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April 29 2015

Draft Generic Environmental Impact Statement (EIS) for the Proposed 507-Acre Annexation to the Village of Kiryas Joel, Orange County, New York

Water and Wastewater Comments to Tim Miller Associates, Inc. Planning Consultant and Contact Person for Kiryas Joel

**By
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For the
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INTRODUCTION

I have been retained by the Rockland Water Coalition to evaluate the April 29 2015 Draft Generic Environmental Impact Statement (EIS) for the Proposed 507-Acre Annexation to the Village of Kiryas Joel Orange County, New York. I wish to convey some of my water supply and wastewater concerns with the EIS, and recommend means to address those concerns.

Regarding my professional background, I possess a Bachelor's Degree in Earth Science from the College of New Jersey and have completed my Graduate Credits in Water Resources from Rutgers University. I have over 40 years of experience managing environmental projects and programs, including 25 years as Chief of the Water Supply Planning Section at the New Jersey Department of Environmental Protection. This section is devoted to statewide and regional water supply planning, and is mandated to develop water supply plans, strategies and policies for areas experiencing or projected to experience water supply shortages. I have directly managed or have been directly involved in an array of projects that included new reservoirs, regional water pipelines, desalination facilities, etc., and strategies dealing with water conservation, wastewater reuse, ground-surface water optimization, and other water planning initiatives that are capable of maximizing available water. Further, I was one of the primary authors of the 1996 and 2015 (draft) New Jersey Statewide Water Supply Plans.

PROPOSED PROJECT DESCRIPTION

The EIS has evaluated possible environmental impacts associated with annexation of 507 acres from the Town of Monroe to the Village of Kiryas Joel, in Orange County, New York. The annexation is being proposed to meet the Village and immediately adjacent Town of Monroe's projected population

growth. Based on the EIS, the population is projected to nearly double in the combined Kiryas Joel/annexed Town of Monroe properties in the next ten years, growing from the existing estimated 2014 population of 22,634 persons to 42,297 by the year 2025.

Water demand growth as a result of the projected population increase in Kiryas Joel and the proposed annexed properties is expected to be substantial. The EIS indicates that the Village used 1.61 million gallons per day (mgd) on average in 2014. With the annexation, this is projected to increase to 2.79 mgd by 2025, or an increase of 1.18 mgd.¹ No demand projections were made in the EIS beyond 2025.

Based on the EIS, the Village's present water supply is from 16 bedrock groundwater wells and one sand and gravel (buried valley) well that are primarily located in two well fields. Ten of the wells are located within the Village boundaries, while seven wells are located in the Brenner well field which is located on Larkin Road in the Town of Monroe. All of these wells are located in the Ramapo River watershed. The combined permitted water withdrawal capacity for these wells is about 1.93 mgd, which is in excess of the 1.61 mgd presently withdrawn.

The Village is presently seeking to add capacity with a new well field located on Village-owned property in the Town of Cornwall (the "Mountainville well field"). It approved, the Village would be authorized to collectively withdraw up to 2.54 mgd. The Mountainville well field would be located in the Moodna Creek watershed, which flows into the Hudson River.

As discussed above, however, demand from the Village and the annexed land is projected to increase to 2.79 mgd by 2025, which is about 0.25 mgd more than the amount available once the Mountainville well field was permitted. The EIS indicates that there is a concern that it will be increasingly difficult for the local aquifers to serve as a reliable water supply.

Consequently, the Village developed a plan that is not solely dependent on local aquifers. The plan for the Village of Kiryas Joel is to connect to the New York City (NYC) water supply system which conveys water from its Ashokan Reservoir in the Catskills to the City via an aqueduct that passes through Orange County. In 2000, the New York City Department of Environmental Protection (NYCDEP) conceptually approved the Village's request to withdraw up to 2.0 mgd from the aqueduct in the Town of New Windsor.

