

US EPA ARCHIVE DOCUMENT

**Response to Comments  
Regarding EPA's Filtration Avoidance Determination  
for New York City's Catskill/Delaware Public Water System**

**Introduction and Background**

As required under the Safe Drinking Water Act (SDWA) Amendments of 1986, EPA promulgated the Surface Water Treatment Rule (SWTR) on June 29, 1989, specifying the criteria under which filtration is required as a treatment technique for public water systems supplied by a surface water source. The SWTR is codified in Subpart H of 40 CFR, Part 141 - National Primary Drinking Water Regulations. The SWTR was promulgated to reduce the risk of water borne disease outbreaks from microbial contaminants at public water systems with surface water sources, either through filtration or by meeting the stringent water quality, disinfection and site-specific avoidance criteria which make filtration unnecessary.

In response to requirements in the 1996 Amendments to the SDWA, EPA amended the SWTR on December 16, 1998, with the Interim Enhanced Surface Water Treatment Rule (IESWTR) which is codified in Subpart P of 40 CFR, Part 141. The IESWTR required unfiltered systems to meet several new provisions to remain unfiltered, including compliance with new and more stringent disinfection byproduct maximum contaminant levels and the requirement to address *Cryptosporidium* in their watershed control programs. In addition, unfiltered systems must continue to meet all of the existing filtration avoidance criteria established in the SWTR (40 CFR §141.71) and the IESWTR (40 CFR §141.171).

EPA issued its first conditional filtration avoidance determinations for New York City's Catskill/Delaware system in January and December 1993. In both of these determinations, EPA concluded that the system met each of the objective criteria for filtration avoidance. EPA also concluded that the City's existing watershed protection programs were adequate and met the SWTR goal for a watershed control program, but that the program's ability to meet the criteria in the future was uncertain. Therefore conditions were placed on EPA's filtration avoidance determinations. The conditions were numerous and primarily related to enhanced watershed protection and monitoring programs, pathogen studies, reservoir modeling and other efforts to characterize the watershed and human activities.

By 1995, implementation of a number of conditions for filtration avoidance had not yet occurred. At that time, EPA and other interested stakeholders urged the Governor of New York State to intercede. Governor Pataki brought the parties together in a consensus-building approach to negotiate reasonable, effective and scientifically-defensible watershed protection programs. The January 1997 New York City Memorandum of Agreement (MOA), signed by New York State, New York City, watershed towns and counties, environmental parties and EPA, enabled NYCDEP to implement watershed

protection programs necessary to continue to avoid filtration. EPA issued a four-month interim FAD on January 21, 1997, followed by a FAD in May 1997, granting New York City conditional relief from filtering its Catskill/Delaware water system until the agency made a further determination, scheduled for April 15, 2002.

In May 2000, EPA conducted a mid-course review of the 1997 Filtration Avoidance Determination. That review, which included a significant amount of input from watershed stakeholders, made a number of recommendations that had to be substantially addressed prior to EPA's scheduled 2002 determination. In mid-2001, EPA began substantive discussions with NYCDEP and New York State, and instituted an outreach program with other watershed stakeholders, in preparation for the City's December 2001 submittal of a new Long-Term Watershed Protection Program. EPA's objective in these efforts was to ensure that the revised program would adequately address the recommendations EPA made in its FAD Mid-Course Review and that the program would address many of the issues raised by watershed stakeholders.

On December 15, 2001, NYCDEP submitted to EPA its Long-Term Watershed Protection Program. In its 2001 program, the City commits to build substantially on the program set forth in the 1997 FAD. The City's 2001 Long-Term Watershed Protection Program continues most of the existing program components, provides significant enhancements to many of them, and includes a number of new program initiatives. On May 23, 2002, EPA proposed to continue to allow the City not to filter drinking water from the Catskill/Delaware system and welcomed comments on the proposal, through June 24, 2002. During that time period, EPA held four information sessions: two in the Catskills, one in Westchester County and one in New York City. It also participated in a number of individual meetings and small group sessions with watershed stakeholders.

Below is a brief overview of some of the most significant changes to the FAD that were made in response to the comments received:

- a. Clarification in several sections that if a plan and schedule are required in FAD, upon approval by EPA, the schedule becomes a FAD schedule
- b. Inclusion of all milestone dates in FAD rather than by reference
- c. Additional milestones for Sewer Extension Program
- d. Commitment to assist communities in their adoption and maintenance of sewer use ordinances. The City will also submit those ordinances prior to construction.
- e. More explicit commitment to remediate stormwater runoff emergencies
- f. Commitment to conduct a detailed, quantitative assessment of stream buffer protection efforts, including a quantitative inventory of stream miles and protection status, and a

plan for enhancements or additions

- g. Catskill/Schoharie basin turbidity: The detailed analysis engineering and structural alternatives at Schoharie reservoir to reduce turbidity will be delayed by two years (to 12/06). As interim, mitigative actions, the City will:
  - i. dredge the Schoharie Reservoir intake channel (a suspected source of turbidity)
  - ii. install a turbidity curtain in the reservoir if feasible and cost effective
  - iii. complete 2 additional stream restoration projects
- h. Expansion of bird monitoring program to Cross River and Croton Falls reservoirs when those reservoirs are used to supplement Catskill/Delaware water
- i. Commitment to implement a land resolicitation strategy, with resolicitation targets by basin
- j. Commitment to request NYSDEC to renew land acquisition permit in 2006
- k. Statement that the City will work with local and regional land trusts to complement and enhance the City's land acquisition program
- l. Inclusion of dates by which NYCDEP will provide EPA suggested changes to the Watershed Rules and Regulations (if any) and timetable for enactment
- m. Inclusion of more statements about specific FAD reports being provided to stakeholders and being available through the City's website
- n. Commitment to develop an area on NYCDEP's website, by a specific date, that will provide more information on the status of projects (including a status summary of development projects going through SEQRA) and watershed protection/remediation programs.
- o. More details on City's financial commitment to watershed protection efforts, broken down by program element
- p. Extended milestone dates for WWTP upgrades and new WWTPs
- q. Clarification that FAD is not a decision-making document on primacy

## EPA's Response to Comments

### ***FAD- General:***

1. **Comment:** The FAD should include specific deliverables with firm deadlines.

**Response:** The Final 2002 FAD has been clarified to include all milestones from the City's Long-Term Watershed Protection Program (December, 2001) that had been previously incorporated in the draft FAD via reference. The FAD contains over 250 milestone deadlines and requires the City to provide approximately 100 reports each year on the status of numerous elements of its watershed protection program.

2. **Comment:** The FAD should specify funding requirements for individual program elements. There were numerous comments on suggested funding levels for particular programs, or general statements that adequate funding should be provided.

**Response:** The FAD is performance-driven. The City has committed to providing the resources necessary to implement its watershed protection programs and meet the milestones set forth within this document. If necessary resources are not made available, milestones will not be met and filtration may be required.

3. **Comment:** Penalties should be established for failure to meet individual milestones and requirements.

**Response:** The SDWA does not provide for such penalties to be imposed. The remedy for an inadequate watershed protection program is filtration. The Surface Water Treatment Rule and the Interim Enhanced Surface Water Treatment Rule require that all surface water supplies provide filtration unless certain source water quality, disinfection, and site-specific avoidance criteria are met.

4. **Comment:** Program contracts with watershed partnership organizations (e.g., the Catskill Watershed Corporation [CWC]) should be in place before issuance of the FAD. In 1997, EPA required actual finalization of the City's contracts with CWC and commencement of payments before the 1997 FAD was issued. Contracts should be executed by specific dates. In addition, program rules should not be part of the contracts.

**Response:** With the Mayor of the City of New York and NYCDEP providing their assurances that the City will implement its watershed protection program as set forth in its Long-Term Watershed Protection Program and the FAD, EPA has agreed to provide the City continued relief from the SWTR requirement to filter its Catskill/Delaware water supply. The Long-Term Watershed Protection Program includes implementation of a number of program elements, some

of which require contracts to be agreed upon between the City and a number of partner organizations, including the Catskill Watershed Corporation. In addition, the FAD does contain milestone dates for a number of these contractual obligations. EPA notes that the conditions in 2002 are far different than they were at the beginning of 1997, when there was no Catskill Watershed Corporation, there was little basis for understanding how these watershed protection programs would be set up and administered, and there was no historical context for estimating funding levels. Regarding program rules, it is our understanding that the City will assist the Catskill Watershed Corporation in establishing program rules through its position on the CWC board of directors, not through contract negotiations. We note that the 2002 FAD requires NYCDEP to submit the program rules as deliverables.

5. **Comment:** EPA should conduct a mid-course review on the City's compliance with the FAD.

**Response:** EPA is committed to reviewing the City's compliance with the terms and conditions of the 2002 FAD on a continuous basis. In addition, the 2002 FAD states that EPA will conduct a comprehensive review in partnership with the NYSDOH by July 2006 (less than four years from now), prior to the next formal FAD revision scheduled for 2007.

6. **Comment:** EPA should re-assess the scheduled delegation of primacy to NYSDOH.

**Response:** EPA notes that in a June 3, 1997 letter to NYSDOH, EPA approved the State of New York's request to revise its Public Water Supply Supervision program for compliance with the National Primary Drinking Water Regulations to include the Surface Water Treatment Rule (SWTR) for all systems in New York State, except for New York City's Catskill/Delaware system. EPA's letter goes on to state that it would delay the effective date of approval for New York City's Catskill/Delaware system until May 15, 2007. In the interim, EPA would retain primacy for enforcement of the SWTR for the Catskill/Delaware system. EPA's final 2002 FAD has been modified to state that it does not contain or imply any determination with respect to NYSDOH's Public Water Supply Supervision program or primacy.

7. **Comment:** Several commentors requested EPA to get involved in local issues under dispute.

**Response:** EPA's overarching mandate is to ensure the City's compliance with the Safe Drinking Water Act for an unfiltered water supply system. EPA is actively engaged in overseeing the implementation of the City's watershed protection program and has provided input to and received feedback from numerous watershed stakeholders on many issues. However, EPA's appropriate role is to ensure that issues that may effect FAD milestones or requirements are brought to the attention of the appropriate decision makers for quick resolution, not to mediate watershed disputes.

8. **Comment:** The need for and the importance of local participation in the City's watershed



protection program should be recognized.

**Response:** The 2002 FAD requires the City to continue its efforts to enhance its public education and outreach program. The Final 2002 FAD also includes additional language on public education and outreach and the need for increased coordination among the City and watershed counties and municipalities.

9. **Comment:** There were several comments on individual projects in the watershed and either criticism of the City's handling the project or a recommendation for greater scrutiny.

