

**BEFORE THE PUBLIC SERVICE COMMISSION
OF MARYLAND**

**IN THE MATTER OF THE APPLICATION OF
C.P. CRANE LLC FOR A CERTIFICATE OF
PUBLIC CONVENIENCE AND NECESSITY
AUTHORIZING THE MODIFICATION OF THE
CHARLES P. CRANE GENERATING STATION IN
BALTIMORE COUNTY, MARYLAND**

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Case No. 9482

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SECOND ERRATA TO DIRECT TESTIMONY OF THOMAS O. PRITCHER

C.P. Crane LLC provides the following Second Errata to the Direct Testimony of Thomas O.

Pritcher filed on June 12, 2018:

1. On page 2, line 8, “30 percent” should be replaced with “27 percent”
2. On page 2, line 11, “48 MW” should be replaced with “50 MW”
3. On page 2, line 12, “146 MW” should be replaced with “150 MW”
4. On page 4, line 3, “June 2013 to May 2018” should be replaced with “September 2013 to August 2018”

Case No. 9482

CLEAN Revised Direct

Testimony of Thomas O.

Pritcher

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Case No. 9482

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DIRECT TESTIMONY OF THOMAS O. PRITCHER

ON BEHALF OF

C.P. CRANE LLC

June 12, 2018

1 Direct Testimony of Thomas O. Pritcher

2 INTRODUCTION AND PURPOSE OF TESTIMONY

3 **Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?**

4 A. My name is Thomas O. Pritcher. My business address is 7208 Falls of Neuse Road, Suite
5 102, Raleigh, NC 27615.

6 **Q. WHAT IS YOUR CURRENT EMPLOYER AND POSITION?**

7 A. I am a Vice President and the Air Quality Service Line Leader for Environmental
8 Consulting & Technology, Inc.

9 **Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL**
10 **BACKGROUND AND EXPERIENCE.**

11 A. I hold a Bachelor of Science (Agricultural Engineering) degree from Clemson University.
12 I am a registered professional engineer in the State of North Carolina, the State of South
13 Carolina, the State of Michigan and the State of Mississippi. I have spent 25 years in the
14 field of environmental consulting with an emphasis on air quality issues related to electrical
15 generating facilities and managing the overall environmental permitting process of
16 electrical generating facilities. A statement of my professional qualifications is attached to
17 my direct testimony at Exhibit TOP-1.

18 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

19 A. No.

20 **Q. ARE YOU FAMILIAR WITH THE STANDARDS AND RELATED LAWS AND**
21 **REGULATIONS PERTAINING TO AIR RELATED ISSUES APPLICABLE TO**
22 **THE CRANE STATION REPOWERING PROJECT AND DOES THE PROJECT**
23 **MEET SUCH REQUIREMENTS BASED ON THE AIR APPLICATION?**

24 A. Yes.

1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE REPOWERING PROJECT.**

2 A. C.P. Crane proposes to modify the Charles P. Crane Generating Station (“Crane Station”)
3 by retiring its existing coal-fired units and adding three GE LM6000 combustion turbines
4 (“CTs”) and a black start generator (the “Repowering Project” or the “Project”). The
5 proposed GE LM6000 CTs will be configured for simple-cycle operation and fired
6 primarily with pipeline natural gas, which will be backed up by ultra-low-sulfur diesel
7 (“ULSD”). The CTs are expected to serve as peaking units and operate at an annual
8 capacity factor of up to 27 percent. The design of the LM6000 CTs will allow them to start
9 up and reach full load in 10 minutes or less and shut down quickly multiple times per day
10 if circumstances warrant.

11 Each of the CTs will have a nominal generating capacity of 50 MW and the
12 Project’s total nominal generating capacity will be approximately 150 MW. The electricity
13 generated by the proposed LM6000 CTs and an existing Frame 5 CT will be transmitted to
14 the power grid via a new 115-kilovolt (kV) substation. The new substation will connect to
15 the two existing BG&E 115 kV electrical transmission circuits present at Crane Station
16 substation and will allow for the use of either transmission circuit for improved reliability.

17 **Q. PLEASE COMMENT ON THE AIR EMISSIONS CONTROLS SELECTED FOR**
18 **THE REPOWERING PROJECT.**

19 A. The design of the Repowering Project incorporates state-of-the-art technology at every
20 step. The use of low-sulfur fuels, along with highly efficient combustion, will limit
21 PM/PM₁₀/PM_{2.5} emissions from the proposed CTs and the black start generator. The CTs
22 will also utilize water injection to reduce NO_x emissions. SO₂ and H₂SO₄ emissions will
23 be controlled by use of pipeline-quality natural gas containing no more than 0.5 grain per

1 100 standard cubic feet (annual average) and ULSD fuel having a sulfur content of no more
2 than 0.0015 percent by weight.

3 **Q. HOW WOULD POST-PROJECT EMISSIONS FROM CRANE GENERATING**
4 **STATION COMPARE TO THE EXISTING HISTORICAL BASELINE?**

5 A. The post-construction emissions from Crane Station will be significantly lower than the
6 existing historical baseline emissions. The Repowering Project will be considered a minor
7 source with respect to new source review (“NSR”) permitting requirements at Title 26,
8 Subtitle 11, Chapter 17 of the Code of Maryland Regulations (“COMAR”). The
9 Repowering Project does not result in a significant net emission increase of any NSR
10 pollutant and is not subject to prevention of significant deterioration (“PSD”) or
11 nonattainment new source review (“NNSR”) applicability.

