

## MEMORANDUM

### Additional Tasks Imposed on DEC Staff in chapter 7 of the DSGEIS, by section: 187 new tasks for the DEC

The following summarizes the tasks required by the remediation measures outlined in Chapter 7 of the draft Supplemental Generic Environmental Impact Statement that are to be undertaken by the NYS Department of Environmental Conservation. The scope and extent of these tasks are clearly beyond the capacity of the DEC.

#### **7.1 Protecting Water Resources (5 tasks)**

- Monitor the escape of oil, gas, brine, or water out of one stratum into another and the pollution of fresh water supplies by oil, gas, salt water or other contaminants caused by the drilling, casing, operation, plugging and replugging of wells and reclamation of surrounding lands
  - With respect to the escape of oil, gas, brine, or water out of one stratum into another, provide prevention guidelines and measures to be implemented prior to commencement of any activity,
  - In the event that prevention fails, provide a means to stop the continuing escape of such substances and cleanse the second stratum from such substances
  - With respect to the pollution of fresh water supplies by oil, gas, salt water or other contaminants, provide anti-pollution guidelines and measures to be implemented prior to commencement of any activity,
  - In the event that pollution does occur, provide a means of cleansing the fresh water, returning it to its unpolluted state
  - Promote and coordinate management of water resources to assure their protection, enhancement, provision, allocation, and balanced utilization, including assessing the cumulative impact on such resources in reviewing any permit

#### **7.1.1 Water Withdrawal Regulatory and Oversight Programs**

##### **Degradation of Water Use (5 tasks)**

- Review water withdrawal registrations within New York's portion of the Great Lakes Basin of 100,000 gallons a day or more
- Confirm approval of the respective basin commissions regarding all withdrawals within New York's portion of the Delaware and Susquehanna river basins greater than 100,000 gallons per day
- Monitor surface water withdrawals to ensure their compliance with the recently enacted narrative water quality standard for flow in 6 NYCRR 703.2

- Monitor flow to make sure that the surface waterbody is operating at its designated best use
- Determine an appropriate pass by flow on a case by case basis
- Review annual reports filed with NYSDEC for withdrawals or potential for withdrawals greater than 100,000 gallons a day
- Monitor and ensure registrations of any existing withdrawal of surface or ground water from the Great Lakes Basin of more than 100,000 gallons a day averaged over a 30 day period

**Reduced Stream Flow (5 tasks)**

- Pursuant to 6 NYCRR 601, review applications for projects to be undertaken with regards to source of water, projected withdrawal amounts, and information on rainfall and streamflow
- Pursuant to 6 NYCCR 675, monitor and ensure registration of withdrawals for non-agricultural purposes in excess of 100,000 gallons per day
- Review applications for withdrawal in the Great Lakes basin, focusing on location and source of withdrawal, return flow, water usage description, annual and monthly volumes of withdrawal, water loss, and other regulatory requirements, including additional requirements for inter-basin surface water diversions
- Review and determine applicability of permits for equipment and structures like standpipes regarding disturbances of surface water bodies such as rivers and streams with respect to their impacts on aquatic ecosystems
- Review permits for changes, modifications, or disturbances to streams with respect to potential environmental impacts on aquatic, wetland and terrestrial habitats; unique and significant habitats; rare, threatened and endangered species habitats; water quality; hydrology; and water course and waterbody integrity

**Impacts to Wetlands (2 tasks)**

- Review permits for actions located within 100 feet of wetlands
- Issue permits only after determining (1) that there is no alternative location, and (2) that the economic and social interests at hand outweigh any possible impact on wetlands

**Aquifer Depletion (1 task)**

- Evaluate proposed groundwater withdrawals for high-volume hydraulic fracturing using a Pump Test procedure in conjunction with the SRBC's aquifer testing protocol

**7.1.1.2 Great Lakes-St. Lawrence River Water Resources Compact (1 task)**

- Review all major water withdrawals and approve diversions in the Great Lakes-St. Lawrence River Basin under ECL Art. 15, Title 16, until New York establishes legislation to implement the compact

