

Bob Holden, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

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Pespondent Exhibit No.

5.200 Aqua Missouri Quail Valley Lake Cole County

September 1, 2004

Mr. Edward Storey 2916 Foxdale Drive Jefferson City, MO 65109-9208

Dear Mr. Storey:

Date 10-39-07
NOV 21 2007

Missouri Public Service Commission

The Department of Natural Resources was contacted by you concerning the Quail Valley Lake subdivision wastewater treatment facility in Cole County. The concern was that you have another 22 lots that you would like to develop and sell, but the entity that operates the treatment facility has indicated to you that you could not connect another 22 homes without a new facility or upgrading the existing facility. On July 9, 2004, I spoke with you regarding the concerns you have with the wastewater treatment facility. On July 16, 2004, Mr. Keith Forck of the Northeast Regional Office and I met with Aqua Missouri, the continuing authority of the wastewater treatment facility, to address your issues. I have summarized the findings of your questions and they are listed below:

Mr. Story Concern 1: He started the development and required aerated (septic) systems at each home. A centralized system was built after 40 homes were established. The subdivision continues to have aerated (septic) systems and only the effluent and not the solids are sent to the plant. He believes a 35% credit should be given to the removal of five-day biochemical oxygen demand for having the septic tanks at each home.

Response to Concern 1: Missouri Clean Water Commission regulation 10 CSR 20-8.020, "Design of Small Sewage Works," under (13)(A)(2)(C) indicates that, "Where complete primary treatment is provided for any waste stream entering the pond system, the BOD loading of that stream may be reduced by thirty-five percent (35%) when determining the required pond system surface area or detention time." In general, it is considered that a septic tank can provide influent BOD reductions by removing readily settleable solids and floating

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material. The percent removal of BOD varies on the design of the septic tank, for example a two-compartment tank over a single compartment tank. The percent removal of BOD also varies on the operations and maintenance the tank receives. Routine maintenance on the tank would include performing inspections of the tank and have the tank pump out to remove accumulating sludge, about every two to five years depending on population the tank is serving and if garbage grinders are in use.

In this case, the septic tanks are the responsibility of each of the homeowners on the system. There is no authority oversite for routine maintenance by a valid continuing authority. For design purposes, BOD reduction credit for septic tanks is given when a valid continuing authority oversees the septic tank operations and maintenance for all the septic tanks at the owners lots, or when an appropriate sized septic tank is located at the plant site and is operated and maintained by a valid continuing authority.

On July 16, 2004, a routine inspection was performed at Aqua Missouri – Quail Valley Lake wastewater treatment facility. It was noted that solids were accumulating on the bar screens. Also, Aqua Missouri commented that three main lift stations operated and maintained by Aqua Missouri had to change the pumps from effluent pumps to grinder pumps due to solids build up.

Mr. Story Concern 2: Aqua Missouri was approached to see if he could run tests to determine if the plant could treat the whole subdivision and Aqua Missouri said no. There is no cooperation from Aqua Missouri. The original engineer on the project states that the plant is expandable, but Aqua Missouri states they cannot expand the plant. Mr. Story wanted Murdon from St. James to test the plant and determine if it is expandable. He states he wants to know if he can expand the plant and if the answer is no, why.

Response to Concern 2: Aqua Missouri's comment to this concern was that there was no refusal, however, you would have to bear all costs and not Aqua Missouri.

Mr. Story Concern 3: He spent several hundred thousands on the plant and he just handed it over to Aquasource (Aqua Missouri).

Response to Concern 3: Aqua Missouri is a private sewer company that is regulated by the Missouri Public Service Commission. Aqua Missouri indicated that this issue is regulated under the Public Service Commission and mentioned that Aqua Missouri's tariffs can be viewed from the Public Service Commission's web page by going into the Electronic Filing and Information system. Please also review a Warranty Deed dated November 1, 2002.

The wastewater treatment facility appears to be four aeration tanks in series. Each aeration tank is approximately six feet by 12 feet by 10 feet. The total volume for the aeration tanks at the facility is 2,880 ft³. The Missouri Clean Water Commission regulation 10 CSR 20-8.20(13)(B)(6) states,

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"the aeration tanks shall be sized on the basis of an applied BOD load of fifteen pounds (15 lbs.) per one thousand (1000) cubic feet of aeration tank capacity per day. The design BOD loading rate shall include all recycle streams except return activated sludge." Furthermore, according to 10 CSR 20-8.020(13)(B)(6), the aeration tanks shall be designed to allow for twenty-four hour sewage detention time.

The Aqua Missouri – Quail Valley Lake subdivision system should handle 43.2 lbs. of BOD per day based upon the total aeration volume of 2,880 ft³. Domestic waste treatment design is based upon 0.17 lbs. of BOD per capita per day, but when garbage grinders are in use in the area the domestic waste treatment design would be based upon 0.22 pounds of BOD per capita per day. Unless other data is available, domestic waste treatment design is based upon 3.7 residences per home. Based on this information, this would be an approximate 254 population equivalent and approximately 69 homes that do not use garbage grinders would be the capacity of the Aqua Missouri – Quail Valley wastewater treatment facility.

If a valid continuing authority is found to operate and maintain the septic tanks at each of the homes or an appropriate sized septic tank is placed at the plant, the capacity of the treatment facility could be estimated to have the ability to treat an increase in BOD. However, if additional hydraulic flow is added to the treatment plant, 10 CSR 20-8.160(4)(A) requires clarifiers following the activated sludge process to have sidewater depths of at least 12 feet to provide adequate separation zone between the sludge blanket and the overflow weirs.

Aqua Missouri has indicated that currently there are 78 connections.

If you have any questions, please contact me at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE

Brenda Bethel, P.E.

Environmental Engineer III

BB/ks

c: Mr. Jim Hull, Water Protection Program

Mr. Peter Goode, Water Pollution Control Branch

Ms. Tena Hale-Rush, Aqua Missouri