands from adjacent private areas.

Response 5731:

The Department agrees that there was a typographical error in the citation to proposed section 190.1(b)(14), which has been corrected to section 190.0(b)(14) of 6 NYCRR in the revised draft regulations. With respect to pipelines, the Department does not believe that an absolute prohibition is necessary to ensure that these State-owned lands are managed in a consistent manner and purposes for which they are managed and were acquired. Specifically, pipelines will be permitted on State-owned lands only if certain provisions of the ECL are met, and in compliance with a tract assessment in an approved Unit Management Plan. In this regard, any activity proposed on State-owned land must be consistent with the ECL, the purposes for which the land was acquired, as well as the Department's Strategic Plan for State Forest Management. A determination to permit this activity would also be subject to its own site-specific review. Such safeguards, along with the prohibition of other surface activities would minimize adverse environmental impacts to the maximum extent practicable.

Comment 5732:

The Department should provide scientific justification for its decision to ban hydraulic fracturing on state lands.

Response 5732:

As stated in the Regulatory Impact Statement (RIS), "this prohibition is consistent with several provisions of the State Constitution and the ECL related to acquiring lands for forest and wildlife conservation, protecting watersheds, preserving unique ecological communities, and providing recreational opportunities to New Yorkers." As discussed in Section 6.4.4 of the draft SGEIS, the anticipated surface impacts relating to forest fragmentation, increased truck traffic, noise and light pollution could degrade wildlife habitat and public recreation experiences of New Yorkers.

For example, the drilling and trucking activities disturb the tranquility found on these lands and can cause significant noise and visual impacts. Also, many State forest roads serve as recreational trails for bicyclists, horseback riders, snowmobilers and others. The level of truck traffic associated with high-volume hydraulic fracturing presents potential safety issues, and would significantly degrade the experience for users of these roads. See response to Comment 5724.

Comment 5741:

The Department should extend its ban on high-volume hydraulic fracturing to the Finger Lakes National Forest.

Response 5741:

See response to Comment 2872.

Comment 5746:

The Department should prohibit access to subsurface resources located under State owned lands from adjacent private areas. The drilling of horizontal laterals should not be allowed under state forests from outside state forests.

Response 5746:

The prohibition of surface disturbances associated with high-volume hydraulic fracturing on Department administered State-owned lands not only considered the environmental impacts, but also the unique legislative and legal constraints that apply to these State-owned lands. Private lands buffering State-owned lands are not subject to the same legal constraints and legislative protections afforded to these State-owned lands. Despite this, the Department recognized concerns regarding potential unmitigated impacts to terrestrial habitats and included requirements in Section 7.4.1 of the draft SGEIS to protect habitats of utmost concern in New York, namely large blocks of forests and grasslands that support declining species. Section 7.4.1.2 includes measures designed to prevent or minimize impacts from fragmentation by preserving existing large blocks of habitats identified in Grassland and Forest Focus Areas, including such areas that are privately-owned. In addition, best management practices are included in Section 7.4.1.1 to reduce impacts at individual well sites. In consideration of these measures, the Department has determined that it is not necessary to prohibit subsurface access to mineral resources underneath State lands from adjacent private lands, nor would such access be inconsistent with the purposes for which these State lands were acquired. Furthermore, the shale formations subject to high volume hydraulic fracturing have limited permeability horizontally and minimal permeability vertically which help to confine fluids to the formation and prevent vertical migration, thus hydraulically fractured shale would not be expected to allow the fracturing fluid to migrate from the target formation. Finally, the State will be able to realize revenue from the leasing of subsurface rights for the extraction of mineral deposits situated under State lands that can be reached by subsurface wellbores.

Comment 5752:

The Department's prohibition of high-volume hydraulic fracturing on State lands should be expanded to include all public lands.

Response 5752:

See response to Comment 2872.

Comment 5768:

State Lands have previously been leased for Oil & Gas exploration, drilling, and extraction and this practice should be allowed going forward.

Response 5768:

The impacts of high-volume hydraulic fracturing, while similar in nature to those of traditional oil and gas extraction methods, differs significantly in the level of those impacts. See response to comment 3763.

