

ATTACHMENT 1

Mandate of Scrubber:

Statutory References:

“The owner *shall* install and have operational scrubber technology to control mercury emissions at Merrimack Units 1 and 2 no later than July 1, 2013.” RSA 125-O:13, I (emphasis added).

“To accomplish this objective, the best known commercially available technology *shall be* installed at Merrimack Station no later than July 1, 2013.” RSA 125-O:11, I (emphasis added).

Legislative History References:

“This bill provides for an 80 percent reduction of mercury emissions from coal-burning power plants by July 1, 2013 by *requiring* installation of scrubber technology.” N.H. S. Journal 20, 935 (Apr. 2006) (statement of Sen. Bob Odell) (emphasis added).

“It also provides economic incentives for earlier installation and greater reductions in emissions.” N.H. S. Journal 20, 935 (Apr. 2006) (statement of Sen. Bob Odell).

“[E]ssentially what this does is that it essentially keeps tabs on what’s going on with the progress of this entire installation process.” *Hearing on H.B. 1673 Before the S. Comm. on Energy & Econ. Dev.*, *8 (N.H. 2006) (statement of Rep. Jay Phinizy) (regarding PSNH’s senate reporting requirement in H.B. 1673-FN).

“[O]nce we enter into this agreement, and once the plant essentially or the company starts dealing with specific items and specific installation procedures than [sic] essentially, I don’t think there’s any turning back.” *Hearing on H.B. 1673 Before the S. Comm. on Energy & Econ. Dev.*, *8 (N.H. 2006) (statement of Rep. Jay Phinizy) (regarding PSNH’s senate reporting requirement in H.B. 1673-FN).

“By calling out scrubber technology in the bill, we’re signaling PSNH from the word go to start to engineer, design and build scrubber technology right away. The bill has in it, within one year of passage of the bill, they are required to have all their applications in to us, which means there’s a lot of engineering work they have to do.” *Hearing on H.B. 1673-FN Before the S. Comm. on Energy & Econ. Dev.*, *33 (N.H. 2006) (statement of Bob Scott, Director, Air Resources Division, Dep’t. of Envir. Servs.).

“[W]e’ll look at what other states are doing and it’s so progressive, they’re requiring, for the most part, the installation of scrubbers. That’s what we’re *requiring*.” *Hearing on H.B. 1673-FN Before the S. Comm. on Energy & Econ. Dev.*, *35 (N.H. 2006) (statement of Bob Scott, Director, Air Resources Division, Dep’t. of Envir. Servs.) (emphasis added).

NH Supreme Court References:

“The installation of such a [scrubber] system *was mandated by the legislature* in 2006.” *In re Campaign for Ratepayers' Rights*, 162 N.H. 245, 247 (2011) (emphasis added) (internal citation omitted).

“[T]he legislation *specifically requires* PSNH to install ‘the best known commercially available technology . . . at Merrimack Station,’ which the New Hampshire Department of Environmental Services (DES) has determined is scrubber technology.” *Appeal of Stonyfield Farm*, 159 N.H. 227, 228 (2009) (emphasis added) (internal citation omitted).

“To comply with the Mercury Emissions Program, PSNH *must* install the scrubber technology by July 1, 2012.” *Appeal of Stonyfield Farm*, 159 N.H. 227, 229 (2009) (emphasis added) (citing RSA 125-O:11).

“According to the legislature, installing the scrubber technology ‘is in the public interest of the citizens of New Hampshire and the customers of [PSNH].’” *Appeal of Stonyfield Farm*, 159 N.H. 227, 229 (2009).

“PSNH *must* report to the legislature annually regarding its installation of the scrubber technology, including ‘any updated cost information.’” *Appeal of Stonyfield Farm*, 159 N.H. 227, 229 (2009) (emphasis added).

“Under RSA 125-O:18, PSNH ‘*shall recover* all prudent costs’ of installing the scrubber technology ‘in a manner approved by the [PUC].’” *Appeal of Stonyfield Farm*, 159 N.H. 227, 229 (2009) (emphasis added).

NH Public Utilities Commission References:

“Pursuant to the *express language* in RSA 125-O:11, *the Legislature required* that PSNH install the Scrubber by July 1, 2013” *Public Service Company of New Hampshire*, DE-11-250, Order No. 25,346, *21 (Apr. 10, 2012) (emphases added).

“RSA 125-O:11 *requires* PSNH to build the Scrubber to reduce mercury and state that it is in the public interest to ‘achieve significant reductions in mercury emissions at the coal-burning electric power plants in the state.’” *Public Service Company of New Hampshire*, DE-11-250, Order No. 25,346, *23 (Apr. 10, 2012) (emphasis added).

“The statute *directed* the construction of the specific technology PSNH installed at Merrimack Station” *Public Service Company of New Hampshire*, DE-11-250, Order No. 25,346, *23 (Apr. 10, 2012) (emphasis added).

“According to RSA 125-O:13, I, the Scrubber at Merrimack Station is to be installed no later than July 1, 2013 and the mercury emitted from the plant is to be ‘at least 80 percent less on an annual basis than the baseline mercury input, as defined in RSA 125-O:12, III, beginning on July

1, 2013.” *Public Service Company of New Hampshire*, DE-11-250, Order No. 25,346, *23 (Apr. 10, 2012) (citing RSA 125-O:13, II).

“RSA 125-O:11 *et seq.* **requires** PSNH to install the Scrubber at Merrimack Station to reduce air pollution, including mercury emissions.” *Public Service Company of New Hampshire*, DE-08-103, 11-250, Order No. 25,332 (Feb. 6, 2012) (emphasis added).

“In the instant case, by contrast, the scrubber installation at Merrimack Station does not reflect a utility management choice among a range of options. Instead, installation of scrubber technology at the Merrimack Station *is a legislative mandate*, with a fixed deadline. **The Legislature, not PSNH, made the choice, required PSNH** to use a particular pollution control technology at Merrimack Station, and found that installation is ‘in the public interest of the citizens of New Hampshire and the customers of the affected sources.’” *Re Public Service Company of New Hampshire*, DE 09-033, Order No. 24,979, *15 (June 19, 2009) (emphases added) (internal citations omitted) (distinguishing the scrubber financing from Seabrook).

“The Legislature has also retained oversight of the scrubber installation including periodic reports on its cost.” *Re Public Service Company of New Hampshire*, DE 09-033, Order No. 24,979, *15 (June 19, 2009).

“Furthermore, the Commission has only those powers delegated to it by the Legislature . . . , and, by statute, the Commission’s regulatory oversight here is limited to after-the-fact determinations of whether costs incurred by PSNH in complying with RSA 125-O:11-18 are prudent.” *Re Public Service Company of New Hampshire*, DE 09-033, Order No. 24,979, *15-16 (June 19, 2009) (citing RSA 125-O:18).

“As a result of these statutory mandates, we conclude that the Commission’s review of the financing to be used for construction of the scrubber technology at Merrimack Station cannot serve to undo the statutory purpose set out in RSA 125-O:11-18.” *Re Public Service Company of New Hampshire*, DE 09-033, Order No. 24,979, *16 (June 19, 2009).

“RSA 125-O:11 *et seq.* **requires** PSNH to install the scrubber technology at Merrimack Station in order to reduce Mercury emissions.” *Re Investigation of PSNH’s Installation of Scrubber Technology at Merrimack Station*, DE-08-103, Order No. 24,914, *1 (Nov. 12, 2008) (emphasis added).

“[T]he Legislature has made the public interest determination and **required** . . . PSNH, to install and have operational scrubber technology to control mercury emissions no later than July 1, 2013.” *Investigation of PSNH’s Installation of Scrubber Technology at Merrimack Station*, DE-08-103, Order No. 24,898, *10 (Sept. 19, 2008) (emphasis in original).

“A review of the Senate Journal for April 20, 2006, at p. 935 *et seq.*, shows that the members of the Senate Finance Committee were focused largely on the timing of installation and the prospect that PSNH could install the scrubber technology in advance of the July 1, 2013 deadline.” *Investigation of PSNH’s Installation of Scrubber Technology at Merrimack Station*, DE-08-103, Order No. 24,898, *10 (Sept. 19, 2008).

NHDES References:

“The [Temporary Permit] application was filed *in accordance with RSA 125-O:13, I, which requires* this facility to file an initial permit application by June 8, 2007. This permit establishes limits on mercury and sulfur dioxide emissions based on the requirements of RSA 125-O:13 and 40 CFR 51.308 respectively.” State of N.H., Dep’t of Envir. Servs., Air Resources Division, Temporary Permit, No. TP-0008, *5 (Mar. 9, 2009) (emphases added).

Air Resources Council References:

“As a matter of law, PSNH is *required* to install and operate the Scrubber system.” State of N.H., Air Resources Council, Decision & Order on Appeals, Nos. 09-10, -11, Findings of Facts & Conclusions of Law, No. 107 (Sept. 20, 2010) (emphasis added).

Site Evaluation Committee References:

“The statute *mandates* significant reductions (80%) in mercury emissions at coal burning electric power plants in the state. The statute also *requires* the installation of a wet flue gas desulfurization system (Scrubber Project) otherwise known as a ‘Scrubber’ at the Merrimack Station facility no later than the year 2013.” State of N.H., Site Evaluation Committee, No. 2009-01, Order Denying Motion For Declaratory Ruling, *2 (Aug. 10, 2009) (emphases added).

“*In accordance with* RSA 125-O, PSNH has begun construction of portions of the scrubber technology at the Merrimack Station facility.” State of N.H., Site Evaluation Committee, No. 2009-01, Order Denying Motion For Declaratory Ruling, *2 (Aug. 10, 2009) (emphasis added).

“Moreover, RSA 125-O, *mandates* the installation of the Scrubber Project at this particular industrial site.” State of N.H., Site Evaluation Committee, No. 2009-01, Order Denying Motion For Declaratory Ruling, *10 (Aug. 10, 2009) (emphasis added).

“In addition, because *the Legislature specifically required* the installation of the scrubber, it could not be found that the project is inconsistent with the state’s energy policy as established by the Legislature.” State of N.H., Site Evaluation Committee, No. 2009-01, Order Denying Motion For Declaratory Ruling, *11 (Aug. 10, 2009) (emphasis added).

“The equipment is being installed to meet an environmental mandate, and a state and federal mandate to comply with certain requirements for air pollution emissions.” State of N.H., Site Evaluation Committee, No. 2009-01, Public Meeting and Hearing Day 3, *57 (Statement of Harry Stewart, Director, DES- Water Division).

EPA:

“In 2006, the New Hampshire legislature enacted RSA 125-O:11-18, which **requires** PSNH to install and operate a wet flue gas desulfurization (FGD) system at Merrimack Station to reduce air emissions of Mercury and other pollutants.” EPA-Region 1, Determination of Technology-Based Effluent Limits for the Flue Gas Desulfurization Wastewater at Merrimack Station in Bow, New Hampshire, 1 (Sept. 2011) (emphasis added).

“PSNH is **required** to have the FGD system fully operational by July 1, 2013, ‘*contingent upon obtaining all necessary permits and approvals*’ from federal, state, and local regulatory agencies and bodies.” EPA-Region 1, Determination of Technology-Based Effluent Limits for the Flue Gas Desulfurization Wastewater at Merrimack Station in Bow, New Hampshire, 1 (Sept. 2011) (first emphasis added).

“The New Hampshire statute **expressly requires** PSNH to install a ‘wet’ FGD system at Merrimack Station.” EPA-Region 1, Determination of Technology-Based Effluent Limits for the Flue Gas Desulfurization Wastewater at Merrimack Station in Bow, New Hampshire, 1-2 (Sept. 2011) (emphasis added).

THE STATE OF NEW HAMPSHIRE
SUPREME COURT

No. 2008-0897

**Appeal of Stonyfield Farm, Inc., H & L Instruments, LLC, and
Great American Dining, Inc. Under RSA 541:6 from Order of
Public Utilities Commission**

**BRIEF FOR THE STATE OF NEW HAMPSHIRE,
OFFICE OF THE ATTORNEY GENERAL AS AMICUS CURIAE**

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QUESTION PRESENTED

1. Whether the Public Utilities Commission ("PUC") correctly ruled that it did not have the authority to overturn the explicit finding made by the legislature in RSA chapter 125-O that the installation of scrubber technology at the PSNH Merrimack Station was in the public interest.

STATEMENT OF THE FACTS AND OF THE CASE

In 2006, the legislature enacted RSA 125-O:11 through RSA 125-O:18. These sections are collectively referred to as the “Mercury Emissions” subdivision. The legislature enacted this subdivision after receiving significant public comment and testimony. See RSA 125-O:11-18 (Supp. 2008). The purpose of the subdivision is to reduce mercury emissions from the Merrimack Station in Bow, New Hampshire. See RSA 125-O:11 (Supp. 2008). To achieve this goal, the legislature required PSNH to install “scrubber technology” at the Merrimack Station no later than July 1, 2013. RSA 125-O:13, 1 (Supp. 2008). The legislature specifically found that: “The installation of [scrubber] technology is in the public interest of the citizens of New Hampshire and the customers of the affected sources.” RSA 125-O:11, VI (Supp. 2008).

On August 22, 2008, the PUC, by Secretarial Letter, opened an investigation into the issue of increased costs related to the scrubber project at Merrimack Station. Stonyfield Notice of App., p. 14.¹ As part of this process, the PUC examined whether it was necessary for the PUC to make a determination with respect to the public interest of scrubber technology installation. Id. at 14-15. To assist in its examination, the PUC requested legal argument from PSNH and the Office of the Consumer Advocate. Id. at 15. On September 19, 2008, the PUC issued a decision in which it stated that the PUC lacked the authority to pre-approve installation but retained its authority to determine prudence. Id. at 25.

On October 17, 2008, Stonyfield Farm, Inc., et al., filed a motion for rehearing with the PUC. Id. at 28. In its motion for rehearing, the petitioners claimed that the costs of installation had increased dramatically and that this increase merited a re-examination of the legislative

¹ References to the Stonyfield Farm, Inc. et al., notice of appeal filed with this Court on December 11, 2008, shall be “Stonyfield Notice of App., p. ___.”

References to the Stonyfield Farm, Inc. et al. appendix shall be “Stonyfield Appendix, p. ___.”

References to the Stonyfield Farm, Inc. et al. brief shall be “Stonyfield Brief, p. ___.”

References to the State’s appendix shall be “State’s Appendix, p. ___.”

finding regarding public interest. See id. at 28-35. PSNH had previously made its own assertions regarding costs, stating in a letter dated September 8, 2008, that for a project of this magnitude, significant preparations must be undertaken long prior to actual installation and that delaying these preparations would result in significant cost increases. Stonyfield Appendix, pp. 39-40. PSNH asserted that it began significant preparations for the installation of scrubber technology at the Merrimack Station shortly after the enactment of the Mercury Emissions subdivision. Id. PSNH objected to the motion for rehearing for these reasons and numerous other legal arguments. Stonyfield Notice of App., p. 37.

In a decision dated November 12, 2008, the PUC denied the motion for rehearing and determined, among other things, that it did not have the authority to overturn the finding of the legislature that the installation of scrubber technology was in the public interest. Id. at 49. Stonyfield Farm, Inc., et al. (“Appellants”) now appeal that decision.

SUMMARY OF THE ARGUMENT

The PUC correctly determined that it lacked authority to overturn the explicit finding of the legislature that the installation of scrubber technology at the Merrimack Station is in the public interest.² This ruling not only comports with the plain meaning of the specific legislative findings described in RSA 125-O:11, but also effectuates the purpose of the entire Mercury Emissions subdivision which purports to greatly reduce mercury emissions in the immediate future by mandating the installation of scrubber technology by 2013. The ruling does not undermine the provision in RSA 125-O:13 that requires PSNH to obtain all necessary regulatory approvals. This provision is both necessary and valid with respect to any approval not based on a finding of public interest. The PUC ruling also does not render meaningless RSA 369-B:3-a, which continues to apply to certain other PSNH divestitures and modifications. In addition, the legislative history indicates that the legislature did not intend for the PUC to revisit the finding of public purpose in RSA chapter 125-O.

² In this appeal, the State takes no position with respect to whether the installation of scrubber technology at Merrimack Station is appropriate as a policy matter. This brief is intended only to aid in the interpretation of the existing statutory language.

ARGUMENT

I. STANDARD OF REVIEW.

The PUC ruled as a matter of law that it lacked authority to examine whether the installation of scrubber technology at the Merrimack Station is in the public interest. Stonyfield Notice of App., p. 55. This Court reviews interpretations of a statute *de novo*. Mailloux v. Town of Londonderry, 151 NH 555, 558 (2004).

II. THE PUC CORRECTLY RULED THAT IT MAY NOT RE-EVALUATE WHETHER THE INSTALLATION OF SCRUBBER TECHNOLOGY AT THE MERRIMACK STATION IS IN THE PUBLIC INTEREST.

A. RSA 125-O Makes a Clear Determination That the Installation of Scrubber Technology at the Merrimack Station is in the Public Interest.

In matters of statutory interpretation, the New Hampshire Supreme Court is “the final arbiter of the intent of the legislature as expressed in the words of a statute considered as a whole.” In the Matter of Baker and Winkler, 154 N.H. 186, 187 (2006). When interpreting a statute, the court first examines the language of the statute and, where possible, ascribes the plain and ordinary meaning of the words used. Oullette v. Town of Kingston, 157 N.H. 604, 609 (2008). “If the language used is clear and unambiguous, [the court] will not look beyond the language of the statute to discern legislative intent.” Taylor v. Town of Wakefield, 158 N.H. 35, 39 (2008).

RSA chapter 125-O contains clear and definitive language regarding scrubber technology. In RSA 125-O:11, VI, the statute states: “The installation of [scrubber] technology is in the public interest of the citizens of New Hampshire and the customers of the affected sources.” RSA 125-O:11, VI (Supp. 2008). Nothing in RSA 125-O:11, or in the remainder of RSA chapter 125-O, indicates that the legislature intended that its definitive statement regarding public benefit be restricted or re-analyzed. By using this language, the legislature made a clear

determination regarding the need for scrubber technology at Merrimack Station. The PUC, an entity created under the auspices of the legislature and endowed with only those powers granted to it by the legislature, may not now make a contrary finding. Appeal of Public Service Co., 122 N.H. 1062, 1066 (1982). Therefore, the PUC correctly determined that it lacked authority to analyze whether the installation of scrubber technology is in the public interest.

B. The PUC's Interpretation Gives Meaning and Effect to All Statutory Provisions.

The PUC's decision gives effect to all relevant statutory provisions. When construing a statute, the court does "not consider the words or phrases in isolation, but rather within the context of the statute as a whole." Chesley v. Harvey Ind. Inc., 157 N.H. 211, 213 (2008). "The legislature is not presumed to waste words or enact redundant provisions, and every word of a statute should be given effect whenever possible." Town of Amherst v. Gilroy, 157 N.H. 275, 279 (2008). The PUC's interpretation gives effect and meaning to each of the statutory provisions in RSA chapter 125-O as well as those in RSA 369-B:3-a.

1. The PUC's Decision Gives Meaning and Effect to All of the Findings and Purposes Described in RSA 125-O:11.

As noted above, 125-O:11, VI, states: "The installation of [scrubber] technology is in the public interest of the citizens of New Hampshire and the customers of the affected sources." RSA 125-O:11, VI (Supp. 2008). Other provisions of this section either require or are premised on the installation of scrubber technology at the Merrimack Station. For instance, RSA 125-O:11 states:

The requirements of this subdivision will prevent, at a minimum, 80 percent of the aggregated mercury content of the coal burned at these plants from being emitted into the air by no later than the year 2013. To accomplish this objective, the best known commercially available technology shall be installed at Merrimack Station no later than July 1, 2013.

RSA 125-O:11, I (Supp. 2008). Similarly, RSA 125-O:11, III, which begins with the phrase “[a]fter scrubber technology is installed at Merrimack Station,” presumes the installation of scrubber technology. RSA 125-O:11, III (Supp. 2008). The presumption of scrubber installation appears again in RSA 125-O:11, V. Finally, RSA 125-O:11, VIII, states that the mercury reduction requirements achieved through the mandated scrubber installation “represent a thoughtful balancing of cost, benefits, and technological feasibility and therefore the requirements shall be viewed as an integrated strategy of non-severable components.” RSA 125-O:11, VIII (Supp. 2008). An interpretation of the statute in a manner that mandates scrubber installation and limits PUC review of the project best effectuates these purposes and findings.

2. The PUC’s Decision Gives Effect to All Aspects of RSA 125-O:13, Including the Provision Requiring Necessary Regulatory Approvals.

In addition to the provisions of RSA 125-O:11 listed above, in order to implement the findings of the legislature, RSA 125-O:13, I, directs the following: “The owner shall install and have operational scrubber technology to control mercury emissions at Merrimack Units 1 and 2 no later than July 1, 2013.” RSA 125-O:13, I (Supp. 2008). The paragraph continues:

The achievement of this requirement is contingent upon obtaining all necessary permits and approvals from federal, state, and local regulatory agencies and bodies; however, all such regulatory agencies and bodies are encouraged to give due consideration to the general court’s finding that the installation and operation of scrubber technology at Merrimack Station is in the public interest.

Id.

The Appellants argue that this second provision trumps the previously referenced findings regarding public need and the mandatory installation requirement at the beginning of RSA 125-O:13, I. Appellants argue that both the word “contingent” and the phrase that encourages regulatory agencies “to give due consideration to the general court’s finding” indicate that the initial inquiry regarding the need for scrubber technology is one which the

legislature intended to leave open for the PUC. However, in order to give effect to the initial sentence in RSA 125-O:13, 1, the numerous other references to scrubber technology, and the specific legislative finding of public benefit, this contingency provision must be read in the context of the entire statute. The decision of the PUC that it may not re-examine the legislative finding of public benefit is consistent with the overall statutory context.

The scope of the “contingency” provision in RSA 125-O:13 is necessarily quite broad. Given the scale of the proposed project, many federal, state, and local approvals could be needed. These could range from federal regulatory authorizations, to other state permits such as those needed to impact wetlands, to local permissions for zoning. The legislature did not determine what other approvals would be necessary for this project. In this case, the legislature simply chose not to pre-empt these as yet unidentified authorizations and made sure to specify that any other “necessary” authorizations would still have to be obtained. The contingency provision in RSA 125-O:13 is designed to deal with the many other regulatory authorizations that could arise and, in fact, have arisen outside of the issue of whether the scrubber installation is in the public interest. The specific legislative finding that the scrubber project is in the public interest need not be discarded in order to give the contingency provision effect and meaning.

3. The PUC’s Decision Does Not Undermine the Effectiveness of RSA 369-B:3-a.

The PUC’s interpretation gives meaning to the RSA 125-O Mercury Emission subdivision while still retaining the meaning and effect of RSA 369-B:3-a. Among other things, RSA 369-B:3-a requires the PUC to examine whether any proposed modification or retirement of PSNH fossil fuel or hydroelectric generation assets is in the public interest. RSA 369-B:3-a (Supp. 2008). This section applies to all PSNH fossil fuel or hydroelectric generation assets.

Under the PUC's decision, RSA 369-B:3-a remains effective with respect to all PSNH divestitures, retirements, and modifications related to any of its fossil fuel and hydroelectric generation assets other than the installation of scrubber technology at Merrimack Station as described in RSA 125-O:13. These requirements would not apply to the scrubber project because it is the one modification where the legislature has already made a definitive finding of public benefit. In other words, RSA 369-B:3-a establishes a general rule with many applications and the provisions of RSA 125-O establish a narrow exception to this general rule.

As noted by the PUC, the text of RSA 125-O:18 further bolsters the interpretation that RSA 369-B:3-a does not apply to the installation of scrubber technology. RSA 125-O:18 specifically describes the relationship between RSA 125-O and RSA 369-B:3-a. RSA 125-O:18 states: "In the event of divestiture of affected sources by the regulated utility, such divestiture and recovery of costs shall be governed by the provisions of RSA 369-B:3-a." RSA 125-O:18 (Supp. 2008). The PUC correctly points out that the legislature's specific inclusion of this provision with respect to divestiture lends further support to the interpretation that, in general, the legislature did not intend RSA 369-B:3-a to apply to the scrubber project modification.

4. The PUC's Decision Recognizes the Indivisible Character of RSA Chapter 125-O.

The PUC's interpretation of the statute is consistent with the overall statutory scheme. First, RSA 125-O:11 through 18, the subdivision entitled "Mercury Emissions," is based solely on the installation of scrubber technology at the Merrimack Station. The detailed and intricate provisions of the Mercury Emissions subdivision would have no effect if the PUC could override the essential finding of the legislature that installation of such scrubber technology is in the public interest.

Further, the Mercury Emissions subdivision is an integral and indivisible part of the multi-pollutant program beginning at section 1 of RSA chapter 125-O and continuing through section 18. No provision found in these sections may be implemented in a manner inconsistent with its other parts. Specifically, RSA 125-O:10 states:

No provision of RSA 125-O:1 through RSA 125-O:18 of this chapter shall be implemented in a manner inconsistent with the integrated, multi-pollutant strategy of RSA 125-O:1 through RSA 125-O:18 of this chapter, and to this end, the provisions of RSA 125-O:1 through RSA 125-O:18 of this chapter are not severable.

RSA 125-O:10 (Supp. 2008). As stated above, the Mercury Emissions subdivision can only be implemented if scrubber technology is installed at the Merrimack Station. The effect of not implementing this subdivision could have serious consequences for the multi-pollutant program as a whole – a program that includes detailed regulatory requirements providing for reductions in other pollutants such as NO_x and SO₂.

III. THE LEGISLATIVE HISTORY SUPPORTS THE FINDING OF THE PUC THAT IT MAY NOT RE-EVALUATE WHETHER THE INSTALLATION OF A SCRUBBER AT THE MERRIMACK STATION IS IN THE PUBLIC INTEREST.

A. The Legislative History Indicates that the Legislature Intended That Its Decision as to Public Benefit Would be Final.

“If a statute is ambiguous, the Supreme Court considers legislative history to aid its analysis.” State v. Whittey, 149 N.H. 463, 467 (2003). As stated previously, the State does not believe that these provisions, read in their entirety and given their ordinary meaning, are ambiguous. However, to the extent the court does believe there is an ambiguity, the legislative history demonstrates that the PUC’s interpretation of the statute is correct.