**Response:** There are a number of ways through which NYCDEP involves itself in an individual project (e.g., New York City permits, involved agency status through the State Environmental Quality Review Act [SEQRA]). The 2001 City's Long-Term Watershed Protection Program includes details on how and when the City will participate in project review. These details and others are memorialized in the 2002 FAD, including additional staff training, written guidance, and a commitment for early involvement in SEQRA.

10. **Comment:** EPA should ensure expeditious repair of the Delaware Aqueduct.

**Response:** Although the aqueduct is vital in bringing water to the City, it is not part of the City's watershed protection program and is therefore beyond the scope of EPA's FAD. However, the City is keeping EPA and NYSDOH informed on the status of Delaware Aqueduct activities and on any impact those activities and the leak may have on the system. The City currently has in place a contract for the further evaluation/feasibility and repair of the Delaware Aqueduct.

#### *Septic and Sewer Programs:*

11. **Comment:** The septic program should be expanded and implemented in additional priority areas.

**Response:** NYCDEP has committed to continue this program at its current implementation rate. CWC and NYCDEP will continue to focus on existing priority areas. However, NYCDEP and CWC recognize the possibility that minor program rule modifications may be needed to refine the priority methodology as the program continues to mature. EPA also notes that the City will expand the program to the Boyds Corner and West Branch basins east-of-Hudson.

12. **Comment:** The FAD should include more detailed requirements on the septic system operation and maintenance program.

**Response:** The goals and framework of the program are laid out in the City's Long-Term Watershed Protection Program (Appendix G - page 512). The scope of the program and a contract will be finalized by the City and CWC by December 31, 2002. Specific program rules

will then be developed by the CWC by September 30, 2003. This process has worked very well for other watershed partnership programs and, based on past experience, we anticipate that it will work well for this program. This process ensures that this is a locally-led program with community participation and “buy-in” and, at the same time ensures that the City’s watershed protection goals are met.

13. **Comment:** The septic program should include cost-sharing, a “needs-based” standard, and a low-bid contracting procurement standard to ensure fairness and cost-effectiveness over the long run.

**Response:** Comment acknowledged. Issues such as these are appropriately addressed through contracts that are negotiated between the City and CWC, and program rules that are developed by CWC, with the approval of its board of directors. The FAD is milestone-driven and is neutral with respect to City and CWC contract and program requirements as long as the requirements are adequate to meet septic program goals in the FAD.

14. **Comment:** The growth impacts of the Sewer Extension Program should be evaluated and discussed.

**Response:** The Final 2002 FAD has been modified. The City will submit all information assuring that future growth within the service area can be adequately serviced by, and will not exceed the capacity of the sewerage collection system and the wastewater treatment plant (WWTP) to which it is connected.

15. **Comment:** Failing septs that are not currently slated to be addressed through the Sewer Extension Program should be allowed to connect to City-owned WWTPs when it’s the best solution for water quality concerns.

**Response:** The Final 2002 FAD has been modified. The City will submit an assessment of potential sewer extension areas previously identified by NYCDEP but not selected for funding under the Sewer Extension Program, analyzing whether and how (in both cases, on the basis of cost-effectiveness and direct/indirect water quality impacts) septic systems in those areas should be addressed (e.g., through additional sewer extensions or through other NYCDEP or CWC programs).

16. **Comment:** Implementation milestones for the Sewer Extension Program should become FAD milestones.

**Response:** A clarification to the Final 2002 FAD has been made to make it clear that implementation milestones are FAD milestones.



17. **Comment:** The Sewer Extension Program has been subject to delays, in part, because the City is imposing burdensome monetary and administrative requirements on towns and their residents.

**Response:** We believe that it is in all parties' interest to see the successful implementation of this program. The City is currently negotiating with each town a Sewer Use Ordinance, an appropriate vehicle to address this concern. Since the 2002 FAD has milestone dates for the Sewer Extension Program, EPA will track progress closely.

18. **Comment:** Sewer extension projects should be subject to SEQRA.

**Response:** SEQRA applies to discretionary decisions by governments to fund, authorize or approve any action that may have a significant impact on the environment. Since the sewer extension projects are considered discretionary actions and may have a significant impact on the environment, SEQRA will apply.

*New Sewage Treatment Infrastructure and Community Wastewater Management Programs:*

19. **Comment:** Additional funding is needed to complete the New Sewage Treatment Infrastructure Program, an analysis should be performed to determine if the program should be extended to additional communities, and the implementation schedule should be expedited.

**Response:** In accordance with the 2002 FAD, the City has committed to fund wastewater treatment projects in Phoenicia and Prattsville, communities 6 and 7 in the New Sewage Treatment Infrastructure Program, thereby completing the highest priority communities in the Program. In addition, the City will work with CWC to develop a Community Wastewater Management Program. Through this new program, NYCDEP will provide sufficient block grant funding to enable the implementation of wastewater solutions (e.g., septic maintenance districts and/or community or cluster septic systems) for 5 of the 8-22 communities listed in paragraph 122(c) of the Watershed MOA. Implementation milestones for the New Sewage Treatment Infrastructure Program and the Community Wastewater Management Program are in the 2002 FAD. The Community Wastewater Management Program schedules take into consideration the fact that the program will be developed and implemented by one of the City's implementation partners, CWC. Time is allotted for program rules to be developed and environmental issues to be addressed. We believe that the schedule is realistic and aggressive.

20. **Comment:** Existing WWTPs that plan to tie into new facilities being built through the New Sewage Treatment Infrastructure Program should be able to opt out of the Regulatory Upgrade Program.

**Response:** The 2002 FAD includes a list, along with an implementation schedule, of those existing WWTPs (seven) that have elected to opt out of the upgrade program and tie-in to the

New Sewage Treatment Infrastructure Program. Because the tie-in will take place well beyond the completion date for the upgrade, the tie-in facilities will be subject to UV disinfection as an interim enhanced treatment measure, prior to connecting to the new wastewater treatment facilities. The 2002 FAD contains a schedule for these interim actions. According to NYCDEP, no other facility owners have requested to tie-in. Five years into the program, it is EPA's expectation that the remaining facilities will be upgraded in accordance with the FAD schedule.

21. **Comment:** In accordance with the Watershed MOA, in order to receive funding from NYCDEP for the construction of a new wastewater facility, the subject community was required to delineate a sewer district, adopt a sewer use ordinance, comprehensive plan, and subdivision regulations, and enact appropriate land use law assuring that future growth will not "exceed the capacity of the sewerage collection system and the WWTP to which it is connected." The FAD should require the documentation that communities already selected for this program have complied with the environmental pre-conditions and should incorporate milestones for adoption of these local planning requirements.

**Response:** The Final 2002 FAD has been modified. NYCDEP will submit all information used to determine/delineate a community's sewer service area and will submit a community's sewer use ordinance to EPA, prior to the City's release of New Wastewater Treatment Infrastructure funds. The FAD also requires NYCDEP to assist communities in their adoption and maintenance of sewer use ordinances. EPA notes that the primary purpose of this program is to address existing wastewater problems in watershed communities. Home owners and businesses in these priority communities currently treat their wastewater through individual septic systems, many of which are in close proximity to streams and other watercourses and may be failing or are likely to fail in the future. An effective sewer use ordinance will be the primary mechanism to ensure that the sewerage sent to the WWTP will not exceed the plant's capacity. It governs the use of the underlying sewerage collection system and addresses issues such as illegal hook-ups, prohibited discharges to the sewer, enforcement provisions, inflow and infiltration, and design/construction requirements.

***Wastewater Treatment Plant Upgrade Program:***

22. **Comment:** Concerns were raised regarding the slow pace of the upgrade program, with suggestions that (1) operation and maintenance agreements be finalized quickly (and that they be consistent with the model agreements attached and incorporated into the Watershed MOA), (2) the New York State Environmental Facilities Corporation (NYSEFC) manage the program, (3) SPDES effluent limits be tightened, (4) EPA establish a penalty schedule in the FAD, and (5) EPA ensure that WWTP owners who have proceeded in good faith be relieved of potential penalties, and (6) EPA closely monitor this program to achieve compliance.

**Response:** The upgrade of City-owned WWTPs has resulted in the virtual elimination of

*Cryptosporidium* and *Giardia lamblia* from the discharge and the reduction of phosphorus to generally non-detectable concentrations. The SPDES effluent limits (and monitoring and reporting requirements) are significantly more stringent than discharge requirements for WWTPs outside of the New York City watershed. This translates into measurable water quality improvement and a positive impact on human health and the environment.

EPA is pleased that operation and maintenance agreements between the City and four of the largest upstate towns are in place, and that the City authorized these towns to commence start-up of upgraded WWTPs in mid-August 2002. We commend both the towns and the City for their determined efforts in resolving a number of complicated issues that led to final operation and maintenance agreements. With these facilities operational, over 90% of waste discharged to surface water in the Catskill/Delaware watershed is now being treated at advanced tertiary levels. EPA views the upgrade of non-City-owned WWTPs as a critical element of continued filtration avoidance and will continue to monitor this program closely and carefully.

EPA agrees that the upgrade “process” is complicated and cumbersome. However, in response to criticism by EPA (and the State Attorney General’s office) of the City’s implementation of the program in mid-2000, we have seen significant improvement as witnessed above. With the lessons learned from the upgrade of a number of large facilities, further refinements to the process are possible. We expect continued diligence and focus by the City, along with operators of the remaining wastewater treatment plants, to resolve any outstanding issues and to ensure compliance with upgrade milestones in the FAD

The issue of specific penalties has been addressed in the response to Comment #3. Regarding the comment on NYSEFC program management, NYSEFC currently administers the upgrade program through a contract with NYCDEP. It is beyond the scope of the FAD to require changes to the contractual relationship between those two agencies. We note that over the last 2 years there has been some streamlining of NYCDEP and NYSEFC functions and responsibilities.

23. **Comment:** The City should treat privately-owned WWTPs the same as it treats publicly-owned WWTPs with respect to future operation and maintenance costs.

**Response:** EPA has requested that the City begin discussing this and any other anticipated issues with the appropriate parties early in WWTP upgrade process.

24. **Comment:** EPA and NYCDEP need to ensure that qualified staff and enhanced maintenance needed to properly operate the upgraded plants are in place.

**Response:** The 2002 FAD requires that appropriate operation and maintenance agreements (which address this issue) be in place consistent with SPDES permits and NYSDEC NYS6NYCRR Part 650 regulations to ensure adequate WWTP operator certification and plant

supervision/coverage. EPA notes NYCDEP and WWTP operators have come to agreement on operation and maintenance issues at the first non-City-owned facilities to become operational.

25. **Comment:** NYCDEP and Westchester County should set up a procedure to exchange information regarding WWTPs in the Croton watershed.

**Response:** At the August 14, 2002 meeting of the Watershed Protection and Partnership Council, NYCDEP agreed to provide the County a schedule for all WWTP upgrades in Westchester County. EPA encourages the County and City to improve communication and coordination on this program.