This amount was based on the year 2000 population of NYC and the Village of Kiryas Joel. According to the NYC Administrative Code which prescribes how

¹ Two 2014 and 2025 water demands are given by the consultant. The first is provided above. The second indicates that 2014 demand is 1.49 mgd, and that 2025 demand would be 2.31 mgd. To be conservative, the higher estimates were used in this report.

much water can be diverted from the NYC aqueduct, the amount of water the Village is permitted to withdraw is calculated by multiplying the Village population, by the per capita consumption of New York City residents (as reported for both entities in the most recent US Census). The NYCDEP conceptually approved the Village request to withdraw up to 2.0 mgd in November 2000, based upon population data at that time.

The actual amount of water diverted from the New York City aqueduct will be established by the NYCDEP at a future time when approvals and infrastructure have been implemented for the Village to connect to the aqueduct. For instance, the Village would be presently entitled to approximately 2.56 mgd from the aqueduct, based on the 2010 Census for the Kiryas Joel (20,175 population) and the 2010 New York City per capita water usage estimates (127 gpd). In addition, Kiryas Joel would be mandated by New York City to maintain 100% back-up water supplies for the volume it diverts from the aqueduct with existing and new supplies.

The EIS indicates that the Village proposes to rely on its existing wells and new wells in the future to meet this backup requirement. As discussed above, the current permitted Village supply is 2.54 mgd, but 2.79 mgd will be necessary to meet the projected 2025 demand. To make up for this shortfall, Kiryas Joel has evaluated the Star Mountain well field in the Town of Cornwall, and the Woodbury Heights Estates well field in the Village of Woodbury. These will require further permitting to bring them on-line as part of the Village water supply system. These additional sources would be able to provide an additional 1.81 mgd, which would make available a total of about 4.35 mgd, which is well in excess of the Village's project 2025 demand of 2.79 mgd.

Based on the EIS, the 12 - 13 mile Kiryas Joel pipeline from the aqueduct to the Village will be constructed in two phases. The six-mile first phase will connect the Village and the Mountainville well field pump station in the Town of Cornwall, and is nearly completed. The second six or seven-mile phase will connect the Mountainville well field pump station with the New York City aqueduct, and is supposed to be completed in 2017.

Upon Kiryas Joel connecting to the aqueduct, the EIS states that it will serve as the primary water supply for the Village in 2017, and its wells will serve as a temporary back-up water supply during those periods when the aqueduct water is unavailable due to maintenance.

Without annexation by Kiryas Joel and the approval of the Town of Monroe, the 507-acre properties would be required to be served by private wells, according to the EIS. In addition, the EIS points out that without annexation, connection of these 507-acre properties to the New York City aqueduct would be difficult.

With regard to wastewater needs for Kiryas Joel and the proposed annexed lands, the EIS indicates that wastewater from the Village is presently

treated at either the Village wastewater treatment plant in Kiryas Joel and at the Orange County Sewer District #1 (OCSD#1) Harriman wastewater treatment plant in the Village of Harriman. The Village plant is within the OCSD#1 service area.

The Village built its own wastewater treatment plant in 2000 due to a sewer moratorium that had been placed on new connections to the Harriman wastewater treatment plant. Although the plant was built by the Village, it is operated by the OCSD#1 since it is the latter entity's service area. The OCSD#1 plant also treats wastewater from the Village of Monroe, the Village of Harriman and portions of the Town of Monroe, including the majority of the proposed annexation properties, as well as municipalities outside of the OCSD#1 service area which include the Village and Town of Chester, the Town of Blooming Grove, the Town of Woodbury and portions of the Town of Monroe not within the OCSD#1 mapped boundaries. Both the Kiryas Joel and OCSD#1 plants discharge wastewater to the Ramapo River watershed.

The Village plant has a capacity of 0.97 mgd, and recent monitoring shows that average discharge is approximately 0.72 mgd, or 74% of capacity. The EIS does not appear to identify how much wastewater is conveyed to the OCSD#1, but if the Village used 1.61 mgd on average in 2014, approximately 0.89 mgd of the Village's wastewater is presently treated at the Harriman plant.