### **7.1.2 Stormwater (5 tasks)**

- Develop, implement, and maintain comprehensive Stormwater Pollution Prevention Plans (SWPPP)
- Determine the excavation necessary to support the access roads, drill pads, impoundments, staging areas, and pipeline routes associated with the subject operations on a case by case basis
- Review permits for stormwater runoff requiring operators to develop, implement and maintain up-to-date SWPPPs
- Monitor SWPPPs such that they are in strict compliance with the DEC general permit and associated technical standards and make sure that they heighten the beneficial aspects of stormwater runoff while minimizing its potential deleterious impacts
- Amend the Multi-Sector General Permit for Stormwater Discharges (MSGP) associated with Industrial Activity to address a number of potential pollutant discharges associated with this new type of operations

#### **7.1.2.1 Construction Activities (4 tasks)**

- Incorporate the requirements associated with the General Permit for Stormwater Discharges Associated with Construction Activities into Sector AD of the MGSP as it applies to the subject operation
- Ensure that an SWPPP meeting or exceeding the requirements of the Construction General Permit is developed as a stand-alone document and incorporated in a comprehensive SWPPP
- Ensure that SWPPPs are prepared in accordance with good engineering practices and the DEC's General Permit for Construction Activity
- Monitor inspections and documentation of such inspections upon commencement of construction activities and continuing until coverage under the MSGP has been terminated

#### **7.1.2.2 Industrial Activities (4 tasks)**

- Revise MSGP as necessary to incorporate a required SWPPP for industrial activities to address potential sources of pollution
- Review SWPPP to guarantee that it describes and ensures the implementation of Best Management Practices (BMPs) to reduce pollutants in stormwater discharge
- Ensure monitoring and reporting of an annual dry weather flow inspection, including quarterly visual monitoring, annual site compliance evaluation, and annual benchmark monitoring and analysis up to the completion of hydraulic fracturing operations

- Determine when all drilling and hydraulic fracturing operations, fracturing flowback operations, and partial site reclamation have been completed and MSGP coverage may be terminated

### **7.1.3 Surface Spills and Releases at the Well Pad (2 tasks)**

- Enhance existing DEC tools to address unique aspects of multi-well pad development and high-volume hydraulic fracturing
- Ensure that such tools are provided for in appropriate permits to prevent spills and mitigate adverse impacts from any that do occur

#### **7.1.3.1 Drilling Rig Fuel Tank and Tank Refilling Activities (6 tasks)**

- Monitor and ensure that the diesel tanks associated with larger rigs are removed along with the rig during any drilling hiatus
- Review information regarding the capacity and planned well pad location as required by the EAF Addendum of rig fuel tanks and distance to any primary or principal aquifer, public or private water well, domestic-supply spring, reservoir, reservoir stem, controlled lake, watercourse, perennial or intermittent stream, storm drain, wetland, lake or pond within 500 feet of the planned tank location
- Encourage operators to position the tank more than 500 feet from these water resources
- Develop supplementary permit conditions for high-volume hydraulic fracturing at multi-well pads that require (1) secondary containment, (2) tank filling operations manned at the fueling truck and at the tank if the tank is not visible to the fueling operator from the truck, and (3) troughs, drip pads, or drip pans beneath the fill port of the tank during filling operations if the fill port is not within the secondary containment
- Revise SWPP to include BMPs with respect to this activity (list included in SGEIS)
- Review SWPPs to make sure all these requirements are complied with.

#### **7.1.3.2 Drilling Fluids (9 tasks)**

- Require and monitor that pits for fluids used in the drilling, completion, and re-completion of wells be constructed, maintained, and lined to prevent pollution of surface and subsurface waters and to prevent pit fluids from contacting surface soils or ground water zones
- Monitor that pit liner installations are adequately maintained
- Review, evaluate, and approve the type and specifications of the liner proposed by the well drilling applicant prior to commencement of drilling
- Ensure that pit fluids are removed within 45 days of cessation of drilling operations unless an extension is granted by DEC