The legislature held extensive hearings regarding the adoption of RSA 125-O:11 through 18. During those hearings, the legislature received testimony from many parties including Robert Scott, Director of the Air Division of the New Hampshire Department of Environmental

Services ("DES"). By law, DES is the agency charged with implementing the regulatory aspects of the multi-pollutant program. On April 11, 2006, during a hearing before the Senate Committee on Energy and Economic Development, Director Scott provided the following testimony in support of House Bill 1673-FN, the bill that was later codified as RSA 125-O:11 through RSA 125-O:18:

It's also been raised, why are we being prescriptive? Why are we in this regular ... in this law to PSNH to put in a scrubber? And I have to take some personal responsibility for that; I advocated for that myself. Why would I do that? Everybody, including myself I think agrees that we want to see mercury reductions, a high level of mercury reductions sooner than later. We know today that the installation of scrubbers which have a wonderful benefit of SO₂ reductions, also reduce mercury at a high percentage. That is today the best technology, especially taking in to account the multi-pollutant benefits that we know of. *What we wanted to avoid is extra time being given, another year, two years of a selection process, what's the best technology, the owner's having to go to PUC to convince them that this is the best technology, and then perhaps having some other company come in and say, "Well, I had this new alchemy and I can do something even better." That's all fine and dandy, but what we're concerned about is we don't want to have this as a method where we're constantly delaying the installation. By calling out scrubber technology in the bill, we're signaling PSNH from the word go to start to engineer, design and build scrubber technology right away.* The bill has in it, within one year of passage of the bill, they are required to have all their applications in to us, which means there's a lot of engineering work they have to do. This is starting ... this is in the ground writing for the plan, and this is why we did that.

Stonyfield App., p. 112 (emphasis added). Director Scott's testimony indicates that the bill was drafted in order to prevent PUC review of the installation of scrubber technology. No contrary testimony appears in the record. Therefore, to the extent the court finds any ambiguity in the statute, the legislative history further supports the PUC's refusal to revisit the legislature's finding of public need.

B. The Legislative History Does Not Indicate that the Legislature Intended the Issue of Public Interest to be Re-examined by the PUC if Technology Costs Changed.

The Appellants claim that the legislative history favors an interpretation that the legislature intended the PUC to review the cost of the scrubber and use this information to determine whether installation was in the public interest. The legislative history does not support this conclusion for several reasons.

First, it is clear from the testimony that the original price quotation was an estimate only. The Fiscal Note for House Bill 1673-FN states: "PSNH *estimates* that the installation will be at a cost not to exceed \$250 million in 2013 dollars or \$197 million in 2005 dollars." State's Appendix, p. 24 (emphasis added). During the legislative hearing, representative Gene Anderson discussed the size of the project and noted the "*estimated* cost at about \$270 million dollars." Stonyfield Appendix, p. 94 (emphasis added). Nothing indicates that PSNH ever indicated that this estimate was a firm price that could never be exceeded regardless of overall market conditions.

Second, neither the language of the statute, nor the testimony before the legislature indicates that the Mercury Emissions subdivision was created to be contingent on a certain price. In the legislature, there was significant discussion about price and a recognition that delay could result in further cost increases. During the hearing before the Senate Committee on Energy and Economic Development, for example, Representative Jay Phinizy stated: "And one of the things that concerns me about extending the time line entirely too far out is whether or not we really come into compliance in a reasonable amount of time and whether or not we will come into far greater costs further down the line." Stonyfield Appendix, p. 88. This was one reason why it was imperative to begin construction as soon as possible. However, no one offered any

testimony suggesting that the statute would be contingent on the cost of the project at the time of physical construction.

Finally, and most important, although legislative history may be used as an interpretive aid with respect to ambiguous language, it should not be used to insert language into a statute that the legislature chose not to add. In re N.H. Dept. of Trans., 144 N.H. 555, 558 (1999) (court will look to legislative history as a guide to meaning of statute only if ambiguity requires choice); see Town of Amherst v. Gilroy, 157 N.H. 275, 277-78 (2008). Here Appellants do not argue that the legislative history regarding cost estimates should be used to interpret a specific term. See Stonyfield Brief, pp. 10-13. Instead, the Appellants treat the legislative history as if it were itself a statutory provision that requires interpretation and implementation. Id. The court should reject this analysis.

The crux of the Appellants' argument does not pertain to the interpretation of the statute regarding the PUC's authority. Rather, the Appellants appear to suggest that when the legislature determined that the scrubber was in the public interest, the legislature acted wrongly or based its decision on misinformation. Whether or not the legislature correctly decided that the scrubber was in the public interest, however, is not at issue. As the PUC correctly concluded, the legislature did in fact decide that the installation of this technology was in the public interest and, therefore, the statute must be implemented according to its terms. Only the legislature may alter this finding, and to date, it has not done so.

CONCLUSION

For the reasons stated above, the State respectfully requests this Court to affirm the decision of the PUC.

The State requests oral argument to be presented by K. Allen Brooks (15 minutes).

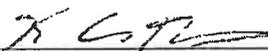
Respectfully submitted,

THE STATE OF NEW HAMPSHIRE

By its attorneys,

Kelly A. Ayotte
Attorney General

Date: May 6, 2009



K. Allen Brooks
Senior Assistant Attorney General
Environmental Protection Bureau
33 Capitol Street
Concord, New Hampshire 03301
(603) 271-3679
N.H. Bar No. 16424

CERTIFICATE OF SERVICE

I hereby certify that two copies of the foregoing have on this day been mailed first class postage prepaid to the parties on the attached service list.



K. Allen Brooks

THE STATE OF NEW HAMPSHIRE

SUPREME COURT

Docket No. 2008-0897

APPEAL OF STONYFIELD FARM, INC., H & L INSTRUMENTS, LLC, AND
GREAT AMERICAN DINING, INC. UNDER RSA 541:6 FROM ORDER OF
PUBLIC UTILITIES COMMISSION

SERVICE LIST

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State's Appendix

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HB 1673-FN - AS INTRODUCED

2006 SESSION

06-2816
06/03

HOUSE BILL **1673-FN**

AN ACT relative to the reduction of mercury emissions.

SPONSORS: Rep. Ross, Hills 3; Rep. Slocum, Hills 6; Rep. Kaen, Straf 7; Rep. Phinizy, Sull 5;
Rep. Maxfield, Merr 6; Sen. Green, Dist 6; Sen. Johnson, Dist 2; Sen. Burling,
Dist 5; Sen. Odell, Dist 8; Sen. Hassan, Dist 23

COMMITTEE: Science, Technology and Energy

ANALYSIS

This bill provides for an 80 percent reduction of mercury emissions from coal-burning power plants by requiring the installation of scrubber technology no later than July 1, 2013 and provides economic incentives for earlier installation and greater reductions in emissions.

Explanation: Matter added to current law appears in *bold italics*.
Matter removed from current law appears [~~in brackets and struck through.~~]
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

HB 1673-FN - AS INTRODUCED

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1 VII. Notwithstanding the provisions of RSA 125-O:1, VI, the purchase of mercury credits or
2 allowances to comply with the mercury reduction requirements of this subdivision or the sale of
3 mercury credits or allowances earned under this subdivision is not in the public interest.

4 VIII. The mercury reduction requirements set forth in this subdivision represent a careful,
5 thoughtful balancing of cost, benefits, and technological feasibility and therefore the requirements
6 shall be viewed as an integrated strategy of non-severable components.

7 125-O:12 Definitions. In this subdivision:

8 I. "Affected sources" means existing coal-burning power plant units in this state, specifically
9 Merrimack Units 1 and 2 in Bow and Schiller Units 4, 5, and 6 in Portsmouth.

10 II. "Baseline mercury emissions" means the total annual mercury emissions from all of the
11 affected sources, calculated in accordance with RSA 125-O:14, II.

12 III. "Baseline mercury input" means the total annual mercury input found in the coal used
13 by all of the affected sources, calculated in accordance with RSA 125-O:14, I.

14 IV. "Owner" means the owner or owners of the affected sources.

15 V. "Scrubber technology" means a wet flue gas desulphurization system.

16 125-O:13 Compliance.

17 1. The owner shall install and have operational scrubber technology to control mercury
18 emissions at Merrimack Units 1 and 2 no later than July 1, 2013. The achievement of this
19 requirement is contingent upon obtaining all necessary permits and approvals from federal, state,
20 and local regulatory agencies and bodies; however, all such regulatory agencies and bodies are
21 encouraged to give due consideration to the general court's finding that the installation and
22 operation of scrubber technology at Merrimack Station is in the public interest. The owner shall
23 make appropriate initial filings with the department and the public utilities commission, if
24 applicable, within one year of the effective date of this section, and with any other applicable
25 regulatory agency or body in a timely manner.

26 II. Total mercury emissions from the affected sources shall be at least 80 percent less on an
27 annual basis than the baseline mercury input, as defined in RSA 125-O:12, III, beginning on
28 July 1, 2013.

29 III. Prior to July 1, 2013, the owner shall test and implement, as practicable, mercury
30 reduction control technologies or methods to achieve early reductions in mercury emissions below the
31 baseline mercury emissions. The owner shall report the results of any testing to the department and
32 shall submit a plan for department approval before commencing implementation.

33 IV. If the net power output (as measured in megawatts) from Merrimack Station is reduced,
34 due to the power consumption requirements or operational inefficiencies of the installed scrubber
35 technology, the owner may invest in capital improvements at Merrimack Station that increase its
36 net capability, within the requirements and regulations of programs enforceable by the state or
37 federal government, or both.

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1 V. Mercury reductions achieved through the operation of the scrubber technology greater
2 than 80 percent shall be sustained insofar as the proven operational capability of the system, as
3 installed, allows. The department, in consultation with the owner, shall determine the maximum
4 sustainable rate of mercury emissions reductions and incorporate such rate as a condition of
5 operational permits issued by the department for Merrimack Units 1 and 2. This requirement in no
6 way affects the ability of the owner to earn over-compliance credits consistent with RSA 125-O:16, II.

7 VI. The purchase of mercury emissions allowances or credits from any established emissions
8 allowance or credit program shall not be allowed for compliance with the mercury reduction
9 requirements of this chapter.

10 VII. If the mercury reduction requirement of paragraph II is not achieved in any year after
11 the July 1, 2013 implementation date, and after full operation of the scrubber technology, then the
12 owner may utilize early emissions reduction credits or over-compliance credits, or both, to make up
13 any shortfall, and thereby be in compliance.

14 VIII. If the mercury reduction requirement of paragraph II is not achieved by the owner in
15 any year after the July 1, 2013 implementation date despite the owner's installation and full
16 operation of scrubber technology, consistent with good operational practice, and the owner's
17 exhaustion of any available early emissions reduction or over-compliance credits, then the owner
18 shall be deemed in violation of this section unless it submits a plan to the department, within
19 30 days of such noncompliance, and subsequently obtains approval of that plan for achieving
20 compliance within one year from the date of such noncompliance. The department may impose
21 conditions for approval of such plan.

22 125-O:14 Measurement of Baseline Mercury Input and Emissions.

23 1. Baseline mercury input shall be determined as follows:

24 (a) No later than the first day of the second month following the effective date of this
25 section, and continuing for 12 months thereafter, a representative monthly sample of the coal used
26 traditionally (not to include trial or test coal blends) by each affected source shall be collected from
27 each of the units identified in subparagraph (b) and analyzed to determine the average mercury
28 content of the fuel for each unit expressed in pounds of mercury input per ton of coal combusted at
29 each affected source. The mercury content of the coal derived from these analyses for each affected
30 source shall be multiplied by the average annual throughput of coal for the period 2003, 2004, and
31 2005 (average tons of coal combusted per year) for each respective affected source to yield the
32 average pounds of mercury input per year into each affected source. The sum of these annual input
33 pound averages from each affected source shall equal the baseline mercury input.

34 (b) Determination of the mercury content of the coal shall follow appropriate ASTM
35 testing procedures (ASTM D3684-01). For purposes of baseline mercury input determination, coal
36 sampling shall occur at Merrimack Unit 1 and Unit 2, and at either Schiller Unit 4 or Unit 6, which
37 shall serve to represent all Schiller units. At least 4 of the samples taken from each of these units
38 shall correspond with the stack testing done at each of these units under paragraph II.

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1 II. Baseline mercury emissions shall be determined as follows:

2 (a) A minimum of 4 stack tests shall be conducted at each of the units specified in
3 subparagraph (b) using appropriate testing protocols, to determine a statistically valid average
4 mercury emissions rate for each unit expressed in pounds of mercury emitted per ton of coal
5 combusted at each affected source. The rate for each affected source shall be multiplied by the
6 average annual throughput of coal for the period 2003, 2004, and 2005 (average tons of coal
7 combusted per year) for each respective affected source to yield the average pounds of mercury
8 emitted per year from each affected source. The sum of these annual emitted pound averages from
9 each affected source shall equal the baseline mercury emissions.

10 (b) For purposes of the baseline mercury emissions determination, stack tests shall be
11 conducted at Merrimack Unit 1 and Unit 2, and at either Schiller Unit 4 or Unit 6, which shall serve
12 to represent all Schiller units. If mercury emissions improvements are made or are being made
13 during the testing period, the stack tests shall be conducted without the improvements running at
14 the time of the tests.

15 III. The owner shall provide its plans to accomplish the testing requirements under paragraphs I
16 and II to the department for its approval. The owner shall provide written reports to the department, for
17 verification and approval, that include the test results and calculations used to determine:

18 (a) The baseline mercury input. The owner shall submit the report no later than
19 15 months following the effective date of this section.

20 (b) The baseline mercury emissions. The owner shall submit the report no later than
21 18 months following the effective date of this section.

22 125-O:15 Monitoring of Mercury Emissions. Prior to the availability and operation of
23 continuous emissions monitoring (CEM) systems, and subsequent to the baseline emissions testing
24 under RSA 125-O:14, II, stack tests or another methodology approved by the department shall be
25 conducted twice per year to determine mercury emissions levels from the affected sources. Any stack
26 tests performed shall employ a federally recognized and approved methodology, proposed by the
27 owner and employing a test protocol approved by the department. When a federal performance
28 specification takes effect, and a mercury CEM system capable of meeting the federal specifications
29 becomes available, a mercury CEM system, approved by the department, shall be installed at
30 Merrimack Units 1 and 2 and at other affected sources as deemed appropriate by the department.

31 125-O:16 Economic Performance Incentives.

32 1.(a) The department shall issue to the owner early emissions reduction credits in the form of
33 credits or fractions thereof for each pound of mercury or fraction thereof reduced below the baseline
34 mercury emissions, on an annual basis, in the period prior to July 1, 2013. Ratios of early reductions
35 credits to pounds of mercury reduced shall be as follows: 1.5 credits per pound reduced prior to July 1,
36 2008; 1.25 credits per pound for reductions between July 1, 2008 and December 31, 2010; and 1.1
37 credits per pound for reductions between January 1, 2011 and July 1, 2013.

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1 (b) Reductions shall be calculated based upon the results of stack tests conducted,
2 measurement by continuous emission monitoring, or other methodology approved by the department
3 to confirm emissions during the time of operation of mercury reduction technology. Early emissions
4 reduction credits may be banked by the owner or utilized after July 1, 2013 to meet the reduction
5 requirement of RSA 125-O:13, II as allowed under RSA 125-O:13, VII. Early emissions reduction
6 credits are not sellable or transferable to non-affected sources; however, upon the July 1, 2013
7 compliance date, the owner may request a one-for-one conversion of early emissions reduction credits
8 to over-compliance credits.

9 (c) Should a federal rule applicable to mercury emissions at one or more of the affected
10 sources be enacted with an implementation date prior to July 1, 2013, then early reduction credits
11 may only be earned for emissions reductions that exceed the level required by the federal rule of the
12 affected sources in aggregate or the baseline mercury emissions level, whichever is lower, at the
13 same ratios listed in subparagraph (a).

14 (d) Early emissions reduction credits shall not be used for compliance with the
15 requirement of RSA 125-O:13, II prior to the installation of scrubber technology, and shall not be
16 used as a means to delay the installation of the scrubber technology.

17 II.(a) The department shall issue to the owner over-compliance credits in the form of credits
18 or fractions thereof for each pound of mercury or fraction thereof reduced in excess of the emissions
19 reduction requirement of RSA 125-O:13, II, on an annual basis, following the compliance date of
20 July 1, 2013. The ratios of over-compliance credits to excess pounds of mercury reduced shall be as
21 follows: 0.5 credits per pound reduced for reductions between 80 and 85 percent; 1 credit per pound
22 reduced for reductions between 85 and 90 percent reduction; and 1.5 credits per pound reduced for
23 reductions of 90 percent or greater. Over-compliance credits may be banked for future use. The
24 requirements of RSA 125-O:13, V shall not alter the emissions levels at which over-compliance
25 credits are earned.

26 (b) Should a federal rule applicable to mercury emissions at one or more of the affected
27 sources be enacted, then over-compliance credits may only be earned for emissions reductions that
28 exceed the level required by the federal rule of the affected sources in aggregate or the requirement
29 of RSA 125-O:13, II, whichever is lower, at the same ratios listed in subparagraph (a).

30 (c) At the request of the owner of an affected source, over-compliance credits may be
31 surrendered by the owner to the department and SO₂ allowances shall be transferred to the owner
32 at a rate of 55 tons SO₂ allowances for every one over-compliance credit. Transfer shall be limited to
33 a maximum of 20,000 total tons SO₂ allowances transferred in a given year, defined as the sum of all
34 SO₂ allowances received by the affected sources under RSA 125-O:4, IV(a)(2) and IV(a)(3), and under
35 this subparagraph. SO₂ allowances shall be credited to the affected sources' accounts in the
36 following year in accordance with RSA 125-O:4, IV(a)(4).

37 125-O:17 Variances. The owner may request a variance from the mercury emissions reduction
38 requirements of this subdivision by submitting a written request to the department. The request

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1 shall provide sufficient information concerning the conditions or special circumstances on which the
2 variance request is based to demonstrate to the satisfaction of the department that variance from the
3 applicable requirements is necessary.

4 I. Where an alternative schedule is sought, the owner shall submit a proposed schedule
5 which demonstrates reasonable further progress and contains a date for final compliance as soon as
6 practicable. If the department deems such a delay is reasonable under the cited circumstances, it
7 shall grant the requested variance.

8 II. Where an alternative reduction requirement is sought, the owner shall submit
9 information to substantiate an energy supply crisis, a major fuel disruption, an unanticipated or
10 unavoidable disruption in the operations of the affected sources, or technological or economic
11 infeasibility. The department, after consultation with the public utilities commission, shall grant or
12 deny the requested variance. If requested by the owner, the department shall provide the owner
13 with an opportunity for a hearing on the request.

14 125-O:18 Cost Recovery. If the owner is a regulated utility, the owner shall be allowed to
15 recover via regulated rates all prudent costs of complying with the requirements of this subdivision
16 in a manner approved by the public utilities commission.

17 2 Repeal. The following are repealed:

18 I. RSA 125-O:3, III(c), relative to an annual cap applicable to total mercury emissions.

19 II. RSA 125-O:4, IV(d), relative to the use of future mercury allowances to meet a portion of
20 the emission cap for mercury.

21 3 Compliance Dates: Mercury Emissions Excluded. Amend RSA 125-O:9 to read as follows:

22 125-O:9 Compliance Dates. The owner or operator of each affected source shall comply with the
23 provisions of this chapter, *excluding the subdivision on mercury emissions, RSA 125-O:11*
24 *through 125-O:18*, by December 31, 2006.

25 4 Effective Date. This act shall take effect 30 days after passage.

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LBAO
06-2816
12/12/05

HB 1673-FN - FISCAL NOTE

AN ACT relative to the reduction of mercury emissions.

FISCAL IMPACT:

The Department of Environmental Services and the Public Utilities Commission stated this bill will have an indeterminable impact on state, county and local expenditures in future years. There will be no fiscal impact on state, county and local revenue.

METHODOLOGY:

The Department of Environmental Services (DES) and the Public Utilities Commission (PUC) state this bill intends to reduce mercury emissions from Merrimack Station, a coal burning electric generation plant in Bow, New Hampshire, currently owned by Public Service Company of New Hampshire (PSNH). As required, PSNH would install a wet flue desulphurization scrubber system at the plant. The technology would significantly reduce the plant's sulfur dioxide emissions and is expected to reduce the plant's mercury emissions by at least 80%. The equipment is to be installed no later than July 1, 2013. PSNH estimates that the installation will be at a cost not to exceed \$250 million in 2013 dollars or \$197 million in 2005 dollars. Any rate impact, therefore, would most likely be felt after the period of time identified in this fiscal note. In assessing the rate impact for the control equipment, the \$250 million would be offset to some degree by savings resulting from PSNH's reduced need to purchase sulfur dioxide allowances, and additional revenues, as PSNH would be able to sell excess sulfur dioxide allowances if it achieves greater than 80% mercury reduction. Based on PSNH's estimates, the cost charged to the state, counties and localities in the first year of operation of the scrubber system would be approximately \$1.9 million. After 10 years of operation, those entities would experience a net savings of approximately \$500,000 per year. PSNH analyzed 3 different cost impact scenarios based on a low (\$573/ton), moderate (\$1,073/ton), and high (\$1,573/ton) SO₂ allowance price. DES states that the current price exceeds \$1,400/ton. At the current price, over the 10-year time period, the project should result in net savings to PSNH.

Public Service Company of New Hampshire
Docket No. DE 13-275

Date Request Received: 06/05/2014
Request No. TECH 2-006
Request from: Office of Consumer Advocate

Date of Response: 06/16/2014
Page 1 of 1

Witness: William H. Smagula

Request:

Reference CLF 2-5 regarding the Company's explanation of its statement regarding \$115 million of value realized for ratepayers by the Company's use of its generation resources compared to market prices. Please provide a schedule showing the calculation of (approximately) \$115 million advantage derived from using the Company's generation assets compared to purchase of comparable energy amounts at market price.

Response:

To reiterate, the \$115 million is not and should not be included in the 2014 ES rate filing, as customers are not charged an avoided market cost. As stated in the response to CLF 2-005, the \$115 million figure compares the cost of producing energy at PSNH's plants during the 2013/2014 winter months to the avoided costs of procuring energy in the daily ISO-New England energy marketplace during that same period. This number was developed for discussion purposes to compare PSNH to the New England region and illustrates the stability offered by PSNH-owned generating facilities. Note that the winter months included in this figure were November 2013 – mid-March 2014. As discussed during the technical session, below is a schedule of the values that sum to the referenced \$115 million.

PSNH FLEET	Nov '13	Dec '13	Jan '14	Feb '14	mid Mar '14	Total
Generation (MWh)	83,790	327,615	454,740	351,402	228,308	1,445,855
Cost Delta(\$M)	2	21	50	36	10	119

Note: The mid-March Cost Delta (\$M) value was estimated prior to the availability of month-end data. With month-end data available, this two week estimate would have been approximately \$20M making the total savings estimate approximately \$129 million.



From the CEO



Risk is not a welcome factor in any organization, let alone one charged with ensuring a reliable supply of electricity to 6.5 million homes and businesses. The electricity that keeps hospitals operating and traffic signals lit isn't optional after all, it's a necessity. That fact, however, doesn't make us immune to risk.

In reality, as a power system operator, ISO New England tackles uncertainty every day—fluctuations in supply and demand because of weather or an unexpected outage of a power plant or transmission line can make it challenging for the ISO to balance the needs of the power system. Our control room relies on the performance and flexibility of a wide variety of resources on the grid to navigate any event. By following rigorous procedures and establishing a fair, effective operating environment for resources, the ISO has been able to consistently keep the lights on in some of the toughest situations. Today, however, a unique convergence of economic and environmental factors is having a serious impact on the diversity, flexibility, and performance of the region's resource mix—risks that threaten the reliable supply of electricity for New England's homes, businesses, and public services.

In late 2010, the ISO launched a Strategic Planning Initiative to analyze, understand, and address these risks. Over the course of 18 months, we collaborated with New England states and market participants to identify the greatest threats to grid reliability as well as the changes needed to mitigate them.

We have found that the region's dependency on natural gas to fuel a large percentage of its generators is the most pressing concern. While low-cost natural gas from the Marcellus shale has been a boon to New England—resulting in billions of dollars of lower cost electricity—the transportation of this fuel through pipelines from the west into the region is frequently constrained, and the low cost of this fuel has reduced the more expensive imports of Canadian gas and liquefied natural gas. As a result, the region is highly dependent on an aging and relatively inflexible fleet of oil- and coal-fired generators to maintain reliability during peak demand periods or when the gas pipeline system is limited.

New England's oil- and coal-fired power plants are already facing significant financial stress from this confluence of market economics and stringent environmental standards. These pressures are forcing many owners of these assets to consider retiring them in the short to medium term. Furthermore, New England policymakers are seeking to increase the amount of renewable energy in the region, resulting in a clear need for a flexible and responsive companion resource base on the grid to provide electricity when the wind doesn't blow or the sun doesn't shine. We also have observed that as a general matter, overall resource performance isn't what we expect during power system contingencies, such as large generator or transmission line outages.

Because the ISO does not own the power plants or transmission lines, we cannot directly address the infrastructure and resource performance problems facing the region. However, we do have a responsibility to develop the market incentives and operating rules to address these concerns—courses of action that would ensure that these resources exist, are available, and run as our operators need to effectively manage the system.

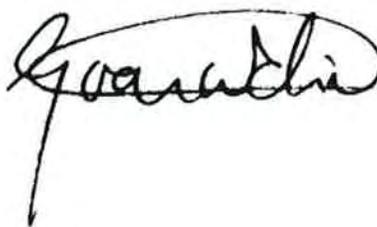
In the fall of 2012, the ISO and stakeholders shifted emphasis from collecting and analyzing information to designing solutions. Our comprehensive study and discussion of the issues at hand have led us to conclude that the region must continue to build on and enhance the wholesale electricity markets to create stronger financial incentives for generators and demand resources. These enhancements will work to ensure that the ISO has access to the resources it needs to operate the grid reliably and that the provision of these services is valued efficiently through a competitive marketplace.

This *Regional Electricity Outlook* provides an overview of the challenges and describes immediate-, short-, and long-term solutions underway or under consideration through our stakeholder process. The proposals being developed are driving ISO New England's business plan for each of its areas of responsibility: designing and administering the wholesale electricity markets, operating the grid, and planning the power system. Documents that provide a more technical, in-depth explanation of the issues and strategies are available at www.iso-ne.com/spi.

