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**WRITTEN DIRECT TESTIMONY OF BARRY D. NEAL**

1. **Please state your name and business address for the record.**

Barry D. Neal  
B.D. Neal & Associates  
P.O. Box 1808  
Kailua-Kona, Hawaii 96745

2. **What is your current occupation?**

Consulting meteorologist at B.D. Neal & Associates specializing in air quality.

3. **How long have you been specializing in air quality?**

Since 1977, approximately 36 years.

4. **Is Petitioner's Exhibit 22 a true and correct copy of your resume?**

Yes.

5. **Please briefly describe your educational background.**

B.S. Meteorology, San Jose State University, 1976  
Graduate Studies, Meteorology, San Jose State University, 1977

6. **Please briefly describe your work experience as a meteorologist.**

I have approximately 36 years of experience working in air quality and meteorology. Much of this experience revolves around air quality modeling and monitoring. Approximately 25 years of this experience has been accumulated in Hawaii.

7. **Do you specialize in any particular areas?**

Yes, my specialty is in air quality and atmospheric dispersion.

8. **To what professional organizations do you belong?**

I am a member of the American Meteorological Society and the Air and Waste Management Association.

9. **What additional training or certification do you have?**

Certified Consulting Meteorologist designation, American Meteorological Society.

1 10. **What does an air quality specialist do?**

2 Air quality modeling, air quality monitoring, and meteorological monitoring. Air  
3 permitting, regulatory compliance and dispersion modeling projects.

4 11. **Please describe the type of work you perform at B.D. Neal & Associates.**

5 I conduct air quality modeling and monitoring studies, assess air quality impacts from  
6 mobile sources, perform system and performance audits of air quality monitoring systems,  
7 provide expertise in remote sensing (sodar) systems for obtaining vertical profiles of wind speed  
8 and direction, and prepare air quality studies for environmental impact statements and for air  
9 pollution permit applications.

10 12. **Have you ever been qualified as an expert witness in air quality before the Land Use**  
11 **Commission?**

12 Yes. I have been qualified to testify as an expert in the field of meteorology/air quality on  
13 more than 10 previous occasions. I appeared as an expert approximately 8 times before the State  
14 Land Use Commission.

15 13. **Are you familiar with the proposed development plans for the Pu'unene Heavy**  
16 **Industrial Subdivision ("Project") and the Petition Area?**

17 Yes. I understand that the Project located within the approximately 86 acre Petition Area  
18 located in Pulehunui, Wailuku, Maui, at tax map key no. (2) 3-8-008: 019, is proposed to be  
19 developed as a heavy industrial subdivision.

20 14. **Please identify the study you prepared for the Petition Area.**

21 My firm, B.D. Neal & Associates, was retained by Petitioner CMBY 2011 Investment,  
22 LLC to prepare a study titled "Air Quality Study for the Proposed Puunene Heavy Industrial  
23 Subdivision" dated November 2011 ("AQS"), a copy of which was included as Appendix H of  
24 the Environmental Assessment that was prepared by Chris Hart & Partners, which I understand  
25 was filed as Petitioner's Exhibit 1.

26 15. **Please describe the scope of your AQS.**

27 The objective of the AQS was to examine existing air quality in the Petition Area, and to  
28 assess the potential short- and long-term air quality impacts that could occur as a result of the

1 development and use of the proposed Project. Mitigative measures were suggested to reduce any  
2 potential air quality impacts where possible and appropriate.

3 16. **Did you rely on any other studies or external data in drawing your conclusions and**  
4 **making your assessment of the Project?**

5 Yes, the Project Traffic Impact Analysis Report was used as input to the air quality  
6 modeling study. Also, ambient air quality data reported by the Hawaii Department of Health  
7 were used to describe existing conditions.

8 17. **Are there any government regulations applicable to the AQS?**

9 Yes. Both federal and state standards have been established. There are national ambient  
10 air quality standards ("NAAQS") set forth under Sec. 40, Part 50 of the Code of Federal  
11 Regulations, and State ambient air quality standards ("SAAQS"), set forth under Hawaii  
12 Administrative Rules ("HAR") Chapter 11-59.

13 The SAAQS cover seven pollutants: (i) particulate matter; (ii) sulfur dioxide; (iii) nitrogen  
14 dioxide; (iv) carbon monoxide; (v) ozone; (vi) lead; and (vi) hydrogen sulfide. The SAAQS are  
15 similar to the NAAQS except that the NAAQS do not regulate hydrogen sulfide. Also, the  
16 SAAQS are designed to "protect public health and welfare and to prevent the significant  
17 deterioration of air quality." See HAR § 11-59-1.

18 18. **Please describe the methodology used to conduct the AQS.**

19 A computerized air quality modeling study was undertaken to assess the potential long-  
20 term impact of emissions from Project-related motor vehicle traffic operating on roadways in and  
21 around Petition Area after development of the Project. Carbon monoxide was selected for the  
22 modeling because it is stable and the most abundant of the pollutants emitted by motor vehicles.  
23 The modeling study looked at three scenarios: (i) the year 2011, which was the year of the AQS;  
24 (ii) the year 2015 without the Project; and (iii) the year 2015 with the Project. The intersection of  
25 Kama'aina Road at Mokulele Highway was the focus for the air quality analysis.

26 Short-term impacts, i.e., impacts due to the construction of the Project, were assessed on a  
27 qualitative basis only.