- Monitor operations to ascertain whether they have been suspended and take appropriate measures with regards to pit fluid removals
- Review and monitor the EAF Addendum and refuse to approve reserve pits on the filled portion of cut-and-fill sites
- Monitor numerous supplementary permit conditions for multi-well pad high-volume hydraulic fracturing (see SGEIS draft for list) to mitigate the potential for releases associated with the on-site reserve pit
- Monitor more stringent requirements in well permit conditions in primary or principal aquifer areas or unfiltered water supply areas (see SGEIS draft for list)
- Review and ensure that the comprehensive SWPPP required by the DEC includes BMPs relative to reserve pit fluid containment, including, but not limited to, a combination of some or all of a list of enumerated protective practices (see SGEIS draft for list)

#### **7.1.3.3 Hydraulic Fracturing Additives (2 tasks)**

- Include various as-yet-undetermined specific secondary containment requirements in supplementary well permit conditions if the proposed location or operation raises concerns about potential liquid chemical releases not sufficiently addressed by the GEIS or SGEIS
- Ensure and monitor that the comprehensive SWPPP required by the DEC includes BMPs relative to additive containers, mixing and pumping, including, but not limited to, a combination of some or all of the 16 protective practices listed in Section 7.1.3.3 of the SGEIS, or other equally protective practices

#### **7.1.3.4 Flowback Water (7 tasks)**

- Advocate for a new requirement that flowback water handled at the well pad be directed to and contained in steel tanks
- Ensure that tank storage is available on site
- Encourage exploration of technologies that promote reuse of flowback water when practical
- Ensure that information is provided regarding the number, individual and total capacity, and location on the well pad of receiving tanks for flowback water
- Ensure that supplementary permit conditions for high-volume hydraulic fracturing include additional requirements (see SGEIS draft list)
- Ensure that more stringent requirements are included in well permit conditions for multi-well pad high-volume hydraulic fracturing in primary or principal aquifer areas or unfiltered water supply areas (see SGEIS draft for list)
- Ensure that the comprehensive SWPPP required by the MSGP includes BMPs relative to flowback water tanks, including certain protective practices (see SGEIS draft for list)

#### **7.1.4 Ground Water Impacts Associated with Well Drilling and Construction (3 tasks)**

- Enhance existing permits to ensure the protection and isolation of fresh water
- Monitor baseline water quality testing of private wells within a specified distance of the proposed well
- Monitor sufficiency of as-built wellbore construction prior to high-volume hydraulic fracturing, including the adequacy of surface casing and isolation of potable fresh water supplies from deeper gas-bearing zones, adequacy of cement in the annular space around the surface casing, adequacy of cement on production casing to prevent upward migration of fluids during all reservoir conditions, and use of centralizers so that the cement sheath surrounds the casing strings

##### **7.1.4.1 Private Water Well Testing (9 tasks)**

- Monitor compliance with supplementary permit conditions requiring sampling and testing of residential water wells within 1,000 feet of the well pad or within 2,000 feet of the well pad if no wells are available for sampling within 1,000 feet
- Ensure that all testing and analysis is done by an ELAP-certified laboratory and that the results of each test are provided to the property owner and the county health department prior to commencing drilling operations
- Ensure that testing is done before drilling, between drilling operations, and at established intervals after drilling or hydraulic fracturing operations, and establish an ongoing monitoring schedule for sampling and analysis
- Ensure inclusion of contaminant-indicators in the initial, pre-drilling or baseline round of sampling
- Ensure that water is subsequently monitored for additional substances such as strontium, sodium, chloride, hardness, surfactants, TSS, iron, carbonates and bicarbonates, gross alpha activity, and changes in static water levels
- Ensure that county health departments receive the results of ongoing monitoring until a year after the last hydraulic fracturing operations on a well pad
- Jointly investigate with the county health department all complaints that occur during active operations at a well pad within 2,000 feet or within a year of last hydraulic fracturing at such a site
- Carry out on-site inspection if a complaint coincides with any of a list of documented potentially polluting non-routine well pad incidents (see SGEIS draft for list) and evaluate the need to require immediate cessation of operations, immediate corrective action, and/or revisions to subsequent plans and procedures on that well pad and additional enforcement measures
- Review and consider data on file with the county health department relative to the subject water well, including pre-existing conditions and any available information

about the well's history of use and maintenance to determine the proper course of action with respect to well pad activities

