

**Appendix 8**

**Draft Post Construction Noise Monitoring Protocol**

**DRAFT**

**CPV Valley Energy Center  
Noise Compliance Testing Protocol**

*Prepared for:*

**CPV Valley, LLC**

50 Braintree Hill Office Park, Suite 300  
Braintree, Massachusetts 02184

*Prepared by:*

**TRC Environmental Corporation**

57 East Willow Street  
Millburn, New Jersey 07041

**Draft  
October 2011**

## TABLE OF CONTENTS

<b><u>Section</u></b>	<b><u>Page</u></b>
1.0 INTRODUCTION.....	1
2.0 STANDARDS.....	1
2.1 Noise Testing Standards .....	1
2.2 Town of Wawayanda Noise Standard .....	1
3.0 NOISE MEASUREMENT LOCATIONS .....	1
4.0 TESTING METHODOLOGY .....	2
4.1 Measurement Conditions .....	2
4.2 Noise Measurement Program .....	2
4.3 Instrumentation .....	2
4.4 Field Measurement Data Sheets .....	3
5.0 REPORTING .....	3
6.0 PROCEDURE FOR MITIGATING EXCESS NOISE.....	4
7.0 NOISE COMPLAINT RESOLUTION PROCESS .....	5

## LIST OF FIGURES

<b><u>Figure No.</u></b>	<b><u>Page</u></b>
Figure 1 Noise Testing Locations .....	6

## **1.0 INTRODUCTION**

This operational noise compliance testing protocol has been prepared for the CPV Valley Energy Center (Project) for the purpose of determining compliance with the Town of Wawayanda noise performance standard. This protocol sets forth the standards and methods that CPV will employ to demonstrate that noise emissions from the Project comply with the Town's limits. This protocol also includes provisions for addressing potential community concerns related to noise levels from the Facility.

The Construction Noise Monitoring Protocol will remain draft until review and finalization by the Planning Board during the Site Plan approval process. The contact person will be a member of the Facility staff, likely the plant manager. There will be one compliance test done, sometime in the first six months of commercial operation.

## **2.0 STANDARDS**

### **2.1 Noise Testing Standards**

All noise measurements and procedures utilized in performing this compliance testing will be in conformance with the minimum following noise standards:

- ANSI S1.4-1983 or IEC651:1979/IEC804:1985 (Specification for Sound Level Meters)
- ANSI S1.13-1971 (Methods for the Measurement of Sound Pressure Levels) or later revisions
- ANSI S12.9-1993/Part 3 (Quantities and Procedures for Description and Measurement of Environmental Sound. Part 3: Short-Term Measurements with an Observer Present) or later revisions

### **2.2 Town of Wawayanda Noise Standard**

The Town of Wawayanda has adopted a noise performance standard in Article 4.5 of the Town Zoning Code. The standard limits facility generated noise levels to no greater than 65 dB at a distance of 100 feet from the project lot line. Although not specified in the code, it is assumed for the purposes of this compliance testing protocol that the 65 dB level is A-weighted (e.g., 65 dBA).

## **3.0 NOISE MEASUREMENT LOCATIONS**

The Town of Wawayanda noise performance standard limits noise levels from the facility to no greater than 65 dBA at distances of 100 feet from the Project property line. Testing will be conducted at five locations as depicted in Figure 1.

## **4.0 TESTING METHODOLOGY**

CPV will conduct all noise testing during the evening and nighttime hours (between 8 p.m. and midnight) to minimize effects of intrusive noises from other sources (e.g., traffic, aircraft) allowing for more accurate noise measurements. Additionally, evening and nighttime conditions are more favorable for noise propagation, which will yield more conservative results.

### **4.1 Measurement Conditions**

Noise testing will be conducted by an acoustical consultant who is qualified by experience and/or training to conduct the measurements. The qualifications of the testing personnel will be documented in the compliance test report.

To meet the requirements of the aforementioned standards, the noise monitoring program will be conducted under the following conditions:

- The Project will be operating normally at or near full load (80 percent load or higher).
- All air cooled condenser cooling fans will be operating.
- All measurements will be conducted during favorable noise propagation hours (i.e., 8 p.m. to midnight).
- No precipitation may occur during the measurement periods.
- Ambient temperature will be between 14°F and 122°F.
- Measurements will be taken during periods of light winds (wind speeds should not exceed 10 to 15 miles per hour).
- The meter microphones will be mounted at a nominal height of 5 feet (1.5 meters) above grade and will be fitted with foam windscreens.

### **4.2 Noise Measurement Program**

Noise generated by the Project will be steady in level. As such, long-term measurement of facility noise is not required, and a short-term measurement of 10 minutes at each location will be adequate for quantifying facility-generated noise. The short-term measurements will include measurement of each one-third octave band from 20 Hz through 10,000 Hz.

Any of the sound level meters may be paused as needed to exclude extraneous noise sources present during the testing period.