***Stormwater Programs:***

26. **Comment:** The language on stormwater emergency funding is too vague.

**Response:** The Final 2002 FAD has been modified to include more specific language: “The City will develop and implement an effective strategy to address stormwater emergencies on non-City-owned land” by November 30, 2002.

27. **Comment:** The City should include additional funding for stormwater retrofits.

**Response:** In the 2002 FAD, the City has committed to continuing this program with additional funding. In addition, the City will support community-wide stormwater infrastructure assessment and planning. This support will help ensure that stormwater problems are assessed and prioritized and that those of greatest concern are brought into the stormwater retrofit grant program for funding.

28. **Comment:** Stormwater programs should be brought east-of-Hudson.

**Response:** As part of its 2001 Long-Term Watershed Protection Program, the City will begin constructing stormwater best management practices in problem areas in West Branch, Boyds Corner, Croton Falls and/or Cross River reservoirs. In addition, NYCDEP anticipates that additional stormwater-related problem areas will be found through the City’s Croton Strategy, Croton Planning and inspections. NYCDEP will prioritize and remediate sources of non-point source pollution through its Non-Point Source Management Plan. A schedule for implementation of this plan is contained in EPA’s 2002 FAD. In addition, the City is setting up a “Stormwater Remediation Small Projects Program” to address small, localized problem areas in east-of-Hudson Catskill/Delaware basins. NYCDEP will select up to ten sites annually for repair under this program. The City will report on all elements of this multi-faceted program through FAD deliverables.

***Waterfowl Management Program:***

29. **Comment:** The Waterfowl Management Program should be expanded to all potential terminal basins of the Catskill/Delaware system, including Croton Falls, Cross River and New Croton Reservoirs.

**Response:** The Final 2002 FAD has been modified. The program will now be operated in the Croton Falls and Cross River reservoirs when those reservoirs are used to provide water to the Catskill/Delaware system. Water from the New Croton Reservoir does not supply water to Catskill/Delaware system and is, therefore, not subject to this determination. However, we note that the City does monitor for birds at the New Croton Reservoir, and it employs waterfowl management activities there on as needed basis. We encourage the City to continue those efforts.

***Land Acquisition Program:***

30. **Comment:** The City should utilize the expertise and resources available through regional and local land trusts.

**Response:** The Final 2002 FAD has been modified to state that “the City will continue to work with partner organizations such as WAC, NYSDEC, the counties and local and regional land trusts to complement and enhance the City’s acquisition program.”

31. **Comment:** The FAD should acknowledge the use of conservation easements as a suitable alternative to fee acquisition.

**Response:** Consistent with the Watershed MOA, the term “land” in the FAD (especially used in the term “land acquisition”), includes fee title in real property and/or Watershed Conservation Easements on real property. When the City reports on acquisition, it reports on both acquisition of fee title in real property and conservation easements on real property. By definition, easements are an integral part of the acquisition program and are therefore not separated out when mentioned in the FAD.

32. **Comment:** The Watershed Agricultural Council (WAC) Easement program should be expanded and be flexible enough to allow for future farming on land not currently in agricultural production. The WAC should hold easements on working lands such as farms and forests.

**Response:** Agricultural easements are addressed through NYCDEP’s partnership with WAC. However, any flexibility and/or expansion of farming easements must be entirely consistent with and promote the overall objectives of the City’s watershed protection program, which is to protect water quality and meet the Surface Water Treatment Rule requirements for unfiltered systems. The Rule requires, among other things, that the system maintain a watershed control

program which minimizes the potential for contamination by *Giardia lamblia* cysts, *Cryptosporidium* oocysts and viruses.

33. **Comment:** NYCDEP should be required to resolicit priority lands.

**Response:** The Final 2002 FAD has been modified to state that “...the City will continue to resolicit landowners, especially in the higher priority areas. The City will submit to EPA the strategy used, including resolicitation targets, to guide those resolicitation efforts [by March 31, 2003].” EPA notes that Appendix H of the Watershed MOA contains a general resolicitation schedule that the City intends to follow.

34. **Comment:** The FAD should clarify EPA’s position regarding the need for the City to continue its land acquisition program during the five year option period from 2007 to 2012.

**Response:** The Final 2002 FAD has been clarified to state that the City shall request NYSDEC to renew the Water Supply Permit to conduct the land acquisition program for an additional 5 years by 1/21/06.

35. **Comment:** NYCDEP must allow greater recreational use of watershed lands.

**Response:** This issue generally falls beyond the scope of the FAD and is more appropriately addressed through the City’s relationship with the Watershed MOA Sporting Advisory Committees. However, any expansion of use must be consistent with EPA’s primary objective through the FAD, which is to ensure that the City has an adequate watershed control program that meets the requirements of the Surface Water Treatment Rule. EPA notes that the City continues to open up more land to more forms of recreational use, and the City has agreed (again, outside the scope of the FAD) to produce a final version of its comprehensive review of existing and potential recreational uses on City-owned land.

36. **Comment:** Annual acquisition targets should be set for each basin.

**Response:** In the 1993 FAD, EPA set acquisition requirements which the City was not able to meet. The 1997 MOA reconfigured the program by setting land solicitation targets. From EPA’s standpoint, however, the ultimate objective of the program is still to protect land through acquisition. As of July 2002, or 5 ½ years into a 15-year program, the City has acquired or has under contract approximately 40,000 acres in over 500 separate land deals. The pace of acquisition continues to gain speed, and the City is developing a priority basin resolicitation strategy which will continue to ensure that willing sellers are aware of the program and come forward. EPA does not believe that setting acquisition targets will add value to the program at this time and, furthermore, it would be inconsistent with the Watershed MOA.



37. **Comment:** Closing on parcels should occur in a more timely manner.

**Response:** In the 2002 FAD, the City will report quarterly on the time between contract signing and closing, and efforts made to reduce the time between contract signing to closing.

38. **Comment:** NYCDEP should provide funds to acquire land in Croton basins that can be used to supplement Catskill/Delaware water on an emergency basis.

**Response:** NYCDEP is currently developing a Croton Strategy to provide for integrated watershed management to protect and improve water quality in those basins. That strategy and an implementation plan and schedule will be submitted to EPA in 2003.

39. **Comment:** NYCDEP should seek an amendment to the water supply permit to remove barriers in the existing program (e.g., minimum acreage requirements).

**Response:** The Natural Features Criteria, set up through the MOA, has focused the City's land solicitation and acquisition efforts on parcels that provide the most water quality benefit. To date, the City has acquired or has under contract approximately 40,000 acres. At this point in the program, the criteria does not appear to be an impediment to the City acquiring high quality land. EPA will continue to carefully monitor the progress of the program.

40. **Comment:** The program is not adequately funded. The City should be required to add \$50 million to the \$250 million land acquisition account.

**Response:** Currently the City has spent approximately \$100 million on acquiring land in the Catskill/Delaware watershed. The 2002 FAD states that EPA/NYSDOH and NYCDEP will consult biennially on this issue and, if EPA/NYSDOH determine it to be necessary, NYCDEP will establish an additional \$50 million for land acquisition in the segregated account, bringing the aggregate total to \$300 million.

41. **Comment:** The ability of local municipalities to exclude lands from purchase when a willing seller exists should be revisited.

**Response:** In accordance with the 2002 FAD, the City shall work with the New York State Department of State to issue, prior to January 1, 2006, a written communication to each Town or Village which previously exercised an election under paragraph 68 of the MOA to exclude certain land from fee acquisition by the City, of such Town's or Village's right, pursuant to paragraph 68(c)(ii) of the MOA, to revisit and rescind such exclusion between January 1, 2006 and June 30, 2006. This will be an opportunity for the City and municipalities to revisit this issue.

In accordance with the MOA, 15 municipalities have made designations to exclude acquisition in

fee for a total of 10,475 acres. Eighteen municipalities, which were eligible, have chosen not to do so. It is important to note that conservation easement acquisitions are unaffected by the municipalities' designations. The City has reviewed this information and has found that, except for 533 acres in one hamlet, all of these designated areas are in Priority Areas 2, 3, and 4. Further, much of the land is residential or commercial property which is ineligible or inappropriate for fee acquisition under the Land Acquisition Program. EPA believes that the overall impact of these designations on the program is minor.

42. **Comment:** The City should be required to pursue all available options to increase acquisition in the Kensico basin. In addition, there should be spending requirements and specific numerical targets for acquisition.

**Response:** In its FAD Mid-Course Review (May, 2000), EPA was critical of the City's progress in acquiring land in the very important Kensico basin. The City had not acquired any of the available 1000 acres by mid-2000. In the past 1 ½ years, the City has made progress in this area. It has now acquired (or has under contract) over 150 acres in the basin (and now owns over 35% of the land area) and is in substantive discussion with several other landowners in the basin. It has a staff person dedicated to the basin and has been much more aggressive in its land solicitation efforts. EPA expects the City to acquire a significant amount of additional acreage in the next couple of years. We will continue to closely monitor the progress of the Land Acquisition Program in this critical basin. Regarding land acquisition targets, please see the response to Comment #36.

***Watershed Agricultural Program:***

43. **Comment:** Reporting on "Farms Substantially Implemented" is misleading due to the changing status of farm operations. In addition the program is unlikely to meet this milestone.

**Response:** The Final 2002 FAD has been modified. As part of its quarterly reporting requirement, the City will include a discussion on the fluctuation in the number of farms with approved whole farm plans and the impact on FAD program goals. NYCDEP acknowledges that the milestone may be a challenge, but believes that it will be met.

44. **Comment:** The program should be continued and expanded.

**Response:** The City's Long-Term Watershed Protection Program includes the continuation and significant expansion of the Watershed Agricultural Program to include small farms and farms east-of-Hudson. This program, along with many implementation milestones, is memorialized in the 2002 FAD.

45. **Comment:** The City should provide for adequate funding for CREP.

**Response:** In accordance with the 2002 FAD, the City will continue to financially support the CREP program and is prepared to bring the program east-of-Hudson once the statewide CREP agreement is in place.

46. **Comment:** The City should increase funding to the Watershed Agricultural Council (WAC) for research on source, fate and transport of watershed pollutants.

**Response:** The City will continue to support WAC's research agenda. WAC research is also supported by other funding sources. In addition, research is being conducted by other agencies and watershed stakeholders. Also important is the timely dissemination of data and findings. We note that one of the Watershed MOA recommendations agreed to by the Watershed Protection and Partnership Council Executive Committee is an annual technical conference on Watershed Protection/Water Quality Monitoring. The objective of this conference is to present results from water quality monitoring and research programs (including monitoring programs funded by the City, State, SDWA and WRDA) to the interested public. EPA strongly supports this effort. In addition, the WAC will report annually on research supported by the Watershed Agricultural Program.