#### **7.1.4.2 Sufficiency of As-Built Wellbore Construction (8 tasks)**

- Provide and ensure the presence of a state inspector prior to commencement of casing and cementing operations
- Ensure that current surface casing and cementing practices are implemented as permit conditions in all permits
- Ensure that more stringent requirements are implemented as permit conditions in primary and principal aquifers (see SGEIS draft for list) and that all of the requirements remain in effect, enhanced by the attachment of Supplementary Permit Conditions for High-Volume Hydraulic Fracturing
- Ensure and enforce submission of a *Pre-Frac Checklist and Certification Form* at least 48 hours prior to commencement of high volume hydraulic fracturing operations
- Review all of the above information and certifications prior to authorizing hydraulic fracturing
- Review and approve intermediate and production casing cement requirements on a case by case (individual well) basis in compliance with current casing and cementing practices and ensure that such requirements remain in effect and are enhanced by the attachment of Supplementary Permit Conditions for High-Volume Hydraulic Fracturing (see SGEIS draft for list)
- Ensure the use of centralizers on all casing strings and that hole diameters and spacing are adequate for their use
- Monitor the use of centralizers to ensure that no fewer than two are run

#### **7.1.5 Hydraulic Fracturing Procedure (2 tasks)**

- Provide for a higher level of scrutiny and protection for shallow hydraulic fracturing or when the target formation is in close proximity to underground sources of drinking water
- Carry out site-specific SEQRA review for certain projects (see SGEIS draft for list), reviewing local geological, topographical and hydro geological conditions as well as proposed fracturing procedures and the consequent potential for a significant adverse impact to fresh ground water to determine if a site-specific supplemental environmental impact statement is necessary.

#### **7.1.6 Waste Transport (1 task)**

- Ensure that Drilling and Production Waste Tracking Form is completed and maintained by generators, haulers and receivers of all flowback water associated with activities addressed by this Supplement

#### **7.1.6.2 Road Spreading (3 tasks)**

- Inform and ensure that haulers applying for, modifying, or renewing their Part 364 permit do not spread flowback water on roads and that they dispose of it at facilities authorized by DEC or transport it for re-use at other gas or oil wells where acceptable to DEC
- Review petitions for a beneficial use determination (BUD) for any entity applying for a Part 364 permit or permit modification to use produced brine for road spreading
- Issue the BUD and Part 364 permits prior to the removal of any production brine from the well site, denying any such petitions where a required radioactivity scan indicates levels that pose concern over a potential for public exposure to radioactive materials.

#### **7.1.6.3 Flowback Water Piping (1 task)**

- Review fluid disposal plans to ensure that flowback water piping and conveyances between well pads and centralized flowback water facilities are described, as required by 6 NYCRR 554.1(c)(1) and the MSG SWPPP, and that they demonstrate that pipelines and conveyances will be constructed of suitable materials, maintained in a leak-free condition, regularly inspected, and operated using all appropriate spill control and stormwater pollution prevention practices

#### **7.1.7 Centralized Flowback Water Surface Impoundments (13 tasks)**

- Review and approve fluid disposal plans prior to the issuance of a well drilling permit 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
- Review and approve the surface impoundment for permit applications proposing use of a centralized flowback water surface impoundment, denying approval to any that are within the boundaries of primary or principal aquifers or unfiltered water supplies
- Ensure that construction of certain surface impoundments accords with DEC's technical guidance document, *Guidelines for Design of Dams*
- Review centralized flowback water surface impoundments under standards set forth in 6 NYCRR Part 360 as to centralized flowback water management facilities
- Ensure that the requirements for either flowback surface impoundments or tanks (minimum liner, operational, monitoring and closure) are complied with according to the specific provisions of Subpart 360-6 Liquid Storage
- Consider and evaluate, on a site-specific basis, proposals to use alternate materials in constructing these facilities in establishing the specific requirements for the flowback water management based on the general flowback water characterization and the temporary nature of these facilities