It is clear that resolving these challenges will not be simple, and it will take several years to realize the benefits of the solutions. While immediate action by the ISO is necessary to preserve grid reliability, support also will be required across states, regions, and even industries—by federal and state regulators, generators, and natural gas pipeline owners/operators. We look forward to working with our stakeholders as part of this ongoing process. It is important to remember that, often, the best ideas are born out of necessity. Today the power system faces significant and formidable obstacles. But tomorrow, it will be smarter, stronger, and more environmentally sound because of our collective efforts.

Sincerely,

Gordon van Welie
Chief Executive Officer

A handwritten signature in black ink, appearing to read "Gordon van Welie", written over a faint circular watermark or background.

The risks ahead

In 2020, nearly 8,300 MW of generation are expected to be older than 40 years. Representing more than 25% of total generating capacity, a significant portion of New England's generator fleet faces retirement. That creates serious risks for the region, including:

- Markets and reliability rules may not be well-suited to efficiently manage the sheer magnitude of retirements.
 - As the oldest generators in New England, many of the at-risk units are located at critical locations on the transmission grid. If they retire without repowering, transmission security challenges could be created on both the local and regional scale.
 - The loss of fuel diversity will amplify the region's dependence on natural gas outlined in Challenge One.
-

The big picture: Fitting the pieces of the grid puzzle

Many of the region's older oil- and coal-fired generators were built at or near major electricity demand centers, such as the Boston area, to best meet peak consumer demand. The replacement of a large number of these resources could alter the makeup of the grid and create transmission reliability and security issues, depending on where the new resources are located.

The *Strategic Transmission Analysis—Generation Retirement Study* found that the replacements for the 28 at-risk oil-and coal-based resources do not necessarily need to be located in those same demand centers. In fact, repowering all existing sites at their existing locations would likely result in congestion and actually increase the amount of capacity that would need to be replaced.

Transmission development expected between now and 2020 will significantly expand and fortify the area of the grid known as the region's energy hub and the connections to it from other areas of the grid. Based on the study findings, adding 5,000 MW of the 6,000 MW of the replacement capacity to that area of the grid may best serve most of the region's demand and maintain transmission reliability and security.

The remainder of the replacements for the oil- and coal-fired capacity must be developed in specific locations, such as the southeast section of Massachusetts and areas in Connecticut, because of transmission constraints. These areas require local capacity or transmission reinforcements to address transmission reliability concerns.

Depending on the pattern of unit retirements and the timing of new, major transmission projects, the needs of the New England system may change dramatically. Consequently, the ISO and stakeholders will need to consider the solutions developed carefully.

Forecasting efficiency

Energy efficiency (EE) has seen remarkable growth in recent years. ISO New England has developed the nation's first multistate energy-efficiency forecast to track this growth and measure the impact of state-sponsored EE programs on the region's electricity needs. The forecast shows EE initiatives will see investment totaling nearly \$5.7 billion from 2015 through 2021. The projected energy and demand savings shown in the forecast, as well as some transmission upgrades and a changing load forecast, reveal the region was able to defer \$260 million of proposed transmission upgrades. This level of savings is expected to continue or increase in the future. And as energy efficiency continues to be added, the region can expect to defer or eliminate the construction of expensive power system infrastructure.







EASTMOUNT ENVIRONMENTAL SERVICES
Air Quality Specialists

Final Report

Mercury (RSA 125-O:15), TSP/PM (Env-A 2300) and NH₃ (Title V) Emission Compliance Testing – MK1 and MK2 Common Stack

Prepared for . . .

**PSNH – Merrimack Station
Bow, NH**

Test Date: February 10, 2014

Prepared by . . .

Eastmount Environmental Services, LLC
2 New Pasture Road, Unit 5
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Eastmount Project No. 13-121
Report Date: March 21, 2014

Certification Statement

Report: Public Service of New Hampshire (PSNH) – Merrimack Station
“Mercury (RSA 125-O:15), TSP/PM (Env-A 2300) and NH₃ (Title V)
Emission Compliance Testing – MK1 and MK2 Common Stack”

I certify that to the best of my knowledge the information provided in this report is complete and accurate.

Prepared by:

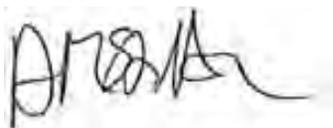


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1.0 INTRODUCTION

1.1 General Overview

Eastmount Environmental Services, LLC of Newburyport, Massachusetts was retained by Public Service Company of New Hampshire (PSNH) to conduct Mercury (Hg), Total Suspended Particulate Matter/Particulate Matter (TSP/PM) and Ammonia (NH₃) emission testing on the outlet (after all emission controls) of the Unit Nos. 1 (MK1) and 2 (MK2) Common Stack at Merrimack Station in Bow, NH. Compliance testing background as well as all related testing procedures are presented herein. A summary of the primary parties involved in this test program is presented in Table 1-1.

Testing for Hg was conducted to fulfill the monitoring requirements of RSA 125-O:15. Under RSA 125-O:15, PSNH is required to conduct semiannual Hg emission testing on MK1 and MK2 (now a common exhaust stack), prior to the availability and operation of certified Hg Continuous Emission Monitoring System (CEMS), and subsequent to the baseline testing under RSA 125-O:14, in order to determine Hg emissions from MK1 and MK2. This test program served to fulfill the stations first of two annually required Hg tests for MK1 and MK2 under 125-O:15 for the year 2014.

It should be noted that RSA 125-O:15 requires PSNH to conduct the Hg tests employing a federally recognized and approved methodology. Current EPA approved test methods for Hg are M29, M30B and M101A. It should be noted that although all Hg tests prior to July of 2013 utilized M29, PSNH and NHDES have agreed to now conduct semiannual mercury stack tests using EPA Method 30B, as it has become the most accepted method to measure low level mercury stack emissions at coal fired power plants.

Testing for TSP was conducted in order to satisfy the Performance Testing requirements specified in Part Env-A 2304.01 under the New Hampshire Code of Administrative Rules Chapter Env-A 2300 (Mitigation of Regional Haze). Specifically, under Env-A 2302.01 the combined outlet of MK1 and MK2 must have demonstrated that TSP emission limits do not exceed 0.08 lb/MMBtu by July 1, 2013.

Lastly, testing for ammonia slip was conducted in order to satisfy Item 38 of Table 7 in the facility's Title V Permit TV-0055. As specified in Item 5 of Table 4 in the permit, ammonia slip shall not exceed 10ppmvd corrected to 3% Oxygen (dry basis). It should also be noted that testing is required to be conducted at an approximate NO_x emission rate (lb/MMBtu) as specified by NHDES.

All testing was conducted in accordance with NHDES Env-A 802 (Compliance Stack Testing for Stationary Sources) guidelines, as well as all applicable state and federal regulations.

Important Note 1: As both MK1 and MK2 are Subpart Db boilers whose emissions are controlled by a wet flue gas desulfurization (FGD) system, PM testing was measured in accordance with Method 5, except the probe and filter temperatures were maintained at 320F (±25F) rather than 248F (±25F).



Important Note: 2: A single sampling train was utilized to measure both PM and NH₃. This was accomplished by modifying Conditional Test Method 027 to include the use of an out of stack filter (rather than instack) and modifying Method 5 to use two impingers each initially loaded with 100ml 0.1N Sulfuric Acid (H₂SO₄) in lieu of deionized water. Additionally, the back half of the filter housing and impingers were recovered according to CTM 027 rather than Method 5.

1.2 Test Program Summary

Hg emission testing during this test program was comprised of three 120-minute test runs conducted in full accordance with EPA Method 30B while MK1 and MK2 were operated at full load. The Hg results for this test program, calculated on a pound/trillion British Thermal Units (lb/TBtu), pound/hour (lb/hr), pound/year (lb/yr) and pound/ton of coal (lb/ton coal) basis, are presented in Table 1-2.

Method 30B employs a number of field and laboratory Quality Assurance (QA) tests that are used to evaluate the quality of the data collected. Field test QA checks include a comparison of sample volume collected between tubes, Paired Trap Agreement (RD), Sorbent Trap Breakthrough (B) and a Field Recovery Test (R). A complete summary of QA parameters for all test runs and parameters are presented in Table 1-3.

PM and NH₃ emission testing during this test program was comprised of three 120-minute test runs which utilized a shared sampling train. Testing for PM and NH₃ was conducted in full accordance with EPA Method 5 and CTM027, respectively except as previously noted. All testing was conducted concurrent with the Method 30B tests while MK1 and MK2 were operated at full load. Emission results presented in units of applicable standard (lb/MMBtu for PM and ppmvd@3%O₂ for NH₃) are presented in Table 1-4.

During the test program a composite fuel sample was collected for each source (MK1 and MK2). The respective samples were split into two fractions and each fraction was subsequently analyzed for the determination of a fuel specific F-factor (F_c). The results of these analyses were used to calculate a weighted daily average F-factor (F_w) for each required test day. This weighted (based on the respective MW outputs from MK1 and MK2) fuel specific F_c was subsequently used to calculate final lb/MMBtu and lb/TBtu emission rates. The data used to calculate the weighted averages is presented in Appendix B4.

1.3 Final Report Organization

The remainder of this Final Report is divided into four additional sections. Section 2 presents an in-depth summary of each methods test results. Section 3 provides a facility/source and sampling location description. Section 4 provides a description of the flue gas monitoring procedures, and Section 5 addresses the quality assurance/quality control aspects of the program. Copies of all supporting emission calculations and field data sheets are presented in Appendix A. All laboratory



analyses are presented in Appendix B, while facility data and quality assurance documentation are presented in Appendix C and D, respectively.

Table 1-1 Test Program Informational Summary

Station/Source Information	
Facility Name:	PSNH / Merrimack Station
Facility Address:	97 River Rd. Bow, NH 03304
Facility Contact:	Mr. Richard Faro
Phone:	(603) 224-4081 x4144
Email:	richard.faro@nu.com
PSNH Corporate Information	
Facility Name:	PSNH Corporate Office
Facility Address:	780 No. Commercial Street Manchester, NH 03101
Primary Contact:	Mr. Leo W. Quinn/Senior Engineer
Phone:	(603) 634-2821
Email:	leo.quinn@nu.com
Test Firm Information	
Test Organization:	Eastmount Environmental Services, LLC
Address:	2 New Pasture Rd., Unit 5 Newburyport, MA 01950
Contact:	Mr. David Caron, QSTI Groups 1-4
Title:	Vice President/Monitoring Services
Phone:	(978) 499-9300 x11
Email:	dcaron@eastmount.com
State Information	
Organization:	NHDES
Address:	Air Resources Division 29 Hazen Drive PO Box 95 Concord, NH 03302-0095
Contact:	Mr. Mike O'Brien
Phone:	(603) 271-6546
Email:	michael.o'brien@des.nh.gov



PSNH, Merrimack Station – Bow, NH
Hg (125-O:15), TSP/PM (Env-A 2300) and NH₃ (Title V) Testing, MK1/MK2 CS – Final Report

Table 1-2 Mercury Emission Summary

Run ID	Date	Run Times		Hg Emission Rate ^{1,2}			
		Start	Stop	lb/TBtu	lb/hr	lb/yr	lb/ton coal
CS-R1	10-Feb-14	10:25	13:50	2.52E-01	1.17E-03	10.24	7.04E-06
CS-R2	10-Feb-14	14:20	16:35	2.26E-01	1.04E-03	9.09	6.27E-06
CS-R3	10-Feb-14	17:08	19:20	2.57E-01	1.17E-03	10.27	7.10E-06
Averages:				2.45E-01	1.13E-03	9.87	6.80E-06

¹ - Hg emission rate represents the average of paired sorbent traps.

² - lb/yr emission rates were calculated by extrapolating the lb/hr emission rates to a yearly basis using 8,760 hours/yr.

Table 1-3 Method 30B QA Summary

Run ID	Volume Sampled (dscm)			Paired Trap Agreement (RD)		
	Average R	Vol. diff (%)	Limit	Abs. diff. (ug/dscm)	%	Limit
CS-R1 / A-Side	0.120	-	≤20% of field recovery test	0.02	3.50	≤10% RD mass for Hg conc. >1 ug/dscm: or ≤20% RD or ≤0.2 ug/dscm abs. diff. for Hg conc. ≤1 ug/dscm
CS-R1 / B-Side		-0.03				
CS-R2 / A-Side		-		0.02	4.30	
CS-R2 / B-Side		0.41				
CS-R3 / A-Side		-		0.03	4.59	
CS-R3 / B-Side		0.56				

Run ID	Sorbent Trap Breakthrough (B)		Field Recovery Test (R)			
	%	Limit	C _{rec}	R (%) by Run	R (%) by program	Limit
CS-R1 / A-Side	2.33	≤10% of Section 1 Hg mass for Hg conc. >1 ug/dscm: or ≤20% of Section 1 for Hg conc. ≤1 ug/dscm	0.395	94.65	98.63	Average Recovery, between 85 and 115%
CS-R1 / B-Side	1.05					
CS-R2 / A-Side	1.41		0.395	94.11		
CS-R2 / B-Side	0.73					
CS-R3 / A-Side	1.64		0.450	107.13		
CS-R3 / B-Side	1.23					

Table 1-4 Particulate and Ammonia Emission Summary

Run ID	Date	Run Times		Emission Rates and Applicable Limits			
		Start	Stop	PM (lb/MMBtu)		NH ₃ (ppmvd@3%O ₂)	
				Result	Limit	Result	Limit
CS-R1	10-Feb-14	10:25	13:50	0.006	-	< 0.02	-
CS-R2	10-Feb-14	14:20	16:35	0.006	-	< 0.02	-
CS-R3	10-Feb-14	17:08	19:20	0.005	-	< 0.02	-
Averages:				0.006	0.08	< 0.02	10



2.0 EMISSION SUMMARY AND COAL COLLECTION PROCEDURES

2.1 Emission Summary – Hg, PM and NH₃

As previously noted, this test program consisted of three 120-minute concurrently conducted test runs utilizing two sampling trains. One train was operated solely for the determination of Hg in accordance with Method 30B, while the remaining train was used to sample for both PM and NH₃ in accordance with Method 5 and CTM 027, respectively. Consistent with respective test methods, no blanks were collected for Method 30B. Conversely, for Method 5 both a filter and acetone reagent blank were collected, while a field blank was collected for CTM027. All blanks were analyzed in accordance with respective test methods. A summary of the test results as well as key monitoring parameters on a run by run basis are presented in Table 2-1. All supporting emission calculations, laboratory analysis, facility process data and quality assurance checks are presented in Appendices A through D, respectively.

2.2 Facility Coal Collection and Handling Procedural Summary

Specific collection and handling procedures are as follows; coal samples are taken for MK1 and MK2 from the PM bunkering the day prior to stack testing and the AM and PM bunkering on the day of the stack testing. The Operations Department initiates the sample collection at the end of each bunkering from the Automatic Coal Sampling device. This device takes periodic swipe samples during the time of the bunkering and collects it as a composite. A Chemist takes the plastic bag that collects the composite sample, marks it with the date, time (AM or PM), unit # and leaves it in the coal sampling processing building. They are stored there until the testing is done. The PSNH Liaison in charge of the stack testing then attaches a Chain of Custody form to each bag and then transfers the sample to the stack test company.



PSNH, Merrimack Station – Bow, NH
Hg (125-O:15), TSP/PM (Env-A 2300) and NH₃ (Title V) Testing, MK1/MK2 CS – Final Report

Table 2-1 Summary of Results and Key Test Parameters

- Summary of Compliance Parameters -					
Parameter	Units	CS-R1	CS-R2	CS-R3	Average
Hg^{1,2}	lb/TBtu	2.52E-01	2.26E-01	2.57E-01	2.45E-01
	lb/hr	1.17E-03	1.04E-03	1.17E-03	1.13E-03
	lb/yr	10.24	9.09	10.27	9.87
	lb/ton coal	7.04E-06	6.27E-06	7.10E-06	6.80E-06
PM	lb/MMBtu	0.006	0.006	0.005	0.006
NH₃	ppmvd@3%O ₂	< 0.02	< 0.02	< 0.02	< 0.02
- General Run Information -					
Parameter	Units	CS-R1	CS-R2	CS-R3	Average
Test Date	MM/DD/YY	2/10/2014	2/10/2014	2/10/2014	-
Start Time	HH:MM	10:25	14:20	17:08	-
End Time	HH:MM	13:50	16:35	19:20	-
Stack Flow	dscfh	58,755,492	57,927,878	57,755,647	58,146,339
Stack Temp	F	127.5	127.4	127.3	127.4
Stack Moist.	%	13.9	14.3	14.2	14.1
Stack Velocity	ft/sec	58.6	58.1	58.0	58.2
Stack O₂	%	4.94	4.80	4.91	4.88
Stack CO₂	%	13.99	14.13	14.03	14.05



3.0 SOURCE AND TRAVERSE POINT SUMMARY

3.1 Facility Description

Merrimack Station is a fossil fuel fired electric generating facility located in Bow, New Hampshire. Merrimack Station is PSNH's prime base load plant, capable of generating 508 gross megawatts of electricity. Merrimack Station is comprised of two coal-fired cyclone utility boilers (MK1 and MK2), two 21 MW gross combustion turbines presently operating as load shaving units (CT1 and CT2), an emergency generator, primary and secondary coal crushers, and the necessary support equipment to generate electricity.

3.2 Source Description – MK1

MK1 is a multiple cyclone (3) coal-fired utility boiler rated at 121 MW gross. The emissions controls for the unit consist of two Electrostatic Precipitators (ESPs), operated in series, for reduction of particulate emissions and a Selective Catalytic Reduction (SCR) system for reduction of NO_x emissions. MK1 is equipped with a dilution based CEMS located in the flue gas duct work (prior to combining with MK2). The MK1 CEMS measures opacity, CO₂, NO_x, SO₂ and flow rate in accordance with Part 75 requirements.

3.3 Source Description – MK2

MK2 is a multiple cyclone (7) coal-fired utility boiler rated at 345 MW gross. The emissions controls for the unit consist of two Electrostatic Precipitators (ESPs), operated in series, for reduction of particulate emissions and a Selective Catalytic Reduction (SCR) system for reduction of NO_x emissions. MK2 is equipped with a dilution based CEMS located in the flue gas duct work (prior to combining with MK1). The MK2 CEMS measures opacity, CO₂, NO_x, SO₂ and flow rate in accordance with Part 75 requirements.

3.4 Common Pollution Control Equipment Description

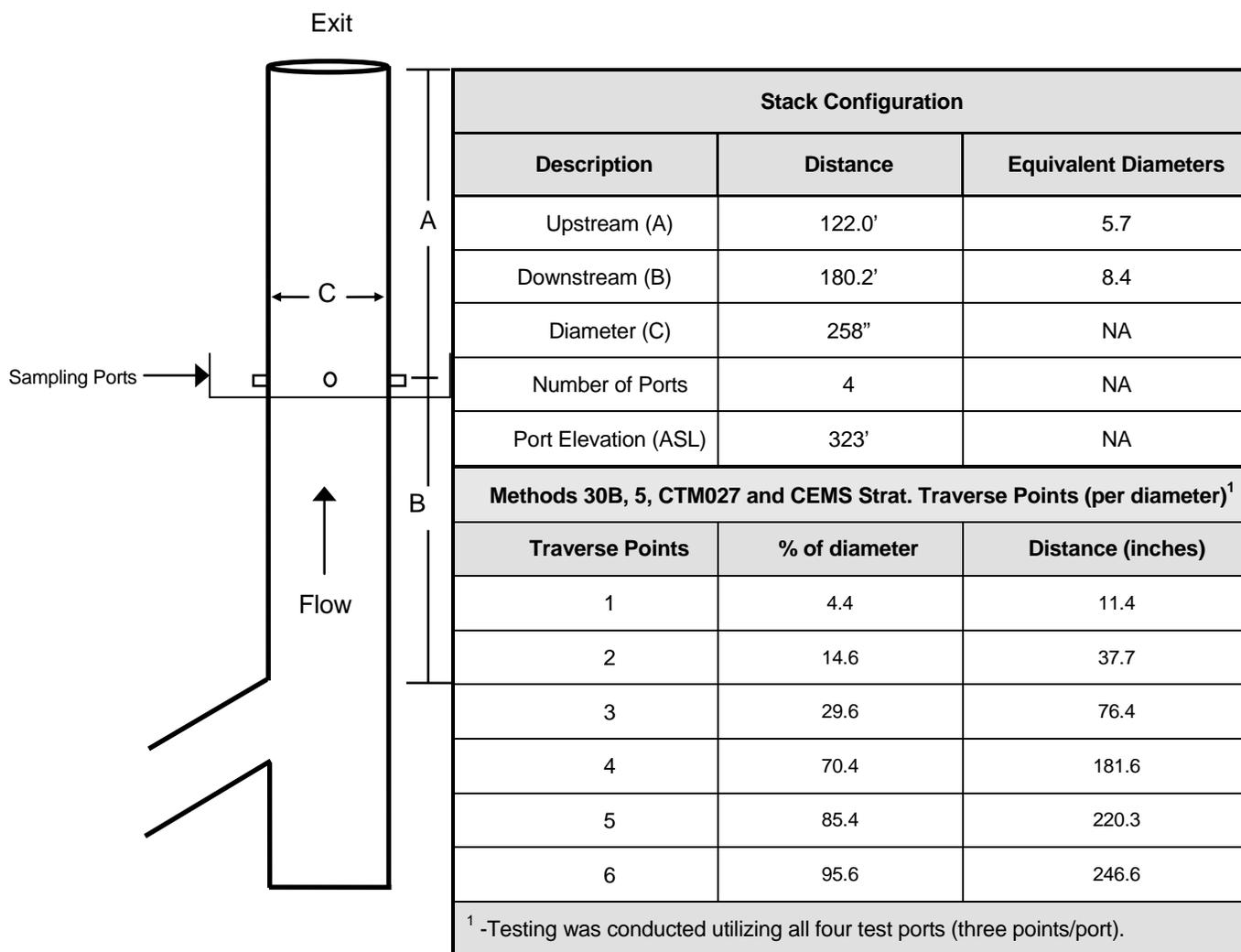
The flue gases from MK1 and MK2 are combined and then enter a common wet limestone flue gas desulphurization system (FGD). The FGD was designed to reduce mercury and SO₂ emissions from both MK1 and MK2. A CEMS is located on the common stack to measure CO₂, SO₂, NO_x and gas flow rate in accordance with Part 75 requirements. Emissions are exhausted through a 445' tall common stack.



3.5 Sampling Configuration – Common Stack

The Common Stack is equipped with four sampling ports located 90 degrees to each other on a vertical section of stack with an inside diameter of 258". The ports are located 180.2' downstream and 122.0' upstream from the closest bend or expected pollution concentration change. Eastmount utilized all four test ports during this test program. A summary of the traverse points is presented in Figure 3-1.

Figure 3-1 Sampling Configuration/Traverse Point Selection – Common Stack



4.0 TEST PROCEDURES

4.1 Overview

This section provides an in depth description of the test methodologies, equipment and test procedures that as a whole comprised the test program. Each parameter was measured and analyzed in strict accordance with EPA and NHDES approved procedures, as presented in the protocol.

4.2 Particulate Matter/Ammonia – EPA Methods 5 and CTM 027

4.2.1 Description of Methodology

Particulate matter and ammonia were measured using EPA Methods 1 through 5 modified to include the collection and analysis of ammonia in accordance with CTM 027. The sampling train included the determination of the proper number of sampling points and their locations in the stack (RM1), stack velocity and volumetric flow rate (RM2), stack gas molecular weight (RM3A) and stack gas moisture content (RM4). The train was an EPA Method 5 isokinetic sampling train. Sampling was conducted isokinetically for a period of 120 minutes per run, collecting sample at a rate of 0.5 to 1.0 dry cubic feet per minute. The sampling train consisted of a glass nozzle, glass lined probe, heated quartz glass filter with thermocouple well and a series of impingers. The impinger condenser consisted of four impingers: the first and second were of the standard Greenburg-Smith (GS) type, while the third and fourth were of the modified Greenburg-Smith design. The first and second impingers each contained 100 ml of 0.1N H₂SO₄. The third impinger was empty and the fourth contained a known amount of silica gel (200-300g).

Prior to sampling, cyclonic flow measurements were taken to verify that the location met Method 1 cyclonic flow requirements. The isokinetic correlation was then established, the train was carefully assembled and then leak checked. After the probe and filter box reached the desired operating temperature (320°F +/-25 °F) and the proper process conditions were attained, the probe was placed in the stack at the initial traverse point, and isokinetic sampling was initiated.

At the completion of isokinetic sampling, the train was first leaked checked, then disassembled, and sealed. Each train yielded the three sample fractions detailed below:

- Fraction A: The nozzle, probe, and filter holder front half were first rinsed and brushed with acetone into a prepared 250ml amber glass bottle.
- Fraction B: The filter was then carefully removed and placed in a labeled petri dish.
- Fraction C: The back half of the filter holder, first, second and third impingers, as well as any connecting glassware were first measured for net condensate gain before being placed in a 1000ml sample container. These impingers, filter support, filter holder back half and connecting



glassware were subsequently rinsed three times each with DiH₂O into the same sample container.

The PM samples were analyzed gravimetrically at Eastmount's laboratory in accordance with Method 5 procedures. The acetone rinses were evaporated to dryness in tared beakers. All filters and beakers were desiccated prior to and following sampling for a period no less than 24-hours, and then weighed at six-hour intervals until two consecutive weights were within ± 0.5 mg. The impinger contents and associated rinses were shipped under chain of custody to Maxxam analytical for analysis of NH₃ via ion chromatography. A Method 5/CTM 027 procedural summary is presented in Table 4-1.

4.2.2 Description of Isokinetic Sampling

4.2.2.1 Isokinetic Sampling Equipment

Clean Air Engineering (CAE) manufactured the specific trains that were used during these tests. The design specifications of this train met all the requirements of EPA's Reference Method 5 as found in the Federal Regulations under Section 40 CFR 60 Appendix A, as amended. The following is a description of the individual pieces of equipment that made up the train.

