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| Exhibit No.:      | _____                                     |
| Issue:            | Systems Operations and<br>Management      |
| Witness:          | Michael T. McDuffey                       |
| Sponsoring Party: | Big Island Water & Sewer<br>Company, Inc. |
| Case No.:         | Case No. WA-2006-0480                     |

BIG ISLAND WATER & SEWER COMPANY, INC.

Case No. WA-2006-0480

## SURREBUTTAL TESTIMONY

OF

MICHAEL T. MCDUFFEY

Camdenton, Missouri  
January, 2007

1 **SURREBUTTAL TESTIMONY**  
2 **MICHAEL T. MCDUFFEY**

3 Q. **Please state your name and your business address.**

4 A. My name is Michael T. McDuffey. My business address is 840 Thunder  
5 Mountain Road, Camdenton, Missouri 65020.  
6

7 Q. **Are you the same Michael T. McDuffey who filed written direct testimony in**  
8 **this matter?**

9 A. Yes, I am.  
10

11 Q. **What is the purpose of your surrebuttal testimony?**

12 A. I will respond to the rebuttal testimony filed by Cathy Orlor, Ben Pugh, Martin  
13 Hummel and Paul Harrison.  
14

15 **Ms. Orlor's Testimony**

16 Q. **On page 36 of her rebuttal line 13, Ms. Orlor refers to a notice of violation**  
17 **issued in June of 2005 regarding lack of a site sampling plan for the system**  
18 **and your testimony about that notice. Was there a notice of violation**  
19 **pertaining to a site sampling plan?**

20 A. Ms. Orlor's testimony on this prompted me to review the records in our offices,  
21 and it appears that there was no notice of violation in June of 2005 about a site  
22 sampling plan, and to this extent my direct testimony is corrected. I recall that  
23 Ms. Orlor visited with me about this subject in a public hearing in June of 2006

1           pertaining to the complaint she filed against Folsom Ridge LLC and although I  
2           did not understand what she meant by an “improper” water sampling, I told her  
3           that I was reasonably certain that I had a copy of the letter from DNR about the  
4           subject if it had been written up. I believe I answered her question correctly.

5

6    **Q.    On page 37, Ms. Orlor questions your statement in direct testimony about the**  
7           **importance of septic tanks to the wastewater treatment process on Big Island**  
8           **and also questions whether operation of multiple wells and septic systems**  
9           **might adversely affect the water source in the area. Is it still your testimony**  
10          **that a septic tank is integral to the overall efficient operation of the**  
11          **wastewater treatment process?**

12    **A.**    It certainly is. The central system of wastewater treatment installed on Big Island  
13           depends upon well maintained septic tanks equipped with adequate and efficient  
14           effluent pumping equipment. Each septic tank should be approved by an inspector  
15           before installation and before it is ever connected to the system.    What  
16           differentiates the septic tank I have just described is that it discharges into the  
17           regional or central treatment system. The multiple septic systems referred to in  
18           the application are those on the Island which have their own discharge point, thus  
19           increasing the number of points of possible contamination. If there are multiple  
20           discharging septic systems and multiple wells, the risk of contamination is far  
21           greater. I think it is reasonable to say that the individual septic systems on Big  
22           Island that are not connected to a central treatment system have been and continue  
23           to be a threat to water quality in the area. The question and answer on page 37

1 lines 1-8 of Ms. Orler's testimony show a lack of understanding about the  
2 environmental risks of aging and poorly maintained septic tanks discharging into  
3 the Lake and not into regional treatment facilities.  
4

5 **Mr. Pugh's Testimony**

6 Q. **On page 3 of his testimony Mr. Pugh lists conditions, which in his opinion,**  
7 **although he is not an engineer or operator of wastewater systems or water**  
8 **systems, are creating a potential risk to residents. One of those conditions is**  
9 **improperly labeled sewer and water valves. Does this condition pose a**  
10 **danger to the area.**

11 A. No, this is not a risk to public health. A qualified plumber working with the valve  
12 boxes would know immediately which line was for water and which for sewer.  
13 No unqualified person should be working on these valves.  
14

15 Q. **On page 4, Mr. Pugh claims that uprights or valve boxes that were not**  
16 **removed after the abandoned water line was deactivated pose a health threat.**  
17 **Do you agree?**

18 A. No, I do not. The uprights stranded after the water line deactivation or  
19 abandonment pose no risk to public health. As Mr. Pugh states in his testimony,  
20 and I will certainly agree, a health risk exists when unqualified people tamper  
21 with the piping or with valve boxes or, for that matter, any other segment of the  
22 water or wastewater systems. Unqualified persons are not authorized to work on  
23 these systems.

1

2     **Q.     Again on page 4 of his testimony Mr. Pugh states that sewer and water valves**  
3     **in the same upright are only inches apart. Is this a threat to public health?**

4     A.     No. The distance between the service line for water and the service line for sewer  
5     does not pose a health risk. The preference is to separate each, and preferably  
6     have each in a separate excavation or “pit” but because of ground conditions, such  
7     as rock, and the expenses of digging extra cavities for these lines, they often are  
8     installed in the same pit. I will note that DNR has no regulations setting out a  
9     minimum separation for service lines.