- Review and evaluate design engineers' construction quality control and construction quality assurance plans with respect to Double Liner requirements
- Review design engineers' final certification reporting upon completion of construction in accordance with the applicable provisions of Section 360-2.13
- If leakage rate between the two liner systems exceeds 100 gallons per acre per day, ensure that facility owner notifies DEC of the exceedance within 7 days of the determination of exceedance and submits a report detailing a plan for corrective action and repair of the liner system's performance within 14 days of any such exceedance
- Review and approve final certification of repair by a licensed professional engineer prior to putting surface impoundment back into service
- Monitor compliance with the minimum regulatory requirements applicable to above ground storage tanks which would be equally applicable for adequate flowback water containment pursuant to the provisions of Section 360-6.3
- Monitor compliance with the requirements for closure of these containment structures pursuant to the provisions in Section 360-6.6
- Monitor that any post-operation residues to be properly handled and disposed of as part of the process

#### **7.1.8.1 Treatment Facilities (9 tasks)**

- Review and approve SPDES permits issued to wastewater dischargers, including treatment facilities such as Publically Owned Treatment Works (POTWs) operated by municipalities
- Review and ensure that a POTW has an approved pretreatment program, or mini-pretreatment program, to accept industrial wastewater from non-domestic sources covered by Pretreatment Standards
- Review and evaluate permittees' headworks analysis in accordance with Division of Water's Technical and Operational Guidance Series (TOGS) for large volumes of return water from high-volume hydraulic fracturing combined with the diverse mixture of chemicals and high total dissolved solids (TDS) that exist in both flowback water and produced brine
- Inspect and ensure that flowback water and produced brine are fully characterized prior to acceptance by a POTW for treatment
- Ensure that the POTW performs a Maximum Allowable Headworks Loading (MAHW) analysis
- Modify SPDES permits for POTWs that accept this source of wastewater to include effluent limits for Total Dissolved Solids as well as any other parameters necessary to ensure that the permit correctly and completely characterizes the discharge

- Ensure that a Hydrofracturing Chemical Form HFC is submitted for each proposed chemical to identify active ingredients and toxicity of fracturing additives or formation constituents that may be present in wastewater
- Review and approve the headworks analysis, and modification of the POTW's SPDES permit if necessary, prior to the acceptance of flowback water or produced brine from wells
- Review and ensure that any private treatment facilities constructed have an SPDES permit including specific discharge limitations and monitoring requirements

#### **7.1.8.2 Disposal Wells (3 tasks)**

- Conduct site-specific SEQRA review for brine disposal wells, including distance to drinking water supplies or sources, surface waterbodies and wetlands; topography, geology, and hydrogeology; proposed well construction and operation program; water quality analysis of the receiving stratum for TDS, chloride, sulfate and metals; effluent limits for injectate constituents, and potential applicability of 6 NYCRR 703.6 groundwater effluent limits or the groundwater effluent guidance values listed in Division of Water TOGS 1.1.1.; and potential requirement for upgradient and downgradient monitoring wells installed in the deepest identified GA or GSA potable water aquifer.
- Issue permits only after determining that flowback and disposal strata water quality is fully characterized prior to permitting and injecting into a disposal well
- Propose and establish monitoring requirements and/or discharge limits in the SPDES permit in addition to any requirements included in the required USEPA Underground Injection Control permit during the site-specific permitting process required by the Uniform Procedures Act and the 1992 Findings statement

#### **7.1.9 Solids Disposal (2 tasks)**

- Monitor that cuttings or a pit liner contaminated with oil-based mud is not buried on site, but removed for disposal in a Part 360 solid waste facility
- Develop supplementary permit conditions for high-volume hydraulic fracturing after consultation with DEC's Division of Solid and Hazardous Materials

#### **7.1.10 Protecting New York City's Subsurface Water Supply Infrastructure (5 tasks)**

- Notify NYCDEP of any proposed well in the counties outside of New York City
- Review and process permit applications for any well that NYCDEP confirms is outside the corridor
- Notify the applicant for any well within the 1,000 foot corridor that the proposed drilling is an unlisted action and may pose a significant threat to a municipal water supply