47. **Comment:** The City should provide a fund to enable WAC to purchase farms from being sold out of agriculture. This would enable WAC to place permanent protections on environmentally sensitive areas, and put a permanent easement on the agricultural portion and then sell to farmers to keep them farming.

**Response:** Active farmland is protected through numerous mechanisms provided for in the Watershed Agricultural Program. In addition, the WAC has begun implementation of the agricultural easement component to its program. To date, the WAC has acquired or under contract over 2,500 acres of farmland easements. If an owner of farmland wishes to sell his or her property, it would, under most circumstances, be available for acquisition under the City's Land Acquisition Program. The extent to which the City supports farming in the watershed by buying land and allowing farming, or funding WAC to buy land and allow farming, is generally beyond the scope of the FAD. We note, however, that any potential support must not be inconsistent with the primary objective of the City's watershed protection program, which is to limit potential contamination of the City's water supply by *Giardia lamblia* cysts, *Cryptosporidium* oocysts, and viruses.

***Forestry Program:***

48. **Comment:** NYCDEP should support preferential tax treatment for forested lands held for conservation.

**Response:** Comment acknowledged. The NYCDEP Forestry Program contains a taxation component.

***Stream Management Program:***

49. **Comment:** Implementation of the Stream Management Program should be expedited. It is currently underfunded and inefficiently run.

**Response:** The Final 2002 FAD has been modified. The City has agreed to a schedule that calls for the implementation of 12 restoration projects (2 more than in the draft FAD) and 9 Stream Management Plans. The management plans are important as they will lay the groundwork for future restoration and stream buffer protection projects. The City and its implementation partners (county Soil and Water Conservation Districts, in particular) have agreed to an aggressive schedule and have committed a substantial amount of resources to this program -- approximately a ten-fold increase over those allocated in 1997.

50. **Comment:** The City must work more closely with county Soil and Water Conservation Districts.

**Response:** The county Soil and Water Conservation Districts are the City's primary implementation partners in this program; therefore, a close working relationship is a necessity to the program's success. In addition, the City and Districts have negotiated, and continue to negotiate, contracts that help to define the relationship between the City and the Districts, and the tasks that need to be performed to implement the program.

51. **Comment:** The FAD should include specific program commitments and implementation milestones.

**Response:** The Final 2002 FAD has been modified to include specific implementation milestones for individual stream restoration projects and stream management plans. In the draft FAD, a number of deadlines were incorporated through reference to specific sections of the City's Long-Term Watershed Protection Program (December, 2001).

52. **Comment:** The Stream Management Program should address stream stability problems along Esopus Creek in Phoenicia.

**Response:** In accordance with the 2002 FAD, this project is slated for construction in 2003.

53. **Comment:** A plant materials nursery should be established.

**Response:** We understand that the Greene County Soil Water and Conservation District has

established a plant materials nursery. The City continues to work with the counties to ensure that enough plant materials are available for stream restoration projects.

54. **Comment:** The Schoharie basin should be a priority for stream restoration projects.

**Response:** The Final 2002 FAD has been modified to include two additional restoration projects in the Schoharie basin. Schoharie and Ashokan basins are high priorities in the Stream Management Program. Of the 12 restoration projects that the City has committed to in the 2002 FAD, 9 are in these 2 basins. In addition, the first Stream Management Plans to be completed pursuant to the 2002 FAD will address streams in the Schoharie and Ashokan basins.

55. **Comment:** NYCDEP should summarize and make available for review an assessment of the total length of streams per sub-basin that are in need of, and eligible for, stream restoration work at some point in the future.

**Response:** In accordance with the Watershed MOA, NYCDEP developed its *Criteria for Prioritizing Project Selection* in May 1998. Based on its analysis of 80 sub-basins, the City developed a prioritized list of 18 sub-basins in need of Stream Management Plans and stream restoration demonstration projects. The City, working with county Soil and Water Conservation Districts and other implementation partners, has committed to the completion of 9 Stream Management Plans that address 13 of those sub-basins, or 65% of the sub-basins in the Catskill/Delaware system. Those Stream Management Plans will include detailed inventories of stream miles, recommendations for remediation and protection activities, and lay the groundwork for the next stage of the program.

56. **Comment:** The FAD should direct the City to prepare a riparian buffer protection plan designed to preserve existing stream buffers through regulatory changes, purchase of easements or other means.

**Response:** The Final 2002 FAD has been modified to state that “the City will submit a report on its efforts to protect riparian buffer areas including but not limited to, acquisition, CREP, watershed regulations, stream management plan, forestry program and education and outreach. The report will include (1) an inventory of stream miles and protection status, (2) a quantitative assessment of whether the City’s efforts are effective and (3) recommendations and a plan for any needed enhancements or additions to the riparian buffer protection initiatives.”

57. **Comment:** The program should be extended to the east-of-Hudson basins.

**Response:** The City is currently developing its Croton Strategy to address remediation and protection requirements in the Catskill/Delaware basins east-of-Hudson as well as the Cross River and Croton Falls basins. From the Strategy, the City will develop an implementation plan

and schedule that will be tailor-made to the specific concerns in each basin, and may include one or more components of programs that are now in place west-of-Hudson, such as the Stream Management Program.

58. **Comment:** Potential future impacts on stream stability from increased impervious surfaces should be evaluated.

**Response:** It is anticipated that the Stream Management Plans and the work being performed to support stream restoration projects will include information on land use and impacts on streams. In addition, the City, through its Geographic Information System, is developing the capability to look at future growth patterns and the potential impact that growth may have on water quality. It is certainly the goal of the City's entire Long-Term Watershed Protection Program to minimize those impacts.

***Wetlands Protection Program:***

59. **Comment:** The FAD should require no net loss of wetlands.

**Response:** The overall objective of the City's wetlands protection program is to protect the existing wetlands in the watershed through regulatory and non-regulatory programs. There has been virtually no loss of wetlands over the past two years, and we expect this trend to continue. This is in part due to tighter state and federal regulatory wetlands fill regulations and to the implementation of the City's program. The 2002 FAD includes an enhancement to that program with better wetlands enforcement coordination, more wetlands mapping and additional trend analysis. In addition, in the 2002 FAD, the City has agreed to pursue opportunities to enhance or restore existing wetlands.

60. **Comment:** NYCDEP should prioritize the solicitation and acquisition/conservation easement of any wetland greater than 1/4 acre in size, along with its protective buffer.

**Response:** The acquisition of wetlands is one of several priorities in the City's land acquisition program. The City's land acquisition program is prioritized based on travel time to the City's distribution system and a set of natural features criteria (described in detail in the watershed MOA). Since a parcel is eligible for solicitation/acquisition if it is within certain limiting distances of watercourses and reservoirs, and since wetlands (both large and very small) are often found near watercourses (especially in the Catskill/Delaware watershed), this criterion prioritizes the solicitation/acquisition of a significant amount of wetlands, regardless of size. In addition, for areas in watershed basins within 60-day travel time to the City's distribution system, the natural features criteria do not apply on land solicitation/acquisition. The only restriction is on parcel size (not wetlands size), and even that restriction is eliminated in the Kensico and West Branch basins.



There has been virtually no loss of wetlands over the past two years. With the City's multi-pronged approach to protecting wetlands, including land acquisition and additional mapping, we expect that positive trend to continue, and do not see a need to revisit the natural features criteria at this time.

- 61. Comment:** Wetlands mapping should be accelerated.

**Response:** NYSDEC initiated a program to investigate and map 40 wetlands in the Catskill/Delaware watershed that the City believed met the 12.4 acre criteria for inclusion on the State Official Wetlands Map. As a result, 15 wetlands have been added to the State maps. This re-mapping program is now being initiated in Westchester and Putnam Counties. In addition, the City is conducting a wetlands inventory and trend analysis throughout the watershed to provide up-to-date spatial information on wetland status, extent, distribution and trends to support its regulatory and non regulatory wetlands protection efforts.

- 62. Comment:** Constructed wetlands should not be allowed as compensation for wetlands loss. Wetlands mitigation sites should be monitored and maintained in perpetuity.

**Response:** Comment acknowledged. Constructed wetlands are not a preferred compensation to address wetlands loss. In fact, the goal of NYCDEP's Wetlands Protection Program is to protect existing wetlands and not have to be in a position to recommend to the Corps or State an appropriate form of compensation for wetlands loss. There has been virtually no permitted wetlands loss in the last two years. On the basis of the City's Wetlands Protection Program and tighter state and federal wetlands fill regulations, we expect that trend to continue.

- 63. Comment:** Wetlands in the watershed that are over 1 acre in size should be provided the State designation of wetlands of "unusual local importance."

**Response:** Recently the State requested the U.S. Army Corps of Engineers to designate all wetlands in the east-of-Hudson portion of the New York City Water Supply Watershed as Critical Resource Waters (CRW). On May 21, 2002, the Corps accepted the State's request. Many activities in the CRW area are no longer authorized by the Nationwide Permit Program or will have to meet additional conditions. As detailed in the City's Long-Term Watershed Protection Program, the State has also agreed to amend Official State Wetlands Maps by adding wetlands that are adjacent to the City's reservoirs and controlled lakes as Wetlands of Unusual Local Importance. Once they are mapped, they will be subject to both NYSDEC wetlands regulations and the City's Watershed Rules and Regulations. EPA will follow the progress of this program closely.

***East-of-Hudson Non-Point Source Pollution Control Program:***

64. **Comment:** As the Westchester and Putnam County Croton Plans are completed, the FAD should be amended to reflect the Croton Plan.

**Response:** The Croton Plans are county documents and the extent to which the counties or other parties implement the Croton Plans is beyond the scope of the FAD. However, there may be elements or recommendations in the Croton Plans that may overlap with the City's Croton Strategy, and the implementation of that Strategy is a requirement of the FAD (for Catskill/Delaware basins east-of-Hudson and Cross River and Croton Falls basins). In addition, the FAD does make it clear that, once the plans are completed, "it is expected that the counties will also play a substantial role in addressing non-point sources of pollution in the east-of-Hudson basin." The Final 2002 FAD has been clarified to state that "the City and Westchester and Putnam County officials shall continue to keep each other informed of planned and ongoing east-of-Hudson non-point source pollution control actions." It goes on to state in the Milestone/Reporting Requirement table that the City will "report on efforts to coordinate planning and implementation of actions under the City's East-of-Hudson Non-Point Source Management Plan and The Counties' Croton Plans." Certainly, actions being taken by the City and the counties should be coordinated to the extent practicable.

65. **Comment:** Once the City's Croton Strategy is submitted, EPA should amend the FAD to include strict milestones for implementation of the strategy.

**Response:** The Final 2002 FAD has been clarified to state that "upon acceptance by EPA, in consultation with NYSDOH and NYSDEC, the schedule milestones will become a FAD requirement."