Comment 5783:

Proposed regulatory changes to 6 NYCRR Parts 190 and 52 are not adequate to protect sensitive fish and wildlife habitats. Best Management Practices must be defined by regulation to insure gas operators will have guidance to prevent or minimize impacts.

Response 5783:

See response to Comment 5746.

Comment 5796:

The proposed amendments to Part 190 conflict with the States clearly articulated policy objectives to promote the ultimate recovery of the resource and prevent waste. Indeed, this policy objective is articulated in two separate state statutes. New York Environmental Conservation Law (ECL) 23-0301 declares that it is in the public interest to provide for the operation and development of oil and gas properties in such a manner that a greater ultimate recovery of oil and gas may be had, and that the correlative rights of all owners and the rights of all persons including landowners and the general public may be fully protected. Likewise, New York Energy Law 3-101(5) declares that it is part of the energy policy of New York State to foster, encourage and promote the prudent development and wise use of all indigenous state energy resources including, but not limited to on-shore oil and natural gas[and] natural gas from Devonian shale formations. In addition Article 23, Title 11 specifically authorizes the Department to lease state lands for natural gas development. Given the foregoing, the Independent Oil and Gas Association of New York (IOGA) recommends that the proposed regulatory amendments to Part 190 be deleted as they collectively eliminate the efficient

development of the State's indigenous energy resources. Alternatively, IOGA recommends that 190.8(ag) be amended as proposed in Exhibit A (A copy of the Proposed Express Terms 6 NYCRR Parts 52 and 190 Use of State Lands Administered by the Division of Fish, Wildlife and Marine Resources and Use of State Lands; Proposed Express Terms 6 NYCRR Parts 550 through 556 and 560 Subchapter B: Mineral Resources; and Proposed Express Terms 6 NYCRR Parts 750.1 and 750.3 Obtaining a State Pollution Discharge Elimination System (SPDES) Permit and High-Volume Hydro Fracturing with IOGA of new York's proposed changes submitted in track changes) to only prohibit development on State lands in the Forest Preserve.

Response 5796:

Other sections of State law require the State to balance the development of mineral resources with the protection of natural resources. The proposed regulations accomplish this balance by allowing access to the mineral resources underneath State lands while also protecting the natural resources found on the surface of those lands and the use of those lands by the public. See response to comment 5746.

Comment 6796:

Part 190 should be revised to state: A new subdivision (ag) is added to section 190.8 of 6 NYCRR to read as follows: (ag) Notwithstanding any other provision of this title, surface disturbance associated with the drilling of a natural gas well subject to Part 560 of this Title on State owned lands in the Forest Preserve is prohibited and no permit shall be issued authorizing such activity. This prohibition shall apply to any pre-existing and new leases issued for oil and gas development on State owned lands in the Forest Preserve. This prohibition shall not apply to subsurface access to subsurface resources located under State owned lands from adjacent private areas or surface disturbance on State forest and Wildlife Management areas.

Response 6796:

The suggested addition to the regulations is unnecessary, because lands comprising the Forest Preserve are prohibited from being leased under Article XIV of the NYS Constitution.

Comment 6046:

High-Volume Hydraulic Fracturing Proposed Regulations, 6 NYCRR Parts 52 and 190: The proposed regulations should include a ban on land spreading or injecting any byproduct of hydraulic fracturing on State lands. This includes the land spreading of flowback water. This has been done in other states with detriment to the flora and fauna. These lands are intended for watershed protection, wildlife habitat protection, and public recreation. They should not be compromised.

Response 6046:

The prohibition of surface disturbances associated with high-volume hydraulic fracturing, codified in 6 NYCRR Parts 52 and 190, are not the only measures that will protect sensitive

habitats. Any activity proposed on State-owned land must be consistent with the ECL, the purposes for which the land was acquired, as well as the Department's Strategic Plan for State Forest Management. A determination to permit this activity would also be subject to its own site-specific SEQRA review. Such safeguards, along with the prohibition of other surface activities would minimize adverse environmental impacts to the maximum extent practicable. Furthermore, as explained in Chapter 5 and presented in Appendix 12 of the draft SGEIS, consistent with past practice, the Department began in January 2009 notifying Part 364 haulers applying for, modifying or renewing their Part 364 permit that flowback water may not be spread on roads and must be disposed of at facilities authorized by the Department or transported for use or re-use at other gas or oil wells. This prohibition is applicable to state land roads as well.

