



SUSQUEHANNA RIVER BASIN COMMISSION

1721 North Front Street • Harrisburg, Pennsylvania 17102-2391

Phone (717) 238-0423 • Fax (717) 238-2436

Web <http://www.srbc.net>

Docket No. 20070607

Approval Date: June 13, 2007

MOUNT JOY BOROUGH AUTHORITY

Groundwater Withdrawal (30-Day Average) of 1.020 mgd from Well 3,
and a Total System Withdrawal Limit (Peak Day) of 2.600 mgd,
for Public Water Supply,
Mount Joy Borough, Lancaster County, Pennsylvania

Review Authority

This project is subject to review pursuant to Article 3, Section 3.10, of the Susquehanna River Basin Compact (Compact), P.L. 91-575, 84 Stat. 1509 et seq., and Susquehanna River Basin Commission (Commission) Regulation §806.4, relating to projects requiring review and approval. The Commission received the application on June 6, 2005, with supporting materials on November 3, 2005.

Description

Purpose. The purpose of the application is to request approval for the withdrawal of groundwater for distribution in a public water supply system.

Location. The project is located in the Lower Susquehanna River Basin, HUC 02050306, Chickies Creek Watershed, Mount Joy Borough, Lancaster County, Pennsylvania.

Project Features. The project sponsor has requested approval for the withdrawal (30-day average) of 1.020 million gallons per day (mgd) from Well 3. Mount Joy Borough Authority (MJBA) will use the well as a source for the public water supply system that currently relies on Wells 1 and 2. The use of Wells 1 and 2, predates July 13, 1978, and did not previously require approval by the Commission.

Wells 1 and 2 have reported production capacities of 1.944 mgd and 1.584 mgd, respectively, and impact nearby springs, in particular, a spring known as Charles Spring. Historically, MJBA also withdrew surface water from Charles Spring (0.500 mgd) and from Chickies Creek (0.800 mgd). However, neither of these sources is currently permitted for use by the Commission. (The Pennsylvania Department of Environmental Protection [PADEP] allocation for the Chickies Creek withdrawal still exists, but PADEP has determined that the surface water treatment system is outdated and insufficient.)

Specific locational information concerning discrete water-related project features has been withheld for security reasons. Wells 1 and 2 are located within 1,000 feet of one another, and several miles to the west of Well 3. Like Well 3, Wells 1 and 2 were also sited within the karst-prone limestone of the Epler Formation.

The table, below, identifies the three MJBA wells, the date of their initial service, their pump capacities, their open borehole intervals, and their reported average daily withdrawals.

| Well Identification | Date of Initial Service | Pump Capacity (gpm) | Open Borehole Interval (feet bgs) | Reported Average Daily Withdrawal 2000 to 2004 (mgd) |
|--|--------------------------------|----------------------------|--|---|
| Well 1 | 1973 | 1,350 | 73.5 to 163 | 0.809 |
| Well 2 | 1973 | 1,100 | 63 to 300 | 0.398 |
| Well 3 | TBD | TBD | 119 to 470 | Requesting 1.020 |
| gpm – gallons per minute bgs – below ground surface TBD – To Be Determined | | | | |

Well 3 was drilled within the Epler Formation to a total depth of 470 feet bgs, and was constructed as a 12-inch-diameter open bedrock well with steel casing set to 119 feet bgs. Groundwater within the Epler Formation occurs almost entirely within secondary structures (faults, joints, solution openings, etc.) and little groundwater is likely present within the primary bedding features or the bedrock itself. The well is within a carbonate valley setting, and its proximity to laterally continuous fracture traces and faults that extend beyond the topographic basin increase the recharge potential to the well.

MJBA provides water service to the Borough of Mount Joy and certain contiguous portions of Rapho, East Donegal and Mount Joy Townships, and has plans for several expansions and interconnections in the future. The current average daily demand of the MJBA system is approximately 1.210 mgd and, due to the growth in the region, the projected average daily demand (30 days) through 2010 is 1.680 mgd, with a projected peak day need of 2.600 mgd. The current system capacity is 3.240 mgd.