28

1 19. Are the methodologies that you used consistent with generally accepted industry  
2 standards?

3 Yes.

4 20. What is the present air quality of the Petition Area?

5 The existing air quality in the Petition Area is predominantly good. The largest source of  
6 air pollution in the vicinity of the Petition Area is from agricultural operations. Present air quality  
7 in the Petition Area is also affected by air pollutants from vehicular, industrial and/or natural  
8 sources, i.e., volcanic emissions

9 21. What are the short-term air quality impacts of the reclassification and development  
10 of the Petition Area?

11 There are two sources of short-term air quality impacts; (i) fugitive dust from vehicle  
12 movement and earth moving, i.e., grading, during Project construction; and (ii) exhaust emissions  
13 from on-site construction equipment.

14 Estimating the amount of fugitive dust is difficult due to the elusive nature of emission  
15 and because the amount of dust varies greatly depending upon the type of soil, the amount of dirt  
16 moving activity, the moisture content of the soil and the wind speed. Nevertheless, the  
17 Environmental Protection Agency has estimated uncontrolled fugitive dust emissions from  
18 construction activities at 1.2 tons per acre, per month under "medium" activity levels, and with  
19 soils of a moderate silt content and a precipitation/evaporation index of 50 (moderately dry). This  
20 estimate is appropriate for anticipating conditions at the Petition Area during construction.  
21 However, under HAR Chapter 11-60.1, visible emissions of fugitive dust from construction  
22 activities cannot go beyond the property line of the property on which the dust was generated.  
23 Therefore, an effective dust control plan must be in place during the Project development.

24 22. What are your recommendations with respect to mitigating the short-term impacts  
25 on air quality from fugitive dust due to the development of the Petition Area?

26 To control dust, active work areas and any temporary unpaved work roads should be  
27 watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area  
28 that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion

1 of inactive areas of the site that have been disturbed could be controlled by mulching or by the  
2 use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on  
3 roadways to prevent windage. A routine road cleaning and/or tire washing program will also help  
4 to reduce fugitive dust emissions. Paving parking areas, or the establishment of landscaping early  
5 in the construction schedule, will also help to control fugitive dust.

6 It is possible that during the construction phase of the Project overall vehicle emissions  
7 could increase temporarily if construction vehicles obstruct the normal flow of traffic to such an  
8 extent that vehicles are stalled in traffic. If so, the situation is easily addressed by having  
9 construction vehicles travel to and from the Petition Area during non-peak traffic hours.

10 23. **What are the long-term air quality impacts that would result from the**  
11 **reclassification and development of the Petition Area?**

12 After the Project is completed, any long-term impacts on air quality in the Petition Area  
13 due to emissions from project related motor vehicle traffic should be negligible. Under a "worst-  
14 case" analysis, e.g., atmospheric stability of 6 in the morning and 4 in the afternoon, a surface  
15 roughness length of 10 cm, a mixing height of 1,000 meters, and a wind speed of 1 meter/second,  
16 the level of carbon monoxide concentration for the year 2015 without the Project was estimated to  
17 be 4.8 ppm, and with the Project was estimated to be 5.3 ppm. The eight hour concentrations  
18 were estimated to be similarly insignificant, at 2.4 ppm in 2015 without the Project and 2.6 ppm  
19 in 2015 with the Project. These levels are well within the SAAQS and the NAAQS.

20 24. **What are your recommendations with respect to the long-term impacts on air**  
21 **quality due to the development of the Petition Area as proposed?**

22 No mitigation measures are needed. The effect of any emissions from Project-related  
23 motor vehicles will be negligible.

24 25. **Does your analysis take into consideration the heavy industrial uses that will be**  
25 **developed within the Project?**

26 No, because those exact uses have not been identified. Without specific information  
27 concerning stack heights and stack gas temperatures, exit velocities and emission rates, I cannot  
28 quantitatively estimate the impacts on air quality. However, Hawaii law, HAR Chapter 11-60.1,

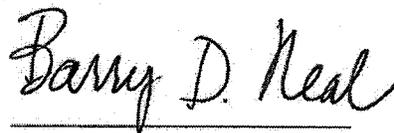
1 requires any activity that causes air pollution to obtain written approval from the Director of the  
2 Department of Health. Typically this means the potential activity must be described in detail in  
3 an application, and a permit must be issued for the construction of the proposed use, and for the  
4 operation of that use. The applicant will be required to describe the type and nature of any air  
5 pollution emissions and the emission control technology that will be used. Air quality impact  
6 analyses and/or air quality monitoring may be required before the applicant is permitted to  
7 operate. Therefore, the individual uses within the Project will be assessed through this State  
8 permitting process.

9 26. In your professional opinion, will the development of the Project have an adverse  
10 effect on air quality either in the short term (i.e., during construction), or the long-term?

11 No. Fugitive dust can, and must, be addressed during the construction phase of the  
12 Project, as described above. Once the construction of the Project is completed as proposed by  
13 CMBY 2011 Investment, LLC, there should be no long-term negative impacts on air quality due  
14 to Project-related traffic. Any direct impacts on air quality from industrial sources located at the  
15 Project will need to be addressed later, through the State air permitting process when those  
16 sources propose construction.

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19 DATED: KAILUA-KONA, Hawaii, August 14, 2013.

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21 Respectfully submitted,

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25 BARRY D. NEAL

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