Comment 6052:

High-Volume Hydraulic Fracturing Proposed Regulations, 6 NYCRR Parts 52 and 190: The proposed regulations should include protection of State lands and surface waters from contamination of off-site hydraulic fracturing operations or transportation of waste products. No flow-back water or chemicals used in the fracturing process should be allowed to reach rivers, creeks streams, ponds, etc. There also needs to be an established setback of hydraulic fracturing operations from State land property. A recommended minimum setback is 2,640 feet from State and Federal Lands (such as the Finger Lakes National Forest on the east side of Seneca Lake) and waterways.

Response 6052:

See Response to Comments 6046 and 2872 and 5797 in **Category 91: Part 52 Use of State Lands Administered by the Division of Fish, Wildlife and Marine Resources.**

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Comment 6054:

High-Volume Hydraulic Fracturing Proposed Regulations, 6 NYCRR Parts 52 and 190: Floodplains are protected in the SGEIS, yet wetlands are not. These are significant surface water resources, with sensitive habitats. Wetlands (recommended size: one acre or larger) should be protected.

Response 6054:

The SGEIS recognizes that wetlands are sensitive resources requiring enhanced protection. Additionally, in response to this comment and others concerning wetlands and other sensitive water resources, the Department proposes in its revised rulemaking under 6 NYCRR 750-3 to increase the setback of well pads from wetlands from 100 to 300 feet.

Comment 6056:

High Volume Hydraulic Fracturing Proposed Regulations, 6 NYCRR Parts 52 and 190: The prohibition of allowing hydraulic fracturing on State lands should be permanent, with no waiver, with no "consideration period" to re-evaluate the practices of the industry.

Response 6056:

The prohibition of surface disturbance on state-owned lands within the revised regulations at 6 NYCRR Parts 52 and 190 does not contain any language with respect to waivers or "consideration periods."

Comment 3073:

The socioeconomic analysis and supporting documents must be revised and republished for additional public comment. The law requires that the Department consider utilizing approaches which are designed to avoid undue deleterious economic effects or overly burdensome impacts of the rule upon persons, including persons residing in New York State's rural areas, directly or indirectly affected by it or upon the economy or administration of state or local governmental agencies.

Response 3073:

The State Administrative Procedure Act (SAPA) requires that agencies proposing rules should assess the impact of the rules on rural areas and local governments. The Department prepared a Regulatory Flexibility Analysis for Small Business and Local Governments with its proposed rules, and that analysis states that the rules will not have substantial adverse effects on small businesses and local governments. Local governments are not required to take any affirmative action under the proposed rules. There are indirect effects on local government discussed in the SAPA documents accompanying the proposed rules. For example, high-volume hydraulic fracturing in the state may lead to an increase in population and increased demand for housing and community services in communities experiencing the greatest levels of development. In addition, heavy truck traffic will result in local costs for road maintenance. Local governments are encouraged to enter into Road Use agreements with operators to reduce impacts on roads. However, it is projected that high-volume hydraulic fracturing activities would result in a substantial increase in economic activity in the affected areas and also result in a substantial increase in tax revenues to the state and to localities. These revenues are expected to compensate for the types of responsibilities on local governments which may result from high-volume hydraulic fracturing development. A detailed analysis of both positive and potentially adverse socioeconomic impacts, along with proposed mitigation measures is discussed in Sections 6.8, 6.12 and 7.8 of the SGEIS.

The SGEIS states that with proposed mitigation measures in place, any significant socioeconomic impacts from high-volume hydraulic fracturing activities would be mitigated to the maximum extent practicable. The Department does not agree that additional public comment on the socioeconomic analysis is warranted.