66. **Comment:** The Land Acquisition Program and Septic Program should be expanded to Croton Falls and Cross River basins.

**Response:** As part of its Croton Strategy, the City will evaluate and address remediation and protection requirements in the Cross River and Croton Falls basins. From the Strategy, the City will develop an implementation plan and schedule that will be tailor-made to the specific concerns in each basin, and may include one or more components of programs that are now in place in Catskill/Delaware basins, such as land acquisition and septic replacement/rehabilitation and maintenance. EPA notes that New York State recently committed an additional \$10 million for land acquisition in the east-of-Hudson watersheds.

67. **Comment:** NYCDEP should be required to be in substantial compliance with watershed protection programs in Cross River/Croton Falls basins both until and after filtration of the Croton system.

**Response:** It is EPA's expectation that after the Croton filtration plant is on line and Croton

aqueduct capacity is increased, the City will not use Cross River and Croton Falls water to supplement the Catskill/Delaware supply. As water from these basins would no longer be used to supplement Catskill/Delaware water, EPA would have no legal authority to mandate protection measures for the Cross River and Croton Falls basins through the FAD. However, EPA would strongly encourage the City to continue those programs as part of a multi barrier approach to protect the Croton water supply.

68. **Comment:** Semi-annual reporting is inadequate.

**Response:** Although the City will provide a program-specific report semi-annually (in January and July), the City will also provide a FAD annual report in March, which will include an update on the status of the City's East-of-Hudson Non-Point Source Pollution Control Program. In effect, the City will report on the program three times per year. Based on EPA's experience over the past 5 years with other FAD programs, this is an adequate reporting frequency to effectively monitor the program.

69. **Comment:** All programs that are being implemented in Cross River and Croton Falls basins should also be implemented in New Croton Reservoir, since NYCDEP plans to use it to supplement Catskill/Delaware water on an emergency basis.

**Response:** The City does not plan to use water from the New Croton Reservoir to supplement Catskill/Delaware water, nor was the infrastructure designed for that purpose. Therefore, it is beyond EPA's authority under the SDWA to require that these programs be implemented in the New Croton Reservoir. However, we encourage the City and other watershed stakeholders to continue taking steps to protect the terminal reservoir of the Croton system.

70. **Comment:** NYCDEP should consult with Westchester County and municipalities when developing septic and stormwater programs for Croton Falls and Cross River basins.

**Response:** The Final 2002 FAD has been modified to state that "the City and Westchester and Putnam County shall continue to keep each other informed of planned and ongoing east-of-Hudson non-point source pollution control actions." EPA encourages the City and counties to develop standard operating procedures and to provide each other specific contact persons in order to enhance coordination and communication.

71. **Comment:** EPA should revisit this program by January 2004 and establish firm benchmarks and time-lines for program implementation.

**Response:** Firm benchmarks and time-lines for the program will be established. The Final 2002 FAD has been clarified to state that "upon acceptance by EPA, in consultation with NYSDOH and NYSDEC, the schedule milestones will become a FAD requirement." EPA will closely

monitor the implementation of this program.

***Kensico Programs:***

72. **Comment:** A goal should be to freeze and eventually reduce total levels of impervious surfaces in the Kensico basin.

**Response:** Comment acknowledged. The City has instituted a multi-faceted program with an overarching goal to protect the Kensico watershed and improve the water quality in the Kensico reservoir. Implementation by the NYCDEP of the Kensico Water Quality Control Program, including the waterfowl management program, has resulted in reduced risk of turbidity and fecal coliform bacteria contamination of the City's drinking water. In the 2002 FAD, the City has agreed to a number of enhancements in the program, and to aggressively implement the Watershed Rules and Regulations and use its SEQRA review authority. In addition, the City currently owns or has easements on over 35% of the Kensico basin land area. EPA expects additional acquisitions in the near future. Through the continued implementation of this program, along with the 2002 enhancements, the City should meet water quality objectives and protect this critical basin.

73. **Comment:** EPA should require a monitoring program to assess the environmental impacts of activities at the Westchester County Airport.

**Response:** In 2001, NYCDEP and Westchester County executed a formal groundwater sampling agreement that established a schedule and protocol for joint collection and analysis of groundwater samples. The analysis of initial samples which took place in August 2001 provided no indication that contaminated groundwater is migrating toward Kensico Reservoir. As stated in NYCDEP's 2001 Long-Term Watershed Protection Program, NYCDEP and the County will continue to collect split samples, in accordance with the agreement, indefinitely. EPA's Final 2002 FAD has been modified to state that the City will provide monitoring data results from the Westchester County Airport groundwater wells in NYCDEP's Kensico annual report.

74. **Comment:** NYCDEP should carefully monitor and address any proposal to increase the footprint or the intensity of use of the Westchester County Airport. In addition, EPA should seek Federal Aviation Administration (FAA) cooperation to have that part of the 1999 Westchester County Airport Master Plan adopted that sets aside 80 acres of buffer land.

**Response:** In its 2001 Long-Term Watershed Protection Program, NYCDEP commits to getting involved early in the SEQRA process for projects such as the Westchester County Airport Planning Study. To that end, the City is currently developing internal guidance for effective participation in the SEQRA process. NYCDEP will also report on its project review activities with respect to ongoing and proposed projects that may affect water quality. The future

use of the Westchester County Airport property may have a significant impact on Kensico Reservoir. Once the draft Environmental Assessment and Environmental Impact Statement are completed, EPA will evaluate the documents and provide comments to FAA, as appropriate.

75. **Comment:** The City should evaluate the impact of air emissions from aircraft using the Westchester County Airport.

**Response:** The City maintains a comprehensive sampling program at the Kensico Reservoir. This program includes periodic monitoring for hydrocarbons and other organic and inorganic compounds. To date, the data do not indicate that airplane emissions have had an impact on water quality in the Kensico Reservoir.

76. **Comment:** A formal process should be established among NYCDEP, Westchester County and local municipalities to develop and implement a sewer maintenance and inspection protocol.

**Response:** The FAD requires NYCDEP to work with Westchester County and local municipalities to implement an inspection and maintenance protocol for county sewers.

***Catskill Turbidity Control Program:***

77. **Comment:** EPA should require NYCDEP to come into compliance with the Clean Water Act with respect to the release of turbid water from the Shandaken Tunnel outlet.

**Response:** EPA's Filtration Avoidance Determination is being issued pursuant to EPA's authority under the Safe Drinking Water Act. Many activities that are being performed pursuant to this determination may also be subject to other federal or state requirements, such as the Clean Water Act. With respect to the Shandaken Tunnel issue, EPA and/or the State pursuant to its authorities under the Clean Water Act, may require the City to take additional actions to address the release of water from the Shandaken Tunnel into the Esopus Creek.

78. **Comment:** The Shandaken Tunnel release regime being developed by the City, with the State, should be completed sooner than 5/31/03, before the on-set of spring flooding and the 2003 trout-fishing season. The City should also work with additional stakeholders in developing the strategy. If a strategy cannot be agreed upon, EPA should arbitrate and mandate a compromise regime release strategy.

**Response:** After consulting with NYSDEC and the City on this issue, we've retained the 5/31/03 date in the FAD as a realistic date to complete the development of a release regime. It should be noted that any substantive change to the release regime will likely require a change in State law, which will move the effective implementation date after the summer of 2003. EPA anticipates that the City will consult with other regional interests as it works with the State to

develop the regime. EPA does not believe it is appropriate to arbitrate and require a release regime which is mandated under State law and involves a number of regional concerns and agendas. It is EPA's expectation, however, that the parties will come to agreement on a release regime within the timeframe specified in the FAD.

79. **Comment:** The FAD should set more aggressive milestone dates for the completion of the engineering assessment of structural alternatives for Catskill turbidity control. The assessment should provide detailed information for final decision-making purposes, and EPA should be the decision maker. Interim measures should also be considered.

**Response:** The Final 2002 FAD has been substantially modified with respect to the engineering assessment and other Catskill turbidity control actions. Because of the scope/cost of the contract (approximately \$7 million) and the magnitude of the project (rough estimates of a new intake structure are \$80-100 million), the City is developing a new contract, rather than amending an existing contract. This process extends the start date from 12/31/02 to 10/31/03. The project will also include additional monitoring and modeling, not anticipated in the schedule provided in the draft FAD. The completion date for the study has been extended to 9/30/06, with a plan being submitted to EPA by 12/30/06. (Note that NYCDEP's original proposal, submitted in its 2001 Long-Term Watershed Protection Program, called for a plan by 7/31/08.) The Final 2002 FAD has been modified to state that the study report will include preliminary designs and detailed cost information for final decision-making purposes, and the subsequent implementation plan will be subject to EPA, NYSDOH and NYSDEC approval.

In consideration of the extended timeframes for a final report and plan, NYCDEP has agreed to dredge the Schoharie Reservoir intake channel by 12/31/05 as an interim action. This should provide a significant water quality benefit. The City has also agreed to complete the engineering assessment in two phases. The first phase will be completed by 12/31/04 and will include the results of (1) a preliminary screening assessment of all alternatives and (2) a comprehensive turbidity curtain study, including an in-reservoir pilot. By 3/31/05, the City will develop a plan, subject to EPA, NYSDOH, and NYSDEC approval, with appropriate milestones for implementing a turbidity curtain as an early action if determined to be feasible and cost effective. In addition, the City will augment its stream management program by implementing additional projects that may reduce turbidity in the Catskill watershed. As a result, the Final 2002 FAD has been modified to state that, in addition to the specific stream restoration projects identified in the milestone table of Section 4.5 of the FAD, the City will also identify two restoration projects in Schoharie Reservoir Basin and one restoration project in either the Schoharie or Ashokan Reservoir basin and complete these 3 projects no later than 12/31/06.

80. **Comment:** Progress reports should be provided by the City every 6 months, rather than annually.



**Response:** EPA notes that, in addition to the annual progress report, the FAD contains numerous reporting requirements and project milestones for Catskill turbidity reduction activities. Also, the Final 2002 FAD has been modified to include a semi-annual meeting among EPA, NYSDOH and NYSDEC to “review progress on all Catskill turbidity control efforts, including but not limited to the City's analysis of engineering alternatives for the Schoharie Reservoir as well as report on the status of source control initiatives.” If, at any time, EPA believes that the reporting frequency is insufficient to adequately monitor the City’s progress, EPA will ask the City for more frequent updates.

### ***Water Quality Monitoring:***

- 81. Comment:** A program to monitor for pharmaceuticals, hormones and other organic wastewater-related compounds in surface water should be developed. In addition, these compounds should be monitored from the waste stream of upgraded wastewater treatment facilities to determine their effectiveness in removing them.