12 The primary sources of air emissions associated with the proposed modification of
13 Crane Station are three GE LM6000 CTs and a black-start generator. The potential to emit
14 of the three proposed CTs and the proposed black-start generator were calculated using
15 proposed annual operation restrictions, worst-case short-term emission rates, and startup
16 and shutdown emissions for the CTs. The emissions increases calculated for the proposed
17 units were then compared to the pollutant-specific “significant emissions rate” or “SER.”
18 Emissions increases for NO_x, CO, PM₁₀, PM_{2.5}, and GHG (CO₂e) are above their respective
19 SER so a netting analysis is required. For all other pollutants, the emissions increase is not
20 significant, therefore, NSR is not applicable.

21 For an existing electric utility steam generating unit, baseline actual emissions are
22 determined by the average rate, in tons per year, at which the unit actually emitted the
23 pollutant during any consecutive 24-month period selected within the 5-year period

1 immediately preceding the date on which a complete application was submitted. Here,
2 baseline actual emission are based on a 24-month average annual emissions within the 5-
3 year look-back period of September 2013 to August 2018.

4 A net emissions analysis is the sum of the emission increases and decreases from
5 the Project, and any other increases and decreases at the entire facility that are
6 contemporaneous and creditable during the contemporaneous period. There have been no
7 permitting actions at Crane Station during the contemporaneous period. Appendix C,
8 Table 3.7 of the Environmental Review Document (“ERD”) shows that the Repowering
9 Project does not result in a significant net emissions increase of any NSR pollutant. In fact,
10 the Repowering Project will result in a net emissions decrease for each NSR pollutant.
11 Because the net emissions change from the Repowering Project for each NSR pollutant are
12 less than applicable major source thresholds, Crane Station will not trigger federal NSR
13 requirements for any regulated pollutant under either PSD or NNSR permitting programs.
14 At the state level, the Repowering Project is a minor source of air emissions subject to
15 Maryland Department of the Environment’s (“MDE”) permit-to-construct.

16 **Q. TURNING TO THE OPERATION OF THE FACILITY, PLEASE PROVIDE A**
17 **SUMMARY OF REGULATORY APPLICABILITY AND AN OVERVIEW OF**
18 **THE AIR QUALITY IMPACT ANALYSES.**

19 A. The Repowering Project does not result in a significant net emissions increase of any NSR
20 pollutant and is not subject to PSD or NNSR applicability. A complete review of other
21 federal and state air quality regulations that govern permitting and operation of the
22 Repowering Project is contained in the Air Construction Permit Application, Appendix C
23 of the Environmental Review Document.

1 As requested by MDE, an air quality impact modeling, facility-only National
2 Ambient Air Quality Standards (“NAAQS”) analysis was performed in support of the
3 CPCN and minor source permit-to-construction applications. A sitewide modeling
4 analysis for criteria pollutants was performed to demonstrate that the Project and remaining
5 existing sources will comply with NAAQS. Specifically, the NAAQS modeling analysis
6 consists of the existing sources remaining in operation, the proposed new emissions
7 sources, and a representative, agency-approved ambient background concentration.
8 NAAQS analysis was performed for NO_x, CO, PM₁₀, PM_{2.5}, SO₂, and lead. An air quality
9 impact analysis is not required for VOCs or GHGs, as EPA has not established NAAQS
10 for these pollutants.

11 Pollutant emissions were modeled using the AERMOD model, an EPA-approved
12 refined dispersion model for evaluating impacts of stationary sources. The dispersion
13 modeling for the proposed sources and remaining existing sources was conducted in a
14 manner that used worst-case operating scenarios in an effort to predict the highest impact
15 for each pollutant and averaging period. Maximum predicted impacts from the worst-case
16 scenarios were analyzed for comparison to federal NAAQS. The maximum modeled
17 ambient air impacts from post-Project emissions from Crane Station, when combined with
18 a representative background concentration, are less than applicable NAAQS for all
19 pollutants. *See* ERD, Appendix C, Table 6.1.

1 **Q. PLEASE SUMMARIZE THE RESULTS OF THE AIR PERMITTING**
2 **REGULATORY REVIEW PROVIDED IN THE ENVIRONMENTAL REVIEW**
3 **DOCUMENT.**

4 A. The modification to Crane Station will significantly reduce emissions of air pollutants from
5 the power plant. The Repowering Project's estimated maximum annual emissions are
6 indicated to be much less than actual emissions from the existing coal-fired units.

7 **Q. PLEASE DESCRIBE ANY OTHER AIR QUALITY-RELATED IMPACTS FROM**
8 **THE PROJECT.**

9 A. Other air quality-related impacts will be minimal. The Project's construction and
10 operations will generate little if any additional growth in population or
11 industrial/commercial activity, therefore resulting air quality-related impacts will be
12 minimal. No visibility impairment at the local level is expected due to the types and
13 quantities of emissions projected from the facility sources.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY ON AIR QUALITY IMPACTS?**

15 A. Yes.

Case No. 9482

REDLINE Revised Direct

Testimony of Thomas O.

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7 (“ULSD”). The CTs are expected to serve as peaking units and operate at an annual
8 capacity factor of up to ~~2730~~ percent. The design of the LM6000 CTs will allow them to
9 start up and reach full load in 10 minutes or less and shut down quickly multiple times per
10 day if circumstances warrant.

11 Each of the CTs will have a nominal generating capacity of ~~5048~~ MW and the
12 Project’s total nominal generating capacity will be approximately 1~~5046~~ MW. The
13 electricity generated by the proposed LM6000 CTs and an existing Frame 5 CT will be
14 transmitted to the power grid via a new 115-kilovolt (kV) substation. The new substation
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