### **4.3 Instrumentation**

CPV will perform noise level measurements utilizing integrating sound level meters and octave band analyzers with integral data loggers which meet ANSI S1.4-1983 requirements or IEC651:1979/IEC804:1985 for Precision Type 1 sound level meters. The microphones will be

fitted with windscreens to reduce wind-generated noise and mounted at a nominal height of five feet above the ground. Large reflecting surfaces (such as building walls) will be avoided to the extent possible. CPV will ensure that all meters have been calibrated by a calibration laboratory to NIST-traceable standards within one year of the monitoring program. Measurements will be made with the meter set to “fast” response. Calibration of the meters will be verified in the field using a sound level calibrator at the beginning and end of the survey.

The instruments will be programmed to measure and log, at a minimum, the  $L_{90}$  noise level. The  $L_{90}$  is a statistical measurement which represents the sound level exceeded 90 percent of the time, and is also referred to as the background or residual noise level. This type of measurement minimizes the effect of short term, intrusive noise sources, such as aircraft overflights or occasional traffic. The nature of the noise generated by the Project (steady, even noise levels) will be better measured using the  $L_{90}$  descriptor. In fact, for an unchanging noise level, the  $L_{90}$  and  $L_{eq}$  are the same. For this reason, compliance determination will be made using the  $L_{90}$  descriptor. All measured noise levels will be reported to the nearest one-tenth decibel. The  $L_{eq}$  (defined as the energy average noise level during a measurement period) or any other descriptor may also be measured, but will not be used for compliance assessment purposes.

#### **4.4 Field Measurement Data Sheets**

A field data sheet will be used to document all activities at each location during the noise measurement program. The data sheets will include a minimum of the following information:

- Names of personnel conducting testing;
- Name, manufacturer, and model number of each sound level meter and calibrator;
- Observed meteorological conditions;
- Observed sources of extraneous noise;
- An indication of whether the Project is clearly audible over other sources of noise;
- A sketch of the monitoring locations;
- Calibration information; and
- Any unusual conditions that could affect measured noise levels, including excessive extraneous noises.

#### **5.0 REPORTING**

CPV will prepare a report for submittal to the Town of Wawayanda Planning Board that will include the following:

- The rationale for the monitoring program;
- A description of the noise monitoring locations and a map depicting these locations;
- Observed meteorological conditions at each location during each monitoring event;

- Observed noise sources including whether the Project was clearly audible at each location;
- A description of the equipment used;
- Instrument calibration records;
- Confirmation of Project load during testing;
- Copies of the field data sheets;
- A presentation of the measured sound level data, including charts as applicable.

## **6.0 PROCEDURE FOR MITIGATING EXCESS NOISE**

In the event that the operation of the plant is found, as supported with noise measurements, to generate noise levels that exceed project noise limits, the following procedure shall be used to sequentially evaluate remedial noise treatments.

- Step 1** Identify the location(s) where plant noise exceeds the limits and obtain background information about the nature of the noise. This may include but not be limited to specific times that the noise is objectionable, confirmation that the noise originates from the project site, critical listening to evaluate the qualities of the noise (high or low pitch, hiss versus rumble, tonal versus broadband), temporal variability (is it continuous or intermittent), amplitude fluctuation (does it vary in intensity or is it steady).
- Step 2** If it is determined conclusively from information gathered in Step 1 that the source of objectionable noise is not emanating from the project site, no further action shall be required.
- Step 3** If information gathered in Step 1 further corroborates that the source(s) of excessive noise is associated with the operation of the facility; the objectionable noise source will be identified by means of additional noise measurements.
- Step 4** Once the specific equipment that is responsible for facility noise exceeding the noise limits is identified, the sound emitted from that equipment will be checked against the purchase noise specification.
- Step 5** If the equipment identified in Step 4 is part of the original facility design and is found to exceed the purchase noise specification, the equipment vendor shall be required to provide remedial noise treatments to comply with the specification.
- Step 6** If the equipment identified in Step 4 meets purchase noise specifications, but is found to exceed the project noise limits additional noise mitigation measures shall be evaluated. Noise treatments for achieving compliance with the facility noise limits shall be engineered and implemented. Subsequently noise measurements shall be taken to verify that plant noise is brought into conformance with project noise requirements.

## **7.0 NOISE COMPLAINT RESOLUTION PROCESS**

In the event that area residents have noise complaints or concerns during operation of the Facility, the following procedures will be followed to ensure that any concerns or complaints are properly addressed.

- A resident with noise concerns or complaints may contact the Plant Manager through a telephone number and email address that will be established for the Plant Manager.
- The Plant Manager (or a designated representative) will visit the resident with the concern or complaint to obtain additional information and observe (as possible and practical) the Facility sound that is causing the complaint.
- If the complaint is the cause of operational issues (e.g., access doors to building being left open unnecessarily), the Plant Manager will correct such issues and notify the resident of the resolution.
- If no operational issues are identified, and the complaint is related to standard Facility operation, then CPV Valley will conduct noise testing to determine if Facility related noise exceeds the Town's noise standards.
- Noise levels that are found to exceed the Town's standards will result in investigation by CPV Valley as detailed in Section 6 of this Protocol. The Plant Manager will notify the resident and the Town of Wawayanda Code Enforcement Officer through email of any exceedences that are found, the corrective action to be taken, and an approximate timeline for implementation of the corrective action.

Figure 1  
Noise Testing Locations