- **Nozzle** - The nozzle was constructed of borosilicate glass of the buttonhook design. A range of sizes suitable for isokinetic sampling was available onsite. All nozzles were calibrated prior to use.
- **Probe** – A heated stainless steel probe with heated borosilicate glass liner was used at the stack.
- **Heating System** - The filter and probe temperatures were maintained at 320° + 25°F. This temperature was constantly monitored by use of a thermocouple (located in the hot box and probe sheath) and temperature readout. Once sampling commenced, the hot box temperature was regulated using a thermocouple located at the outlet of the filter holder.
- **Filter Holder** - A borosilicate glass type filter holder with a Teflon support was used for all isokinetic testing.
- **Filter** – A tared, quartz fiber filter was used to collect the particulate matter during the test.
- **Filter Outlet Thermocouple** – During sampling, the filter outlet gas temperature was maintained at 320°F \pm 25°F using a thermocouple positioned just after the filter holder back half.
- **Condenser** – Four impingers, connected in series with leak-free ground glass fittings, were used as the condenser. The first and second impingers were of the standard Greenburg-Smith (GS) design, while impinger 3 and 4 were of the GS design, modified by replacing the tip with a 1/2" diameter glass tube extending to approximately 1/2" from the bottom of the flask.



- **Pitot Tube** - A S-type pitot tube was used to measure all gas velocities. The pitot tube met all of the dimensional criteria set forth in Method 2, and therefore a coefficient of 0.84 was used.
- **Pitot Lines** - The pitot tube was connected to a manometer via leak free Tygon and/or Teflon tubing.
- **Manometer** - An inclined manometer capable of measuring up to ten inches of water column pressure drop was used.
- **Thermocouple** - A "K" type thermocouple was used to monitor the stack temperature at each traverse point.
- **Umbilical** - An umbilical consisting of a gas sample line, tygon pitot lines, K-type thermocouple wire, and electrical cords was used to connect the sampling train to the metering console,
- **Metering Console** - A vacuum gauge, inclined manometer, leak-free pump, calibrated thermocouples, and a calibrated dry gas meter were the basic components used to meter the dry sample gas through the system.
- **Gas Molecular Weight Determination** – See EPA Method 3A description later in this section.

4.2.2.2 Isokinetic Sampling Procedures

All sampling procedures were conducted in strict accordance with the Methods prescribed in the Code of Federal Regulations as found in 40CFR60 as amended, where available. The following is the sequence of events that occurred prior to and during the actual test.

1. **Traverse Points** - The traverse points were calculated in accordance with Method 1 and the probe marked accordingly.
2. **Preliminary Traverse** - A preliminary traverse was conducted. Readings included the pressure drops and gas temperatures.
3. **Cyclonic Flow** – The cyclonic flow check was conducted in accordance with Section 11.4 of EPA Method 1. In summary, at each traverse point (See Figure 3-1) the probe was rotated perpendicular to the cross sectional area of the stack (this is zero degrees). The probe was then rotated (if necessary) until a null manometer reading was obtained. The protractor angle was recorded for each point and then the absolute value of each angle was used to calculate an overall average cyclonic flow angle for this source. For the test location to be deemed acceptable, this average absolute value was required to be less than or equal to 20 degrees.
4. **Static Pressure** – Static pressure was determined utilizing a S-type pitot tube. The probe was rotated until a null reading was observed and then the negative or positive side was opened in order to ascertain the static pressure of the stack. If removing the negative pitot resulted in a



positive deflection, then the static pressure was recorded as a positive. Conversely, if the positive pitot was removed in order to ascertain a positive deflection then the static pressure was recorded as a negative.

5. **Barometric Pressure** - The barometric pressure reported by the National Weather Service (NWS) station in Concord, NH (call letters KCON) was used for determining barometric pressure (Bp) during this test program. The hourly reading for Bp that most closely related to the actual run times was used. The reported Bp at Sea Level Pressure (SLP) was adjusted to port elevation at the site by subtracting 0.1" of Mercury (Hg) per 100' of elevation. The hourly readings are presented in Appendix D4.
6. **Nomograph** - Once the above information was obtained, a spreadsheet was utilized to correlate the isokinetic relationships.
7. **Sampling Train Set-Up:**
 - (a) The filter was placed in the filter holder and visually checked. Filter number and tare weight were recorded on the field data sheets.
 - (b) The impingers were loaded with the appropriate absorbing solution (100ml of 0.1N H₂SO₄) in impingers 1 and 2). Volumes were recorded on the field data sheets.
 - (c) Approximately 200 grams of silica gel was placed in the final impinger. Exact weights were logged on the field data sheets.
 - (d) Crushed ice and water was placed around the impingers.
 - (e) Once the entire train was assembled, the probe and hot box heaters were turned on.
8. **Pre-Test Leak Check – Metering System** - Once the heater box reached the desired temperature for testing, the system was leak checked at fifteen inches of vacuum (15"Hg). The meter was observed for movement over a 60-second period. A leak rate of less than 0.02 CFM was achieved prior to the start of sampling.
9. **Pre-Test Leak Check – Pitot System** - All pre and post-test pitot leak-checks were conducted as follows: (1) blow through the pitot impact opening until at least 7.6 cm (3.0 in.) H₂O velocity head registered on the manometer; then, close off the impact opening. The pressure was required to remain stable for at least 15 seconds to be considered valid; (2) do the same for the static pressure side, except using suction to obtain the minimum of 7.6 cm (3.0 in.) H₂O.
10. **Final Check** – When sampling was ready to commence, plant operations were checked to confirm that the facility was operating at the desired capacity.
11. **Sampling** – Sampling occurred isokinetically at an approximate rate of 0.75 dcfm. At least once during each traverse point, the dry gas meter volume, system vacuum, dry gas meter



temperatures (in and out), stack temperature, and filter outlet / probe temperatures were recorded for the duration of each test run.

12. **Post-Test Leak Check** – At the completion of each test run, the metering system was leak checked at the highest vacuum recorded during that run for a 60-second period. The actual leak rate was recorded on the field data sheet. All leak checks less than 0.02 CFM were considered acceptable. The pitot tube was also be leak checked as described above.
13. **Sample Recovery** - All samples were recovered according to the respective Reference Method procedures. Additional recovery procedures may be found in Section 5.
14. **Isokinetic Rate** - Once all sample recovery was completed (including moisture determination), calculations were conducted to determine the percent isokinetic sampling rate of the test run.

4.3 Mercury – EPA Method 30B (Vapor Phase Mercury)

4.3.1 Description of Methodology and Sampling Procedures

Mercury was measured in accordance with EPA Method 30B. During each Method 30B sampling run, a known volume of stack gas was drawn through paired in-stack sorbent media traps at a constant sampling rate (~1.0 lpm) for equal periods of time at each of the sampling points required by EPA Method 1 (See Figure 3-1). A synopsis of test procedures is presented below.

- First, a pretest calculation was conducted in order to choose a target volume which was expected to yield a mass of Hg (based on prior Hg tests) that is within the chosen laboratory's analytical calibration capabilities ($\geq 20\text{ng}$).
- For this test program, a target volume of 120 liters for a 120-minute test run at a sampling rate of 1.0 liters per minute was selected. This volume was expected to yield an estimated Hg mass of ~50 ng based on historical plant data. Based on this mass, three of the test programs sorbent traps were pre-spiked at 100% of the expected sample mass (50 ng). Tubes were paired (one spiked and one not spiked) for each test run.
- On site, the equipment was physically setup in accordance with the method and a valid leak check was obtained from the end of the sample probe with the sorbent traps in place. Each train was leak checked at approximately 15" Hg. The measured leak rate was required to not exceed 4 percent of the target sampling rate (in this case 0.04 liters per minute). Following a successful preliminary leak check, the two sectioned permanently inscribed sorbent tubes were re-sealed until testing commenced.
- Following verification of proper facility operating conditions, sampling was commenced by collecting a sample at the predetermined rate for equal periods of time at each of the Method 1 sampling points (in this case 10 minutes per point.) The two sorbent tubes (one spiked and



one not spiked) were sampled simultaneously. The mercury probe was placed at a total of 12 traverse points (10 minutes per point/5 minute readings) during each 120-minute sampling run.

- At the conclusion of testing, a final leak check was performed. If the leak check was valid, the tubes were capped, labeled and shipped under chain of custody for analyses.
- Following receipt of the analytical data, emission rates and quality assurance objectives were calculated in accordance with the test method. The test results were then used to evaluate the acceptability of the test results for each test run and/or test program(s). Please refer to Section 5 for details on Method 30B quality assurance objectives.

4.3.2 Description of Mercury Method 30B Sampling Equipment

Apex Instruments manufactured the specific train that was used during these tests. The design specifications of this train met all the requirements of EPA's Reference Method 30B. The following is a description of the individual components that as a whole comprised the sampling train.

- **30B Probe** – An 8-foot heated stainless steel probe was used. The in-stack end of the probe allows a leak-free installation of a pair of sorbent tubes. The sorbent tubes are heated to a temperature which prevents moisture condensation. It should be noted that long tubes (approximately 18”) were used during the current program in order to diminish the potential of moisture condensation in the sorbent material.
- **Moisture Removal Device** – A gas sorbent dryer manufactured by Apex was used to remove moisture from the sample stream. It does not allow for the quantification of moisture, rather it is solely designed to dry the sample prior to the sampling console dry gas meters.
- **Umbilical** - An umbilical, consisting of two sample lines, tygon pitot lines, K-type thermocouple wires, and electrical cords, was used to connect the sampling probe to the metering console.
- **Metering Console** – The metering console consists of a two independent sampling systems, one for each sorbent tube. Each sampling system includes a digital dry gas meter, rotameter, sampling pump, and flow rate control valves.
- **Fixed Gases** – EPA Method 3A (see full description previously presented in this section)



4.4 CEMS Pollutant/Diluent Monitoring (O₂/CO₂) – EPA Method 3A

4.4.1 Description of Methodology

In general, the sample was extracted, analyzed, and recorded in accordance with the applicable instrumental analyzer procedures. All calibrations were conducted utilizing EPA Protocol gases. The results of calibrations were used to determine the acceptability of the test data. Each analyzer used during this test program is detailed below.

Oxygen - During this test program, oxygen was monitored in accordance with EPA Method 3A, 40 CFR 60, Appendix A. Eastmount complied with instrumental analyzer procedure 3A utilizing a California Analytical (CAI) Model 200P paramagnetic oxygen analyzer operated on a 0-25% range.

Carbon Dioxide - During this test program, carbon dioxide was monitored in accordance with EPA Method 3A, 40 CFR 60, Appendix A. Eastmount complied with instrumental analyzer procedure 3A utilizing a California Analytical (CAI) Model 200P non-dispersive infrared carbon dioxide analyzer operated on a 0-20% range.

4.4.2 Description of Sampling

4.4.2.1 CEMS Sampling System Description

What follows is a description of the transportable continuous emissions monitor system that was used to quantify each of the diluents/pollutants that comprised this test program.

Sample Delivery and Conditioning System

- **Sample Probe** - A heated stainless steel probe of sufficient length to reach the CEMS stratification points identified in Table 3-1.
- **Filter** - A spun glass fiber filter contained in a heated sheath. The filter is located between the sample probe and sample line, it is designed to remove particulate from the gas stream.
- **Sample Line** - 3/8" Teflon tubing in a heated sample line designed to transport the sample gas from the probe to the sample conditioning system (in the CEMS trailer).
- **Condensers** – A thermo-electrically designed chiller was used to reduce the sample dew point to four degrees Celsius. The chiller is located just prior to the main sample pump.
- **Sample Pump** - A diaphragm type vacuum pump to draw gas from the probe through the conditioning system and to the analyzers. The pump head is made of stainless steel, the valve disks are Viton and the diaphragm is Teflon coated.



- **Sample Distribution System** - A series of flow meters, valves and backpressure regulators allows the operator to maintain constant flow and pressure conditions during sampling and calibration.

Calibration System

- **Calibration Gases** – EPA Protocol Gases certified in accordance with EPA Protocol procedures.
- **Calibration System** - A series of manual valves designed to deliver a specified gas either directly to an analyzer or through the entire sampling system by activating the appropriate valve sequence.
- **Calibration Line** – Teflon line (1/4”) run in parallel to the sample line.
- **Calibration Tee** - Stainless steel tee (3/8”) located between the probe and the filter that allows the operator to inject calibration gas through the entire sampling system. Excess calibration gas exits the probe eliminating any potential over pressurization.

Data Acquisition System

- **Computer** – A Dell Inspiron 8500.
- **Software** – Iotech data acquisition system (DAQ 56). This system is programmed to collect data once per every two seconds, while reporting 1-minute averages. This software operates in a Windows environment.

4.4.2.2 CEMS Sampling Procedures

During this test program fixed gases (O₂ and CO₂) were determined in accordance with Method 3A. Each of the reference method CEMS analyzers was calibrated through both a direct and system calibration procedure in order to ensure the validity of all data collected. First, each instrument was calibrated directly (not through the system) with zero and two upscale points, as follows:

1. Deliver zero gas to respective analyzers until stable response is obtained, then adjust each analyzers zero potentiometer or equivalent to read as close to zero as possible.
2. Deliver span gas (highest value) gas to respective analyzers until stable response is obtained, then adjust each instruments span potentiometer or equivalent to read as close to the cylinder value as possible.
3. Deliver mid-level gas to respective analyzers until stable response is obtained, then calculate if the observed value meets 2% linearity criteria specified by the method. If the calibration meets the linearity criteria, then precede to system calibration procedures. Otherwise, take corrective



action and repeat direct calibration procedures for analyzers not meeting the linearity criteria.

Following a successful direct calibration the instruments were subjected to a system calibration, as follows:

4. Deliver zero gas through the entire sampling system, record the respective analyzer responses and calculate the respective analyzers calibration biases.
5. Deliver a representative upscale calibration gas through the entire system, record the respective analyzer responses and calculate the respective analyzers calibration biases.

If initial bias criteria were satisfactorily met, a sampling run was initiated following a sufficient purge of the sampling line with stack gas (at least twice the system response time). Following the sampling run a subsequent system calibration was conducted as follows:

6. Deliver zero gas through the entire sampling system, record the respective analyzer response and calculate the respective analyzers calibration drift and biases.
7. Deliver a representative upscale (same gas cylinder as step 5) calibration gas through the entire system, record the respective analyzer responses and calculate the respective analyzers calibration drift and biases.

If all linearity, calibration drift, and calibration bias criteria were met then the collected data was considered valid and subsequent runs were permitted to be conducted. Each run was required to be bracketed by system calibrations. If calibration criteria were not met, the data collected were not considered valid, corrective action would have been taken and all calibration steps would have been repeated.

4.5 Moisture Determination – EPA Method 4

A moisture determination was made during each test run in accordance with Method 4. It should be noted that the initial condensing liquid during this test program was 0.1N H₂SO₄ rather than DiH₂O. This method modification was done with prior NHDES approval in order to combine NH₃ sampling with PM sampling train which includes moisture determination as part of the test method. A synopsis of the procedure is presented below.

1. **Sample Train Preparation** – Sample train preparation consisted of the following:
 - Place 100ml of 0.1N H₂SO₄ in impingers 1 and 2.
 - Impinger 3 is initially empty.
 - Place 200-300 grams of silica gel in the Impinger 4.
 - Record Initial volumes and weights on the field data for each impinger.



- Assemble entire sampling train.
2. **Pre-Test Leak Check** – The system was leak checked from the moisture probe tip at fifteen inches of vacuum (15"Hg) prior to the initiation of testing. A leak rate of less than 0.02 CFM was achieved prior to the start of sampling.
 3. **Sampling** – A sample was collected at an approximate rate of 0.75 dscfm. The sample gas volume, system vacuum and dry gas meter temperatures (in and out) were recorded at 5-minute intervals. The moisture sample was collected at the points identified in Table 3-1.
 4. **Post-Test Leak Check** - Upon completion of each test run, the system was leak checked from the moisture probe tip at or above the highest vacuum recorded during that run. All leak checks were required to be less than 0.02 CFM to be considered acceptable.
 5. **Sample Recovery** - The impingers were recovered quantitatively for determination of net condensate gain at the completion of each test set in accordance with Method 4 recovery procedures.



5.0 QUALITY ASSURANCE/QUALITY CONTROL

5.1 Overview

Throughout all phases of the test program, including sampling, analysis and data reduction, strict quality control procedures were adhered to. As such, sampling was conducted by personnel with extensive experience in source sampling. All Hg, PM, NH₃ and fuel samples were analyzed by Ohio Lumex, Eastmount, Maxxam and PSC Analytical, respectively. Each laboratory is thoroughly familiar with the the EPA test method(s) associated with their respective analytical requirements.

All sampling and analysis was conducted in strict accordance with EPA and NHDES requirements, as well as the quality control procedures found in the EPA Quality Assurance Handbook for Air Pollution Measurement Systems – Volume III. In addition, all chemical reagents used in sampling, recovery and analysis were certified American Chemical Society grade (unless a higher purity is specified in the Method), and all filters were specially prepared from quartz glass fiber.

Eastmount Environmental's entire equipment inventory is on a schedule of routine maintenance and calibration. This includes meter boxes, thermocouples, barometers, pitot tubes and sampling nozzles. Meter boxes are calibrated over a full range of flow rates against a wet test meter or critical orifices every six months. Thermocouples are calibrated as specified in the EPA Handbook against NIST-traceable mercury in glass thermometer. Pitot tubes are visually inspected for conformance to the dimensional criteria specified in EPA Method 2. All pitot tubes used by Eastmount meet these criteria and are assigned a pitot tube coefficient of 0.84. Pitot tubes which do not meet the criteria are either repaired or discarded.

All sampling was conducted following the procedures specified in respective test methods, including the selection of the proper number and location of sampling points, collection of gaseous sample for CEMS analysis, and maintenance of the designated flow rate. Sampling was conducted for the period of time necessary in order to collect the desired mass of the respective pollutants. Field and/or reagent blanks were collected and analyzed in accordance with the respective test methods. Please note that EPA Method 30B does not require that field or reagent blanks be collected in the field.

Sample train recovery procedures were conducted in accordance with the specific methods. Chain of custody documentation were initiated in the field and maintained on all samples from their recovery through inter-laboratory transfer until their final analysis. Analysis was conducted in accordance with the specific methods using proper laboratory procedures. Subcontracted laboratory work was conducted by qualified analytical laboratories. Analytical results were used to calculate stack gas pollutant concentrations and emission rates. All calculations were conducted in strict accordance with the equations found in the individual methods. All calculations were conducted on a computer, and the input data was checked by a person other than the original calculator to ensure that they are correct.



5.2 Method 30B QA Objectives

In order to meet the requirements of Method 30B, the following sampling quality assurance objectives were evaluated during this test program.

5.2.1 Calculation of Test Run Total Sample Volume

$$\text{SampleVolumeDeviation}_{\text{Runx}} = \frac{V_{s,\text{avg}} - V_{u,\text{Runx}}}{V_{s,\text{avg}}} \times 100$$

Where:

$V_{s,\text{avg}}$ = Average volume of gas sampled in spiked traps for the three field recovery test runs (dscm)

$V_{u,\text{Runx}}$ = Volume of gas sampled, unspiked trap in field recovery test (dscm) for each test run (Runx)

5.2.2 Calculation of Breakthrough

$$B = \frac{m_2}{m_1} \times 100$$

Where:

B = Breakthrough (%)

m_1 = Mass of Hg measured on sorbent trap section 1 (µg)

m_2 = Mass of Hg measured on sorbent trap section 2 (µg)

5.2.3 Calculation of Paired Trap Agreement

$$RD = \frac{|C_a - C_b|}{|C_a + C_b|} \times 100$$

Where:

RD = Relative deviation between the Hg concentrations from traps “a” and “b” (%)

C_a = Concentration of Hg for the sample collection period, for sorbent trap “a” (µg/dscm)

C_b = Concentration of Hg for the sample collection period, for sorbent trap “b” (µg/dscm)



5.2.4 Spiked Hg Recovery

$$R = \frac{C_{rec} \times V_s}{m_{spiked}} \times 100 \quad \text{and} \quad C_{rec} = \frac{m_s}{V_s} - \frac{m_u}{V_u}$$

Where:

- R = Percentage of spiked mass recovered (%)
- C_{rec} = Concentration of spiked compound recovered (µg/m³)
- m_{spiked} = Mass of Hg spiked in analytical bias or field recovery test (µg)
- m_s = Total mass of Hg measured on spiked trap in Field Recovery Test (µg)
- V_s = Volume of gas sampled, spiked trap in field recovery test (dscm)
- m_u = Total mass of Hg measured on unspiked trap in Field Recovery Test (µg)
- V_u = Volume of gas sampled, unspiked trap in field recovery test (dscm)

5.3 Method 5 / CTM027 QA Objectives

5.3.1 Quality Control Procedures

As part of this test program, Methods 5 (PM) and CTM 027 (NH₃) were combined into a single isokinetic sampling train. A description of the QA/QC procedures adhered to for each test run is presented in Table 5-1.



Table 5-1 QA/QC Procedures for Particulate and Ammonia Sampling

Task	Procedure
Filter/beaker preparation	<ol style="list-style-type: none"> 1. Identify filters and beakers. Wash beakers in warm, soapy water, rinse with DI water and allow to air dry. 2. Desiccate filters and beakers for 24 hours. 3. Calibrate balance to within 0.5 mg of standard daily using 1 g. and 100 g. NIST traceable weights. 4. Weigh filter and beakers to nearest 0.1 mg every six hours until two consecutive weight agree within + 0.5 mg
Glassware/ Teflon Preparation	<ol style="list-style-type: none"> 1. Wash all glassware and Teflon components in warm, soapy water. Rinse clean with tap water. Rinse thoroughly with DI water. 2. Allow to air dry and seal with parafilm. 3. Use only high purity quartz filters and glass or Teflon components.
Sampling Train Set up	<ol style="list-style-type: none"> 1. Load/assemble sampling train components in field lab. Re-seal components and send up to stack. 2. Finish assembling train on stack. Leak check train with Teflon tape on finger.
Sampling Train Operation	<ol style="list-style-type: none"> 1. Operate sampling train between 0.5 and 1.0 cfm at a probe and filter temperature of 320°F 2. Leak check train with Teflon tape on finger. Seal train components with parafilm/teflon.
Sampling Train Recovery	<ol style="list-style-type: none"> 1. Rinse and brush nozzle through front half of filter holder first with acetone (container A). 2. Return filter to petri dish (container B). 3. Collect impinger contents into HDPE bottle(s) (container C). Note volumes of each impinger. 4. Rinse filter holder back and support through impinger 3 with DiH₂O and add Container(s) C. 5. Use Teflon squeeze bottles, spatulas for recovery. 6. Obtain reagent and filter blanks.
Sample Identification and Shipping	<ol style="list-style-type: none"> 1. Identify all samples by stack, method, run no. fraction and contents. 2. Generate chain of custody form identifying all samples. 3. Ship samples to analytical laboratory.
Sample Analysis (PM)	<ol style="list-style-type: none"> 1. Receive samples; verify chain of custody/contents. 2. Evaporate front half acetone rinse in tared beaker. 3. Desiccate filters and beakers for 24 hours. Weigh at six hour intervals until two consecutive weights agree by 0.5 mg.
Sample Analysis (NH ₃)	<ol style="list-style-type: none"> 1 Receive samples, verify chain of custody/contents. 2 Calibrate IC instrumentation with four standards prior to sample analysis. 3 Inject field emissions samples in duplicate to demonstrate reproducibility (20% agreement). 4 At completion, a final four-point calibration verification is performed (5% agreement).



5.3.2 Methods 1-5 and CTM027 Equipment Calibrations

Eastmount's meter boxes, pitot tubes, thermocouples and barometers are maintained in accordance with specifications set forth in EPA "Quality Assurance Handbook for Air Pollution Measurement Systems - Volume III Stationary Source Specific Methods" Section 3.3.5 dated January 15, 1980 and with manufactures suggested procedures. A summary is presented below:

- **Dry Gas Meter and Orifice Meters (5 and 30B)** - All dry gas meters are calibrated using calibrated critical orifices, according to 40 CFR 60, Appendix A, Method 5, Section 16.2. The orifice meters in the meter control boxes are calibrated against the calibrated critical orifices and checked against the dry gas meters to which they are attached.
- **Balance** - All analytical balances are calibrated against Class M weights. A daily onsite check is also conducted using a Class S weight.
- **Thermocouples** - All type K thermocouples are calibrated against ASTM mercury in glass thermometers at three points. The first point is in an ice bath (0°C), the second point is in boiling water (100°C) and the third point is in heated oil (~220°C).
- **Pitot Tubes** - All Type "S" stainless steel pitot tubes are designed to meet the dimensional criteria set forth in Method 2, therefore a coefficient of 0.84 (Type "S") was used.

5.4 CEMS QA Objectives

Specific procedures were followed to ensure the validity of the CEMS data collected for this task. The following subsections outline the specific procedures and performance criteria that were utilized to maintain quality assurance throughout the program.

5.4.1 Leak Check

Prior to the initiation of testing, the reference method CEMS was leak checked from the end of the sampling probe by ensuring that the system vacuum reached the capacity of the sampling pump (~20"Hg) while all rotometers indicated no flow. If a leak were detected, it would have been traced, fixed and the leak check procedure would have been repeated until successful.

5.4.2 System Response Time

Prior to the initiation of sampling, a Reference Method (RM) CEMS response time was determined by taking the longer of the upscale and downscale response times. During the test program, the reference method CEMS was allowed to sample a minimum of 2.0 times the RM CEMS response time prior to the initiation of any sampling runs.



5.4.3 Determination of Stratification

Prior to compliance testing, a determination of stratification was made in accordance with Section 8.1.2 of EPA Method 7E, 40CFR 60, Appendix A. As such, a heated single opening probe was traversed for 3-minutes/point at 12 points selected in accordance with EPA Method 1. An average diluent concentration was determined for each point and subsequently compared to the average diluent concentration of all three points. If each point differed by no more than 5% or 0.3% absolute (for O₂) from the mean pollutant concentration (whichever is less restrictive) then the gas stream was not considered stratified and sampling is conducted from the point which most closely matches the average concentration. If this criterion were not met, but all points are within 10% or 0.5% (for O₂ or CO₂) then the gas stream would be considered minimally stratified and testing would be conducted at 3 points during each test run (16.7, 50 and 83.3% of stack diameter). If neither of these criteria were met, the gas stream is considered stratified and testing would be conducted in accordance with Table 1-1 or 1-2 of EPA Method 1 40CFR 60, Appendix A.

During this test program, the stratification check met the most stringent criteria. Hence, a single point sampling strategy was employed.

5.4.4 Calibration Gases

All calibration gases utilized were prepared according to EPA Protocol G1 quality standards. The cylinder gas certification sheets supplied by the vendor are presented in Appendix D3.

5.4.5 Calibration Criteria – O₂ and CO₂

The following subsections present the CEMS criteria for O₂ and CO₂ that were required to be adhered to throughout the conduct of the test program.