The OCSD#1 plant has a capacity of 6 mgd; as described in the EIS, recent discharges from the plant have been averaging about 4.46 mgd. Orange County is presently in the process of developing plans over the next year to expand the treatment capacity of the OCSD#1 plant to up to 9 mgd. The plan will include an assessment of discharging the wastewater outside of the Ramapo River watershed.

Wastewater projections out to the year 2025 estimate that approximately 1.3 mgd of additional flow will be generated by the Village of Kiryas Joel and the annexed 507-acre properties in the Town of Kiryas Joel. The EIS indicates that the OCSD#1 plant can accommodate the wastewater flow increases, once that plant is expanded.

As described above, all of the Village's current water supply originates in the Ramapo River watershed; about one-third of the supply would originate in the Moodna Creek watershed when the Mountainville well field is on line. However, all of the Village and annexed water supply is expected to be from the New York City aqueduct when the pipeline is completed and all repair work on the aqueduct is completed a few years from now.

About half of the water supplies from the other towns and villages that convey their wastewater to the OCSD#1 plant originate from the Ramapo River watershed and about half originate in the Moodna Creek watershed. It is anticipated that this ratio will continue in the future.

GENERAL CONCERNS AND RECOMMENDATIONS

There are a number of major concerns on some of the positions reached in the EIS, namely:

Uncertainty of the Location of the OCSD#1 Discharge Location

The Kiryas Joel inflow to the OCSD#1 wastewater treatment plant will be the largest contributor of wastewater if the annexation is approved. The EIS minimally discusses (or does not discuss at all) the discharge and how it affects downstream water uses and users, despite the Village playing such a large role in the in these effects. The current OCSD#1 discharge affects these users in both a positive and a negative way, assuming that the OCSD#1 discharge will be continued at its present location on the Ramapo River.

From a positive perspective, and assuming that the OCSD#1 discharge will remain at its current location in the future and that the Village will connect to the New York City aqueduct, the additional wastewater that Kiryas Joel and the annexation will contribute to the Ramapo River flow will be beneficial. This supplemental flow will allow the United Water New York (UWNY) passing flow to be met more frequently in the future, as well as augment the North Jersey District Water Supply Commission Wanaque Reservoir system.

From a negative perspective, the additional wastewater can negatively impact these water supplies and aquatic resources, as described below. As shown, these effects can be detrimental.

In addition, Orange County planning officials are evaluating relocating the OCSD#1 discharge location, largely as a result of additional wastewater inflow that Kiryas Joel and the annexed properties will be conveying to the plant. If the location is changed, the reduction in the safe yield of downstream supplies would be significant.

None of the above impacts were discussed in the EIS. It is strongly recommended that these effects be quantified and thoroughly described. This assessment should take into consideration all the inflows and outflows in the Ramapo River watershed in order to be accurate. If not, Kiryas Joel should await the findings of the OCSD#1 plan, which is scheduled to be completed next year.

Uncertainty of Wastewater Comprising a Larger Fraction of a Major Drinking Water Supply

If the OCSD#1 plant continues its outfall to the Ramapo River, and discharges more wastewater due to larger inflow from Kiryas Joel and the annexed properties, downstream water supplies on the Ramapo River will be comprised of an increasingly large fraction of wastewater.

At present, the Ramapo River where it flows past the UWNY well field and the Suffern well field is comprised almost entirely of wastewater during drought,

primarily from the OCSD#1 plant. It is a well-known fact that the river recharges the aquifer during drought that these well fields use. As a consequence, these wells are drawing in wastewater during low flow periods. Two of the ten UWNY wells have had to install expensive filtration equipment since they have been identified as being under the influence of surface water from the Ramapo River. UWNY customers pay for this equipment as part of their water rates.

As discussed below, if the aqueduct supply is not implemented, the proportion of wastewater will be even larger. There are numerous regulated and unregulated pollutants in wastewater that can degrade these supplies, as well as impair natural resources dependent on freshwater in the Ramapo River. Complete approval to connect into the aqueduct has not yet been granted by the NYCDEP.