Comment 5603:

The Department has not properly given consideration to identifying proven and more cost-effective alternatives to protecting the environment. Article 2 of the State Administrative Procedure Act (SAPA) establishes minimum procedures that all agencies must follow when promulgating regulations. Pursuant to SAPA 202(8), proposed rules must be promulgated in substantial compliance with SAPA 202 (general rulemaking procedures), 202-a (regulatory impact statement [RIS]), 202-b (regulatory flexibility analysis for small businesses), and 202-bb (rural area flexibility analysis). See *Matter of Medical Society of State of N.Y. v. Serio*, 100 N.Y.2d 854, 869 (2003). These provisions mandate that agencies consider the economic effects of their proposed rules and choose approaches that avoid imposing undue economic hardship. Specifically, SAPA 202-a(1) directs that, to the extent consistent with other statutes, agencies must "consider utilizing approaches which are designed to avoid undue deleterious economic effects or overly burdensome impacts upon persons directly or indirectly affected by [the rule] or upon the economy..." To this end, the RIS must contain a statement "detailing the projected costs of the rule," including: (1) the costs to the regulated community for implementation of and compliance with the rule, and (2) the information and methodology upon which the cost analysis is based. SAPA 202-a(3)(c)(i), (iii). If the agency cannot provide a complete statement of costs, it must explain the reasons why and provide a statement setting forth its best estimate of costs, together with the information and methodology upon which that best estimate is based. SAPA 202-a(3)(c)(iv). Additionally, the RIS must contain a statement of "alternative approaches" considered by the agency and the reasons why those alternatives were not incorporated into the rule. SAPA 202-a(3)(g). This mandate to consider alternatives is likewise part of a lead agency's balancing obligation under the New York State Environmental Quality Review Act (SEQRA) to choose alternatives that, "consistent with social, economic and other considerations," protect the environment to the maximum extent practicable. Environmental Conservation Law (ECL) 8-0109(1), (2), (8); 6 NYCRR 617.9(b)(1), (5)(i), 5(v), 617.11(d)(2). Thus, under both statutes, the Department is obliged to consider economic impacts and choose the more cost-effective alternative that will achieve an equal level of environmental protection. SAPA 202-b and 202-bb likewise echo this view relative to economic impacts on, respectively, (1) small businesses (i.e., businesses resident in the state, independently owned and operated, employing no more than 100 individual), and (2) rural areas (i.e., counties with population less than 200,000 or towns with population density no more than 150 persons per square mile). See SAPA 202-b(1), 202-bb(2)(a) & (b), 102(8), 102(10), Exec. Law 481(7). Exhibit B includes several letters from IOGA members confirming the direct impact of the regulatory proposals on small businesses in New York. To this end, SAPA 202-b requires agencies to issue a regulatory flexibility analysis which includes, among other things, a description of the types and estimated number of small businesses to which the rule will apply, compliance costs for the various types of small businesses, economic feasibility assessment for compliance, and an indication of how the rule is designed to minimize adverse economic impacts on small businesses (including information regarding different approaches considered). SAPA 202-b(2). Under SAPA 202-bb, agencies must evaluate similar considerations in a rural area flexibility analysis relative to impacts on public and private sector interests in rural areas. SAPA 202-bb(3) (stating rural area flexibility analysis must discuss compliance costs of various types of public and private entities in rural areas and indicate how the rule is designed to minimize adverse impact on rural areas). Accordingly, SAPA obligates the Department to "avoid placing unreasonable financial or