10

11    **Q.     Mr. Pugh on page 4 of his testimony states that only one home on the**  
12    **causeway has a shut off valve. Do you believe this to be the case?**

13    A.     No. There are shut off valves for each home on the causeway, not just the one  
14    Mr. Pugh identifies in his testimony. Instead of being in an upright, the valves are  
15    probably buried and a qualified plumber would be able to locate them. If there  
16    are none, and I do not think that is true, then any time a plumber works on the  
17    water supply for a residence, it is a simple task to install a shut off valve at that  
18    time. Mechanically, it would be impractical for a plumber not to install a shut off  
19    valve and try to work on the water system in a residence.

20

21    **Q.     Do you have any comments about Mr. Pugh’s statements on page 4 about the**  
22    **relocated water main and its relationship to the location of the sewer main.**

23    A.     Mr. Krehbiel will be discussing this in his separate surrebuttal testimony.

1     **Q.     On page 5 of his testimony, Mr. Pugh discusses water that accumulated in a**  
2           **trench dug by Mr. Duane Stoyer in April of 2001. He also states that the**  
3           **water was contaminated. Will you tell the Commission about your**  
4           **involvement in this matter?**

5     A.    Mr. Pugh attached my memo to Mr. Golden about Mr. Stoyer's trench and the  
6           water that was found there and how my office worked toward eliminating the  
7           water from accumulating again. That is an accurate version of the events. But  
8           Mr. Pugh is incorrect in calling the water "contaminated" or "polluted" as he does  
9           in his testimony and in the descriptions he places on some of the photographs in  
10          his testimony. The water sample taken from Mr. Stoyer's trench showed 10,909  
11          fecal colonies per 100 ml but this amount of fecal coliform means that the water is  
12          not raw sewage. At that level the water might be normal runoff. Fecal coliform  
13          occurs naturally in the ground. The origin of the water is still somewhat of a  
14          mystery but it definitely did not come from a septic tank, and if it came from the  
15          treatment plant at Big Island, it was treated wastewater within DNR effluent  
16          standards—it would have been chlorinated. If Mr. Stoyer's health was affected in  
17          any way, it was not from the water in the trench he dug or the water treated and  
18          discharged from the treatment plant. Mr. Stoyer did have his own septic tank and  
19          it was not connected to the regional treatment system.

20

21    **Q.     On page 6, Mr. Pugh discusses a May, 2006 construction permit issued by**  
22           **DNR for relocation of a 710 foot segment of water main to maintain a ten**

1           **foot separation from a nearby sewer main. Has work commenced on this**  
2           **project?**

3    A.     Yes. In advance of the work, exploratory holes were dug along this 710 foot area  
4           to determine the amount of separation the lines already maintained. I personally  
5           inspected the area and the lines were already separated by at least ten feet. The  
6           construction project to relocate the water line is unnecessary.

7

8    Q.     **On page 8 of his testimony, Mr. Pugh gives a run down of four features DNR**  
9           **observed in a June 2, 2005 inspection of the facilities. Could you explain**  
10          **these features and what you did in response to the inspection report?**

11   A.     There were four unsatisfactory features listed in the June 28, 2005 report (which  
12           is attached as BP Schedule 16 to Mr. Pugh's testimony). The first and third  
13           involve a failure to collect routine samples from the water system and  
14           development of a written coliform bacterial sample siting plan. These items were  
15           unfounded. My laboratory regularly collected the samples required and had  
16           submitted the sample siting plan to DNR on a timely basis. DNR had misplaced  
17           the records of the sampling and the sampling siting plan.

18

19          Regarding the second feature, which respects dispensing water without a written  
20           permit, it is true that none had yet been applied for. That permit was applied for  
21           on July 22, 2005. We are still waiting on the permit to be issued. This permit is  
22           not a priority for DNR.

23

1 As for the fourth mentioned in the report, that is a duplicate of the notice of  
2 violation received when construction crews started work under the mistaken belief  
3 that plans, which were on file at DNR, had already been approved. Mr. Krehbiel  
4 will address this in his testimony.

5  
6 DNR noted two design guide deficiencies in the report, one of which was to  
7 “paint the exterior of the well casing,” but this and the other recommendation  
8 (install meters on the service connections) were not mandatory.

9

10 Q. **Have any of the unsatisfactory features noted in the June 28, 2005 report**  
11 **resulted in enforcement action by DNR?**

12 A. No. Each has been rectified to DNR’s satisfaction.

13

14 Q. **Have you also examined the photographs attached to Mr. Pugh’s rebuttal**  
15 **testimony?**

16 A. Yes, I have looked at each. First, I do not know when these photographs were  
17 taken and on some I do not know what was taken. To the extent those things can  
18 be determined I will qualify my comments.

19

20 His photograph marked as BP Schedule 6 is of construction that has not been  
21 identified as construction done by the developer. He also adds commentary  
22 below the photograph in which he repeats his opinions about the effect of  
23 installing the sewer line at a point above the water line. Mr. Krehbiel will



1 address whether a health issue is involved in this construction. Mr. Pugh asks a  
2 question about the logic of the installation and Mr. Krehbiel's testimony addresses  
3 this.

