



## Performance Test

There have been two tests run on the system, one by EcoVerde on June 8, 2016 and one independently by WEA on June 30, 2016. The results of each test are summarized below:

<b>Parameter</b>	<b>EcoVerde (6/8/2016)</b>	<b>Webster (6/30/2016)</b>
Air Flow (cfm)	850	1,048
Drain Water pH	2.71	1.9
Inlet H <sub>2</sub> S (ppm)	92	14.05
Outlet H <sub>2</sub> S (ppm) H <sub>2</sub> S	0	0.01
Removal Efficiency (%)	100	99.9

The Empty Bed Residence Time (EBRT) of the system is about 15 seconds, based on the air flow of the time of testing.

The EcoVerde test was performed with a 0 – 50 parts per million (ppm) Odalog on the outlet, which does not register below 1 ppm, and does not read parts per billion (ppb), therefore anything less than 0.5 ppm usually reads zero. The WEA test was conducted with a low range analyzer that is accurate within 10 ppb. The readings taken by WEA are shown in **Table 1**.



**Table 1**

<b>Ecoverde Performance Test at Hogan Pump Station (Hot Springs, AR) 6/30/16</b>				
<b>Sample</b>	<b>Time</b>	<b>Inlet H2S (ppm)</b>	<b>Outlet H2S (ppm)</b>	<b>Removal Efficiency (%)</b>
1	8:10 AM	11	0.01	99.9
2	8:20 AM	12	0.01	99.9
3	8:30 AM	13	0.01	99.9
4	8:40 AM	12	0.01	99.9
5	8:50 AM	13	0.01	99.9
6	9:00 AM	10	0.01	99.9
7	9:10 AM	12	0.01	99.9
8	9:20 AM	13	0.01	99.9
9	9:30 AM	18	0.02	99.9
10	9:40 AM	14	0.01	99.9
11	9:50 AM	22	0.02	99.9
12	10:00 AM	16	0.01	99.9
13	10:10 AM	16	0.01	99.9
14	10:20 AM	17	0.01	99.9
15	10:30 AM	17	0.01	99.9
16	10:40 AM	12	0.01	99.9
17	10:50 AM	11	0.01	99.9
18	11:00 AM	10	0.01	99.9
19	11:10 AM	12	0.02	99.8
20	11:20 AM	15	0.01	99.9
21	11:30 AM	19	0.02	99.9
<b>AVERAGE</b>		<b>14.05</b>	<b>0.01</b>	<b>99.9</b>

An air sample was taken from the inlet and outlet of the bioscrubber and shipped overnight to an analytical laboratory for determination of Reduced Sulfur Compounds (RSCs). The only compound detected other than H<sub>2</sub>S was Methyl Mercaptan (MM) with 81 ppb in the inlet and non-detect on the outlet. The odors at the stack are therefore very low.

The EcoVerde bioscrubber removed 99.9% of the H<sub>2</sub>S and has therefore performed in accordance with a system guarantee of 99% removal of H<sub>2</sub>S or less than 0.5 ppm.