- **Analyzer Calibration Error (ACE)** – At the beginning of each test day an analyzer calibration error (direct calibration) was conducted for each analyzer by introducing zero and an upscale calibration gas upstream from the respective analyzers and calibrating the respective analyzers to the corresponding calibration gas value. A mid-range gas was then injected to the respective analyzers in order to demonstrate linearity. The maximum allowable calibration error is 2% of instrument span. If this limit were not achieved, corrective action would have been taken and the procedure would have been repeated until successful. Analyzer calibration error is calculated as follows:

$$ACE = \frac{(C_{Dir} - C_v)}{CS} \times 100$$

Where:



C_{Dir} = Measured concentration of a calibration gas (low, mid, or high) when introduced in direct calibration mode, %vd.

C_v = Manufacturer certified concentration of a calibration gas (low, mid, or high), %vd.

CS = Calibration span, %vd.

- **Sampling System Bias (SB)** – Following the performance of the analyzer calibration error a system bias check was conducted by introducing sampling gas through the entire sampling system (system calibration) and comparing the response of the analyzer calibration error with that of the system calibration. The maximum allowable calibration error is 5% of instrument span. If this limit were not achieved, the test run would have been voided and corrective action would have been taken. If analyzer adjustments were made the analyzer calibration error and system bias checks would have been repeated until the calibration met the EPA Method 7E criteria. System bias is calculated as follows:

$$SB = \frac{(C_s - C_{Dir})}{CS} \times 100$$

Where:

C_s = Measured concentration of a calibration gas (low, mid, or high) when introduced in system calibration mode, %vd.

- **Calibration Drift (D)** – Prior to and following each test run a system calibration was conducted in order to determine calibration drift during each test period. The maximum allowable calibration drift is 3% of instrument span. If the calibration drift were exceeded, corrective action would have been taken. If any analyzer adjustments were made, a new analyzer calibration error and system bias check would have been conducted. Calibration drift is calculated as follows:

$$D = \left| SB_{final} - SB_{initial} \right| \times 100$$

5.4.6 Calibration Drift and System Bias Correction

Each instrumental analyzer method requires the correction of CEMS data for the system bias and calibration drift observed over each test period. During this test program, all run averages were corrected for system bias and calibration drift as follows:

$$C_{Gas} = (C_{Avg} - C_o) \left[\frac{C_{MA}}{C_M - C_o} \right]$$



Where:

- C_{Gas} = Average effluent gas concentration adjusted for bias, %vd.
- C_{Avg} = Average unadjusted gas concentration indicated by data recorder for test run.
- C_{o} = Average of initial and final system calibration bias (or 2-point system calibration error) check responses from the low-level (or zero) calibration gas, %vd.
- C_{M} = Average of initial and final system calibration bias (or 2-point system calibration error) check responses for the upscale calibration gas, %vd.
- C_{MA} = Actual concentration of the upscale calibration gas, %vd.



DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-3

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 3, Line 9 – You testify, “My assignment is to evaluate the Company’s prudence with respect to management’s decisions to proceed with and complete this project, given the circumstances and market conditions confronting the Company.”

- a. Is it your contention that the Scrubber Law did not require PSNH install and have operational scrubber technology to control mercury emissions at Merrimack Units 1 and 2 no later than July 1, 2013?
- b. If that is your contention, please explain in detail the basis for that contention.

Response:

- a. No. Mr. Kahal is not expressing a legal opinion on PSNH’s obligations regarding the scrubber.
- b. Not applicable.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-4

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 3, Line 16 – You testify, “My testimony is limited to the Company’s prudence from a planning perspective, i.e., whether, given circumstances at the time, it was appropriate to proceed with and complete this very expensive project.”

- a. Is it your contention that PSNH had discretion whether or not scrubber technology had to be installed and operational at Merrimack Station no later than July 1, 2013?
- b. If that is your contention, please explain in detail the basis for that contention.

Response:

- a. See response to question (3).
- b. See response to question (3).

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-5

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 4, Line 8 – You testify, “The Company’s obligation is to obtain for its customers reliable electric service at the lowest reasonable cost, and this includes the cost of the scrubber.”

- a. Is it your contention that the Company has an obligation to ignore governing law if such law raised the ultimate cost of service to customers?
- b. If that is your contention, please explain in detail the basis for that contention.

Response:

- a. No. Also see response to question (3).
- b. Not applicable.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-9

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 6, Line 16 – You testify that “PSNH’s management acted unreasonably by failing...to give careful consideration to the logical alternatives.” Please identify all of the “logical alternatives” available to PSNH under the law.

Response: Some of the “logical alternatives” are discussed in Mr. Kahal’s testimony. Mr. Kahal is not expressing a legal opinion on the feasibility of the options. That would be for the Commission and/or New Hampshire legislature to determine.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-11

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 7, Line 23 – You testify “I have identified at least three potential alternative actions by PSNH that could meet the required mercury emissions reduction target and minimize the ratepayer burden objectives that could have been pursued if authorized by the lawful authority”

- a. Please explain what you mean by the phrase “if authorized by the lawful authority.”
- b. If any of the three potential alternative actions you identify were NOT authorized by the lawful authority, would you agree that such alternative was not available to PSNH?
- c. If you respond that an “unauthorized” alternative was still available to PSNH, please explain your response in detail.

Response:

- a. This means that such actions could be considered as appropriate alternatives if it is determined by the Commission and/or the New Hampshire legislature (or possibly another legal authority) that the alternative is legally permissible. The phrase is attempting to convey that Mr. Kahal is not expressing a legal opinion.
- b. No.
- c. Mr. Kahal is not taking a position on the legal feasibility of the options to the scrubber construction. See response to question 11 (a).

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-12

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 8, Line 4 – You testify that PSNH could have retired Merrimack Station. Upon such retirement, do you agree PSNH would still be the owner of Merrimack Station absent a sale or other transfer of the asset to some other party? **[PSNH asks this question subject to its pending Motions to Strike. If the Commission grants the relevant motion, PSNH will withdraw this question.]**

Response: Mr. Kahal is not expressing a legal opinion on this question. Notwithstanding this caveat, he believes that post retirement (if permitted), PSNH might continue to own it, or it is possible that PSNH could transfer ownership.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-42

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 27, line 2 – You refer to “a retirement scenario.”

- a. In such a retirement scenario, who would be the owner of Merrimack Station?
- b. If the scrubber law requires the owner of Merrimack Station to install and have operational scrubber technology by July 1, 2013, how would the owner be able to comply with this statutory requirement if it did nothing to install the scrubber before July 1, 2013?

[PSNH asks this question subject to its pending Motions to Strike. If the Commission grants the relevant motion, PSNH will withdraw this question.]

Response:

- a. PSNH, unless the Company transferred ownership to another entity.
- b. Mr. Kahal is not providing an opinion on PSNH's legal obligations or what compliance legally requires. Rather, this must be determined by those that make legal determinations, i.e., the Commission, the New Hampshire legislature, or other appropriate legal authorities.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-34

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 22, line 12 – Your testimony states “even though compliance is not required until July 1, 2013.”

- a. What “compliance” are you referring to in this statement?
- b. Is it your testimony that the law did not intend for emissions reductions to occur as soon as possible?
- c. What do you mean by “required” in this statement?

Response:

- a. This refers to the required completion and in-service date for the Merrimack scrubber so as to meet the 80 percent emissions reduction target.
- b. Mr. Kahal cannot attest that the law “intended” compliance prior to July 1, 2013 or “as soon as possible.” Moreover, it is not even clear what “as soon as possible” means. He also has seen no information indicating that the law “intended” that PSNH achieve compliance prior to July 1, 2013 and “as soon as possible” if doing so would be imprudent and/or unreasonably costly for customers.
- c. “Required” refers to Mr. Kahal’s understanding of the compliance deadline.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-9

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 6, Line 16 – You testify that “PSNH’s management acted unreasonably by failing...to give careful consideration to the logical alternatives.” Please identify all of the “logical alternatives” available to PSNH under the law.

Response: Some of the “logical alternatives” are discussed in Mr. Kahal’s testimony. Mr. Kahal is not expressing a legal opinion on the feasibility of the options. That would be for the Commission and/or New Hampshire legislature to determine.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-59

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 37, line 23 – You testify about a Louisiana project (Entergy Louisiana LLC's ["ELL"] "Little Gypsy Project") where, "That project ultimately was suspended and canceled, with essentially all project abandonment costs recovered by the utility."

- a. Do you agree that ELL's Little Gypsy Project did not involve the installation of a wet flue gas desulphurization system (scrubber) at an existing coal-fired generating station?
- b. Do you agree that ELL's Little Gypsy Project did involve the conversion of an existing natural gas-fired generating station to one that burned coal or coke?
- c. Your résumé at Attachment MIK-1 indicates that you have testified about construction work in progress (CWIP) many times. Do you consider yourself to have expertise regarding CWIP?
- d. Does Louisiana have an anti-CWIP statute?
- e. Are you aware of NH RSA 378:30-a, which reads:
 - **378:30-a Public Utility Rate Base; Exclusions.** – Public utility rates or charges shall not in any manner be based on the cost of construction work in progress. At no time shall any rates or charges be based upon any costs associated with construction work if said construction work is not completed. All costs of construction work in progress, including, but not limited to, any costs associated with constructing, owning, maintaining or financing construction work in progress, shall not be included in a utility's rate base nor be allowed as an expense for rate making purposes until, and not before, said construction project is actually providing service to consumers.
- f. Did the canceled Louisiana project ever "actually provid[e] service to consumers"?
- g. Is it your opinion that Entergy Louisiana, LLC would have taken the same action as it did if it was legally unable to recoup "over \$200 million in plant investment which became abandonment costs? If so, please explain why in detail.
- h. You reference the results of a study conducted by Entergy Louisiana, for which you were a participant. Please provide the detailed assumptions, methodology and results underlying the referenced study.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-59

Date of Response: February 7, 2014
Witness: Matthew Kahal

Response:

- a. Yes.
- b. Yes.
- c. Yes, in a ratemaking and financial context.
- d. Mr. Kahal is not aware of such a statute.
- e. No.
- f. No.
- g. Mr. Kahal does not know what actions Entergy Louisiana management would take under an entirely different set of factual circumstances.
- h. The study results are presented in the testimony of Entergy Louisiana witness Anthony Walz in Docket U-30192, Phase III. The details of the study are confidential but the study is described generally in his testimony.

The study is a 40-year NPV analysis involving two scenarios. The first scenario includes the “to-go” costs of the Little Gypsy Project, with the revenue requirements calculated annually over the remaining life. Energy costs were calculated at the Entergy System level using the Entergy production costing model (“Prosym”). The Little Gypsy non-fuel costs and the Prosym fuel/energy costs were summed for each year and the 40-year NPV value calculated. The second scenario eliminates the Little Gypsy Project and replaces it with a generic combined cycle unit. The same methodology is followed, with the replacement combined cycle unit (non-fuel) revenue requirements calculated each year of the study period and the Entergy System fuel/energy costs calculated using Prosym. The 40-year NPV for the “No Little Gypsy Project” scenario was then calculated. The NPVs of the two scenarios were compared to determine the most economical alternative. It is Mr. Kahal’s understanding that the updated study employed in the retirement decision showed a \$94 million NPV net loss for the Little Gypsy Project.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-67

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 46, line 18 - You also testify that “In mid-2008, ELL found itself in a circumstance very similar to PSNH,” referring to Entergy Louisiana’s “Little Gypsy Project.” Similarly, on page 9, line 12, you testify "Section V of my testimony describes similar circumstances in another state jurisdiction (Louisiana) in which the electric utility chose to cancel a major coal-fired project under development, thereby avoiding an imprudent and uneconomic investment."

- a. Was the similar circumstance pursued by ELL pursuant to a state law directing the installation of specific technology at a specific location?
- b. Was ELL subject to felony criminal conviction and/or civil penalties for failing to comply with a law mandating the project under consideration?
- c. Did the state legislature enact statutory findings determining that the Little Gypsy Project was in the public interest?
- d. Did the state legislature enact a statutory finding that the Little Gypsy Project should be completed "as soon as possible"?
- e. Did the state legislature dictate the precise technology that had to be installed in ELL's Little Gypsy Project?
- f. Did the state legislature dictate the precise location for the Little Gypsy Project?
- g. Did the state legislature specify a date in law by which the Little Gypsy Project had to be completed?
- h. Did the state legislature provide statutory incentives to ELL for early completion of the Little Gypsy Project?
- i. Do you agree that when the Louisiana PSC approved the Little Gypsy Project, it did so knowing that the cost of the Little Gypsy Repowering Project over its useful life ultimately could exceed the cost of an alternative Combined Cycle Gas Turbine?
- j. Do you agree that the Louisiana PSC found, that the fuel diversity benefit provided by the Little Gypsy Project was sufficiently important that the Project should be certified despite the risk that the cost of the Project over its useful life ultimately could exceed the cost of a CCGT?
- k. Is it true that the Little Gypsy Project had been delayed in 2008 in order to obtain additional environmental permitting?

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-67

Date of Response: February 7, 2014
Witness: Matthew Kahal

- l. Is it true that the Little Gypsy Project faced increasing commodity prices?
- m. Is it true that delays in the Little Gypsy Project created additional financing costs and additional costs for AFUDC to ELL?
- n. Is it true that at the same time ELL was pursuing the Little Gypsy Project, it was engaged in other costly projects requiring the company's capital, such as the replacement of the steam generator at its Waterford Nuclear Plant at an estimated cost of over \$1/2 Billion and storm costs from hurricanes during 2008 of nearly \$1/2 Billion?
- o. Are you aware that ELL informed the Louisiana PSC that "the projects that ELL needs to complete and ELL's need to ensure that it has adequate liquidity to address storm events counsel against undertaking an investment of the size of the [Little Gypsy] Repowering Project at this time given its declining economics."?
- p. Is it true that ELL reported to the Louisiana PSC that in 2008 "gas prices also were increasing and reaching record high levels"?
- q. Is it true that ELL reported to the Louisiana PSC that "Gas prices continued to trend upward for the remainder of the Summer of 2008"?
- r. Is It true that ELL reported to the Louisiana PSC that the Little Gypsy Project would provide a physical hedge against high natural gas prices?
- s. Is it true that ELL reported to the Louisiana PSC in 2009 that "Until very recently, natural gas prices were expected to increase substantially in future years."?
- t. Is it true that ELL reported to the Louisiana PSC that "The upward trend in natural gas prices continued into the summer of 2008 when Henry Hub prices reached a high of \$13.32/mmBtu."?
- u. Is it true that ELL reported to the Louisiana PSC that, "it should be noted that it is not possible to predict natural gas prices with any degree of certainty, and ELL cannot know whether gas prices may rise again."?
- v. Are you aware that in its Order No. U-30192 issued on March 19, 2008, that the Louisiana PSC noted "one cannot predict with certainty the ultimate cost of . . . natural gas prices over the next 30 years."?

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-67

Date of Response: February 7, 2014
Witness: Matthew Kahal

- w. Is it true that when the Louisiana PSC made the statement in the prior question, that it cited to your testimony as a Staff Witness for that proposition?
- x. Is it true that ELL told the Louisiana PSC that “The portion of [Project cancellation costs] attributable to contract cancellation costs is only an estimate, as ELL must negotiate with many of the Project vendors in order to determine the actual cancellation costs.”?
- y. Is it true that ELL told the Louisiana PSC that if the Little Gypsy Project was suspended, “if the Project were to be restarted... there could be additional costs beyond those contemplated by the current Project estimate such as, for example, storage costs and costs to treat and protect fabricated materials so that they would be available for use when the Project resumed.”?
- z. Is it true that ELL told the Louisiana PSC that “A suspension or multi-year delay in the Project would affect the permits in other, more significant ways. ELL would be required to seek renewal of existing permits, permit extensions, or new permits for the Project, including new air permits. Moreover, it is possible that any extensions, renewals, or new permits would contain new provisions that would have a significant effect on the economics or technological feasibility of the Project.”?

Response:

- a. No.
- b. Objection. The request seeks legal conclusions regarding criminal law and civil penalties.
- c. Objection. The request seeks legal conclusions regarding Louisiana statutes.
- d. Objection. See response to question PSNH 1-67 (c).
- e. Objection. See response to question PSNH 1-67 (c).
- f. Objection. See response to question PSNH 1-67 (c).
- g. Objection. See response to question PSNH 1-67 (c).
- h. Objection. See response to question PSNH 1-67 (c).

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

- i. Objection. The request asks for speculation regarding what the Louisiana PSC knew. The Order speaks for itself.
- j. Objection. See answer to (i).
- k. Yes.
- l. Yes.
- m. Yes. Financing costs and AFUDC are the same.
- n. Yes.
- o. Since no citation is provided, Mr. Kahal cannot confirm the accuracy of the quoted language.
- p. See response to question PSNH1-67 (o).
- q. See response to question PSNH 1-67 (o).
- r. See response to question PSNH 1-67 (o)
- s. See response to question PSNH 1-67 (o).
- t. See response to question PSNH 1-67 (o).
- u. See response to question PSNH 1-67 (o).
- v. Objection. The Order speaks for itself.
- w. Mr. Kahal does not dispute the assertion.
- x. See response to question PSNH1- 67 (o).
- y. See response to question PSNH 1-67 (o).
- z. See response to question PSNH 1-67 (o).

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-65

Date of Response: February 7, 2014
Witness: Matthew Kahal

Request: Page 44, line 3 – You testify that the Louisiana PSC “issued an order on May 22, 2009 approving the long-term suspension” of the Entergy Louisiana project.

- a. Are you aware that in the spring of 2009, the New Hampshire legislature decided NOT to enact legislation that would have amended or changed the Scrubber law?
- b. Did the Louisiana legislature enact any legislation specifically impacting the Entergy Louisiana project?
- c. If the Louisiana PSC had determined that it did not want “*a pause in or cancellation of the project*” is it your opinion that Entergy Louisiana would have terminated its project anyway?
- d. Do you dispute that the New Hampshire House Committee on Science, Technology and Energy on March 19, 2009, stated in its Majority Report concerning House Bill 496 that “*The majority was also concerned that the passage of this bill would lead to a pause in or cancellation of the project. This would not only have significant environmental ramifications but also would lead to the loss of several hundred short term and long term jobs related to the construction and operation of the scrubber.*”?
- e. If the Louisiana PSC had issued an order stating that cancellation of the Entergy Louisiana project “*would not only have significant environmental ramifications but also would lead to the loss of several hundred short term and long term jobs related to the construction and operation of the*” project, is it your opinion that Entergy Louisiana would still have terminated the project?

Response:

- a. No. Mr. Kahal does not know whether the asserted statement is correct.
- b. Yes. The legislature enacted legislation that would permit securitization financing of cancelled plant costs, if permitted and approved by the Commission.
- c. No. Mr. Kahal does not know what actions Entergy Louisiana management would take under an entirely different set of factual circumstances.
- d. Mr. Kahal has no knowledge of the cited report.

DE 11-250
Public Service Company of New Hampshire
Investigation of Scrubber Costs & Cost Recovery
OCA's Responses to PSNH's Data Requests – Set #1

Date Received: January 16, 2014
Request No.: PSNH 1-65

Date of Response: February 7, 2014
Witness: Matthew Kahal

- e. Mr. Kahal does not know what actions Entergy Louisiana management would take under an entirely different set of factual circumstances.

REGULAR CALENDAR

March 25, 2009

HOUSE OF REPRESENTATIVES

REPORT OF COMMITTEE

The Majority of the Committee on SCIENCE,
TECHNOLOGY AND ENERGY to which was referred
HB496,

AN ACT establishing a limit on the amount of cost
recovery for the emissions reduction equipment
installed at the Merrimack Station. Having considered
the same, report the same with the following
Resolution: **RESOLVED**, That it is **INEXPEDIENT TO**
LEGISLATE.

Rep. Nickolas J Levasseur

FOR THE MAJORITY OF THE COMMITTEE

Original: House Clerk
Cc: Committee Bill File

MAJORITY COMMITTEE REPORT

Committee:	SCIENCE, TECHNOLOGY AND ENERGY
Bill Number:	HB496
Title:	establishing a limit on the amount of cost recovery for the emissions reduction equipment installed at the Merrimack Station.
Date:	March 19, 2009
Consent Calendar:	NO
Recommendation:	INEXPEDIENT TO LEGISLATE

STATEMENT OF INTENT

While this bill is well intentioned, the committee received many hours of testimony outlining the negative and unintended consequences associated with passing the bill. The committee heard lengthy testimony from both sides and the majority decided that since the legislature mandated in 2006 for PSNH to install the scrubber without placing a limit on the costs, to choose to place a limit on the cost nearly three years later would pose significant problems. While the committee recognizes that the increase in projected cost for the scrubber is significant, there is no evidence that PSNH has acted improperly in their costing or contracting process. The majority believed that placing a cap on cost recovery for a legislatively mandated project was not only arbitrary but could constitute a taking and be unconstitutional. The majority was also concerned that the passage of this bill would lead to a pause in or cancellation of the project. This would not only have significant environmental ramifications but also would lead to the loss of several hundred short term and long term jobs related to the construction and operation of the scrubber. The committee also decided that an unofficial late amendment was too far reaching, requiring more time to debate and receive public input. As a result, the potential amendment was not considered by the committee and discussion was focused on the bill as introduced.

Vote 15-4

Original: House Clerk
Cc: Committee Bill File

Public Service Company of New Hampshire
Docket No. DE 11-250

Date Request Received: 09/27/2012
Data Request OCA-04
Request from: Office of Consumer Advocate

Date of Response: Dated: 09/27/2012
Page 1 of 1

Witness: William H. Smagula

Request:

Reference Audit page 49 regarding payments to New Hampshire Fish & Game. The Audit states that “[NH DES] required PSNH to reach an agreement with the NH Fish and Game Department.” Please specify what rule, regulation, or required permit this agreement is pursuant to or intended to be in compliance with.

Response:

As part of construction related to PSNH's Clean Air Project, potential habitat for the New England cottontail rabbit, which is listed as endangered under the Endangered Species Conservation Act (RSA212-A), was impacted. To address these impacts in the permitting process, New Hampshire Department of Environmental Services required that PSNH reach an agreement with New Hampshire Fish and Game to adopt conservation strategies to benefit the species. NH Fish & Game agreed to accept payments totaling \$50,000 to fund New England cottontail habitat and species conservation efforts.

Wetlands Bureau Decision Report

Decisions Taken
12/29/2008 to 01/04/2009

DISCLAIMER:

This document is published for information purposes only and does not constitute an authorization to conduct work. Work in jurisdiction may not commence until the applicant has received a posting permit.

Decisions are subject to appeal, and are reviewed by the federal agencies for compliance with Section 404 of the Federal Clean Water Act.

APPEAL:

- I. Any affected party may ask for reconsideration of a permit decision in accordance with RSA 482-A:10,II within 30 days of the Department's issuance of a decision. Requests for reconsideration should:
 - 1) describe in detail each ground for complaint. Only grounds set forth in the request for reconsideration can be considered at subsequent levels of appeal;
 - 2) provide new evidence or information to support the requested action;
 - 3) Parties other than the applicant, the town, or contiguous abutters must explain why they believe they are affected; and
 - 4) Be mailed to the DES Wetlands Bureau, PO Box 95, Concord, NH 03302-0095.

- II. An appeal of a decision of the department after reconsideration may be filed with the Wetlands Council in accordance with RSA 482-A:10, IV within 30 days of the department's decision. Filing of the appeal must:
 - 1) be made by certified mail to Lawrence E. Morse, Chairperson, Wetlands Council, PO Box 95, Concord, NH 03302-0095 (a copy should also be sent to the DES Wetlands Bureau);
 - 2) contain a detailed description of the land involved in the department's decision; and
 - 3) set forth every ground upon which it is claimed that the department's decision is unlawful or unreasonable.

MAJOR IMPACT PROJECT

**2008-02312 PUBLIC SERVICE OF NH
BOW Unnamed Wetland**

Requested Action:

Dredge and fill 29,155 square feet of wetlands for the installation of new air quality structures, and **contractor parking**, and roadway improvements further described as follows: Temporarily impact 2250 square feet of palustrine forested wetlands, including 1,314 cubic yards of 100-year flood plain for a chimney fabrication area, and permanently impact 26,905 square feet of scrub shrub wetlands for contractor parking and roadway improvements.

Conservation Commission/Staff Comments:

The project is proposing an in-lieu fee payment of \$ 78,157.28, into the Merrimack River Watershed Account.

APPROVE PERMIT:

Dredge and fill 29,155 square feet of wetlands for the installation of new air quality structures, and **contractor parking**, and roadway improvements further described as follows: Temporarily impact 2250 square feet of palustrine forested wetlands, including 1,314 cubic yards of 100-year flood plain for a chimney fabrication area, and permanently impact 26,905 square feet of scrub shrub wetlands for contractor parking and roadway improvements.

With Conditions:

1. All work shall be in accordance with plans by TF Moran sheets 17, 20, 21, 49, 51, 75, of 83 dated June 12, 2008, and revised through October 22, 2008, as received by the Department on October 27, 2008 and sheets 14, 27 and 52, of 83 dated June 12, 2008 and revised through December 11, 2008, as received by the Department on December 12, 2008.
2. This permit is contingent on approval by the DES Alteration of Terrain Program.
3. All activities shall be in accordance with the Comprehensive Shoreland Protection Act, per RSA 483-B. The owner is responsible for obtaining any Shoreland Permit that may be required per RSA 483-B, for construction, excavation or fill that will occur within the Protected Shoreland after July 1, 2008.
4. Removal of trees or saplings within 50 feet of the reference line must comply with RSA 483-B:9V(a).
5. The permittee shall notify the NH Division of Historic Resources of the proposed project prior to the commencement of construction.
6. Any future work on this property that is within the jurisdiction of the DES Wetlands Bureau as specified in RSA 482-A will require a new application and approval by the Bureau.
7. Work shall be done during low flow.
8. Orange construction fencing shall be placed at the limits of construction to prevent accidental encroachment on wetlands.
9. Appropriate siltation/erosion controls shall be in place prior to construction, shall be maintained during construction, and remain until the area is stabilized. Silt fence(s) must be removed once the area is stabilized.
10. Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; c) set back as far as possible from wetlands and surface waters, in all cases with a minimum of 20 feet of undisturbed vegetated buffer.
11. The applicant is to restore 35,485 square feet (1,314 cubic yards) of the 100-year flood plain impacted as part of this project by the expiration date of the wetland permit.
12. Area of temporary impact shall be regraded to original contours following completion of work, and all materials shall be removed from jurisdiction and from the 100-year flood plain.
13. All material removed during work activities shall be placed out of DES's jurisdiction.
14. Mulch within the restoration of the temporary impact area that is also within wetlands shall be straw.
15. Seed mix within the restoration area shall be a seed mix appropriate to the area and shall be applied in accordance with manufacturers specifications.
16. Within three days of final grading in an area that is in or adjacent to wetlands or surface waters, all exposed soil areas shall be stabilized by seeding and mulching during the growing season, or if not within the growing season, by mulching with tack or netting and pinning on slopes steeper than 3:1.
17. Where construction activities have been temporarily suspended within the growing season, all exposed soil areas shall be

stabilized within 14 days by seeding and mulching.