- Provide NYCDEP with a copy of each application for a permit to drill
- Notify NYCDEP prior to drilling or commencement of any permit issued

#### **7.1.11 Protecting the Quality of New York City's Drinking Water Supply (3 tasks)**

- Monitor and prohibit centralized flowback water surface impoundments within the boundaries of the NYC Watershed
- Monitor and ensure that fluids are removed in an unfiltered watershed from any reserve pit or on-site tanks within seven days of completing drilling and stimulation operations at the last well on the pad, or immediately if operations are suspended and the site will be left unattended
- Conduct site-specific SEQRA determination for any proposed well pad within 300 feet of a reservoir stem or controlled lake or within 150 feet of a watercourse

#### **7.1.12.1 Setbacks from Ground Water Resources (11 tasks)**

- Review and approve well permit applications for compliance with the proposed well and well pad setbacks where the target fracturing zone is at least 2,000 feet deep or 1,000 feet below the underground water supply
- Review evidence of diligent efforts by operator of proposed well to determine the existence of public or private water wells and domestic-supply springs within half a mile of any proposed drilling location
- Ensure that the operator identifies the wells and springs, and provides available information about their depth, completed interval and use
- Review and compare the operator's well list to internally available information upon receipt of a well permit application and notify the operator of any discrepancies or additional wells that are indicated within half a mile of the proposed well pad
- If discrepancies are discovered, review operator's amended EAF Addendum

#### *Public Water Supply Wells:*

- Require and review a site-specific Supplemental Environmental Impact Statement (SEIS) before issuing any permit to drill less than 1,000 feet from a municipal water supply well
- Require and review a site-specific assessment and SEQRA determination concerning any proposed well location between 1,000 and 2,000 feet from a municipal water supply
- Review and exercise its discretion regarding applications for other public supply wells
- Monitor that centralized flowback water surface impoundments are designed specifically to prevent groundwater infiltration, will be equipped with leak detection and groundwater monitoring systems, and do not involve the potential for undetected wellbore-to-wellbore contamination

- Conduct site-specific SEQRA review for any proposed centralized flowback water surface impoundment within 300 feet of a public water supply well

*Private Water Wells and Domestic Supply Springs*

- Conduct site-specific SEQRA review for any proposed well pad within 150 feet of a private water well or domestic-supply spring, and for any proposed centralized surface flowback impoundment within 300 feet of a private water well or domestic-use spring

**7.1.12.2 Setbacks from Surface Water Resources (3 tasks)**

- Monitor that the surface location of an oil or gas well is not within 50 feet of any “public stream, river or other body of water”
- Monitor and enforce erosion and sedimentation control plans to address potential impacts to nearby waterbodies from ground disturbance
- Conduct site-specific SEQRA review for any proposed well pad within 300 feet of a reservoir, reservoir stem or controlled lake; any proposed well pad within 150 feet of a watercourse, perennial or intermittent stream, storm drain, lake or pond; any proposed centralized flowback water impoundment within 1,000 feet of a reservoir; and any proposed centralized flowback water surface impoundment within 500 feet of a perennial or intermittent stream, wetland, storm drain, lake or pond

**7.2 Protecting Floodplains (5 tasks)**

- Ensure that the local government affected has issued a floodplain development permit prior to commencement of any floodplain development activity
- Monitor that Flood Insurance Rate Maps and, if applicable, Flood Boundary and Floodway maps have been checked to identify whether a proposed well pad is in a 100-year floodplain and a floodway
- Review and ensure that a copy of any local floodplain development permit has been provided to the DEC prior to any site disturbance
- Ensure that a closed-loop tank system is used instead of a reserve pit for managing fluids and cuttings at any multi-well pad
- Review and refuse to approve the use of centralized flowback water surface impoundments or above-ground flowback water piping and conveyances for fluid disposal in any 100-year floodplains

**7.3 Protecting Freshwater Wetlands (5 tasks)**

- Require and ensure that issuance of a well permit is not given when another Department’s permit is necessary until there is site-specific SEQRA determination relative to the activities or resources addressed by the other permit

