

Exhibit No.:	_____
Issue:	Systems features and capacity Compliance with regulatory and engineering standards
Witness:	David G. Krehbiel
Sponsoring Party:	Folsom Ridge LLC and Big Island Homeowners Water and Sewer Association, Inc.
Case No.:	Case No. WO-2007-0277 <b>Joined for hearing with Case No. WC-2006-0082</b>

FOLSOM RIDGE LLC  
AND BIG ISLAND HOMEOWNERS WATER AND SEWER ASSOCIATION, INC.

Case No. WO-2007-0277  
**Joined for hearing with  
Case No. WC-2006-0082**

SURREBUTTAL TESTIMONY

OF

DAVID G. KREHBIEL

Camdenton, Missouri  
February, 2007



1 A. Design of the treatment plant expansion began early in 2005 and the completed  
2 documents were submitted to DNR for review on April 11, 2005 long before the  
3 complaints were filed. The Construction Permit was issued in September 2005  
4 and construction commenced after permit issuance. Construction of the  
5 expansion was scheduled after the permit was issued and not because of the  
6 complaints. The Commission should also note that the DNR Operating Permit for  
7 Big Island, No. MO-0123013 as issued on May 19, 2005 (which is a renewal of  
8 the permit), is for a Design Population Equivalent (P.E.) of 296 and a Design  
9 Flow of 22,525 gallons per day. As allowed by the DNR Construction Permit  
10 issued on September 20, 2005, the treatment plant has been expanded by 41,625  
11 gallons per day (a P.E. of 555) to a total Design Flow of 64,150 gallons per day  
12 (a P.E. of 851).

13  
14 **Ben Pugh Rebuttal Testimony**

15 Q. **On page 3 of his rebuttal, Mr. Pugh states that an ideal situation according to**  
16 **DNR regulations is water line and sewer line separation by a minimum of 10**  
17 **foot and “separated by virgin undisturbed soil.” Has DNR such a**  
18 **regulation?**

19 A. Not to my knowledge. The DNR regulations under which DNR reviews proposed  
20 construction permits do not have any provision on the soil composition separating  
21 the lines. I am attaching as Krehbiel Surrebuttal Schedule 1 a copy of the design  
22 guide regulation I am referring to and for easy reference it is quoted below:

23 C) Relation to Water Mains.

1  
2           1. Horizontal separation. Sewer mains shall be laid at least  
3 ten feet (10') (3.0m) horizontally from any existing or proposed  
4 water main. The distances shall be measured edge- to- edge. In  
5 cases where it is not practical to maintain a ten foot (10')-  
6 separation, the agency may allow deviation on a case-by-case  
7 basis, if supported by data from the design engineer. This deviation  
8 may allow installation of the sewer closer to a water main,  
9 provided that the water main is in a separate trench or on an  
10 undisturbed earth shelf located on one (1) side of the sewer at an  
11 elevation that the bottom of the water main is at least eighteen  
12 inches (18") (46 cm) above the top of the sewer.  
13

14           DNR uses a similar regulation in a design guide dated August 29, 2003 it  
15 recommends for water main installations. That design guide provision states:

16           **8.6.2. Parallel installation.**

17           Water mains shall be laid at least ten feet horizontally from any existing or  
18 proposed sewer. The distance shall be measured edge to edge. In cases  
19 where it is not practical to maintain a ten-foot separation, the department  
20 may allow deviation on a case-by-case basis, if supported by data from  
21 the design engineer. Such deviation may allow installation of the water  
22 main closer to a sewer, provided that the water main is laid in a separate  
23 trench or on an undisturbed earth shelf located on one side of the sewer  
24 and on either case, at such an elevation that the bottom of the water main  
25 is at least 18 inches above the top of the sewer. In areas where the  
26 recommended separations cannot be obtained, either the waterline or the  
27 sewer line shall be constructed of mechanical joint pipe or cased in a  
28 continuous casing.  
29

30           Finally, the same specifications for separation are set out in 10 CSR 60-10.  
31 010(2)(C) and a copy of that regulation is attached to my testimony as Krehbiel  
32 Surrebuttal Schedule 2.

33           **Jim Merciel Rebuttal Testimony**

34           **Q.     On page 4 of his rebuttal Mr. Merciel mentioned some technical issues with**  
35           **respect to the water and wastewater systems on Big Island which Mr. Martin**

1           **Hummel discussed in his prefiled testimony in Case No. WA-2006-0480.**  
2           **Directing you to page 4 line 16 of Mr. Hummel's rebuttal testimony, which**  
3           **was attached to Mr. Merciel's filing, have those technical issues been**  
4           **addressed?**

5    A.    Many of them have. At the outset, I will state that I agree with many of them.

6  
7           The bullet point on page 4 of his testimony is agreeable 100% and I think the  
8           bylaws of the 393 Companies as proposed handle this. Mr. McDuffey will also  
9           discuss in his testimony the specifications for the septic tanks and any customer  
10          maintenance responsibilities.

11  
12          Regarding "as built" drawings, there are partial "as built" available at this time,  
13          and they will be transferred as part of the transaction proposed with the 393  
14          Companies.

15  
16          Leak management will be addressed by Mr. McDuffey but it is my understanding  
17          that a procedure is in place. Discharge flow measurement is not a DNR  
18          requirement but I understand the 393 Companies are considering installation of a  
19          flow measurement device. Regarding pressure monitoring/recording I am  
20          unaware of any feasible or effective way to accomplish this and in an unregulated  
21          environment the need for this is questionable.

22

1 To my knowledge many shut off valves have already been installed, and it is  
2 possible that there are shut off valves for each home. Mr. McDuffey can address  
3 this. Nonetheless, shut off valves could be installed by the 393 Companies as  
4 they are needed for water and sewer connections discovered during daily  
5 operations or on exposure during maintenance excavation.

6  
7 Water main repair procedures and tapping procedures will be addressed by Mr.  
8 McDuffey including procedures for installation and inspection of uniform septic  
9 tanks and effluent pumps. Evaluation of water mains for installation of isolation  
10 valves, air release valves and flush valves is an on going process which I  
11 understand Mr. McDuffey's firm provides.

12  
13 Permits in the name of the developer for construction of additional water storage  
14 capacity—the standpipe—have been issued by DNR to confirm Mr. Hummel's  
15 understanding on this matter. The 393 Companies will have the benefit of that  
16 permit and the storage facility.

17  
18 **Q. On page 2 of Appendix A of Mr. Merciel's testimony, his staff report last**  
19 **year dated February 9, 2006, he reports that the water system is a single well**  
20 **system with a capacity to serve 65 residential customers. Should this be**  
21 **clarified?**

22 **A.** I would like to clarify this for the Commission. The capacity to serve 65  
23 residential customers is limited by two factors: the pumping capacity and storage

1 capacity. The well produces 140 gallons per minute and already has the capacity  
2 to supply the projected development of 320 units. The other restriction is storage.  
3 Without increased storage on the site, the system capacity is at 65 customers. But  
4 as I have testified above, permits in the name of the developer for construction of  
5 additional water storage capacity—a standpipe—have been issued by DNR  
6 which, when erected, will increase capacity to 320 customers. Also, if needed,  
7 the pumping capacity can be easily increased with the installation of a larger  
8 pump.

9

10 Q. **Does this conclude your surrebuttal testimony?**

11 A. Yes.