Approximately 90 percent of the wastewater is treated at Mount Joy's wastewater treatment plant and discharged to Little Chickies Creek south of and downgradient from Well 3.

Aquifer Test. A 72-hour, constant-rate pumping test of Well 3 was conducted with prior Commission approval on January 21-24, 2005, at an average rate of 1,403 gpm. In addition to the pumping well, ten observation wells and five surface water points were monitored; including eight residential wells, two water supply wells (a private school and a business), two monitoring points along Chickies Creek, a flume on an unnamed tributary to Chickies Creek approximately 700 feet northeast of Well 3, and two wetland points.

Flows in the creek were greater than 175 percent of average daily flow, potentially masking minor impacts during the time of the aquifer test. Nevertheless, results of the testing indicate the strike-preferential drawdown, with limited impacts from the operation of Well 3 on local groundwater users, and the potential for an impact to the north of the well (as indicated at wetland point 2 and the flume). Commission staff finds that impacts to the surrounding groundwater supply wells, due to the use of Well 3, are negligible. Water levels within the wetland piezometer declined approximately 4.25 feet during the testing and the onset of drawdown was immediate, indicating a direct hydraulic connection from the wetland to the well.

Coordination. Commission staff has coordinated with the PADEP Southcentral Region Office during review of the project. PADEP staff has reviewed this docket for consistency with its requirements.

Findings

The project is subject to Commission review and approval standards, including Commission Regulations §806.21 and §806.23.

Commission staff reviewed the groundwater availability analysis and aquifer test results. Based on this information, Commission staff concludes that Well 3 is hydraulically connected to the Chickies Creek. The minimal drawdown and the drawdown curve type observed in the Well 3 data indicates a near-direct connection to a significant recharge boundary, and hydrographs from Well 3 and the stream indicate that the water level in Well 3 is very closely related to the water elevation of the creek. However, the high flows within Chickies Creek at the time of testing (180 to 210 percent of the average daily flow), make the projection of the drawdown within Well 3 problematic. During periods of average or below average streamflows, the well/stream connection will be more apparent.

Although the effects of operating Well 3 on Chickies Creek are not directly observable with the data collected from the creek during the test, the recharge boundary condition was observed early during the testing. Commission staff finds that impacts to Chickies Creek are inevitable, based on the hydrogeologic setting, well construction, and the water level data collected during the testing.

Commission staff has calculated the 7-day, 10-year low flow (Q7-10) for Chickies Creek, adjacent to the well site, to be 1.036 cubic feet per second (cfs) (465 gpm), and the average daily flow was calculated to be 19,688 gpm. The proposed rate of withdrawal (1,403 gpm) from Well 3 is greater than 10 percent of the Q7-10 flow for Chickies Creek (46.5 gpm), thereby requiring a passby flow to protect aquatic resources and downstream users.

Chickies Creek is classified as trout-stocked fishery (TSF) (Title 25, Chapter 93, Pennsylvania Code). Based on the stream's classification, its geographic location in the watershed, and the anticipated associated fishery of trout and combined species of fish, Commission staff has determined a minimum flow of 25 percent of the annual average daily flow, or 4,922 gpm (10.96 cfs), is required at the point of impact to prevent loss of aquatic

habitat and adverse impact to downstream water users. Commission staff recommends that the project sponsor install a passive system that will allow a minimum passby flow of 4,922 gpm (10.96 cfs) at all times during active pumping.

In addition, based on its review of flow data collected at the flume, Commission staff finds that the unnamed tributary will be impacted by the use of Well 3. Approximately 20 gpm of flow was intercepted by the use of Well 3, most likely the result of the reduction of flow at the springhead that daylight immediately upstream of the flume. Commission staff has determined that the passby flow requirement for Chickies Creek should provide adequate protection to the unnamed tributary.

The project sponsor should submit its plan to satisfy the passby flow requirement (design and proposed construction schedule for the passby flow device, if applicable) within 60 days following Commission action for review and approval by Commission staff.