**Response:** Programs to monitor for organic wastewater-related compounds, funded through the SDWA grant provided to NYSDEC, are currently under development. As these projects are further developed, wastewater treatment effluent will probably be included in the monitoring matrix. NYCDEP will review and evaluate the results of these efforts as part of its overall monitoring program.

- 82. Comment:** Dual sand filtration should be monitored for equivalency to microfiltration and to detect operational problems.

**Response:** In August 1998, EPA approved in-series Continuous Backwash Upflow Dual Sand Filtration technology as equivalent to microfiltration for removing *Giardia lamblia* cysts and *Cryptosporidium* oocysts from treated wastewater discharged in the New York City watershed. As agreed at that time, and also required by the 2002 FAD, the City will perform long-term, periodic monitoring of the final effluent for *Giardia lamblia* cysts and *Cryptosporidium* oocysts at selected wastewater treatment plants. This program, which is currently under development by the City (with a submittal milestone date in the FAD), is intended to monitor the long-term effectiveness of advanced tertiary treatment and to provide information on operation and maintenance issues that arise over time.

- 83. Comment:** The City should develop a comprehensive integrated monitoring program that focuses on the health of individual reservoir basins, and then develop a strategy to disseminate the data, with oversight by EPA.

**Response:** The City last revised its watershed monitoring program in 1997. With the implementation of a number of watershed protection and remediation programs, EPA believes it

is necessary to re-evaluate that program. In its *FAD Mid-Course Review* (May 2000), EPA recommended that the City “conduct a rigorous analysis of its current monitoring arrays to determine their adequacy to detect trends, and to measure pollutant reductions, within and across watershed programs, at the basin and sub-basin scales.” NYCDEP provided a draft of its proposed, revised sampling program in May 2002. EPA and NYSDOH provided comments, and the City expects to finalize the program during fall 2002. The overarching goal of the program is to produce an integrated water quality monitoring network, which provides scientifically defensible information regarding the understanding, protection, and management of the New York City water supply. It is “integrated” in that the network is meant to fulfill several monitoring strategies (e.g., distinct, spacial, temporal). EPA expects that, through this program, the City will be able to monitor the health of individual reservoir basins.

The City will be conducting basin analyses and presenting the overall findings of its monitoring program in its annual *Water Quality Report*, which the City reinstituted in July 2002, as well as its *Comprehensive Water Quality/Program Evaluation Report* in March 2006. In addition, as part of its 2001 Long-Term Watershed Protection Program, the City will develop and implement a Stream Management Program Evaluation Strategy which will look at the health of major watershed streams. The Final 2002 FAD has been modified to include the posting of additional reports on NYCDEP’s website. NYCDEP will also continue to improve its website by “completing development of an area which will allow the public to learn more about the activities and status of the projects and initiatives under the City’s watershed protection program.” We also note that the Executive Committee of the Watershed Protection and Partnership Council recommended that an annual technical conference on New York City Watershed Protection/Water Quality Monitoring be conducted to present the results from water quality monitoring programs (including monitoring programs funded by the City, State, SDWA and WRDA) to the interested public. EPA strongly supports this endeavor.

#### **Modeling:**

- 84. Comment:** NYCDEP should partner with other watershed stakeholders to integrate with other terrestrial models under development (e.g., SWAT). NYCDEP should also engage watershed partners in the technical process of Total Maximum Daily Load (TMDL) and nutrient criteria development.

**Response:** NYCDEP has devoted significant resources to the development and application of the General Watershed Loading Function (GWLF) model in the West-of-Hudson watersheds and is committed to continuing to improve that model. EPA expects the City’s model integration efforts to increase, especially with the increased data dissemination and model application activities called for in the 2002 FAD. Regarding nutrient criteria development, EPA has recommended that the States develop nutrient criteria that fully reflect localized conditions and protect specific designated uses, using the process described in EPA’s Technical Guidance

Manuals for nutrient criteria development. NYSDEC is currently preparing a Nutrient Criteria Development Plan that will guide its efforts to develop and adopt revised nutrient criteria throughout New York State. EPA is providing technical input to this program. The FAD also requires NYCDEP to provide input to the New York City watershed portion of this effort. All programs (e.g., TMDLs and nutrient criteria) that may have a significant impact to watershed residents and stakeholders will be subject to extensive public input. EPA will work with the City and State to ensure that this occurs.

85. **Comment:** The Multi-tiered Modeling Program should be integrated with the Stroud Water Research Center enhanced monitoring.

**Response:** We believe that opportunities to improve upon the NYCDEP models are encouraged through the FAD deliverable process. As an example, pursuant to the 2002 FAD, NYCDEP will submit an annual Research Objectives Report. In that report, the City will provide, among other things, the status of various research programs addressing the sources, fate, and transport of key constituents, and the status of the evaluation of data generated by other agencies. This report will be posted on NYCDEP's website. EPA and the State will also be evaluating the Stroud project (funded through the SDWA grant provided to NYSDEC) and other projects, and will make recommendations throughout the duration of the FAD.

86. **Comment:** Data collected to support models needs to be relevant and timely.

**Response:** In spring 2002, the City conducted a monitoring needs assessment to support terrestrial and reservoir modeling. Those specific needs are being incorporated into the City's revised monitoring program which will be finalized during fall 2002. An explicit objective of the City's revised monitoring program is that it fully support the needs of the City's modeling efforts.

***Geographic Information System:***

87. **Comment:** NYCDEP should conduct a comprehensive analysis of impervious surfaces in the watershed and make that information publicly available.

**Response:** In accordance with the 2002 FAD, the City will complete a detailed impervious surfaces analysis for the New York City watershed, east-of-the-Hudson. The Final 2002 FAD has been modified to state that the City will provide this report "to applicable counties and municipalities."

88. **Comment:** NYCDEP should take advantage of NYSDEC's extensive GIS modeling program (PAR) and interface like components for watershed management applications, rather than duplicating similar efforts and programs.

**Response:** From the start, NYCDEP has been working closely with both NYSDEC and PAR Government Systems Corporation to ensure that the GIS enhancements are beneficial to NYCDEP's operations. Based on recent discussions with NYCDEP and NYSDEC, it appears that this early coordination has resulted in a system that will be extremely useful to the City.

89. **Comment:** NYCDEP should provide instructional workshops on the use of its GIS.

**Response:** NYSDEC, NYCDEP and PAR have made several presentations on the projected use of the system. As development of the system continues, the City is amenable to additional meetings/workshops with stakeholders to discuss GIS applicability and operations as well as the use of data layers that are made available to the public.

***Regulatory Programs:***

90. **Comment:** The City should be required to review and propose changes to the Watershed Rules and Regulations (WR&Rs) in order to keep up with the increased scientific understanding of the watershed.

**Response:** The Final 2002 FAD has been modified in two places. As part of its Watershed Monitoring Program (Section 5.1 of the FAD), text has been added which clarifies one of the objectives of the City's Comprehensive Water Quality/Program Evaluation Report. It states that:

"NYCDEP recognizes the need for regular evaluation and appropriate revision and refinement of its watershed protection program. The watershed protection program includes, but is not limited to, remedial activities, protection activities, land acquisition and the Watershed Rules and Regulations. NYCDEP has committed to undertaking a comprehensive evaluation of the program on a periodic basis, with the first scheduled for March 31, 2006. The data generated through this monitoring program in conjunction with other defensible scientific findings is to be used to conduct the City's periodic assessment of the effectiveness of the watershed protection program."

Consistent with the goals of this assessment, the Final 2002 FAD also clarifies that the outline for the Comprehensive Water Quality/Program Evaluation Report will include "a section for NYCDEP modifications (enacted and planned) to the Watershed Rules and Regulations." NYCDEP will post this report on its website.

In addition the Final 2002 FAD includes a modification to Section 6 (Regulatory Programs). The City will report to EPA, by 1/31/04, on any enacted or planned modifications to the City's Watershed Rules and Regulations. The report will also include a timeline for enacting any planned modifications.

91. **Comment:** A number of specific rule changes were recommended (e.g., additional limits on

impervious surfaces, tighten/loosen requirements for surface and subsurface wastewater treatment facilities, phosphorus restricted status, siting septics, unclassified streams, etc.).

**Response:** The Final 2002 FAD has been modified to provide NYCDEP the opportunity to report on recommended and enacted modifications to the Watershed Rules and Regulations, in 2004 and in 2006 (see response to Comment #90, above).

92. **Comment:** NYCDEP should seek amendments to the public health law to increase penalties for violations of the WR&Rs so that penalties are more consistent with other environmental laws.

**Response:** EPA notes that, in August 2002, the Executive Committee of the MOA Watershed Protection and Partnership Council recommended that the “Public Health Law be amended to provide for penalties under regulations promulgated pursuant thereto, that are more comparable with those levied under other water pollution control laws and regulations.” EPA strongly supports this recommendation.

93. **Comment:** A program similar to the Watershed Enforcement Coordinating Committee (WECC) should be established for stormwater, SEQRA, Phase II Stormwater program and subsurface discharge enforcement.

**Response:** In accordance with the 2002 FAD, NYCDEP will “work with NYSDEC to develop an addendum to the existing MOU to improve coordination of stormwater enforcement actions between agencies and with the State Attorney General’s office.” It is anticipated that this action will result in a “WECC-like” committee that meets to coordinate stormwater enforcement issues. We expect that related matters (such as SEQRA concerns) will be discussed in this forum as well. In addition, through the 2002 FAD, NYCDEP has agreed to develop and implement a two-year pilot Stormwater Enforcement Coordination Pilot Program, formalize an agreement with the chosen municipality for the coordination of enforcement actions, and report on expanding the program.

94. **Comment:** NYCDEP should focus on educating the regulatory community and measure success by compliance rather than enforcement. Enforcement must be consistent with the partnership required by the Watershed MOA.

**Response:** Compliance with environmental regulations, including the Watershed Rules and Regulations, is one of the objectives of the City’s watershed protection program. Enforcement is a tool that is used to ensure compliance; it is not an end in itself. Compliance is one of several yardsticks by which the success of the City’s watershed protection program will be measured in the long-term. There are a number of efforts underway to assist the regulated community in achieving and maintaining compliance (e.g., the Technical Support Program with NYSDEC, to provide assistance to wastewater dischargers on SPDES requirements; revised and updated



guidance documents to assist the regulated community in complying with regulations; NYCDEP's commitment to conduct additional workshops on the Watershed Rules and Regulations and NYCDEP's role in SEQRA; NYCDEP's reaching out to project applicants and encouraging them to participate in pre-application, compliance assistance conferences). However, because enforcement is an important tool to achieve compliance, the FAD also requires the City to continue to develop a more efficient and effective enforcement program (e.g., the addendum to the existing MOU to improve coordination of stormwater enforcement actions between agencies, the Stormwater Enforcement Coordination Pilot Program, more police training, internal SEQRA guidance). We believe that all of these efforts are consistent with the Watershed MOA.