4  
5 On BP Schedule 6, there is a photograph purportedly showing the causeway  
6 service line. In his remarks on the photo, Mr. Pugh indicates there is no  
7 protective sleeving. None is required.

8  
9 On BP Schedule 7, Mr. Pugh's commentary on this picture questions the present  
10 separation between the well and the treatment plant. The facilities were  
11 constructed in accordance with DNR regulations and design criteria. There has  
12 been no contamination caused by the operations of these systems. The picture he  
13 supplies appears to be the repair of the discharge pipe from the treatment plant.  
14 This pipe carries treated wastewater that meets or exceeds DNR effluent  
15 requirements. Again, this is a point where chlorinated water is discharged. BP  
16 Schedule 8 is more of the same. Mr.:Pugh's comments about contaminated water.  
17 There was no contaminated water found in Mr. Stoyer's trench and no person has  
18 reported contaminated water to me since that time on Mr. Stoyer's property or  
19 elsewhere. Mr. Pugh has attached BP Schedule 9 on the Stoyer issue as well, and  
20 claims that "nasty" water is present in the photo. Again, there was no  
21 contaminated water at this site. Regarding the photo of Mr. Stoyer's connection  
22 to the waste water system, my memory is that he did not connect. Mr. Pugh adds  
23 other photos with the remarks about "scummy" water along the road by the

1           Stoyer's home and "nasty" water in a photo taken purported 78 days after the  
2           "leak" was reported. There was no leak reported, just an accumulation of water in  
3           a trench dug by Mr. Stoyer. The source of any "nasty" water in those  
4           photographs is unknown to me. If the source was the treatment plant, the water  
5           was harmless treated wastewater. The quality of the treated wastewater is better  
6           than that of the Lake itself. The photos attached as BP Schedule 9 are likewise  
7           related to the water found at the Stoyers.

8  
9           The photos grouped under the heading BP Schedule 10 mainly deal with what Mr.  
10          Pugh says are leaks of the system and odors from the system. He even claims that  
11          dead trees "across the road" (without saying which road) have been killed by  
12          contamination from the treatment plant. I have no reports of leaks from the  
13          system. I do not know if the photos are of facilities connected to the wastewater  
14          system on Big Island. As of now, there are no leaks on the system and no reports  
15          of foul odors. As far as the effect of wastewater, not considering treated  
16          wastewater, on undergrowth and plants of any kind, the Commission should  
17          already be aware that wetland basins and the organisms and plants, including  
18          trees, growing there are becoming popular components of wastewater treatment.  
19          Ill effects on trees of any kind caused by wastewater are virtually non existent.

20

21   **Mr. Hummel's testimony**

1    **Q.     On page 5 of his testimony Mr. Hummel recommends flow measurement**  
2           **equipment in connection with leak detection. As the operator, do you have**  
3           **means of knowing when leaks in the systems are occurring?**

4    A.    Mr. Hummel is correct that detection and correction of leaks in these systems is  
5           important. Regarding leaks, or low pressure, in the water system, this tends to  
6           take care of itself since low pressure is quickly noted by customers and called in.  
7           Correction of low pressure on the water system has been quickly corrected  
8           following notification. Regarding the wastewater system, as Mr. Krehbiel will  
9           address in his testimony, the company expects to obtain flow measurement  
10          equipment.

11

12   **Q.     Also on page 5, Mr. Hummel recommends establishment of a water main**  
13           **repair procedure.**

14   A.    This has been done already.

15

16   **Q.     Mr. Hummel also recommends that directions be given on the responsible**  
17           **party for installation, construction inspection, and operation of the septic**  
18           **tanks. Has this been done?**

19   A.    I am attaching as MTM Surrebuttal Schedule 1, a copy of Big Island Association  
20           standards which govern connection to the water and sewer systems, and MTM  
21           Surrebuttal Schedule 2, a copy of the specifications for the septic tank to used for  
22           connection to the wastewater system. Mr. Hummel recommends that annual tank  
23           inspections and that is done in connection with the annual inspection of effluent

1 filters for the tanks. The specifications and procedures set out on the attached  
2 schedules should agree with Mr. Hummel's recommendations.

3

4 **Mr. Harrison's testimony**

5 **Q. On Schedule PRH 1 on the line for Labor, in his notes Mr. Harrison states**  
6 **that your contract with the Company should be priced at \$732 per month. Is**  
7 **this the price quoted for your services?**

8 A. No, this is an incorrect figure. Mr. Krehbiel used the correct estimate for our  
9 services in his feasibility study. I am not certain but I think Mr. Harrison may  
10 have contacted my office manager on the phone and inquired generally what my  
11 firm might charge for certain services and this figure was given, but it by no  
12 means covers the same services that my firm is expected to supply the Company.  
13 As it is set out in Mr. Harrison's recommendation for Labor, the amount is too  
14 low.

15

16 **Q. Does this conclude your testimony?**

17 A. Yes, it does.