18. Where construction activities have been temporarily suspended outside the growing season, all exposed areas shall be stabilized within 14 days by mulching and tack. Slopes steeper than 3:1 shall be stabilized by matting and pinning.

19. Silt fencing must be removed once the area is stabilized.

20. The contractor responsible for completion of the work shall utilize techniques described in the DES Best Management Practices for Urban Stormwater Runoff Manual (January, 1996) and the Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire (August, 1992).

21. This approval is contingent on receipt by DES of a one time payment of \$ 78,157.28, to the DES Aquatic Resource Mitigation (ARM) Fund. The payment shall be received by DES within 120 days of the date of the approval letter or the application will be denied.

22. The applicant shall provide a report to NH DES Wetlands including those areas identified for potential New England Cottontail Habitat enhancement. This report shall include the, locations, and status of the enhancements proposed.

23. The applicant shall provide receipts or alternate evidence, by January 1, of the next 5-years that they have contributed to the 5-year program designed to identify, manage and foster potential habitat for the New England Cottontail within existing PSNH Right-of-Ways.

24. This permit is contingent upon the execution of a conservation easement on 10.3 acres as depicted on plans by TF Moran dated September 15, 2008, as received by the Department on October 22, 2008.

25. The conservation easements to be placed on the preservation areas shall be written to run with the land, and both existing and future property owners shall be subject to this easement.

26. The plan noting the conservation easement with a copy of the final easement language shall be recorded with the Registry of Deeds Office. A copy of the recording from the County Registry of Deeds Office shall be submitted to the DES Wetlands Bureau prior to the start of construction within wetland jurisdiction.

27. Signs to indicate the location of and restrictions on the area shall be posted every 150 feet along the boundary of the conservation area prior to construction.

28. The conservation easement area shall be surveyed by a licensed surveyor, and marked by monuments [stakes], by February 1, 2009.

29. There shall be no removal of the existing vegetative undergrowth within the easement area, except as overseen by the NH Fish and Game Department for the enhancement or management of habitat for New England Cottontail.

30. The placement of fill, construction of structures, and storage of vehicles or hazardous materials is prohibited within the easement area.

31. Activities in contravention of the conservation easement shall be construed as a violation of RSA 482-A, and those activities shall be subject to the enforcement powers of the Department of Environmental Services (including remediation and fines).

32. The applicant shall install permanent signs every 50 feet establishing the 100 foot no-cut buffer from the existing vernal pool on the site.

33. A post-construction report documenting the status of the restored temporary impact area, including photographs shall be submitted to the Wetlands Bureau within 60 days of the completion of construction.

With Findings:

1. This is a major impact project per Administrative Rule Env-Wt 303.02(c); Projects that involve alteration of nontidal wetlands, nontidal surface waters, and banks adjacent to nontidal surface waters in excess of 20,000 square feet in the aggregate.

2. The proposed scrubber has been mandated to be installed by the NH Legislature per HB 1673.

3. The size and weight of the sections of the chimney require the fabrication area in close proximity to the installation location.

3. The need for the proposed impacts has been demonstrated by the applicant per Env-Wt 302.01. 4. The security requirements of the plan and the safety of employees limits the location of the parking areas.

5. The applicant has provided evidence which demonstrates that this proposal is the alternative with the least adverse impact to areas and environments under the department's jurisdiction per Env-Wt 302.03.

6. The applicant has demonstrated by plan and example that each factor listed in Env-Wt 302.04(a), Requirements for Application Evaluation, has been considered in the design of the project.

7. DES Staff conducted a field inspections of the proposed project on May 22, 2008 and October 6, 2008. Field inspection observed the wetlands to be impacted by the chimney fabrication area are within the 100-year flood plain, the wetlands proposed to be impacted as part of the contractor parking area are scrub shrub and part of a larger wetland complex. The greatest area of impact is alongside the existing roadway and has been disturbed in the past.

8. In accordance with RSA 428-A:8, DES finds that the requirements for a public hearing do not apply as the permitted project is not of substantial public interest, and will not have a significant impact on or adversely affect the values of the resources, as

identified under RSA 482-A:1.

9. The applicant has conserved through a conservation easement 10.3 acres, to be held by the Town of Bow.

10. The applicant has reviewed on-site options for mitigation and the department has determined that this project is acceptable for payment to the Aquatic Resource Mitigation (ARM) Fund.

11. The payment calculated for the proposed wetland loss equals \$78,157.28.

12. The Department decision is issued in letter form and upon receipt of the ARM fund payment, the Department shall issue a posting permit in accordance with Env-Wt 803.08(f).

13. The payment into the ARM fund shall be deposited in the DES fund for the Merrimack River watershed per RSA 482-A:29.

14. The applicant received an approval of the request for vested rights under the Comprehensive Shoreland Protection Act on October 22, 2008.

15. The applicant received an approval, WPS-8261, from the Alteration of Terrain Program on November 13, 2008.

MINOR IMPACT PROJECT

**2008-00384 CLARIDGE, JOHN
SANBORNTON Unnamed Wetland**

Requested Action:

Dredge and fill 776 square feet to replace an existing 30-inch x 35 foot culvert with a 2.25 x 2-foot x 40 foot box culvert for road access in the subdivision of approximately 34 acres into 6 single family residential lots.

APPROVE PERMIT:

Dredge and fill 776 square feet to replace an existing 30-inch x 35 foot culvert with a 2.25 x 2-foot x 40 foot box culvert for road access in the subdivision of approximately 34 acres into 6 single family residential lots.

With Conditions:

1. All work shall be in accordance with plans by Eckman Engineering dated November 19, 2007, and revised through November 25, 2008, as received by the Department on December 1, 2008, and Subdivision Plans by Central Land Surveying dated September 16, 2008, as received by the Department on September 18, 2008.
2. This permit is contingent on approval by the DES Subsurface Systems Bureau.
3. There shall be no further alteration of wetlands for lot development, driveways, culverts, or for septic setback.
4. The deed which accompanies the sales transaction for each of the lots in this subdivision shall contain condition #3 of this approval.
5. This permit shall not be effective until it has been recorded with the Registry of Deeds Office by the Permittee. A copy of the recorded permit shall be submitted to the DES Wetlands Bureau.
6. This permit is contingent on review and approval, by the DES Wetlands Bureau, of final stream diversion/erosion control plans. Those plans shall detail the timing and method of stream flow diversion during construction, and show temporary siltation/erosion/turbidity control measures to be implemented.
7. Orange construction fencing shall be placed at the limits of construction to prevent accidental encroachment on wetlands.
8. Work shall be done during low flow.
9. Appropriate siltation/erosion controls shall be in place prior to construction, shall be maintained during construction, and remain until the area is stabilized.
10. Appropriate turbidity controls shall be installed prior to construction, shall be maintained during construction such that no turbidity escapes the immediate dredge area, and shall remain until suspended particles have settled and the water at the work site has returned to normal clarity.
11. Native material removed from the streambed during culvert installation, shall be stockpiled separately and reused to emulate a natural channel bottom within the culvert. Any new materials used must be similar to the natural stream substrate and shall not include angular rip-rap.
12. Prior to commencing work on a substructure located within surface waters, a cofferdam shall be constructed to isolate the

NH PUC Docket No. DE 11-250
Conservation Law Foundation Responses to
PSNH Data Requests, Set 1

Date of Request: January 16, 2014

Date of Response: April 29, 2014

Q-PSNH-7. Page 3: Regarding your experience with coal plants:

- a. Describe your experience working directly with coal plant operations and/or investment decision-making.
- b. Provide a detailed summary of your experience with large construction projects, particularly at coal-fired power plants, identifying the type of project, the plant, the cost of construction, the timeframe, and your role.
- c. Please provide a summary of all other site-specific work you have been involved with at coal-fired facilities.

Witness: Dr. Elizabeth Stanton

Objection: CLF objects to the extent that this request is overbroad, unduly burdensome and not reasonably calculated to lead to admissible evidence.

Supplemental Response: Without waiving the objection, (a) Dr. Stanton has not worked directly at coal-fired facilities, and therefore (b) has not worked on large construction projects at coal-fired plants or (c) done other site specific work at coal-fired plants.

FINDINGS OF FACT AND DIRECTOR'S DECISION

In the Matter of the Issuance of a Temporary Permit To Public Service Company of New Hampshire, Merrimack Station Located in Bow, New Hampshire

The New Hampshire Department of Environmental Services, Air Resources Division (DES) implements a construction permit program for new stationary sources or stationary sources making modifications. The permitting thresholds for this program are specified in New Hampshire Code of Administrative Rules, Env-A 607.01, *Specific Applicability for Temporary Permits*. Construction permits, also called “Temporary Permits” are issued for a period of 18 months. The Temporary Permit allows the facility to construct and operate a device based on terms and conditions specified in the permit. In some cases, the Temporary Permit requires certain testing to be completed in order to verify compliance with permit terms and conditions once the device is constructed and operational.

There are typically four phases in the Temporary Permit process. They are as follows:

- First, an applicant files an application to obtain a Temporary Permit. Once the application is received by DES, it undergoes an initial review to ensure that the necessary information has been submitted.
- DES then undertakes an extensive technical review. This may include, but is not limited to, facility site visits and an analysis of historical information. Once DES has completed this technical review and is confident that the application accurately reflects the facility’s operations, DES develops a “draft Temporary Permit.” The draft Temporary Permit contains all applicable regulatory requirements (both state and federal) that pertain to the facility. The draft Temporary Permit may also contain certain testing requirements to verify compliance with permit terms and conditions.
- Once the draft Temporary Permit is prepared, a notice is published as required by Env-A 621, *Permit Notice and Hearing Procedures: Temporary Permits and Permits to Operate*. The public, the United States Environmental Protection Agency (EPA), and any other interested parties are invited to submit comments on the draft Temporary Permit. An opportunity for a public hearing is also provided.
- After all public comments have been received and evaluated by the DES, a final determination regarding the permit is made by the Director of the Air Resources Division (Director). If the determination is favorable, the draft Temporary Permit is finalized and issued. A draft Temporary Permit may be modified as a result of comments received during the public comment period. If modified, a formal document is generated to address changes made to the draft Temporary Permit. This document is called the “Findings of Fact and Director’s Decision.”

Any person aggrieved by the Director's decision can file a notice of appeal within 10 days of issuance of the final Temporary Permit, with the Air Resources Council in accordance with the provisions of Env-A 621.10, *Appeals*, and Env-AC 200, *Procedural Rules*.

Background

Public Service Company of New Hampshire (PSNH) operates Merrimack Station, a fossil-fired electric generating facility in Bow, New Hampshire. The two primary electric generating units are utility boilers that combust coal to generate steam. The steam drives a turbine generator to produce electricity for sale to the utility grid.

The two utility boilers (units MK1 and MK2) primarily burn bituminous coal. The facility also operates two standby combustion turbines which burn No. 1 fuel oil or JP-4, in addition to an emergency generator which burns No. 2 fuel oil or diesel fuel and an emergency boiler which burns No. 2 fuel oil or diesel fuel.

Units MK1 and MK2 have maximum heat input ratings of 1,238 and 3,473 million British thermal units per hour (MMBtu/hr), respectively. The flue gas from these units passes through pollution control equipment, including selective catalytic reduction (SCR) systems to control NOx emissions, and electrostatic precipitators (ESP) to control particulate matter emissions.

On June 6, 2007, PSNH filed an application requesting to install and operate a flue gas desulfurization (FGD) system to reduce mercury emissions. A co-benefit of the FGD system will be significant reductions in sulfur dioxide. **New Hampshire state law (RSA-125:O) requires PSNH to undertake this project** and to file an application for a Temporary Permit with DES no later than June 8, 2007. Supplemental information was submitted on September 4, 2007, April 17, 2008, October 24, 2008, November 21, 2008 and December 11, 2008.

In accordance with Env-A 621, *Permit Notice and Hearing Procedures: Temporary Permits and Permits to Operate*, a notice of request for public comments and a public hearing was published in the *Concord Monitor* on December 11, 2008. The same notice was also placed in the *Union Leader* on December 12, 2008. The notice invited public comment and indicated that a public hearing for the Temporary Permit was scheduled on January 15, 2009 at the DES offices in Concord, New Hampshire. The notice also stated that any comments received during the public comment period or at the public hearing would be considered in making a final decision. The notice stated that the deadline for written comments was January 23, 2009.

During the public hearing, several citizens offered testimony and comments both supporting and opposing this Permit application. Written comments were also received by DES prior to the January 23, 2009 deadline. The applicant was provided a copy of the written comments in accordance with Env-A 621.08, *Opportunity for Response*, but did not provide a written response.

Summary of RSA 125-O

This permit application was filed for the purpose of complying with RSA 125-O, *Multiple Pollutant Reduction Program*. Some of the main requirements of RSA 125-O are summarized below.

- **RSA 125-O:13 requires PSNH to install a FGD system to control mercury emissions from Merrimack Station Units MK1 and MK2 no later than July 1, 2013.** It also encourages and provides incentives for PSNH to achieve mercury reductions prior to the installation of the FGD system.
- Mercury reductions achieved through the operation of the FGD system greater than 80 percent shall be sustained insofar as the proven operational capability of the system, as installed, allows (RSA 125-O:13, V).
- RSA 125-O prohibits the purchase of mercury credits or allowances to comply with the mercury reduction requirements (RSA 125-O:13-VI).
- RSA 125-O:14 and RSA 125-O:15 establish coal sampling, measurement, and emissions monitoring requirements for periods prior to and following the installation and operation of the FGD system.

Summary of Best Available Retrofit Technology (BART) Requirements under the Regional Haze Program

The Code of the Federal Regulations, 40 CFR Part 51, Subpart P (known as the Regional Haze Rule) includes provisions to improve visibility in 156 national parks and wilderness areas across the United States. These areas are known as Class I areas, two of which are located in New Hampshire—the Great Gulf Wilderness area and the Presidential Range – Dry River Wilderness area, both located in the White Mountain National Forest. The regional haze provisions require New Hampshire to develop a state implementation plan (SIP) to establish reasonable progress goals for visibility improvement and to develop a long-term strategy for meeting these goals. To help attain these goals, the Regional Haze rule requires the implementation of the Best Available Retrofit Technology (BART) at certain existing sources that began operation between 1962 and 1977. Many states may also need to develop specific emission reduction programs to attain these visibility goals.

Since this program requires planning on a region-wide basis, the United States Environmental Protection Agency (EPA) and states decided to develop regional planning organizations across the United States. New Hampshire is part of MANE-VU – the Mid-Atlantic/Northeast Visibility Union consisting of eleven mid-Atlantic and northeastern states¹, the District of Columbia and two Indian Tribes. MANE-VU conducted a study to determine which sources contribute the most to visibility impairment. MANE-VU developed a list of 167 distinct emission units that are the top contributors. Units MK1 and MK2 at PSNH Merrimack Station are on this list. Unit MK2 at Merrimack Station is also one of two New Hampshire

¹ MANE-VU state members include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Director's Decision

After consideration of the Temporary Permit Application, supplements thereto, and all public comments, the application is approved subject to the revisions to the draft permit noted above, and a final Temporary Permit is hereby issued.

Pursuant to RSA 125-C:12, III and Env-A 621.10, *Appeals*, any person aggrieved by this decision may file a petition for appeal with the Air Resources Council which shall be received within 10 days of the date below. Such appeal and 15 copies shall be filed in accordance with the provisions of Env-AC 200, *Procedural Rules* and forwarded to the Chair of the Air Resources Council at the address below:

Chair of the Air Resources Council
c/o DES, Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: ARC Clerk

 **COPY**

Robert R. Scott
Director
Air Resources Division

March 9, 2009
Date

cc: Town of Bow
Public Hearing Attendees/Public Commenters
David B. Conroy, EPA Region I



Date: April 11, 2006
Time: 3:40 P.M.
Room: LOB RM 102

The Senate Committee on Energy and Economic Development held a hearing on the following:

HB 1673-FN relative to the reduction of mercury emissions.

Members of Committee present: Senator Odell
 Senator Letourneau
 Senator Boyce
 Senator Bragdon
 Senator Burling

The Chair, Senator Bob Odell, opened the hearing on HB 1673-FN and indicated that anyone who wishes to speak today to please make sure you have signed up, because when we get done the sign up list, that will be it. And the second part of it is that, I know people feel strongly about this bill, both ways. I hope you'll be collegial with everyone. And third, if you could limit your comments to new information, not previously stated by predecessors, speakers, I would appreciate it very much. With that I'll call on the sponsor of the bill, Representative Larry Ross to introduce the bill.

Representative Larry Ross, Hillsborough, District 3: Thank you, Mr. Chairman and members of the Committee.

Senator Bob Odell, D. 8: Good afternoon Representative Ross.

Representative Ross: I'm glad to be here today and if you don't mind I would like to give you just a little background on how we got here today with HB 1673-FN. And, first of all I would like to thank the members of the Senate, that about one year ago sent SB 128 to the House was insurance. That bill came over and as you know was retained by the Science, Technology and Energy Committee for further study and I can assure you that it received plenty of study and plenty of emphasis in the Committee. A lot of work was going into it and primarily the outcome of the Committee deliberations of SB 128 were that with everything that was going on in the energy environment at that time, it makes sense to

Senator Bob Odell, D. 8: When we get to a point where we have some that aren't speaking then ... so we've got ...

Senator Peter H. Burling, D. 5: I don't want to miss out on a single thing. I'll be back.

Senator Bob Odell, D. 8: How long do you think Senator Burling you'll be gone? (Laughter).

Senator Peter H. Burling, D. 5: Literally five minutes. I'll be right back

Senator Bob Odell, D. 8: All right. Then I'm going to call on Sally Davis, League of Women Voters New Hampshire. Good afternoon.

Sally Davis, League of Women Voters New Hampshire: Good afternoon. As you'll see at the end, I signed Jane Armstrong's signature with my initials after it because she couldn't get to my house to sign.

My name is Sally Davis. I am a past President of League of Women Voters and follow legislation here in Concord fairly frequently. I've been a member of the League of Women Voters since 1966 in several states and was a part of the original study on air quality back in the '70's, and feel pretty (inaudible) with what we have studied and worked on through the years. So this is to the New Hampshire Senate Energy and Economic Development Committee regarding HB 1673.

Please see prepared testimony of Jane Armstrong, President, League of Women Voters of New Hampshire, dated April 11, 2006, submitted and read to Committee by Sally Davis attached hereto and referred to as Attachment #9.

Senator Bob Odell, D. 8: Thank you Ms. Davis. Any questions? Seeing none, thank you very much. And I'll call on Bob Scott, Department of Environmental Services.

Mr. Bob Scott, Air Resources Division, Department of Environmental Services: Mr. Chairman.

Senator Bob Odell, D. 8: Good afternoon Mr. Scott.

Mr. Scott: Good afternoon. I will attempt to be brief. Obviously the main points have already been raised and I do not like to be repetitious. First of all, I'll hand out our testimony letter and also, if it helps the Committee, a really, a one pager kind of outlining the major points of the bill.

Please see prepared testimony of Mr. Michael P. Nolin, Commissioner, the Department of Environmental Services, submitted by Mr. Bob Scott and also an "Overview of HB 1673," attached hereto and referred to as Attachment #10.

Well, at least for me that works better. And finally, since it came up in recent conversation, potential financial impacts to the ratepayers. Much of what I was going to say again has been covered, so I'll try not to be repetitious. I do want to make the point that this is not a new thing for DES; we've been working on this for well over two years. We originally ... we had the Clean Power Act which required the DES to make a recommendation to the legislature, which we did two years ago, and we've been working on this issue every since. And why I say that is I want to ... it's been said that this bill certainly is a compromise, we've vented this issue through many, many resources. I'm very fortunate to have some very good engineers and scientists at the Department, and frankly I have available to me through other venues, other state agencies from other states, so we would avail ourselves to their knowledge also.

So having said that perhaps I could address more directly some of the concerns raised, so at least you know as we debated this issue and came ... this ... what you see in the bill, how we got there, perhaps that would help you a little bit. On the time frame, can it be done sooner? I want to point out, and PSNH alluded to it, but I want to drive it home a little bit more, that plant as it is, Merrimack II, which again the control to be required from Merrimack I and II. But Merrimack II, the largest plant was built in 1968. It now has two ESP's on it which are Electrostatic Precipitators for DL control and its NO_x controls. In order to add yet another layer of control, what we're talking about if you've been to the plant, is putting a brand new stack in, reinforcing the boiler, redesigning certain parts, moving the control equipment; we're not talking just about taking this box here and adding this box. We're talking very major installation changes to the facility, perhaps even depending on the water discharge if there's an issue there of maybe even a cooling tower. These are all very significant. So I'm not here to say that you won't see something before 2013, what I do want to make sure is that this is not an easy thing for the existing plant. In many ways it's easier with a new plant than an existing plant.

And having said that, I have a lot of faith in PSNH and frankly I hope to see something installed sooner. **In discussing this bill we planned incentives to give PSNH a reason to do it as soon as possible.** It works out financially best for them the sooner they do this. I think that's an important point.

Percentage, we heard some people talk about ... they said the eighty percent and again I'll caveat, the eighty percent is not at that particular plant. The eighty percent is at, of all their coal units, there is three at Schiller also on the seacoast. Those controls they put on Merrimack need to meet the eighty percent for all of that, where I believe that we'll see a higher rate most likely. Can I guarantee you'll see a higher rate? Absolutely not. Again, this is a unique plant. So with that in mind, again we built in incentives to make the company want to do the best they can to get the highest rates possible. And again as it's been mentioned, once the scrubber technology is installed, and I will say scrubber technology is not something you dial up and dial down it's ... you get your reductions. There may be some minor tweaks that can be made to optimize it. For the most part, once that's installed and that is the best technology available today, once that's installed we will get what we get out of it to make it very simple. What we put in the bill is, "Gee, if we get ninety-two point seven percent" or whatever it is, we can lock that in and so we don't need anything on the table environmentally. But we've also provided again, economic incentives to provide the company a reason to try to do the best that they can.

It's also been raised, why are we being prescriptive? Why are we in this regular ... in this law to PSNH to put in a scrubber? And I have to take some personal responsibility for that; I advocated for that myself. Why would I do that? Everybody, including myself I think agrees that we want to see mercury reductions, a high level of mercury reductions sooner than later. We know today that the installation of scrubbers which have a wonderful benefit of SO₂ reductions, also reduce mercury at a high percentage. That is today the best technology, especially taking in to account the multi-pollutant benefits that we know of. What we wanted to avoid is extra time being given, another year, two years of a selection process, what's the best technology, the owner's having to go to PUC to convince them that this is the best technology, and then perhaps having some other company come in and say, "Well, I had this new alchemy and I can do something even better." That's all fine and dandy, but what we're concerned about is we don't want to have this as a method where we're constantly delaying the installation. By calling out scrubber technology in the bill, we're signaling PSNH from the word go to start to engineer, design and build scrubber technology right away. The bill has in it, within one year of passage of the bill, they are required to have all their applications in to us, which means there's a lot of engineering work they have to do. This is starting ... this is in the ground writing for the plan, and this is why we did that.

Costs to the ratepayer, again this needs to be looked at in the context of the existing New Hampshire law which puts a fairly stringent requirement on the utility for SO₂, again by having to buy SO₂ credits.

doc

This is the same law under 125:0 that is being amended should this bill pass. What this does is because of that existing requirement, again it's been mentioned PSNH and again I'll mention it, 2007, when that kicks in, they are required to buy, since they won't have the scrubber's installed yet, roughly over twenty million dollars worth of SO₂ credits to comply with our state law, not the federal law. With that in place, that makes installation of scrubbers very economical such that as you look at the chart, ultimately it ends up being a cost savings to the ratepayer because the facility no longer has to buy as many of these credits to meet the current state law.

Please see "Mercury Compliance Cost - Annual Rate Impacts," submitted by Mr. Bob Scott, Air Resources Division, Department of Environmental Services, attached hereto and referred to as Attachment #11.

And finally Senator Letourneau is not here, so I won't go on to much. Yes the state is very involved in legal action regarding mercury from other places and cleaner mercury rule as many of you know that we're suing the federal government, frankly over, so that that is our attempt to make sure, not only are we doing the right thing in the state, but to make sure we are not receiving mercury, unnecessarily from outside.

And as a final note I will add this is a problem, again for Senator Letourneau who is not here, the "hot spot" issue. Yes we're getting mercury pollution from outside sources, very definitely. But we're also because of the NO_x technology that would be required beyond these units; it had the impact of oxidizing the mercury that does come out of the stack. Because of that, that exacerbates the local problem. And as I said before, I call out that no good deed goes unpunished. PSNH was doing the right thing to do that, but now we've had ... they have unintended consequences. This is a way to fix that consequence also. With that I'll gladly take any questions.

Senator Bob Odell, D. 8: Questions for Bob Scott? You are the top air quality person in the State of New Hampshire in the state government.

Mr. Scott: I was a director there for Resource Community Health. (Laughter).

Senator Bob Odell, D. 8: I've heard some ... we've had some comments made today that we're falling behind the state, other states and we're not up to quality and I, and yet from the consensus statements people have made, in particularly the chart that Mr. Harrington gave, I would think that this is, we're the seventh state in the country to do this, that this is

pretty progressive. I mean this is stepping up and building a consensus that hopefully will get a strong vote here in the Senate?

Mr. Scott: I argue that characterization. And I, and again I'll remind everybody that we'll look at what other states are doing and it's so progressive, they're requiring, for the most part, the installation of scrubbers. That's what we're requiring.

Senator Bob Odell, D. 8: Thank you very much. Appreciate it.

Mr. Scott: Thank you.

Senator Bob Odell, D. 8: Appreciate your efforts.

Mr. Scott: In final, I do want to say how pleased I am to be able to talk on this bill.