- 95. Comment:** EPA should require that road salt application be reduced or that road alternatives be used.

Pursuant to the 2002 FAD, the City will “work with State DOT and counties to encourage efficient use of appropriate highway maintenance materials in the watershed.” Recently, scientists from NYCDEP, NYSDEC, NYSDOH, NYSDOT and the New York State Attorney General's Office evaluated the phosphorus loading impacts associated with the use of various winter roadway maintenance products in the watershed. Out of this study came guidance material, provided by the State AG's Office to state agencies and local municipalities, on the selection and application of deicers within the watershed. We also note that NYSDEC recently revoked a “beneficial use determination” within the New York City watershed for deicer products that combine byproducts of agricultural processes and magnesium chloride on the basis of their phosphorus content. The City provided significant technical support to this effort. We expect that these advisory/science efforts will continue with the full support of the City.

- 96. Comment:** There should be a ban on new wastewater treatment facilities in the watershed.

**Response:** New York City's Watershed Rules and Regulations contain significant restrictions on the siting of new WWTPs in the watershed (e.g., no new WWTPs in phosphorus restricted basins [except as allowed under limited circumstances, through the pilot phosphorus offset program] or within a 60-day travel time to the City's distribution system.) The regulations also require that any new WWTP provide advanced tertiary treatment to address phosphorus and pathogens. The goal behind these restrictions, which is consistent with the goal embodied in the Watershed MOA, is to protect and enhance water quality in the watershed and, at the same time, allow for economic vitality within the watershed communities. EPA continues to support this goal. Information to date does not suggest that the restrictive allowance for new wastewater treatment plants in the watershed has compromised water quality. We note that since the revised Watershed Rules and Regulations went into effect, no new wastewater treatment plants west-of-Hudson have been planned or constructed other than those being planned under the MOA's New Sewage Treatment Infrastructure Program. The facilities that are being planned through that program are specifically meant to address existing communities that are on septs, many of which



are in close proximity to streams and other watercourses and may be failing or are likely to fail in the future. In addition, there is one WWTP east-of-Hudson that was constructed pursuant to the pilot phosphorus offset program (see response to Comment #101).

- 97. Comment:** A procedure should be established to facilitate better communication and coordination between NYCDEP and local permitting authorities with respect to variances and other permitting issues (e.g., clear consistent guidance on identifying unmapped watercourses).

**Response:** In its 2001 Long-Term Watershed Protection Program, NYCDEP commits to conducting “additional workshops on the WR&Rs, and [NYC]DEP’s role in SEQRA for design professionals, planning boards, building inspectors and other municipal staff” beginning in 2002. We encourage the City and municipalities to use these venues to further enhance this coordination and to discuss issues concerning the consistent application of the Watershed Rules and Regulations.

- 98. Comment:** The City should develop an inventory of hazardous waste and solid waste sites located in the watershed and near aqueducts.

**Response:** NYCDEP has been working closely with both NYSDEC and PAR Government Systems Corporation on major GIS enhancements and the addition of data layers. The location coordinates of hazardous waste and solid waste sites exist on readily available databases. We will work with NYCDEP to ensure that this information is transferred to NYCDEP’s GIS platform and is easily accessible by NYCDEP enforcement/compliance staff.

- 99. Comment:** The language in EPA’s draft FAD is vague with respect to requiring NYCDEP to implement the recommendations in its Septic Siting Study. They should be adopted through a change to the Watershed Rules and Regulations.

**Response:** The 2002 FAD requires NYCDEP to “substantially implement, in consultation with NYSDOH, the recommendations made in the [City’s] Septic Siting Study, through a guidance document or other effective mechanism.” We believe the intent is clear and that it is appropriate to allow NYCDEP the flexibility on how best to implement the recommendations. We note that, in accordance with the FAD, NYCDEP will describe how it will implement the recommendations in a September 2002 deliverable, which is currently under review.

- 100. Comment:** NYSDOH should be required to review the adequacy of septic siting rules and assess regulatory changes needed to protect drinking water supplies in New York State.

**Response:** NYSDOH has informed us that it is currently re-evaluating the State’s septic regulations (10 NYCRR Part 75 Appendix 75-A).

- 101. Comment:** Several commentors recommended that the FAD require NYCDEP to discontinue the phosphorus offset program. Some went on to state that the construction of new WWTPs in phosphorus-restricted basins should be prohibited. Others stated that construction of new WWTPs in phosphorus-restricted basins should be allowed.

**Response:** At the outset it is important to note that the Pilot Phosphorus Offset Program is not a FAD requirement; rather it is a provision of the MOA, and its conditions are defined in the Watershed Rules and Regulations. In addition, there are currently no Catskill/Delaware basins that are phosphorus-restricted. The Pilot Phosphorus Offset Program is being piloted for a fixed time period, and it includes a restrictive “cap” on participation. It allows for a maximum of three plants with 150,000 gpd total flow in phosphorus restricted basins east-of-Hudson that are not within the 60-day travel time to the City’s distribution system. (After 5 years, only one east-of-Hudson project has been permitted, for a 12,000 gpd discharge.) The maximum total phosphorus discharge limit is 0.2 mg/l, and the phosphorus loading from the new point source plus associated non-point source loadings resulting from the new construction must be offset by a factor of 3:1 from other point and/or non-point source loadings within the same basin.

According to the Watershed Rules and Regulations and the Watershed MOA, NYCDEP will only decide to implement a permanent program if *actual* phosphorus offsets have been achieved. Thus, monitoring is a critical element of the Pilot Phosphorus Offset Program. In addition, offset reductions, both point source and non-point source, are enforceable through each participant’s SPDES permit. Also, the City requires a Contingency Plan that identifies the offset mechanisms that will be implemented in the event the offset plan fails to meet the required phosphorus reductions. Thus, due to the limited scope of the program, along with a number of built-in requirements and restrictions, even if the Pilot Phosphorus Offset Program is not fully successful, the addition of phosphorus to the New York City watershed will be minimized.

In the National Research Council’s *Watershed Management for Potable Water Supply - Assessing the New York City Strategy (2000)*, the Council reviewed the Pilot Phosphorus Offset Program and concluded that it “contains significant weaknesses that prevent the committee from endorsing it fully.” The Council lays out a number of recommendations that “should be incorporated into the program before it is expanded to full scale.” EPA agrees with the Council’s critique of the program. The Council makes several recommendations on appropriate offsets and the need for performance monitoring. It also recommends that the City “establish a comprehensive set of criteria to systematically evaluate the effectiveness of the phosphorus offset pilot program after five years.” Consistent with that recommendation, the 2002 FAD requires the City to develop a draft methodology for evaluating Pilot Phosphorus Offset Program and submit it to EPA, State and watershed stakeholders.

- 102. Comment:** NYCDEP should provide a more timely analysis of phosphorus-restricted basin status.

**Response:** In accordance with the 2002 FAD, the City will prepare a *Watershed Water Quality Annual Report*. This report will, among other things, provide a phosphorus- and coliform-restricted basin analysis. The City submitted its first report in July 2002, which resulted in Cannonsville Reservoir being eliminated from phosphorus-restricted status.

***Regulatory Programs - State Environmental Quality Review Act (SEQRA):***

- 103. Comment:** The City should not use the SEQRA process as a tool to prevent development, nor should the City seek to be lead agency where local interests exceed the water quality-related issues of concern to the City.

**Response:** SEQRA applies to discretionary decisions by governments to fund, authorize or approve any action that may have a significant impact on the environment. A central goal of SEQRA is to apply environmental considerations to the early stages of the development and design of a proposed project. Thus, SEQRA is not a tool to prevent development; rather, it is a tool to critically assess a project and to “limit adverse environmental impacts to the maximum extent feasible, taking into account social and economic circumstances.” This may result in the lead agency requiring the institution of best management practices, lower impact alternatives and/or the implementation of more environmentally-sensitive site designs.

The issue of determining “lead agency” authority falls beyond the scope of the FAD and is more appropriately addressed through the SEQRA process itself, which contains criteria for this designation. However, there may be instances (e.g., a very water quality-sensitive project in the watershed) when, as primary guardian of its unfiltered water supply, the City is understandably compelled to seek lead agency designation under SEQRA.

- 104. Comment:** NYCDEP should maintain an inventory of proposed development projects, as well as ones that are actively under construction, and make it accessible to the public.

**Response:** In accordance with the 2002 FAD, the City will report on project review activities with respect to ongoing and proposed projects that may affect water quality, including all projects subject to SEQRA, in the Catskill/Delaware watershed basins as well as the Croton Falls and Cross River basins. In addition, the Final 2002 FAD has been modified to state that, in its quarterly report, the City will include a “summary table (inventory) of all development projects proposed and their SEQRA status and projects under construction, by basin, with corresponding maps. An up-to-date summary table with corresponding maps will also be made available on NYCDEP’s website.”

- 105. Comment:** NYCDEP should be more effectively engaged in the SEQRA process and attend all planning board meetings. It should put together a team of fully trained staff to review all

development projects and ensure that they address fundamental design and management practices that go beyond regulatory compliance.

**Response:** In its 2001 Long-Term Watershed Protection Program, the City has made a number of commitments to continue strengthening its role in the SEQRA process. During project review, the City has agreed to “identify broader water quality concerns raised by ...projects, to encourage consideration of alternatives and require mitigation of impacts.” The City will “encourage applicants to analyze measures for appropriately managing stormwater from and minimizing impervious surfaces on development sites during SEQRA.”

To more effectively manage this element of its watershed protection program and to maintain project review consistency, the City will develop internal guidance for NYCDEP project review staff about “effective participation in the SEQRA process, focusing both on identifying projects where heightened involvement in SEQRA is appropriate and on addressing broad water-quality based planning concerns, as well as regulatory compliance...” (“Heightened involvement” does not imply that some projects will be subject to no involvement. As an involved agency on all SEQRA projects in the watershed, EPA expects that the City will continue to be actively engaged on all development projects in the watershed.) The NYCDEP guidance will also serve as an internal staff coordination document. In addition, the Final 2002 FAD has been modified and includes the submission by the City of an updated overview of the scope of NYCDEP’s involvement in SEQRA and a description of the roles and responsibilities of City staff in the SEQRA review process.

These efforts, as well as the City’s program to review Stormwater Pollution Prevention Plans (SPPPs), will be aided by the City’s detailed mapping and analysis of impervious surfaces at the sub-basin level in the watershed which will be completed by the end of December 2002. This information will be provided to applicable counties and municipalities and should serve as an excellent source of information to the City and town planning boards as they address development concerns.

- 106. Comment:** NYCDEP should conduct site inspections to assure that mitigation measures adopted during the SEQRA process are actually implemented.