Being that the most of the additional wastewater will have its origin from the Kiryas Joel and annexation property expansion, the EIS should comprehensively evaluate the above-described impacts. It is emphasized that these pollutants can have impacts on public health, and that it (and Orange County) can be found legally responsible if these impacts are validated. It is also possible that Kiryas Joel can be found to be legally responsible for expensive upgrades to downstream water suppliers if they are degraded.

Uncertainty of the Use of the New York City Aqueduct

As described above, if the Kiryas Joel connection to the New York City aqueduct is not implemented, and the OCSD#1 discharge remains at its present location, the Ramapo River will be comprised of even larger concentrations of wastewater than described above due to the large contribution that the Village and annexed properties will result in (as well as the other towns that convey their wastewater to the OCSD#1 plant). Since the Kiryas Joel withdrawals in the Ramapo River watershed would increase over time, it would play a large role in this phenomenon.

New York City has yet to entirely approve the aqueduct connection to Kiryas Joel. In the event that this approval was denied, Kiryas Joel and the annexed properties would have to rely on its existing wells in the Ramapo River watershed as well as new well fields. The potential increase in the wastewater concentrations were not evaluated in this case. The EIS should evaluate a "fall-back" strategy if the aqueduct option is not approved.

Uncertainty of the Approval of the Mountainville Well Field

The Mountainville well field has yet to be approved by the NYSDEC. If this well field is not permitted, and Kiryas Joel's other preliminary alternatives were not approved, the back-up supply required of New York City's approval for use of the aqueduct would be in jeopardy. The EIS should be revised to reflect this potential obstacle.

Protection of a Sole Source Aquifer

The United States Environmental Protection Agency (USEPA) defines a sole or principal source aquifer as an aquifer that supplies at least 50% of the

drinking water used in the area overlying the aquifer (Public Law 93-523, 42 U.S.C. 300 et seq.). These areas do not have alternative drinking water source(s) that could physically, legally and economically supply all those who depend on the aquifer for drinking water.

Sole Source Aquifer designation is a primary mechanism to protect drinking water supplies in areas where there are few or no alternative sources to the ground water resource and where, if contamination occurred, using an alternative source would be extremely costly. The designation protects an area's ground water resource by requiring the USEPA to review certain proposed projects within the designated area. All proposed projects receiving federal funds are subject to review to ensure that they do not endanger the drinking water source.

If the USEPA Administrator determines that a Sole Source Aquifer could be potentially contaminated, a commitment for federal financial assistance is not supposed to be entered into for any project which the USEPA determines may contaminate the aquifer.

According to the EIS, Kiryas Joel is receiving funding from the New York State Environmental Facilities Corporation (NYSEFC) for the construction of the aqueduct pipeline. It is believed that the NYSEFC is partially funded with Federal Clean Water Capitalization Grants.

As described above, the additional wastewater that will be generated by Kiryas Joel and the annexed properties poses a potential risk to the Ramapo River's ground water supplies. Since the EIS has primarily ignored this risk, opponents of the project may wish to research whether the USEPA should play a role in this project.

Uncertainty in the Conclusion that Study Area Populations will be the Same With and Without Annexation

Throughout the EIS, it is claimed that the year-2025 population will be the same regardless of whether the 507-acre Town of Monroe properties are annexed by Kiryas Joel. This conclusion is highly inaccurate for several reasons.

First, the annexation will facilitate accelerated development in the annexed lands because individual properties will be expeditiously able to connect into the Village's public supply that would have been carefully planned for the 507-acre properties. Without annexation, however, individually subdivided properties and the entity to provide public water would be subject to approval by the Town of Monroe and the Orange County Department of Public Health. As discussed in the EIS, extending water service to the properties outside the Village is a discretionary action by the Village and serving the Village's current inhabitants is a required priority. Without annexation, residents in the adjacent Town of Monroe properties are ultimately dependent upon available private wells.

Without annexation, the process of either being served by Kiryas Joel or being dependent on private wells will undoubtedly delay development, and hence the 2025 population projections estimated in the EIS. In addition, if the residents have to rely on private wells, there is no guarantee that all of the wells would be approvable. Well interference would likely represent a major obstacle to reaching the same population as the annexed lands.