Senator Bob Odell, D. 8: Good. Thank you.

Mr. Scott: Thank you.

Senator Bob Odell, D. 8: I'll call on Catherine Corkery from New Hampshire Sierra Club.

Ms. Catherine Corkery, New Hampshire Sierra Club: Sir, if I could switch places with Georgia Murray from AMC?

Senator Bob Odell, D. 8: Okay.

Ms. Corkery: She's got a lot further ride home than I do. (Laughter).

Senator Bob Odell, D. 8: All right. So then do you want to speak after?

Ms. Corkery: Or wherever she was, or whatever you'd prefer.

Senator Bob Odell, D. 8: All right. Consider yourself switched.

Ms. Corkery: Thank you. I appreciate that.

Ms. Georgia Murray, Appalachian Mountain Club (AMC): Okay, I have a handout. For the record, I'm Georgia Murray. I'm the Appalachian Mountain Club's Air Qualities Staff Scientist and I appreciate this opportunity to speak here at this hearing.



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES
Air Resources Council



PO Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Appeals Clerk Telephone (603) 271-6072 - TDD Access: Relay NH 1-800-735-2964
DES Website: www.des.nh.gov - Council Website: <http://www.des.nh.gov/councils/>

September 20, 2010

Via E-mail and Regular Mail

Arthur B. Cunningham, Esq.
P.O. Box 511
Hopkinton, NH 03229

Via E-mail and Regular Mail

Melissa A. Hoffer, Esq.
Conservation Law Foundation
27 North Main Street
Concord, NH 03301

Via E-mail and Regular Mail

Evan J. Mulholland, Assistant Attorney General
Office of Attorney General
Environmental Protection Bureau
33 Capitol Street
Concord, NH 03301

Via E-mail and Regular Mail

Barry Needleman, Esq.
Gregory Smith, Esq.
McLane, Graf, Raulerson & Middleton
Professional Association
11 South Main Street, Suite 500
Concord, NH 03301

Re: Docket No. 09-10 ARC – New Hampshire Sierra Club, et al.
Docket No. 09-11 ARC – Conservation Law Foundation

Dear Attorneys Cunningham, Hoffer, Mulholland, Needleman, and Smith:

Enclosed you will find the NH Air Resources Council's Decision and Order on Pending Motions and Decision and Order On Appeals.

If you have any questions, please contact me at (603) 271-6072 or by e-mail at amy.samson@des.nh.gov.

Sincerely,

COPY
Amy Samson, Appeals Clerk
NH Air Resources Council

cc: NH Air Resources Council
Town of Bow
ec: Thomas S. Burack, Commissioner, DES
Robert R. Scott, Director, DES Air Resources Division
Craig Wright, Assistant Director, DES Air Resources Division
Pamela G. Monroe, Compliance Bureau Administrator, DES Air Resources Division
Barbara Hoffman, Enforcement Section Supervisor, DES Air Resources Division
K. Allen Brooks, NH DOJ
Anthony I. Blenkinsop, NH DOJ
Linda Landis, PSNH
Ida McDonnell, USEPA, Region I
DES Public Information Officer



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DEPARTMENT OF ENVIRONMENTAL SERVICES
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DES Website: www.des.nh.gov - Council Website: <http://www.des.nh.gov/councils/>

STATE OF NEW HAMPSHIRE

AIR RESOURCES COUNCIL

Decision & Order

On Appeals

Docket Nos. 09-10 ARC and 09-11 ARC

Appeals of NH Sierra Club et al and Conservation Law Foundation
In Re: March 9, 2009 Temporary Permit TP-0008 PSNH Merrimack Station

Background and Burden of Proof:

On March 9, 2009, the New Hampshire Department of Environmental Services (“DES”) issued Temporary Permit TP-0008 to the Public Service Company of New Hampshire (“PSNH”). On March 15, 2010 and July 2, 2010, the Air Resources Council¹ convened in Room 110 of the Department of Environmental Services for the hearing on the merits of appeals 09-10 and 09-11, filed by the New Hampshire Sierra Club (“NHSC”) and the Conservation Law Foundation (“CLF”) respectively, regarding Temporary Permit TP-0008. The respondents in these appeals are PSNH and DES. All of parties to the appeals were represented by counsel.

The procedural history of these appeals is lengthy and voluminous, including extensive motion practice by the parties, numerous meetings of the Council, and pre-hearing conferences. The Council issued prior orders concerning the issues to be considered on appeal. Consistent with those orders, the issues on appeal are:

- A. Whether the MK2 turbine modifications should have been included with and/or aggregated to the scrubber permit application.

¹ Members sitting: Presiding Officer Raymond Donald, Steve Walker, Robert Hickey, Terry Callum, Ryan Bielagus.

Docket No. 09-10 ARC – New Hampshire Sierra Club, et al.
Docket No. 09-11 ARC – Conservation Law Foundation
Order
September 20, 2010
Page 7 of 8

C. Whether DES considered the proper baseline years in issuing the permit in question.

In considering and issuing the permit in question DES considered the baseline years of 2006 and 2007. In the notices of appeal, the appellants argued that baseline years preceding 2007 should have been used. The Council finds and concludes that neither appellant has provided any evidence or argument in support of the contention that DES considered improper baseline years in issuing the permit in question, and/or should have utilized other baseline years. Alan Hekking, the only witness called by either of the appellants, testified that he did not have an opinion on this issue. Gary Milbury of DES testified regarding the reasons the baseline years in question were used. Specifically, Mr. Milbury testified that the baseline years of 2006 and 2007 were used because they represented the preceding 24-month period from when PSNH filed the demonstration in January of 2008.

In light of the evidence before the Council on this issue, and considering the appellant's burden on appeal, the Council finds and concludes that the appellants have not proved by a preponderance of the evidence that DES considered the improper baseline years in issuing the permit in question.

Order:

Based on the foregoing, the Council finds and concludes that the appellants, NHSC and CLF, have failed to satisfy their burden on appeal.

Docket No. 09-10, Motion to Deny the Appeal of NHSC – GRANTED (5-0).

Docket No. 09-11, Motion to Deny the Appeal of CLF – GRANTED (5-0).

Both appeals are hereby **DENIED**.

Rulings on requests for findings of fact and conclusions of law:

PSNH:

Requests 1-8, 83 (first sentence) are neither requests for findings of fact or rulings of law, therefore, the Council makes no ruling on them.

Granted: 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 (with the exception of the "1" after April), 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 59, 61, 62, 63, 64, 66, 67, 68 (first sentence), 69, 70, 71, 72, 75, 76, 77, 78, 79, 80, 81, 82, 83 (second sentence), 84 (second, third, and fourth sentences), 85, 86, 87, 88, 89, 90, 91 (first sentence), 92, 93, 94, 95, 96, 101, 103, 104, 105, **107**, 108, 109, 110, 111, 112, 113, 114, 115,

Docket No. 09-10 ARC – New Hampshire Sierra Club, et al.
Docket No. 09-11 ARC – Conservation Law Foundation
Order
September 20, 2010
Page 8 of 8

116 (to the extent Env-A requires NHDES to, within 60 days of receipt of an application, notify the applicant that said application is deemed complete or request that the applicant submit information in accordance with Env-A 607.03(b)), 117 (third and fourth sentences), 118, 120, 121 (first sentence)

Denied: 60 (as the Council only dismissed Issue D), 74 (the Council is unaware what specific evidence was before the Site Evaluation Committee), 97 (see CLF appeal at p. 14), 121 (second sentence as worded – however, the Council does find that the appellants failed to meet their burden on Issue C due to their failure to offer any evidence on the issue).

Outside of the scope of issues decided by the Council: 21, 56, 57, 58, 65, 68 (second sentence), 73, 84 (first sentence), 91 (second sentence), 98, 99, 100, 102, 106, 117 (first and second sentences), 119.

Reconsideration:

Any party may file a Motion for Reconsideration or Rehearing with the Council consistent with the requirements of Env-AC 205.16, within 20 days of the date of this written decision.

So Ordered by the Council.

by:  September 20, 2010
Almorinda Samson, Appeals Clerk

GRANTED

DENIED

OUTSIDE

Scope of "2008"

NO Ruling

STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
AIR RESOURCES COUNCIL

Docket Nos.: 09-10 and 09-11

IN RE: Public Service of New Hampshire Flue Gas
Desulphurization System Temporary Permit No: TP-0008

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE'S
REQUESTS FOR FINDING OF FACTS AND
CONCLUSIONS OF LAW**

Public Service Company of New Hampshire ("PSNH") submits its Requests for Findings of Fact and Conclusions of Law to be considered by the Council in resolution of this matter pursuant to Env-AC 205.09.

Findings of Fact

Definitions

1. "Turbine Project" means the Merrimack Station Unit 2 High Pressure/Intermediate Pressure ("HP/IP") turbine module replacement completed during the April/May 2008 outage.
2. "Scrubber Project" means the wet flue gas desulphurization system ("FGD System") mandated by the New Hampshire Legislature to be installed by PSNH and operational at Merrimack Station Units 1 and 2 no later than July 1, 2013, under RSA 125-O:11 through RSA 125-O:18, inclusive.
3. "NHDES" means the New Hampshire Department of Environmental Services.
4. "ARD" means the NHDES Air Resources Division.
5. The "Council" or "ARC" means the Air Resources Council.
6. "Parties" means, collectively, Conservation Law Foundation ("CLF"), New Hampshire Sierra Club ("NHSC"), NHDES, and Public Service Company of New Hampshire ("PSNH").
7. "Appellants" means, collectively, CLF and NHSC.

101. The Council dismissed Issue D pertaining to whether the Turbine Project should have undergone a New Source Review analysis. *See* Air Resources Council Order, dated October 24, 2009.

102. As a result of the Council's dismissal of Issue D pertaining to the issue of New Source Review applicability, Issue C is no longer relevant to the proceeding.

103. NHSC did not produce any evidence in its case in chief to satisfy its burden of proof relative to Issue C. NHSC's expert witness testified that the purpose of his testimony did not relate to Issue C. *See* Transcript of March 15, 2010 Hearing before ARC at page 96, Lines 11-18.

104. CLF did not produce a witness or any other evidence during its case in chief in order to satisfy its burden of proof relative to Issue C. *See* Transcript of March 15, 2010 Hearing before ARC at page 126, Lines 7-10.

Applicable Legal Standards

105. The Appellants, NHSC and CLF, bear the burden of proving, by a preponderance of the evidence that the decision being appealed was: (1) contrary to case law, statute or rules; or (2) arbitrary and capricious. *See* Env-AC 205.14.

106. The New Hampshire Supreme Court has ruled that, in general, agency findings are deemed prima facie lawful and reasonable. *Appeal of Town of Rindge*, 158 N.H. 21, 24 (2008).

Conclusions of Law

107. As a matter of law, PSNH is required to install and operate the Scrubber system. RSA 125-O:11-18.

108. Exclusive of any New Source Review issues, the HP/IP turbine replacement did not require a state air permit. *See generally* Env-A 600.

109. There is no requirement under state law requiring the HP/IP turbine replacement to be included in the scrubber permit application. *Id.*

110. The concept of "aggregation", as raised by the Appellants, pertains solely to a determination of whether interrelated projects should be grouped together to determine New Source Review applicability.

111. New Source Review applicability has no bearing on PSNH's application for the installation and operation of the Scrubber system. *See generally* Env-A 600.

112. As a matter of law, Appellants failed to satisfy their burdens of proving that the department's decision relative to Issue A was unreasonable or contrary to law.

Respectfully Submitted,

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

By its Attorneys,

McLANE, GRAF, RAULERSON & MIDDLETON
PROFESSIONAL ASSOCIATION

Date: July 2 2010

By: /s/ Barry Needleman

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Certificate of Service

I hereby certify that the foregoing has been hand delivered on this date to the service list in this matter.

/s/ Barry Needleman
Barry Needleman

Before the
STATE OF NEW HAMPSHIRE

AIR RESOURCES COUNCIL

RE: DOCKET NO. 11-10 PUBLIC SERVICE COMPANY OF NH
APPEAL OF MERCURY BASELINE DETERMINATION

DECISION AND ORDER
ON
NOTICE OF APPEAL

BACKGROUND

On June 28, 2011, the New Hampshire Department of Environmental Services, Air Resources Division ("DES") issued its "Final Determination of the Baseline Mercury Input" (the "Final Decision") to Public Service Company of New Hampshire ("PSNH"). Based on its calculations, DES concluded that this baseline mercury input amount is 228 pounds per year.

On July 28, 2011, PSNH filed its Notice of Appeal of this Final Decision, arguing that based on its own calculations, baseline mercury input amount should equal 308 pounds per year.

These disparate calculations of baseline mercury input arise from the New Hampshire legislature's 2006 amendments to RSA 125-O, the Mercury Emissions Reduction Statute, to require statewide reductions in mercury emissions from PSNH's Merrimack Units 1 and 2 and Schiller Units 4 and 6. Pursuant to these amendments, PSNH is required to reduce mercury emissions from these sources by at least 80% on an annual basis from a baseline mercury input calculation starting in July, 2013. RSA 125-O:13, II.

RSA 125-O:14, I(a) provides that:

Baseline mercury input shall be determined as follows: (a) No later than the first day of the second month following the effective date of this section, and continuing for 12 months thereafter, a representative monthly sample of the **coal used traditionally (not to include trial or test coal blends)** by each affected source shall be collected from each of the units identified in subparagraph (b) and analyzed to determine the average mercury content of the fuel for each unit expressed in pounds of mercury input per ton of coal combusted at each affected source. The mercury content of the coal derived from these analyses for each affected source shall be multiplied by the average annual throughput of coal for

be regarded as "trial or test blends" and the technical evidence PSNH introduced tended to support this conclusion. In fact, one of these test coals, known as "Pocahontas" was used in the industry as a "metallurgical" coal, not in the energy production business. Similarly, PSNH determined that it was not appropriate to include a "100% Lverage" blend used in Units 1 and 2 prior to 1995 as the definition of "traditional" coals because starting in 1995 the company realized that it was overly dependent on that one source and needed to diversify in the future...hence the 2/1/1 blend used in subsequent years.

As noted above, DES appears to have initially agreed with PSNH's approach, but took a different path when issuing its Preliminary Decision, as affirmed by its Final Decision. In those Decisions DES determined based on its statistical analysis of the technical data, essentially that all coals burned at the two Units since inception, including several low-mercury coal blends PSNH began using in varying percentages over different periods of time in an effort to comply with air emissions standards predating the 2006 amendment to RSA 125-O:14, constituted "traditional" coals for purposes of the mercury baseline input calculation of RSA 125-O: 14 I (a). The only excluded "trial or test" coal was Russian coal, given the fact that it was burned only in small amounts over a brief period of time. DES then determined what statistical percentage of all remaining coal blends were used during the statutory testing period between August, 2006 and July, 2007 in its calculations.

As the attached rulings on the parties' motions for findings of fact indicate, the Council was not persuaded by the evidence it heard that either party had arrived at a satisfactory interpretation of the statutory language. But it did have the opinion that DES's exclusion of only Russian coal as a trial or test coal in arriving at a baseline mercury input calculation was arbitrary or capricious in light of its past dealings with PSNH, as well as credible evidence that PSNH burned other coals in addition to Russian coal-- most notably Pocahontas-- on a trial or test basis.

Given the technical nature of this inquiry, neither the Council nor the Hearing Officer were comfortable with the notion that the Council should supply the "final" interpretation of what the legislature meant by the words " coal used traditionally (not to include trial or test coal blends)" based on the evidence submitted in this Appeal. Rather, the Council believes, based on what it heard, that the parties should work in collaboration to develop a mutually agreeable formula that will implement the purpose of this mercury reduction legislation.

CONCLUSION

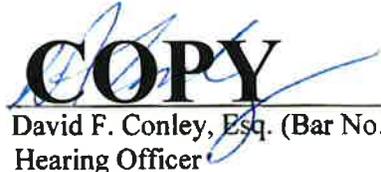
DES's final determination regarding baseline mercury input was arbitrary or capricious under the circumstances of this case.

ORDER

The Council remands this matter to DES for further administrative review consistent with the Council's opinion noted above.

By order of the Hearing Officer.

12/17/12
Date


COPY

David F. Conley, Esq. (Bar No. 130)
Hearing Officer

STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
AIR RESOURCES COUNCIL

Docket No.: ARC 11-10

In Re: Public Service Company of New Hampshire
Appeal of Mercury Baseline Determination

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE'S
REQUESTS FOR FINDINGS OF FACTS AND CONCLUSIONS OF LAW**

Public Service Company of New Hampshire ("PSNH") submits its Requests for Findings of Fact and Conclusions of Law pursuant to Env-AC 205.09 and RSA 541-A:35.

Findings of Fact and Conclusions of Law

Definitions

1. "Appellant" means PSNH.
2. "Affected Sources," as defined by the statute, means existing coal-burning power plant units in the State, specifically Merrimack Units 1 and 2 in Bow and Schiller Units 4, 5 and 6 in Portsmouth, New Hampshire (RSA 125-O:12,I).
3. "ARD" means the DES Air Resources Division.
4. The "Council" or "ARC" means the Air Resources Council.
5. "DES" means the New Hampshire Department of Environmental Services.
6. "Merrimack Station" means the power plant located in Bow, New Hampshire and owned and operated by PSNH.
7. "Schiller Station" means the power plant located in Portsmouth, New Hampshire and owned and operated by PSNH.
8. The "Scrubber" means the wet flue gas desulphurization system that was constructed at Merrimack Station pursuant to RSA 125-O:13,I.
9. "Unit 1" means the 114 MW Babcock & Wilcox cyclone-fired boiler at Merrimack Station which uses coal as its fuel source.
10. "Unit 2" means the 337 MW Babcock & Wilcox cyclone-fired boiler at Merrimack Station which uses coal as its fuel source.

grant

adverse operational effects, and/or to achieve more economical operation. *See Tr., Testimony of Richard Scharf at pages 60-61.*

21. It can take an extended period of time to determine whether a test blend of coal or a trial blend of coal will have adverse operational effects on a coal-fired power plant. Adverse operational effects can include corrosion, freezing and low viscosity. *See Tr., Testimony of Richard Scharf at pages 60-61 and 63.*

22. From August 2006 to September 2007, PSNH began to test coals to determine compatibility with an activated carbon injection program funded by the U.S. Department of Energy. The purpose of this program was to determine whether carbon injection could reduce mercury emissions. *See Tr., Testimony of Elizabeth Lynn Tillotson at page 141, Lines 12-18.* The coals that were burned as part of this program were test blend coals.

New Hampshire Mercury Emissions Law

23. In 2006, the New Hampshire General Court enacted RSA 125-O:11-18. The statute required the installation and operation of the Scrubber, established mercury emissions reduction levels for Affected Sources, and created economic performance incentives for PSNH in association with early mercury emissions reductions. *See RSA 125-O:11-18.*

24. Under RSA 125-O:14, DES is required to establish the baseline mercury input and baseline mercury emissions at the Affected Sources.

25. PSNH was required to submit plans to DES to accomplish baseline mercury input and baseline mercury emissions testing required by the law. *See RSA 125-O:14,III.*

26. The baseline mercury input is based on the mercury content of the coal, while the baseline mercury emissions is based on the amount of mercury emitted from the Affected Source when the coal is combusted. *See RSA 125-O:14, I and II; Tr., Testimony of Elizabeth Lynn Tillotson at pages 136-37.*

27. On August 30, 2006, PSNH submitted its plan for baseline mercury input testing to DES. *See PSNH Exhibit 1.*

28. That plan, in accordance with RSA 125-O:14,I(a), provided that PSNH would collect a representative monthly sample of "the coal used traditionally (not to include trial or test coal blends)" from Merrimack Units 1 and 2 and either Schiller Units 4 or 6 between August 1, 2006 and continuing until July 31, 2007. *See PSNH Exhibit 1.*

29. RSA 125-O:14,II required that PSNH conduct a minimum of four stack tests at Merrimack Units 1 and 2 and either Schiller Units 4 or 6 to determine baseline mercury emissions. The stack tests were required to be conducted without any mercury emissions improvements at the time of the stack tests. *See Tr., Testimony of Elizabeth Lynn Tillotson at pages 167-168, Lines 2-7; PSNH Exhibit 13 at page 2; PSNH Exhibit 21 at 4.*

The screenshot shows the website for the Upper Valley Sierra Club. At the top, the club's name is displayed in a large, white serif font against a dark background. Below the name is a horizontal navigation menu with several green buttons labeled: Home, About Us, Links, Contact Us, UVSC Leaders, Legislation, Events, Articles, and UV Initiatives. The main content area has a light green background and features a section titled "Public Service New Hampshire" in a bold, black serif font. To the right of the title are small red and blue icons. The text below the title discusses citizen engagement opportunities and provides contact information for Jim Rubens, including an email address and phone numbers. A second paragraph discusses legislative mandates and cost increases related to a scrubber installation at the Merrimack Station. At the bottom of the content area, there is a dark green bar containing a "Donate" button, social media icons, and a note that donations are not tax deductible. Below this bar, a copyright notice reads "Copyright 2008 Upper Valley Sierra Club. All Rights Reserved." and the Simphweb logo is visible in the bottom right corner.

<http://uppervalleysierraclub.org/legislation/205-new-hampshire/207-public-service-new-hampshire>

FEB 27 2009



CONSERVATION LAW FOUNDATION

February 26, 2009

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Gary A. Long, President and Chief Operating Officer
Public Service Company of New Hampshire
780 North Commercial Street
Manchester, New Hampshire 03101

Robert A. Bersak, Esq., Registered Agent
780 North Commercial Street
Manchester, New Hampshire 03101

Re: Notice of Intent to File Clean Air Act Citizen Suit

Dear Messrs. Long and Bersak:

Conservation Law Foundation ("CLF") provides this Notice of Intent to file a citizen suit against Public Service Company of New Hampshire ("PSNH") pursuant to Clean Air Act ("CAA") § 304(a)(3), 42 U.S.C. § 7604(a)(3). Activities undertaken by PSNH at its Merrimack Station facility located at 97 River Road in Bow, New Hampshire, constitute proposing to construct and / or constructing a new or modified major emitting facility without a permit required under CAA subchapter I part C (relating to significant deterioration of air quality) and / or part D (relating to nonattainment) and violations of the permitting requirements set forth in the New Hampshire State Implementation Plan ("NHSIP"). These modifications have resulted or will result in significant increases in air pollutant emissions.

The CAA authorizes the court to issue injunctions and to apply appropriate civil penalties. CAA § 304(a)(3), 42 U.S.C. § 7604(a)(3); *Sierra Club v. Franklin County Power of Illinois*, 546 F.3d 918, 935 (7th Cir. 2008). PSNH is liable for up to \$25,000 for each day of each violation. See CAA § 113, 42 U.S.C. § 7413(b)(1) (state implementation plan violations) and 7413(b)(3) (failure to comply with new source requirements).

) North Main Street, Concord, New Hampshire 03301-4930 • 603-225-3060 • Fax: 603-225-3059 • www.clf.org

MASSACHUSETTS: 62 Summer Street, Boston, Massachusetts 02110-1016 • Phone: 617-350-0990 • Fax: 617-350-4030

MAINE: 14 Maine Street, Brunswick, Maine 04011-2026 • 207-729-7733 • Fax: 207-729-7373

RHODE ISLAND: 55 Dorrance Street, Providence, Rhode Island 02903 • 401-351-1102 • Fax: 401-351-1130

VERMONT: 15 East State Street, Suite 4, Montpelier, Vermont 05602-3010 • 802-223-5992 • Fax: 802-223-0060

CONSERVATION LAW FOUNDATION

Background

Merrimack Station is among the most polluting power plants in New England. PSNH reports that in 2007, the plant emitted 36,485 tons of sulfur dioxide, 3,224 tons of nitrogen oxide, over 137 pounds of mercury compounds, and nearly 4 million tons of carbon dioxide.

PSNH is required under New Hampshire law to install by 2013 wet flu gas desulphurization scrubbers that will reduce mercury emissions from the plant by eighty percent ("Scrubber Project"). *See* RSA 125-O:11, *et seq.* ("Scrubber Law"). When the law was passed in 2006, the estimated cost of the scrubber installation was \$250 million dollars. In an August 7, 2008, quarterly earnings report (10-Q) filed with the Securities and Exchange Commission, PSNH's parent company, Northeast Utilities, disclosed that the estimated cost for the Scrubber Project is now \$457 million dollars. PSNH has represented that it has commenced construction on the project, and that the project "is already half done." *See* Gary A. Long, *Need for Bow Scrubber Project is Real* (Concord Monitor, February 8, 2009).

Legal Framework

Preconstruction review is required for all major sources of air pollution before new source construction or modification. The prevention of significant deterioration ("PSD") program governs attainment pollutants, *see* CAA subchapter I, part C and 40 C.F.R. 52.21; the New Source Review ("NSR") program governs non-attainment pollutants. *See* CAA subchapter I, part D; 40 C.F.R. 52.24. New Hampshire state implementing regulations for these programs have been promulgated by the New Hampshire Department of Environmental Services ("DES") and approved by the United States Environmental Protection Agency. *See* New Hampshire Code of Administrative Rules ("N.H. Admin. Rules") Env-A chapter 600 *et seq.*; 40 CFR 52.1520; 40 CFR 52.1525.

A temporary permit is required before construction of new or modified sources in certain categories. *See* RSA 125-C:11; N.H. Admin. Rules Env-A 607.01. Nothing in RSA 125-O:13 disturbs that requirement. *See* RSA 125-O:13 ("The achievement of this requirement is contingent upon obtaining all necessary permits and approvals from federal, state, and local regulatory agencies and bodies.").

The term "construction" is defined under the CAA and New Hampshire law to include modifications. A modification is defined as "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." CAA § 169(2)(c), 42 U.S.C. § 7479(2)(c) (incorporating NSPS definition of modification set forth at CAA § 111(a)(4); 42 U.S.C. § 7411(a)(4)); CAA § 171(4), 42 U.S.C. § 7501(4); N.H. Admin. Rules Env-A 101.52.

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For preconstruction permitting purposes, interrelated activities must be aggregated and treated as a single project. *See* Draft EPA NSR Workshop Manual § III.B.1 (October 1990); February 15, 1989 EPA WEPCO Applicability Determination; *see also* EPA Final Rule, PSD / NA-NSR: Aggregation and Project Netting (Jan. 12, 2009) (“Our aggregation policy aims to ensure the proper permitting of modifications that involve multiple physical and / or operational changes. Thus, multiple, nominally separate activities that are sufficiently interrelated should be grouped together and considered a single project for the purpose of [] the NSR applicability test.”).