Commission staff finds that at its recommended quantity, withdrawal rate, and other operating conditions, the withdrawal from Well 3 will not cause significant adverse impacts to neighboring water users or to the water resources of the basin.

Commission staff recommends that the maximum instantaneous rate of production from Well 3 not exceed 1,403 gpm, the rate at which the test was performed. This will allow MJBA to meet its daily demand by operating the well on a 12-hour on, 12-hour off schedule. Likewise, Commission staff recommends approval of a 30-day average withdrawal rate of 1.020 mgd, the requested quantity.

The project is subject to Commission monitoring and reporting requirements, as per Commission Regulation §806.30. The project sponsor should install appropriate metering on Well 3 to monitor withdrawals daily. The project sponsor should report these data to the Commission quarterly unless otherwise required.

The projected average daily demand through 2010 is 1.680 mgd, with a projected peak day need of 2.600 mgd. Commission staff recommends approval of a total system withdrawal of 2.600 mgd, which is consistent with the sustainable yields of existing sources and will satisfy the projected system demand through 2010.

Commission staff identified that the withdrawals from Wells 1 and 2 are subject to review and approval under Commission Regulations §806.4(a)(2)(i) and §806.4(a)(2)(iv). Commission staff recommends that the project sponsor submit applications for these wells within 180 days.

The project is subject to the Commission's water conservation requirements, as per Commission Regulation §806.25(a). The water system is 100 percent metered, which is in compliance with this regulation, and MJBA reports unaccounted for water losses of less than 20 percent, which is in compliance with Commission Regulation §806.25(a)(1).

The project sponsor has paid the appropriate application fee pursuant to Commission Regulation §806.13, and in accordance with Commission Resolution No. 2005-03. The project sponsor has provided all proofs of notification as required by Commission Regulation §806.15.

In accordance with the Memorandum of Understanding with PADEP, Commission staff recommends that this approval not become effective until such time as the project sponsor can certify to the Commission that it has received an approval from PADEP for the construction of the water supply facilities related to this application.

The project is physically feasible, does not conflict with or adversely affect the Commission's Comprehensive Plan, and does not adversely influence the present or future use and development of the water resources of the basin.

This project is not required for the optimum planning, development, conservation, utilization, management, and control of the water resources of the basin and will not significantly affect the water resources of the basin.

Decision

1. The project's groundwater withdrawal (30-day average) of 1.020 mgd from Well 3, and a total system withdrawal limit from all sources of 2.600 mgd (peak day), are approved pursuant to Article 3, Section 3.10, of the Compact.

2. The foregoing findings are hereby adopted and shall be incorporated into and made a part of this decision.

3. The project sponsor shall comply with all Commission regulations, including withdrawal monitoring requirements contained in Commission Regulation §806.30.

4. The project sponsor shall keep daily records of the metered withdrawals from Well 3 and the total system withdrawal. The required reporting data shall be submitted to the Commission quarterly, and as otherwise required. Quarterly monitoring reports are due within thirty (30) days after the close of the preceding quarter.

5. Within sixty (60) days from the date of this approval, the project sponsor shall install a totalizing flow meter, accurate to within five (5) percent, on Well 3. The project sponsor shall notify the Commission, in writing, within thirty (30) days of when the meter is installed.

6. The maximum instantaneous rates of production from Well 3 shall not exceed 1,403 gpm.

7. The project sponsor shall allow a flow to pass in Chickies Creek directly below the point of impact from Well 3 of not less than 4,922 gpm (10.96 cfs). When the streamflow below the point of withdrawal is less than this amount, the withdrawal shall be reduced to maintain 4,922 gpm (10.96 cfs) in the stream channel below the well. When the natural flow is equal to or less than 4,922 gpm (10.96 cfs), no water may be withdrawn and the entire natural flow shall be

allowed to pass the point of withdrawal to maintain such natural flow in the channel below the point of withdrawal as may prevail above. The project sponsor may propose alternative monitoring to the Commission for staff review and approval.

