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June 23, 2010

UN#10-173

Susan Gray
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MD Department of Natural Resources, B-3
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Subject: UniStar Nuclear Energy
Calvert Cliffs Nuclear Power Plant, Unit 3
Calvert County, Maryland
CPCN Condition 55 – Noise Monitoring Plan

Reference: Certificate of Public Convenience and Necessity, In the Matter of the Application of UniStar Nuclear Energy, LLC and UniStar Nuclear Operating Services, LLC for a Certificate of Public Convenience and Necessity to Construct a Nuclear Power Plant at Calvert Cliffs in Calvert County, Maryland.
Case No. 9127, dated June 26, 2009.

Enclosed for consideration, please find the Calvert Cliffs Unit 3 (CC3) Noise Measurement Test Protocol. The Protocol describes the sound level measurement procedures to determine noise emissions attributable to the planned CC3 for determining compliance with State of Maryland regulatory limits in accordance with the CC3 Certificate of Public Convenience and Necessity (Reference) Condition 55.

If you have any questions concerning the attached document, please call Mr. Dimitri Lutchenkov at (410) 470-5524 or Mr. Tom Konerth at (410) 495-4169.

Sincerely,




Greg Gibson

Enclosure – Noise Measurement Test Protocol Calvert Cliffs Unit 3, May 13, 2010

UN#10-173
June 23, 2010
Page 2

cc: Mohammad Ebrahimi - Maryland Department of the Environment (w/enclosure)
Woody Francis - U.S. Army Corps of Engineers (w/enclosure)
Cheryl Kerr - Maryland Department of the Environment (w/enclosure)
Laura Quinn - NRC Project Manager, Environmental Projects Branch 2 (w/enclosure)
Amanda Sigillito - Maryland Department of the Environment (w/enclosure)

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Enclosure

Enclosure

**Noise Measurement Test Protocol
Calvert Cliffs Unit 3
May 13, 2010**

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NOISE MEASUREMENT TEST PROTOCOL

Original Issue: May 13, 2010

Revised:

**Calvert Cliffs Unit 3 (CC3)
Calvert Cliffs Nuclear Power Plant
Lusby, Maryland**

Prepared By:

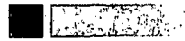
Hessler Associates, Inc.

Prepared for:

Calvert Cliffs 3 Nuclear Project, LLC

Hessler Associates, Inc.

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1.0_Scope

This test protocol describes sound level measurement procedures to determine noise emissions attributable to the planned Calvert Cliffs Unit 3 (CC3) for determining compliance with State of Maryland regulatory limits. A protocol is prescribed in CPCN Condition 55 to demonstrate compliance with noise limits specified in COMAR 26.02.03.

2.0_Measurement Instrumentation

2.1_Sound Level Meter & Frequency Analyzer

All measurements shall be conducted using a Sound level meter & 1/3 octave frequency analyzer meeting type 1 precision standards of IEC 804. The microphone shall be protected for wind induced noise using the instrument manufacturer's standard windscreen or a larger diameter model if required by wind conditions.

2.2_Frequency Range

Measurements shall be recorded as a minimum from the 12.5 Hz through 10,000 Hz 1/3 octave bands and the overall A and C-weighted levels. Maryland law specifies limits in the single number A-weighted overall sound level, abbreviated dBA. In addition, pure tone limits as defined in 1/3 octave band parameters must also be met, necessitating 1/3 octave band measurement.

2.3_Field Calibration

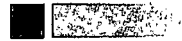
Two portable sound level calibrators with different sensitivities (typically 114 and 94 dB) meeting type 1 precision accuracy in accordance with ANSI S1.4 or IEC 942 shall be used before and after each series of measurements and any battery change or long delay in the measurements. A drift in calibration of +/- 1.0 dB may require repeating the measurement.

2.4_Laboratory Calibration

Each portable calibrator shall be laboratory calibrated within 12 month periods and the SLM and microphone system must be calibrated within 24 month periods. Calibration certificates shall be available for inspection.

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3.0_General Measurement Conditions

3.1_Applicable Standards

Measurements shall be made in accordance with methodologies prescribed in ANSI S12.9 "Quantities and Procedures for the Description and Measurement of Environmental Sound" Part 1 and part 3 "Short-term Measurements with an Observer Present".

3.2_Facility Operation

CC3 shall be operating at normal base full load. Measurements shall also be made if there is any reason to suspect louder and sustained events may occur during normal start-up or normal shut down. All facility doors and windows shall be closed. All construction and maintenance operations may be ceased for the duration of noise testing.