Furthermore, the likelihood of the 507-acre properties being served by the New York City aqueduct is reduced if the properties are not annexed by Kiryas Joel. As pointed out in the EIS, the future use of aqueduct water would be prohibited in the 507-acre properties if they were not annexed, unless special permission is granted by New York City. And if they were permitted, interconnections on these properties may be subject to higher fees paid to New York City. If the 507-acre property was not annexed by the Kiryas Joel, connecting to the Village water system from the aqueduct would involve greater cost and uncertainty than under the annexation scenario where community water service is provided to all landowners.

Second, and similar to the above, are the delays in providing wastewater service to the 507-acre properties if they were not annexed. According to the EIS, annexation of these properties would provide the assurance of connecting new development in these lands to the OCSD#1 public sewer system, as well as allow properties with existing individual septic systems to connect to the public sewer system.

On the other hand, without annexation certain properties in these lands may be required to install individual septic systems for future development if public sewers are not practically available. Thus, without annexation wastewater service would be expected to be delayed and to cover less of the properties on these 507 acres. In addition, if most of the 507-acre properties were served by private wells and septic systems, down-zoning may be necessary to ensure that the wells are not contaminated.

It is thus recommended that the EIS be revised to more accurately quantify how many dwelling would potentially be sewerred versus how many would be served by septic systems, plus an improved projection of when these would occur over time. This revision should also include an assessment of both scenarios on streamflow depletion and wastewater impacts where the OCSD#1 discharge either remains in the Ramapo River watershed, or is relocated to the Moodna Creek watershed or to the Hudson River.

Lack of Clarity in the EIS on Describing Water Quality Impacts

When arguing for annexation of the 507-acre Town of Monroe properties by Kiryas Joel, the EIS indicated that "the demand for wastewater treatment in the Village of Kiryas Joel will continue to increase based upon the Village's current and projected future growth. With and without annexation, undeveloped land in the Village and Town of Monroe will be developed over time along with the demand for wastewater treatment. The quality of the wastewater treatment plant effluent is not affected by the level of population growth or its location. Rather, it is more dependent upon the proper operation and maintenance of the facility as it was designed.

Therefore, there are no significant impacts to the receiving water body (Ramapo River) as a result of the proposed annexation action."

It is assumed that these statements were made to support the EIS's premise that the 507-acre Town of Monroe properties would be similarly developed regardless of whether it was annexed by Kiryas Joel. As shown above, annexation is likely to accelerate the pace of dense development in these properties. Without annexation, the probability that these properties will grow at the rate predicted in the EIS is lessened. The fact that development in these properties while not annexed has been historically low over the last few decades confirms this view.

Consequently, it is recommended that the EIS indicate that the rate of development and the need to construct wastewater infrastructure is expected to be delayed if the 507-acre properties in the Town of Monroe is not annexed by the Village of Kiryas Joel. The EIS should further state that the water quality impacts associated with delayed growth in these properties (e.g., more wastewater and non-point source pollutants in the Ramapo River, reduced streamflow depletion from ground water withdrawals and impervious cover, etc.) will also be delayed if these properties are not annexed.

Utilization of a Stunted Planning Period

The EIS employed a ten-year planning horizon to evaluate the effects of Kiryas Joel annexing the 507-acre properties in the Town of Monroe. This obviously is of little value in estimating the long-term environmental effects of the proposed annexation. It is also an insufficient planning period in determining the long-term economic effects of the potential joining of the two land areas. A planning period should be established that is long enough to more adequately assess these environmental and financial impacts. Otherwise, these effects can cross impact thresholds that are highly undesirable a short time subsequent to the end of an abbreviated planning horizon. A more prolonged planning period may have been capable of identifying these thresholds so that another course of action could have been selected.