8. The project sponsor shall submit its design and a proposed construction schedule for the passby flow measurement device within sixty (60) days of the date of this approval for review and approval by Commission staff prior to any construction. Following approval, the project sponsor shall complete construction in accordance with the approved schedule, and shall certify to the Commission that construction has been completed in accordance with the approved design. The passby system shall be kept fully functional and free of debris. The project sponsor may propose an alternative plan to meet its passby flow requirement.

9. Within one hundred eighty (180) days from the date of this approval, the project sponsor shall submit applications for Wells 1 and 2.

10. The project sponsor shall comply with the water conservation requirements specified in Commission Regulation §806.25(a).

11. If the Commission determines that the operation of the project's groundwater withdrawals adversely affect any existing groundwater or surface water withdrawal, the project sponsor shall be required to provide, at its expense, an alternate water supply or other mitigating measure.

12. Pursuant to Article 12, Section 12.2, of the Compact, this project is hereby included in the Commission's Comprehensive Plan.

13. Commission approval shall not be construed to exempt the project sponsor from obtaining all necessary permits and/or approvals required for the project from other federal, state, or local government agencies having jurisdiction over the project. The Commission reserves the right to modify, suspend, or revoke this action if the project sponsor fails to obtain or maintain such approvals.

14. This approval shall not become effective until the project sponsor certifies to the Commission that it has received a permit from PADEP authorizing the construction of the water supply facilities related to this application.

15. To satisfy the Commission's registration requirement, the project sponsor shall register with the PADEP all surface water and groundwater sources described in this docket in accordance with the Pennsylvania Water Resources Planning Act (Pennsylvania Act 220).

16. The Commission reserves the right to inspect or investigate the project facility, and the project sponsor shall allow authorized employees or agents of the Commission, without advance notice or a search warrant, at any reasonable time and upon presentation of appropriate credentials, and without delay, to have access to and to inspect all areas where the project is being constructed, operated, or maintained. Such employees or agents shall be authorized to conduct tests or sampling; to take photographs; to perform measurements, surveys, and other

tests; to inspect the methods of construction, operation, or maintenance; to inspect all measurement equipment; to audit, examine, and copy books, papers, and records pertinent to any matter under investigation; and to take any other action necessary to assure that the project is constructed, operated, or maintained in accordance with the terms and conditions of this approval or any other rule, regulation, or order of the Commission.

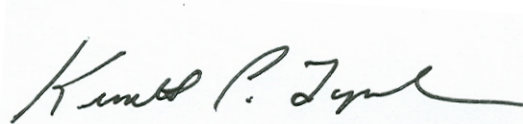
17. If the project sponsor fails to comply with the provisions of the Compact or any rule, regulation, or order of the Commission, or any term or condition of this docket, the Commission may suspend, modify, or revoke its approval of same, and may impose appropriate penalties. Upon written notice by the Commission, the project sponsor shall have thirty (30) days to correct such noncompliance, unless an alternate period is specified in the notice. Nothing herein shall preclude the Commission from exercising its authority to immediately modify, suspend, or revoke this approval where it determines exigent circumstances warrant such action, or from imposing penalties, regardless of the period of noncompliance.

18. The Commission reserves the right to reopen any project docket or issue such additional orders, as may be necessary, to mitigate or avoid adverse impacts or otherwise to protect public health, safety, welfare, or water resources. The Commission, upon its own motion, may at any time reopen any project approval and make additional corrective modifications that may be necessary.

19. Commission approval confers no property rights upon the project sponsor. The securing of all rights necessary and incident to the project sponsor's development and operation of the project shall be the sole and exclusive responsibility of the project sponsor, and this approval shall be subject thereto.

20. This approval is effective until June 13, 2022. As specified in Commission Regulation §806.31(e), if the project sponsor submits a renewal application no later than December 13, 2021, the existing approval shall be deemed extended until such time as the Commission renders a decision on the application.

By the Commission:



Kenneth P. Lynch, Chair
New York Commissioner

Dated: June 13, 2007