administrative burdens upon regulated persons," small businesses and rural areas and mandates specific procedures to achieve this objective. McKinneys Cons. Laws of N.Y., SAPA 202-a, Hist. & Stat. Notes (discussing L. 1983, c. 344, 1); see generally, SAPA 202, 202-a, 202-b, 202-bb. Failure to abide by SAPAs requirements will result in invalidation of the regulation. See *Matter of Medical Society of the State of N.Y., Inc. v. Levin*, 185 Misc. 2d 536, 544-48 (Sup. Ct., N.Y. Cty, 2000), *affd*, 280 A.D.2d 309 (1st Dept 2001). The Departments Proposed Regulations fail to comply with these SAPA mandates. See NYS Register, Sept. 28, 2011 (ID No. ENV-39-11-00020-P) (hereinafter, the Notice). In violation of SAPA 202-a, the RIS lacks compliance cost information as to the regulated community and, in fact, acknowledges this omission. See generally Notice (stating only that the cost of compliance will be the same as that associated with mitigation measures and permit conditions identified in the draft SGEIS). The RIS also lacks a meaningful alternatives analysis, limiting such solely to the no action alternative and permit denial. Significantly, there is no discussion of more cost-effective (but equally protective) regulation or any explanation as to why other such measures were rejected. This deficiency is particularly significant in light of the extremely burdensome compliance costs that will result to the regulated community from the rules as proposed. These omissions of cost and alternatives are also apparent in the regulatory flexibility analyses for small businesses and rural areas, thus violating SAPA 202-b and 202-bb. These analyses effectively assume, incorrectly, that all high-volume hydraulic fracturing operators are large, well-funded entities. Thus, there is no meaningful consideration of the economic feasibility of compliance for "small business" operators. See Notice (stating conclusorily "[t]here should be no economic feasibility issues created by the proposed rules"); see also Exhibit B (letters from small businesses operators who will be directly affected by the proposed regulations). Likewise, there is no indication as to what, if any, alternative approaches were considered to minimize economic impact on small business operators or private sector interests in rural areas. In an effort to complete the record concerning the significant cost impacts of the regulatory proposals, these comments identify a number of less costly alternatives to avoid and/or minimize these impacts to small business that the Department is mandated by law to consider. In addition, attached as Exhibit C is an assessment of the permitting and planning costs associated with the regulatory proposals. The high standards being sought by the Department can be achieved by adoption of more flexible and less onerous requirements. This will reduce the cost of compliance, while simultaneously being protective of the environment and keep New York State competitive with other states throughout the country that are currently enjoying the economic benefits associated with shale development. Given the foregoing, the RIS and flexibility analyses do not comply with SAPA, which renders legally suspect any final rules that are not based upon an evaluation of cost impacts and the consideration of more cost-effective alternatives. See *Levin*, 185 Misc. 2d at 544-48, *affd*, 280 A.D.2d 309. However, IOGA has provided the cost justification for the adoption of more cost-effective alternatives that will be fully protective of the environment and maintain a competitive regulatory environment.

Response 5603:

The Department respectfully disagrees that the documents required by the State Administrative Procedure Act (SAPA) including the Regulatory Impact Statement (RIS), the Regulatory Flexibility Analysis for Small Business, the Rural Area Flexibility Analysis, and the Job Impact Statement are legally insufficient. Through the SGEIS process, the Department has identified the

mitigation measures necessary to prevent or reduce significant environmental impacts. While the cost to implement these mitigation measures is an important consideration within the SEQRA process and the cost of implementing associated regulatory controls is an important aspect of SAPA, the primary focus of both the mitigation measures and the proposed rules is to protect the environment.

Nevertheless, the Department revised the RIS to include projected costs of the rules. These costs were actually provided by the commentor, IOGA. IOGA estimates that the costs of complying with the mitigation measures in the rdSGEIS, which formed the basis for nearly all of the proposed rules, ranges from approximately \$400,000 for the first well drilled on a pad in the least-complex case to approximately \$1,700,000 for the first well drilled on a pad subject to the Delaware River Basin Commission (DRBC)'s jurisdiction in the most complex case. Subsequent wells drilled on these pads would be much less expensive according to IOGA, ranging from approximately \$50,000 to \$440,000. IOGA provided a spreadsheet detailing the costs predicted by IOGA for the various permits and plans required. The Department conducted its own limited cost assessment, and found that, with respect to at least two categories of cost estimates, IOGA's estimates were excessive. Also note that DRBC has not finalized its regulations, and therefore, the associated cost projections are speculative at this point.