- Ensure and monitor that well permits are issued for locations in wetlands only when alternate locations are unavailable
- Require and monitor that fuel tanks for drilling rigs are not placed within 500 feet of a wetland
- Require and monitor that secondary containment is consistent with the Department's SPOTS 10 for any drilling rig's fuel tank within 500 feet of a wetland
- Require and monitor site-specific SEQRA determination for any fluid disposal plan that includes a centralized flowback water surface impoundment within 500 feet of a regulated wetland

## **7.4 Protecting Ecosystems and Wildlife**

### **7.4.1 Invasive Species (8 tasks)**

- Prohibit and actively eliminate invasive species at project sites regulated by the State pending development of a comprehensive invasive species management plan

#### **7.4.1.1 Terrestrial**

- Require and monitor permits regarding conduct of all activities in accordance with the best management practices listed in section 7.4.1.1, including:
  - Review and approve submission of a baseline comprehensive survey for the presence of invasive species present at each project site, identifying the types present, their location, and extent of any established population
  - Require and monitor that field notes, photographs, and GPS handheld equipment are utilized in documenting any occurrences of invasive species and that all such occurrences are clearly identified in the field with signs, flagging, and/or stakes prior to any ground disturbances
  - If the invasive species survey submitted to DEC with the EAF Addendum shows the presence of invasive species in the topsoil, require and monitor consultation with the Department's Division of Fish, Wildlife and Marine Resources
  - Monitor proper removal and disposal of any invasive plant species at the site to prevent it spread by utilizing the practices listed in section 7.4.1.1
  - Require and on occasion review site-specific and species-specific invasive species mitigation plan drawn up by each operator and available to DEC upon request.

#### **7.4.1.2 Aquatic**

- Ensure, for areas not within DRBC or SRBC regulations, compliance with measures and protocols developed by those bodies and set out in Table 7.3 to prevent transfer of invasive aquatic species by transfer, reuse and discharge of water used for high-volume hydraulic fracturing process

- Ensure that centralized flowback water surface impoundments are fenced to prevent access by larger species of wildlife

#### **7.5 Protecting Air Quality (5 tasks)**

- Ensure that information regarding stack heights and public access restrictions relative to the well pad is in the revised EAF Addendum
- Ensure that information is attached to the EAF Addendum demonstrating that other control measures will effectively prevent exceedances for the listed pollutants in the event that stack heights shorter than those specified are proposed
- Review and ensure that the operator identifies all proposed fracturing additives and assess the impact of the additive mix proposed on air quality
- Review and ensure that the operator identifies control measures for preventing public exposure to HAPs in excess of guidance thresholds in compliance with the EAF Addendum
- Conduct and monitor both permitting and site-specific review of potential HAP emissions when necessary based on the additives proposed in the EAF Addendum

#### **7.6 Mitigating Greenhouse Gas Emissions (2 tasks)**

- Encourage well operator participation in the United States Environmental Protection Agency's (USEPA) Natural Gas STAR Program
- Review and approve site-specific greenhouse gas emissions impacts mitigation plan for each operator and each site

#### **7.7 Mitigating Impacts from Centralized Flowback Water Impoundments (11 tasks)**

- Consider additional data and analyses that may be made public by the Marcellus Shale Committee and the Appalachian Shale Water Conservation and Management Committee during the comment period before the SGEIS is finalized
- Approve applications proposing use of a centralized flowback water surface impoundment on a site-specific basis for compliance with 6 NYCRR 554.1(c)(1)
- Review proposals individually to determine the level of SEQRA review, if any, that is required in addition to Supplement
- Ensure that no fluid disposal plans are approved if they propose centralized flowback water surface impoundments within the boundaries of primary and principal aquifers, unfiltered water supplies, or mapped 100-year floodplains
- Require and conduct site-specific SEQRA determination of significance for any fluid disposal plan that proposes centralized flowback water surface impoundments within 1,000 feet of a reservoir; within 500 feet of perennial or intermittent streams, wetlands, storm drains, lakes or ponds; and within 300 feet of private or public water supply wells