**Response:** NYCDEP is currently working with NYSDEC to develop an addendum to an existing MOU to improve coordination, to ensure compliance with stormwater pollution prevention plans and applicable regulations, and to ensure prompt detection and remediation of water quality violations. We believe that this enhanced enforcement coordination effort should help to ensure that water quality mitigation measures that were adopted through the SEQRA process are implemented. As the March 2002 amendment to the MOU states:

The stormwater enforcement protocol will require both agencies to identify and

investigate stormwater discharge violations, including receiving and investigating complaints and performing field inspections of potential violations. At a minimum, the stormwater enforcement protocol will address construction projects undertaken without a notice of intent (“NOI”) or stormwater pollution prevention plan (“SPPP”)...; construction activities undertaken in violation of, or not in accordance with, the terms of such SPPP; and stormwater discharges that cause or contribute to violations of State water quality standards. The enforcement protocol will provide for each agency to communicate with the other in a timely fashion about stormwater violations. The protocol will allocate responsibility for investigation and enforcement of stormwater violations between [NYS]DEC and [NYC]DEP.

In addition, NYCDEP will begin a pilot program, described in its 2001 Long-Term Watershed Protection Program, in which it will work directly with a municipality on a protocol for (1) overseeing and enforcing SPPPs during construction of projects approved by NYCDEP, (2) coordinating project reviews, and (3) joint inspections. If successful, the City will approach other municipalities to pursue similar arrangements.

***Regulatory Programs - Stormwater:***

- 107. Comment:** Project applicants must complete their SPPPs early in the SEQRA process, and NYCDEP must effectively integrate its SPPP Review with the SEQRA planning process. Late involvement by the City can result in environmental degradation and delays and added expenditures for project applicants.

**Response:** In EPA’s *FAD Mid-Course Review* (May 2000), the agency recommended that the “Lead Agency” under SEQRA ensure that the project applicant initiates the SPPP early and on a parallel track with the project planning process to more effectively and efficiently address water quality concerns. That way, the City can work with the town and project applicant to mitigate water quality concerns through project design changes and through the SPPP, together in parallel - a much more effective process to reduce stormwater runoff than to rely solely on BMPs, after the project has already been designed. EPA’s 2002 FAD states that “in order to ensure the most thorough project review, NYCDEP will encourage applicants to attend pre-application conferences on proposed stormwater pollution prevention plans (SPPPs) and to submit SPPP designs at the earliest possible time in the project timetable.” Also see response to Comment #105. EPA expects the City to continue in its efforts to integrate its SEQRA review with its SPPP review to ensure that stormwater runoff concerns are addressed effectively and efficiently.

- 108. Comment:** NYCDEP should be required to promote non-structural BMPs and innovative site design before 2004 (the date in EPA’s draft FAD).

**Response:** NYCDEP is making revisions to its applicant guides in 2002 and in 2004. EPA’s



Final 2002 FAD has been modified to state that the 2002 “SPPP guide revisions will discuss nonstructural best management practices and innovative site design.” EPA notes that the 2004 revisions to the SPPP guidance will be more extensive to (1) reflect BMP monitoring data, (2) refine BMP assumptions, and (3) create performance-based benchmarks. It will also include a more extensive discussion of non-structural BMPs, buffers and innovative site design.

- 109. Comment:** NYCDEP should embrace a performance-based approach to stormwater rather than the permit-based approach embodied in the current SPPP program.

**Response:** In accordance with the 2002 FAD, NYCDEP has agreed to revise its SPPP guidance in 2004 to: (1) reflect BMP monitoring data, (2) refine BMP assumptions, and (3) create performance-based benchmarks. There are three efforts underway by the City that will help provide the necessary data to make the 2004 revision. First, the City has committed to a comprehensive evaluation of the removal capabilities and maintenance requirements of up to four types of stormwater management facilities. Through this program, begun in 1999 and partially funded through the federal Water Resources Development Act, the City will obtain substantial information on stormwater BMP effectiveness. In another program, the City is sampling upstream and downstream locations at two proposed development sites to obtain comprehensive water quality information. Monitoring pre- and post-development will be useful in assessing the efficiency of the BMPs installed to minimize water quality impacts. Finally, the City is implementing a monitoring program to evaluate the BMPs that were recently installed around the Kensico Reservoir. These three monitoring programs will provide a significant amount of data which the City will use to refine and enhance the SPPP program.

- 110. Comment:** Commentors asked that EPA require differing degrees of limitation on impervious surfaces in the east-of-Hudson watershed (e.g., no net increase in impervious surfaces or specific caps on impervious surfaces in each watershed basin).

**Response:** Impervious surface coverage is a generally reliable and integrative indicator of the impact of development on water resources. Research over the past 20 years shows a strong correlation between the imperviousness in a drainage basin and stream health. The majority of the projects subject to review in the New York City watershed are relatively small; thus, with appropriate BMPs, pollutant loadings can be well managed. As noted by the National Research Council in its report, *Watershed Management for Potable Water Supply - Assessing the New York City Strategy* (2000), with small, low-density development projects of 5 to 25% impervious cover, “the reduction in phosphorus load by stormwater BMPs keeps pace with the increased load produced by impervious cover. After that point, however, stormwater BMPs can no longer achieve predevelopment phosphorus loads.” (The Center for Watershed Protection notes that with appropriate BMPs, the phosphorus threshold can be raised to above 35%.) Regardless of the specific number, it is clear that with large development projects, the uncertainties and potential impacts become much greater. As a signatory to the MOA, EPA



believes that the goals of protecting and enhancing water quality and, at the same time maintaining the vitality of watershed communities, are not inconsistent. EPA also believes that there are a number of City and State programs in place and planned (through the FAD and outside of the FAD), that together, will achieve the same goal as capping impervious surfaces - - to maintain or enhance water quality in the New York City watershed. We have listed those programs and actions below:

- Effective SEQRA project review (see responses to Comments #105 and #107)
- Implementation of the City's Watershed Rules and Regulations
- Phase II TMDL implementation
- Finalization and implementation of New York State's enhanced Phase II Stormwater Program for the Croton system
- Enhanced stormwater enforcement coordination as required in the FAD (see responses to Comments #93 and #106)
- State designation of all waterbodies and wetlands in the Croton system as "Critical Resource Waters" and additional Nationwide Permit Regional Conditions in the east-of-Hudson portion of the New York City watershed.
- City and State BMP studies and NYCDEP's impervious surfaces analysis being conducted pursuant to the FAD
- Finalization and implementation of the City's Croton Strategy and the Counties' Croton Plans
- Land acquisition by New York City and New York State, and municipal open space initiatives

The most effective way for the City to protect land from the negative impacts of development and impervious surfaces is through ownership. In the Catskill/Delaware basins east-of-Hudson, EPA notes that the City now owns or has under contract over 30% of watershed land in West Branch/Boyd's Corner basins (56% of eligible land in the highest priority areas) and over 35% of watershed land in the Kensico basin. Because of the critical nature of the Kensico basin, EPA requires the City to continue aggressive efforts to acquire land in that basin. EPA fully expects additional land acquisitions in Kensico basin.

***Waterborne Disease Risk Assessment Program:***

- 111. Comment:** NYCDEP should be required to use state-of-the-art sampling methodologies (e.g., Method 1623) in assessing risk.

**Response:** NYCDEP uses the latest, EPA-approved methods for its keypoint monitoring at source water reservoirs and throughout the watershed. In October 2001, the City switched over to Method 1623 for pathogen analyses and it continues to work with the New York State Department of Health and EPA to refine sampling and analysis methodologies to ensure the

highest degree of accuracy and precision for all data collected in the watershed. EPA notes that the City is currently finalizing a revised sampling program, as required by the 2002 FAD, to produce an integrated water quality monitoring network, which provides scientifically defensible information to support the understanding, protection, and management of the New York City water supply.

**112. Comment:** NYCDEP should sample for pathogens directly in the distribution system.

**Response:** The City sampling program is conducted in accordance with all federal and state requirements. EPA believes that sampling for *Cryptosporidium* and *Giardia lamblia* at the entry point to the distribution system provides an adequate measurement of risk for these pathogens. In addition, the City samples for coliform bacteria, which are considered indicators of fecal contamination (and feces are a source of pathogenic microorganisms), throughout the distribution system in accordance with the Total Coliform Rule.

**Administration:**

**113. Comment:** The FAD should require NYCDEP to provide a written 5 year budget and staffing projection that is broken down into individual program cost and staffing components. Funding designations should be more specific, and consultant contracts/personnel and NYCDEP staff should be differentiated. The information should be updated annually and be publicly available.

**Response:** The Final 2002 FAD has been modified to state that NYCDEP will provide “written notification as to whether the City budget for the upcoming fiscal year includes sufficient funding to allow the City to meet its obligations under this determination. [NYCDEP will] Also include in the notification the amount (capital and expense) spent during the previous year and the amount appropriated for watershed protection programs for the following year and planned for the year thereafter. The amount spent, appropriated and planned should be broken down by program, to the extent practicable. The notification should also include costs for technical consultant contracts identified in the FAD.” Pursuant to the FAD, this information will be updated and provided annually. The Final 2002 FAD also contains a modification to the staffing reporting requirement. The City will now note which of the filled positions utilize contractor support staff.

EPA notes that all of the City’s estimated capital expenditures for its watershed protection program over the next 5 years are contained in its 2002 budget. Thus, we do not believe that there is an added benefit to projecting capital costs out for 5 years. However, we have modified the Final 2002 FAD such that the City will now also report on program expenses as part of its reporting requirement, on a yearly basis. (NYCDEP has informed us that it does not project these costs out past one year.)

**Reporting and Public Education and Outreach:**

- 114. Comment:** NYCDEP should be required to develop a website that is more intuitive and provides more information on watershed protection activities. The draft FAD contains no specific requirements.

**Response:** The Final 2002 FAD has been modified to state that “consistent with the commitments in the City’s Long-Term Watershed Protection Program, NYCDEP will continue to improve its website by completing development of an area which will allow the public to learn more about the activities and status of the projects and initiatives under the City’s watershed protection program. The City will work with partner organizations to provide updates, public meeting announcements and other public information.” The City’s Long-Term Watershed Protection Program provides further information on the type of information that EPA expects the City to provide on its webpage. The City has agreed to complete this work by June 2003. EPA also notes that the Final 2002 FAD has been modified such that the City will post a number of additional documents on its website.

- 115. Comment:** NYCDEP should be required to submit FAD “deliverables” in electronic format. In addition, stakeholders should be able to get access to deliverables through NYCDEP’s website.

**Response:** All FAD deliverables are available to the public. Any stakeholder wishing to receive FAD deliverables should contact NYCDEP directly, as it maintains a mailing list of those requesting FAD documents. In addition, in accordance with the Final 2002 FAD, the City will continue to improve the electronic dissemination of watershed information by making more FAD documents available through its website.