Unfortunately, despite repeated requests by the Department to industry to provide additional cost of compliance information, industry has refused to provide the Department with any additional cost information.

Comment 8886:

The Department fails to adequately address the State Administrative Procedure Act (SAPA) 202-bb. Rural Area Flexibility Analysis. That law requires that the capacity of public and private sector interests in rural areas to respond to state agency regulations is often constrained by an operating environment distinctly different from that found in suburban and metropolitan areas of the state and requires that a series of factors be considered, such as: Factors such as population sparsity, small community size, limited access to financial and technical assistance, undeveloped services delivery systems, lack of economies of scale and extensive reliance on part-time and volunteer services providers inhibits rural ability to effectively address increasingly complex and stringent regulatory requirements (Emphasis added). Except for the recognition that all the Marcellus shale drilling would be conducted in Rural Areas, there is no discussion of the constraints that rural areas have in responding to the changes that will occur if these rules are adopted. There are some sweeping assumptions about costs to regulated parties, Publically Owned Treatment Works (POTWs) and mineral rights owners. However, there is absolutely no attempt to quantify the costs or to identify professional services to the public or private sectors in the region. There is no indication that Department compiled any data on the services and resources that are currently available in the rural areas, or what additional services will be required and how these services will be provided and funded.

Response 8886:

See response to comment 3073.

Comment 8887:

State Administrative Procedures Act (SAPA), in Section 202-a: Regulatory Impact Statement, requires that, in developing a rule, an agency shall, to the extent consistent with the objectives of applicable statutes, consider utilizing approaches which are designed to avoid undue deleterious economic effects or overly burdensome impacts of the rule upon persons, including persons residing in New York state's rural areas, directly or indirectly affected by it or upon the economy or administration of state or local governmental agencies. The Department has failed to comply with these requirements. SAPA Section 202-a. (3) requires: (b) Needs and benefits. A statement setting forth the purpose of, necessity for, and benefits derived from the rule, a citation for and summary, not to exceed five hundred words, of each scientific or statistical study, report or analysis that served as the basis for the rule, an explanation of how it was used to determine the necessity for and benefits derived from the rule, and the name of the person that produced each study, report or analysis; The RIS however, does not provide any scientific basis to make the determination, only unfounded assumptions. SAPA Section 202-a. (3) requires: (c) Costs. A statement detailing the projected costs of the rule, which shall indicate: (i)The costs for the implementation of, and continuing compliance with, the rule to regulated persons; (ii)The costs for the implementation of, and continued administration of, the rule to the agency and to the state and its local governments; and (iii)The information, including the source or sources of such information, and methodology upon which the cost analysis is based; or (iv)Where an agency finds that it cannot fully provide a statement of such costs, a statement setting forth its best estimate, which shall indicate the information and methodology upon which such best estimate is based and the reason or reasons why a complete cost statement cannot be provided; 10 Because there is extensive information available from other states on the costs to state and local government, there is plenty of data available with which to estimate costs. However, the RIS makes absolutely no attempt to identify and quantify the costs to state government, and gives no explanation why these costs cannot be estimated, as required by law. SAPA Section 202-a. (3) (e) Local government mandates. The only costs to local governments identified are investigations of well complaints, costs to publicly owned treatment works that might accept the waste, and damage to roads. There is extensive information available to identify the increased demands on local governments, including but not limited to housing costs and supply, increased costs for law enforcement, schools, spill and emergency responses and social services. Economics experts at two leading universities in the areas affected by high-volume hydraulic fracturing (Cornell University and Penn State University) are continuing to study the economic impact on their regions. We urge the Department review the reports from these studies that discuss in detail the impacts on local government resources and economies.

Response 8887:

See response to comments 3073 and 5603.

Comment 9704:

The Rural Area Flexibility Analysis mentions "control at least sixty percent of the mineral rights in the area". The definition of "the area" should be clarified. Without suitable legal precautions,

that statement can easily be abused to claim that the 60% is met when its not rationally agreed upon.

Response 9704:

The subject text was clarified to refer to the requisite amount of mineral rights in the proposed spacing unit.