3.3_Atmospheric and Weather Conditions

Measurements shall not be made under adverse weather conditions or when roadways are wet from recent rains. Ideally, winds shall be "calm and still" defined as no appreciable measured wind at microphone height (1.5 m) and no audible tree or grass leaf rustle sounds. In no case shall the average (60 sec) wind speed measured at microphone height at each microphone location exceed 5.0 mph.

3.4_Operational Measurement Parameters, Duration and Time of Day

Measurements shall be made at night defined by Maryland law as 10 p.m. to 7 a.m. when the most stringent level limit of 55 dBA applies at residential receptors. The measurements shall be Leq spectra and LAeq and LCEq -weighted levels for durations of 20 seconds and shall be repeated at least three times at each location to insure repeatability. The measurement shall be terminated if any transient and extraneous sound is heard during the 20 second period and repeated until at least three samples are collected. If there is audible insect sound it should be noted on the data sheet and the observer shall note the frequency bands clearly attributable to insects. In addition, repeat measurements shall be made hours apart when insect noise may be absent or lower in magnitude. The observer shall note any sounds heard, particularly if the CC3 or other power plant sources are audible. Narrow band frequency measurements, instantaneous 1-sec Lcq, and any other supplemental measurements may be made including long term monitoring if required in the judgment of the test engineer.

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3.5 Measurement Locations

Background measurements^{1 2} have been conducted during leaf-on and leaf-off seasons in December 2006 and August 2007 as part of the application process and the referenced reports are included in the CPCN Technical Report. These surveys demonstrated that existing CCNPP noise is not audible at any of the seven locations chosen at the plant property lines and in the surrounding communities. This occurs because of the inherent quietness of a nuclear plant and the large buffer distances between facilities and residences. The surveys also showed that measured levels are quite low at locations S2 and S3 (mid thirties), the two locations closest to the planned CC3 and most remote from Highway MD 2. Hence, these two locations are the most critical for meeting the Maryland regulations and are the *only* proposed test locations for certification. Levels at the other locations are simply traffic noise from MD 2 and normally present environmental background sound. Locations S2 and S3 are shown on the attached Figure 2.01 from the referenced reports^{1 & 2} and represent the closest locations from the proposed facility to residentially zoned land use as prescribed by Condition 55.

4.0 Compliance Determination

Maryland noise emission limits³ at residential receptors at S2 and S3 are 65 dBA daytime and 55 dBA nighttime (10 p.m. – 7 a.m.). The noise emissions from CC3 will be a steady 24/7 base load level, hence the lower nighttime limit of 55 dBA is the critical limit. Direct measurements prescribed above include background sound as the measurement system cannot discriminate between sources arriving at the microphone and therefore is the total of operational emissions and background. The state emission limits apply to just plant noise emissions, exclusive of the background, so the background sound is normally measured separately and mathematically subtracted from the total measured level. In the case of a nuclear facility it is not practical or feasible to turn-off the plant just before and just after a sound measurement to determine the background level during the operational measurement. Based on experience to date, the background level measured in 2006-2007 were very quiet and low in the mid thirties. Since the regulatory limit is 55 dBA a background of 35 dBA would only increase the measurable total level by 0.04 dBA, an insignificant amount. Based on the 2006-2007 data, background noise at S2 and S3 can be ignored. Thus, any measurement at S2 and S3 of 55 dBA or less and absent of tonal noise, demonstrates compliance with Maryland law.

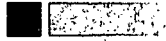
¹ Hessler Associates Report No. 121106-1, "Baseline Environmental Noise Survey – Leaf-off Season", Dec. 06.

² Hessler Associates Report No. 082007-1, "Baseline Environmental Noise Survey – Leaf-on Season", Aug. 06.

³ Title 26, Department of the Environment, Chapter 03 Noise Pollution, Environmental Noise Act of 1974.

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4.1_Reporting of Results

Measurement results shall be reported to Calvert Cliffs 3 Nuclear Project, LLC (CC3NP). CC3NP shall provide results to PPRP within six months after CC3 begins commercial operation.

4.2_Future Consideration

CC3 is not expected to be operational for many years in the future and background levels at S2 and S3 could increase radically, for example if a new road and development occurs. In this case, an alternate test method, suitable to the actual conditions, may need to be developed to account for background environmental sound.

End of Text

Figure 2.0.1: Site area showing baseline sound survey measurement locations