- Review and ensure that, if dam safety permitting criteria are met, construction is in accordance with the Department’s technical guidance document, *Guidelines for Design of Dams*, and that operation is in accordance with the Department’s document, *An Owner’s Guidance Manual for the Inspection and Maintenance of Dams in New York State*.
- Review and ensure that flowback impoundments comply with the requirements of the specific provisions of 6 NYCRR Subpart 360-6 Liquid Storage describing the minimum liner, operational, monitoring, and closure requirements
- Review and ensure that the required fluid disposal plan demonstrates that piping and conveyances used to convey flowback water to or from the centralized surface impoundment are constructed of suitable materials, maintained in a leak-free condition, regularly inspected and operated using all appropriate spill control and stormwater pollution prevention practices
- Inspect and ensure that the inner slopes of impoundment that may come in contact with fluctuating levels of flowback water are kept clear of vegetation
- Ensure that the impoundment is fenced and netting is considered to prevent access by waterfowl or other wildlife
- Conduct site-specific consideration of potential air impacts of proposed additives, flowback analysis submitted by the operator from wells using the same additive mix, the duration and use of the impoundment, and the distance surrounding the impoundment within which public access is restricted by a physical barrier

**7.8 Mitigating Naturally Occurring Radioactive Material (NORM) Impacts [in addition to regulatory tasks assigned to the NYS Dept of Health] (4 tasks)**

- Monitor and ensure that effluent discharges do not exceed the radionuclide-specific values established in Part 380-11.7 of 6 NYCRR
- Conduct sampling and analysis, during the initial Marcellus development efforts, to assess the variability in NORM content that appears to occur both between wells in different portions of the formation and at a given well over time
- Conduct radiological surveys and measurements to determine which gas production facilities may be subject to the licensing and environmental discharge requirements
- Ensure testing of any discharge or effluents into the environment for NORM concentrations prior to discharge

**7.9 Protecting Visual Resources (4 tasks)**

- Prior to approving any permit, ensure that the proposed location of the well and access road complies with DEC spacing regulations and siting restrictions, taking into account factors listed in Section 7.9.1, such as locating rigs so as not to interrupt views, preserving salient natural features in grading and development, minimizing

- Monitor and ensure the restoration of land and roads after drilling, including appropriate revegetation, recontouring of land after both pipeline construction and well abandonment, and the like
- Revise supplementary permit conditions for high-volume hydraulic fracturing to require that operators construct and operate all sites in accordance with a visual impacts mitigation plan incorporating the above mentioned practices and considering local land use policy documents
- Ensure that the operator's visual impacts mitigation plan is available to DEC upon request

#### **7.10 Mitigating Noise Impacts (7 tasks)**

- Before issuing any drilling permit, ensure that the proposed location of the well and access road complies with DEC's spacing regulations and siting restrictions
- Monitor and ensure that access roads for trucking are located as far as practical from occupied structures and places of assembly
- Add mitigating conditions to permits, on a site-specific basis, if the pad is located closer than 1,000 feet to occupied structures and places of assembly
- Ensure the use of DEC guidance document *DEP-00-01 Assessing and Mitigating Noise Impacts* along with a site plan for the purpose of properly locating and planning the pad
- Monitor and ensure that access roads are located as far as practical from occupied structures, places of assembly and unleased property
- Monitor and ensure that the well operator operates the site in accordance with a noise impacts mitigation plan that incorporates specific practices and, to the extent practicable, local land use policy documents.
- Require and ensure that the operator's noise impacts mitigation plan is available to the Department upon request

#### **7.11 Mitigating Road Use Impacts (1 task)**

- Ensure that each operator has submitted to DEC either a road use agreement between the operator and municipality or a trucking plan along with documentation of its efforts to reach a road use agreement

#### **7.12 Mitigating Community Character Impacts (1 task)**

- Require and ensure, as a condition of approving any permit, that the applicant has reviewed any existing comprehensive, open space and/or agricultural plan or similar policy documents and has considered locating the well pad in an area that has previously been disturbed