An appropriate example might be the selection of increasing the size of the OCSD#1 plant to 9 mgd to meet mostly the proposed annexation project's planning needs over the next decade. In this example, the current location of the OCSD#1 outfall to the Ramapo River may be adequate. This location may be found to be cost-effective in the shorter term. However, if a 20 or 25 year planning period were employed, it may have been determined that the increase in the discharge could only be dealt with by relocating it 15 years from now to a larger body of water for dilution purposes (such as the Hudson River). This would result in higher costs to all OCSD#1 customers, including Kiryas Joel and its annexed customers. It is possible that this would not be financially feasible if known today.

To avoid these possible shortcomings, it is recommended that the EIS be revised to reflect a planning period of at least 20 years. Either that or a

decision on annexation should await the OCSD#1 plan that is due next year so that Kiryas Joel can make a more informed decision for its residents and those in the 507-acre properties. This issue was addressed more comprehensively in a previous recommendation.

Potential Continuation of the Use of Local Ground Water Supplies

The EIS indicates that Kiryas Joel will abandon its well fields when it is connected to the New York City aqueduct. It specifies that these well fields will only be used when the aqueduct is unavailable. The cost of New York City aqueduct water will be substantially higher than the continued use of its well fields. In addition, its current well fields in the Ramapo River watershed is causing significant streamflow depletion in the Ramapo River and increasing the concentration of wastewater in the river during periods of low streamflow.

Based on the above, it is recommended that the EIS include a provision that specifies that Kiryas Joel will request that NYSDEC modify its existing Village permits as well as any other permits for new well fields to include a condition that the wells are only to be used when the aqueduct is unavailable.

Lack of Available Back-Up Supplies After 2025

The EIS proposes specific water supply alternatives to serve as backup supplies when the aqueduct is not available in the future, but these supplies are not yet permitted by the NYSDEC. There is no guarantee that these backup supplies will be permitted.

The EIS should not be approved until these supplies have NYSDEC permits. Backup supplies should be permitted to meet demand for at least the next 20 years to ensure that ample supplies can be made available beyond the ten-year planning horizon.

Lack of an Integrated Water Resource Plan for the Ramapo River Watershed

The Ramapo River is one of the most utilized rivers in New York. During drought, most of the river's freshwater is removed as a result of inter-basin transfers and consumptive uses (e.g., irrigation) of ground water. At these times, the river is comprised of mostly wastewater. This phenomenon is expected to become more severe as development occurs in Kiryas Joel, and if the nearby properties are annexed. It will also become more severe as other developments and their consequent hydro-modifications occur in the watershed. It was not long ago that this river was quite healthy.

A major reason that the river has reached the above condition is that decisions on land use, water supply, wastewater, etc., are made on an individual and primarily local basis. The past accumulative effects of these decisions are typically ignored, and the effects of future activities are generally not considered on a collective basis. The Kiryas Joel decision discussed in the EIS is one more example of this lack of assessing total

cumulative impacts on the river, its tributaries, and its ground water resources.

The EIS should acknowledge this major discrepancy, and encourage the utilization of an integrated water resource management plan for the Ramapo River watershed. During the interim, the EIS should be placed on hold until the effects of the expanded OCSD#1 plant discharge can be evaluated on downstream water supplies of UWNV and Suffern's well fields. This evaluation will need to consider low streamflow conditions during future drought conditions (i.e., extreme drought in let's say at the end of a 20 year planning period) that factor in projected depletive and consumptive water uses, amount of wastewater comprising the stream during these periods, chemical and biological composition of the wastewater, nonpoint source pollution concentrations from a storm during drought conditions, water quality entering the wells, and water quality after conventional treatment. If, after conventional treatment, the water does not meet drinking water standards, appropriate upgrades to the treatment plant and nonpoint source controls should be evaluated and implemented so that the well fields can produce water that meets the standards.

The EIS should not be approved until this evaluation has been made.

Over the longer term, Orange County and Rockland County (and perhaps New Jersey) should develop a comprehensive integrated water resource management plan for the Ramapo River. While this particular recommendation is beyond the scope of the annexation EIS, it is most definitely needed to deal with current water issues and those that can be anticipated in the future.