Violations

During 2008, PSNH made substantial modifications to Merrimack Station Unit 2 (“MK2”) to accommodate the scrubber that (i) increased the power output of that unit somewhere in the range of 6 to 13 megawatts, and possibly more; and (ii) have resulted or will result, based on PSNH’s own data, in significant net emissions increases from the facility.

In April and May of 2008, PSNH removed a high pressure / intermediate pressure (“HP/IP”) turbine, and replaced it with a new HP / IP turbine. *See* Testimony of PSNH Technical Business Manager Lynn Tillotson, December 4, 2008, Redacted Hearing Transcript, New Hampshire Public Utilities Commission (“PUC”) Docket No. DE 08-113, p. 16, lines 10-22 (hereinafter, “Tillotson Testimony”). The new turbine components include the IIP/IP rotor with integral shroud rotating blading, integral shroud stationary blading, nozzle block, inner and outer cylinder casings, associated seals and piping, and inspection ports. *See* February 20, 2009, PSNH Response to Data Request TS-01, PUC Docket No. DE 08-145, attached hereto as *Exhibit 1*.

PSNH also replaced the generator rotor; air heater tube; boiler floor; selective catalytic reducer (“SCR”) catalyst; secondary superheater inlet bank; station batteries; excitation switchgear voltage regulator; sootblowers; SCR sub-grit, insulation, and lagging; distributed control computer system; primary superheater bypass valve; secondary superheater bypass valve; main boiler feedpump control valve; SCR expansion joints; and coal bunker gates. *Id.* PSNH installed ash conditioning equipment on an existing flyash storage tank. *Id.* These projects were all treated as capital expenditures. *Id.* Substantial other work was performed on the unit during the outage, including “numerous other corrective and preventative tasks.” *Id.*

PSNH “worked to modify boiler combustion temperatures,” and “[t]ube shields were removed from the boiler reheater to increase heat transfer and improve steam temperatures,” in order to “accommodate the design and engineering of a scrubber system.” *See* September 2, 2008, PSNH Response to PUC Request for Information, PUC Docket No. DE-08-103 at 8.

The outage was longer than the routine annual scheduled maintenance outage, *see* Tillotson Testimony, p. 16, lines 10-15, beginning April 1 and ending on May 22. *See*

CONSERVATION LAW FOUNDATION

February 20, 2009, PSNH Response to Data Request TS-01, PUC Docket No. DE 08-145.

The purpose was to increase turbine efficiency, increase output, and reduce maintenance outages. *See* Tillotson Testimony, p.17, lines 1-22. Increased output would provide “additional megawatts to offset the scrubber installation.” *Id.* This work was performed with the assistance of outside turbine installation contractors. *See id.*, p. 18, lines 9-10; p. 19, lines 11-12. The turbine ultimately failed. *See id.*, pp. 18-20. An additional three and one-half week outage to accommodate further work on the new turbine occurred between June 20 and July 14, 2008. *See id.* at 19, line 8. The initial cost estimate for this project was in the range of \$9 million to \$15 million dollars. *See* June 7, 2006, Letter from Mr. William H. Smagula, P.E. to NH DES ARD Director Robert R. Scott at 3, attached hereto at *Exhibit 2*.

As of February 20, 2009, the cost of the MK2 modifications was \$11.4 million dollars. *See* February 20, 2009, PSNH Response to Data Request TS-01 in PUC Docket No. DE 08-145. PSNH contracted for “an expected base increase of about 6 megawatts,” in addition to MK2’s pre-modification output, and the “contract was also structured such that it was a pay-for-performance.” Tillotson Testimony, p. 24, lines 8-12. Accordingly, “to the extent that [PSNH] could find ways to operate the turbine more efficiently and get additional output, the contractor would be providing more costs, they would be paid more money, and the upper range of that was 12 megawatts.” *Id.* at p. 24, lines 12-13; p. 25, lines 14-16.¹

The MK2 work took place over the course of at least eleven and one-half weeks in 2008, *five years* before July 2013, when the Scrubber Law requires the scrubber to be operational. The new generation capacity of six to twelve megawatts or more enabled by the work will not be offset in any amount by scrubber power requirements until the scrubber is operational, resulting in significant additional air pollution, including global warming pollution.

The physical changes made to MK2 to accommodate the scrubber did not constitute routine maintenance, repair, or replacement. “[R]outine maintenance, repair and replacement occurs regularly, involves no permanent improvements, is typically limited in expense, is usually performed in large plants by in house employees, and is treated for accounting purposes as an expense.” *Sierra Club v. Morgan*, 2007 WL 3287850, No. 07-C-251-S (W.D. Wis. Nov. 7, 2007) (citing *U.S. v. Ohio Edison Co.*, 276 F.Supp.2d 829, 834 (S.D. Ohio 2003)). The facts here, including the project’s purpose—to increase output to accommodate the scrubber, reduce outages, and enhance operational

¹ PSNH’s counsel during this proceeding, Mr. Gerald M. Eaton, made clear his displeasure that Mrs. Tillotson had been as forthcoming as she was with respect to the new turbine’s anticipated capacity: “I wish the last two answers could be part of the confidential record. Mrs. Tillotson is a very knowledgeable person, and went into far more detail than I wanted her to do.” December 4, 2008, Redacted Hearing Transcript, PUC Docket No. DE 08-113, p. 25, lines 21-24.

CONSERVATION LAW FOUNDATION

efficiencies—cost, duration of outages, project capitalization, and use of outside consultants, all demonstrate that the MK2 work does not constitute routine maintenance, repair, and replacement. *See generally, id.*

MK2 Modifications Will Result in Significant Net Increases in SO₂ and NO_x

PSNH projects MK2 post -modification emissions increases for NO_x, SO₂, CO, PM, and VOCs. *See* January 31, 2008, letter from Mr. Smagula to Director Scott at Attachment 1, attached hereto at *Exhibit 3*. For 2009, PSNH has projected a 527 ton per year (“tpy”) post-modification increase in NO_x, and a 1,166 tpy post-modification increase for SO₂. *See id.* Both appear to be “significant” for PSD and non-attainment NSR purposes. *See* 40 C.F.R. 52.21 (b)(23) & (b)(40) (“significant means, in reference to a net emissions increase . . . a rate of emissions that would equal or exceed any of the following rates: . . . Nitrogen oxides: 40 tpy, Sulfur dioxide: 40 tpy . . .”); 40 CFR 52.21(b)(41) & (b)(48); 40 CFR 51.165(a)(1)(x)(A) & (a)(1)(xxviii).

PSNH has represented to DES that these projected increases are those attributable to the modification: “In accordance with EPA guidance, the projection of post-change emissions does not include the portion of emissions that could have been accommodated before the change and is unrelated to the change.” *See* January 31, 2008, Letter from Mr. Smagula to Director Scott at 3. It therefore appears that the projected increases are net increases.

Additional Planned Modifications to MK2

PSNH anticipates that further repair or replacement of the new turbine will be necessary. *See* January 16, 2009, Prehearing Conference Transcript, statements by PSNH counsel Robert A. Bersak, PUC Docket No. DE 08-145. On January 21, 2009, PSNH made an interconnection request to the Independent System Operator Administered Transmission System to increase the winter net capacity of MK2 to 353.3 megawatts (an increase of 31.75 megawatts over its current 321.75 winter claimed capacity) by the projected commercial operation date of December 14, 2009. It does not appear that PSNH has applied for a permit for this work.

Aggregation

PSNH was required to aggregate, for purposes of the preconstruction permit process, the activities performed on MK2 to accommodate the scrubber, any other non-routine modifications made in connection with those activities, and the scrubber installation work. EPA has long cautioned that “[a] deliberate decision to split an otherwise ‘significant’ project into two or more smaller projects to avoid PSD review would be viewed as circumvention and would subject the entire project to enforcement action if construction on any of the small projects commences without a valid PSD permit.” Draft EPA NSR Workshop Manual § III.B.1 (October 1990); February 15, 1989 EPA WEPCO Applicability Determination (“WEPCO cannot evade PSD and NSPS applicability by

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carving out, and seeking separate treatment of, significant portions of an otherwise integrated renovation program. Such piecemeal actions, if allowed to go unchallenged, could readily eviscerate the clear intent of the Clean Air Act's new source provisions."); *see also* EPA Final Rule, PSD / NA-NSR: Aggregation and Project Netting (Jan. 12, 2009).

That a company may take the position that projects were "undertaken as separate business decisions," and / or are "based on independent economic justifications" does not overcome the aggregation requirement. *See* July 5, 2005, EPA Southwire Co. PSD Applicability Opinion.

PSNH has represented in correspondence to DES regulators that the MK2 work is being undertaken to comply with the Scrubber Law. *See* June 7, 2006, Letter from Mr. Smagula to Director Scott ("[T]o maintain the generation output and value to customers, the large power consumption of a scrubber system—as much as 6 to 10 megawatts, *justified the need to fully assess balance of plant improvements necessary to offset the additional load. . . . installation of a scrubber will require . . . balance of plant work, MK2 high pressure / intermediate pressure (HP / IP) turbine and generator work, in addition to the installation of the scrubber vessel. . . . Completion of the MK2 HP/IP turbine and generator projects is expected to maintain the reliability and output of MK2, and allow for the operation of a scrubber.*") (emphasis supplied); January 31, 2008, letter from Mr. Smagula to Director Scott (" . . . the balance of plant projects planned to be completed during the 2008 MK2 outage, including the HP/IP project and associated generator repair work, *are necessary in order to maintain the output of MK2 and comply with RSA 125-O:13 which requires PSNH to install a wet scrubber at Merrimack Station, no later than July 2013.*") (emphasis supplied).

Nevertheless, PSNH sought to exclude the MK2 capacity expansion work from the Scrubber Project construction permit application process, and therefore avoid any transparent public review of all project elements.

The activities undertaken by PSNH, as set forth above, including the replacement of the HP / IP turbine and generator, constitute proposed construction and construction of a modified major emitting facility without obtaining the permits required under CAA subchapter I parts C (PSD) and / or D (nonattainment) and a federally enforceable violation of the NHSIP which requires that a temporary permit be obtained prior to commencement of construction of a new or modified stationary source. N.H. Admin. Rules Env-A 600 *et seq.*

CLF reserves all rights to amend this notice and identify additional claims as further facts are developed. If you believe that any portion of this Notice is in error and / or if you wish to discuss any portion of this Notice, please contact me at the address and phone

CONSERVATION LAW FOUNDATION

number listed below. CLF would be pleased to discuss alternatives for a cooperative resolution of the violations identified in this Notice.

Sincerely,



Melissa A. Hoffer, Esq.
Vice President, Director
Conservation Law Foundation
New Hampshire Advocacy Center
27 North Main Street
Concord, New Hampshire 03301
(603) 225-3060

Cc:

Lisa Jackson, Administrator (by certified mail)
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington DC 20460

Ira W. Leighton, Acting Regional Administrator (by certified mail)
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Governor John Lynch (by certified mail)
State of New Hampshire
Office of the Governor
107 North Main Street, Room 208
Concord, New Hampshire 03301

Thomas Burack, Commissioner (by certified mail)
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, New Hampshire 03301

Robert Scott, Director, Air Resources Division (by certified mail)
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, New Hampshire 03301



CONSERVATION LAW FOUNDATION

March 19, 2009

Air Resources Council
c/o DES, Air Resources Division
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095



Attn: Air Resources Council Clerk

Re: Conservation Law Foundation's Notice of Appeal of Temporary Permit Issued to
Public Service Company of New Hampshire Permit No. TP-0008

Dear Council Clerk:

Enclosed please find:

1. Conservation Law Foundation's Notice of Appeal for filing in the above-referenced matter;
2. A copy of Permit No. TP-0008 and accompanying materials, including Findings of Fact and Director's Decision.

Please do not hesitate to contact me should you have any questions, and thank you for your assistance in this matter.

Sincerely,

COPY

Melissa A. Hoffer
Vice-President and Director,
New Hampshire Advocacy Center

MAH/dlh

Encl.

27 North Main Street, Concord, New Hampshire 03301-4930 • 603-225-3060 • Fax: 603-225-3059 • www.clf.org

MASSACHUSETTS: 62 Summer Street, Boston, Massachusetts 02110-1016 • Phone: 617-350-0990 • Fax: 617-350-4030

MAINE: 14 Maine Street, Brunswick, Maine 04011-2026 • 207-729-7733 • Fax: 207-729-7373

RHODE ISLAND: 55 Dorrance Street, Providence, Rhode Island 02903 • 401-351-1102 • Fax: 401-351-1130

VERMONT: 15 East State Street, Suite 4, Montpelier, Vermont 05602-3010 • 802-223-5992 • Fax: 802-223-0060

STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
AIR RESOURCES COUNCIL

2009 TERM

IN RE: TEMPORARY PERMIT ISSUED TO PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE ("PSNH") MERRIMACK STATION, PERMIT NO. TP-0008

NOTICE OF APPEAL

Conservation Law Foundation ("CLF") hereby notices its appeal of Temporary Permit No. TP-0008, issued to PSNH on March 9, 2009, in connection with the proposed installation of a wet flue gas desulphurization system ("FGD System") at PSNH's coal-fired Merrimack Station in Bow, New Hampshire ("Bow Plant").

I. APPELLANT

Appellant CLF is a regional environmental advocacy organization with offices in Concord, New Hampshire. Contact information for CLF is set forth on the signature page of this notice.

II. JURISDICTION

The Air Resources Council ("ARC") has jurisdiction over this appeal pursuant to RSA 125-C:12, III, which provides: "[a]ny person aggrieved by the decision of the commissioner granting or denying a permit application may within 10 days of the decision file an appeal with the air resources council. The air resources council shall hold a hearing on any such appeal promptly, and shall thereafter issue a decision upholding, modifying or abrogating the commissioner's decision."

(recognizing that agency's failure to abide by procedural requirement is sufficient to establish standing provided that "the procedures in question are designed to protect some threatened concrete interest of his that is the ultimate basis of his standing."). This is particularly true where, as here, an incomplete permit application failed to disclose to the public related work that will effectively extend the life of the Bow Plant by decades, resulting in tens of millions of tons of carbon dioxide emissions. *See, e.g., Massachusetts v. Environmental Protection Agency*, 549 U.S. 497, 127 S. Ct. 1438, 1454-56 (2007).¹

IV. RELIEF REQUESTED AND SUPPORTING FACTS AND LEGAL AUTHORITY

CLF requests that the ARC reverse and remand the permit to remedy the following deficiencies and stay the operation of the Temporary Permit until these issues are resolved.

A. Background

PSNH is required under New Hampshire law to install by 2013 wet flu gas desulphurization scrubbers that will reduce mercury emissions from the plant by eighty percent ("Scrubber Project"). *See* RSA 125-O:11, *et seq.* ("Scrubber Law"). When the law was passed in 2006, PSNH's estimated cost of the scrubber installation was \$250 million dollars. In an August 7, 2008, quarterly earnings report (10-Q) filed with the Securities and Exchange Commission, PSNH's parent company, Northeast Utilities, disclosed that the estimated cost for the Scrubber Project is now \$457 million dollars.

¹ There, the Supreme Court observed that the "harms associated with climate change are serious and well recognized. The Government's own objective assessment of the relevant science and a strong consensus among qualified experts indicate that global warming threatens, *inter alia*, a precipitate rise in sea levels, severe and irreversible changes to natural ecosystems, a significant reduction in winter snowpack with direct and important economic consequences, and increases in the spread of disease and the ferocity of weather events. . . . According to petitioners' uncontested affidavits, global sea levels rose between 10 and 20 centimeters over the 20th century as a result of global warming. . . ." *See, Massachusetts v. Environmental Protection Agency*, 549 U.S. 497, 127 S. Ct. 1438, 1454-56 (2007).

Respectfully submitted,
COPY

Melissa A. Hoffer, N.H. Bar No. 17849
Conservation Law Foundation
27 North Main Street
Concord, New Hampshire 03301
(603) 225-3060
mhoffer@clf.org

CERTIFICATE OF SERVICE

I certify that a copy of this Notice of Appeal was served on Robert A. Bersak, Esq. Registered Agent, Public Service Company of New Hampshire, 780 North Commercial Street, Manchester, New Hampshire, 03101 by e-mail and first class mail, postage prepaid and Robert R. Scott, New Hampshire DES Air Resources Director, 29 Hazen Drive, Concord NH 03302, by e-mail and by hand, this 19th day of March, 2009.

By: **COPY** _____

Melissa A. Hoffer

CLF New Hampshire 27 North Main Street
Concord, NH 03301
P: 603.225.3060
F: 603.225.3059
www.clf.org



April 8, 2011

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Gary A. Long, President and Chief Operating Officer
Public Service Company of New Hampshire
780 North Commercial Street
Manchester, New Hampshire 03101

Robert A. Bersak, Esq., Registered Agent
Public Service Company of New Hampshire
780 North Commercial Street
Manchester, New Hampshire 03101

Re: Notice of Intent to File Clean Air Act Citizen Suit *

Dear Messrs. Long and Bersak:

Conservation Law Foundation (CLF) provides this Notice of Intent to file a citizen suit against Public Service Company of New Hampshire (PSNH) pursuant to Clean Air Act (CAA) §§ 304(a) (1) & (3), 42 U.S.C. §§ 7604(a)(1) & (3). The activities undertaken by PSNH at its Merrimack Station facility located at 97 River Road in Bow, New Hampshire described in this notice constitute: (1) constructing and operating, without required permits, modifications that have resulted or will result in increased air pollutant emissions as prohibited by CAA § 110(a)(2)(C), 42 U.S.C. § 7410(a)(2)(C), and the New Hampshire State Implementation Plan (N.H. SIP); (2) constructing a new or modified major emitting facility that will result in significant emissions increases without a permit as required under CAA subchapter I, part C (relating to prevention of significant deterioration of air quality) and/or part D (relating to requirements in nonattainment areas) and the N.H. SIP; and/or (3) violations of existing permit terms and conditions.

The CAA authorizes federal courts to issue injunctions and to apply appropriate civil penalties. CAA § 304(a), 42 U.S.C. § 7604(a); *Sierra Club v. Franklin County Power of Illinois*, 546 F.3d 918, 935 (7th Cir. 2008). PSNH is liable for up to \$37,500 for each day of each violation. See CAA § 113(b)(1), 42 U.S.C. § 7413(b)(1) (state implementation plan violations); CAA § 113(b)(3), 42 U.S.C. § 7413(b)(3) (failure to comply with new source requirements); 40 C.F.R. § 19.4.

Introduction

PSNH is a subsidiary of Northeast Utilities, a publicly-traded Fortune 500 energy company. PSNH owns and operates Merrimack Station including its two coal-fired steam turbines.

Gary A. Long, President and Chief Operating Officer
Robert A. Bersak, Esq., Registered Agent
Public Service Company of New Hampshire
April 8, 2011
Page 6 of 20

applied for and been issued a temporary permit or a permit to operate for each device specified in Env-A 603.02 and Env-A 603.03.” Env-A 603.01 (1990).⁷

Merrimack Station is a major source subject to the foregoing permitting requirement. Specified devices requiring such permits include: (i) devices “using coal, wood, number 6 fuel oil, waste oil or any combination thereof, with a designed rating greater than or equal to 2 million BTUs per hour of gross heat input,” *see* Env-A 603.02(c) (1990); (ii) “a rock, coal, or stone crusher with a throughput greater than or equal to 10,000 tons per year,” *see* Env-A 603.02(m) (1990); and (iii) devices subject to the New Source Performance Standards set forth in 40 C.F.R. Part 60; the National Emission Standards for Hazardous Air Pollutants set forth in 40 C.F.R. Part 61; the PSD rules set forth in 40 C.F.R. Part 51; the rules governing nonattainment areas set forth in Env-A 610 (1993); or the New Hampshire Hazardous Waste Rules promulgated under N.H. RSA ch. 147-A, *see* Env-A 603.03(a)-(e) (1990).

Nothing in the state law mandating the Scrubber Project, N.H. RSA §§ 125-O:11-18, disturbs those requirements. *See* N.H. RSA § 125-O:13 (“The achievement of this requirement is contingent upon obtaining all necessary permits and approvals from federal, state, and local regulatory agencies and bodies.”).

Preconstruction Permit Requirements for Major Modifications

The CAA and the N.H. SIP require new major sources and major modifications to major sources to obtain an air pollution permit before commencing construction.

The PSD program specifies the minimum permit requirements for new major sources or major modifications in areas that are in attainment of the NAAQS. *See* CAA subchapter I, part C, and 40 C.F.R. § 52.21. The PSD program includes two major elements: “(1) provisions for an air quality analysis that ensure new major sources or modifications do not violate NAAQS or applicable air quality increments, and (2) provisions for BACT that require sources to install air pollutant controls and/or implement pollution reduction operations.” 67 Fed. Reg. 65,710 (Oct. 28, 2002).

In areas that are in attainment of the NAAQS, a modification that will result in a significant net increase of any pollutant regulated pursuant to the NAAQS will trigger the requirement to apply BACT under the preconstruction review requirements of the PSD program. *See* 40 C.F.R. 52.21(b)(23) (2001); Env-A 623.01 & 623.03 (2001).⁸ A determination that preconstruction

⁷ As DES has repeatedly emphasized, a permit to operate is not a substitute for obtaining a temporary permit in the first instance.

⁸ *See* 40 C.F.R. §§ 52.1520; 52.1525 (noting adoption by New Hampshire on July 23, 2001, and federal approval effective December 27, 2002, *see* 67 Fed. Reg. 65,710 (Oct. 28, 2002)).

Gary A. Long, President and Chief Operating Officer
Robert A. Bersak, Esq., Registered Agent
Public Service Company of New Hampshire
April 8, 2011
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2009 Response. The MK2 work took place over the course of at least eleven and one-half weeks in 2008, **five years before July 2013, when the Scrubber Law requires the scrubber to be operational.** The new generation capacity of 17.175 megawatts or more enabled by the work will not be offset in any amount by scrubber power requirements until the scrubber is operational, resulting in significant additional air pollution, including global warming pollution. At the time of the MK2 modifications, PSNH did not have a permit authorizing either those modifications or the Scrubber Project as a whole.

PSNH also “worked to modify boiler combustion temperatures,” and “[t]ube shields were removed from the boiler reheater to increase heat transfer and improve steam temperatures,” in order to “accommodate the design and engineering of a scrubber system.” *See* September 2, 2008, PSNH Response to Request for Information, N.H. PUC Docket No. DE-08-103, at 8, attached hereto as Exhibit 12.

The physical changes made to MK2 to accommodate the scrubber did not constitute routine maintenance, repair, or replacement. “[R]outine maintenance, repair and replacement occurs regularly, involves no permanent improvements, is typically limited in expense, is usually performed in large plants by in house employees, and is treated for accounting purposes as an expense.” *Sierra Club v. Morgan*, 2007 WL 3287850, No. 07-C-251-S, at *12 (W.D. Wis. Nov. 7, 2007) (citing *United States v. Ohio Edison Co.*, 276 F. Supp. 2d at 834). The facts here, including the project’s purpose—to increase output, reduce outages, and enhance operational efficiencies—cost, duration of outages, project capitalization, and use of outside consultants, all demonstrate that the MK2 work does not constitute routine maintenance, repair, and replacement. *See generally id.*; *see also* Detroit Edison NSR Applicability Determination (May 23, 2000), available at <http://www.epa.gov/region07/air/nsr/nsrmemos/detedisn.pdf>.

Indeed, DES found that the physical changes to MK2 were not “routine” for CAA purposes. *See* March 31, 2008, Letter from DES ARD Chief Air Programs Manager Craig A. Wright to William H. Smagula, P.E., Director-Generation, PSNH (treating the proposed MK2 modifications as “non-routine”), attached hereto as Exhibit 13; March 9, 2009, Findings of Fact and Director’s Decision, In the Matter of the Issuance of a Temporary Permit to Public Service Company of New Hampshire, Merrimack Station Located in Bow, New Hampshire, at 9, attached hereto as Exhibit 4 (“DES also agrees with the commenters that the turbine modifications were non-routine in nature and are therefore not covered under the NSR exemption that typically applies to routine replacement, repair, or maintenance projects.”).¹³

¹³ Where DES’s determinations are contrary to the requirements of the CAA and the N.H. SIP, however, they are without force and cannot bar a citizen suit, such as this one, seeking to enforce those requirements. *See Weiler v. Chatham Forest Prods., Inc.*, 392 F.3d 532 (2d Cir. 2004) (allowing CAA citizen suit challenging state determination that no major source permit was required).

Gary A. Long, President and Chief Operating Officer
Robert A. Bersak, Esq., Registered Agent
Public Service Company of New Hampshire
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As set forth above, both the MK1 Permit and MK2 Permits set forth recordkeeping and reporting requirements related to permit deviations in connection with air pollution control equipment. Despite the permits' express requirements to report exceedances, PSNH never told DES about these violations until nearly a year after they occurred, on April 30, 2009, and only then in response to a question from DES. *See* June 5, 2009, Letter from Pamela G. Monroe, DES Compliance Bureau Administrator to William H. Smagula, P.E., Director-Generation, PSNH, attached hereto as Exhibit 33.

PSNH's multiple permit violations, including its failure to comply with the disclosure obligations set forth in the permits, are federally enforceable pursuant to the CAA, as set forth *supra*, at p. 7.

* * *

CLF reserves all rights to amend this notice and identify additional claims as further facts are developed. If you believe that any portion of this Notice is in error and/or if you wish to discuss any portion of this Notice, please contact me at the address and phone number listed below. CLF welcomes the opportunity to discuss with you the violations identified in this Notice.

Sincerely,



Melissa A. Hoffer, Esq.
Conservation Law Foundation
New Hampshire Advocacy Center
27 North Main Street
Concord, New Hampshire 03301
(603) 225-3060



N. Jonathan Peress, Esq.
Conservation Law Foundation
New Hampshire Advocacy Center
27 North Main Street
Concord, New Hampshire 03301
(603) 225-3060

Cc:

Lisa Jackson, Administrator (by certified mail)
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, DC 20460

Gary A. Long, President and Chief Operating Officer
Robert A. Bersak, Esq., Registered Agent
Public Service Company of New Hampshire
April 8, 2011
Page 20 of 20

Curt Spalding, Regional Administrator (by certified mail)
U.S. Environmental Protection Agency
5 Post Office Square - Suite 100
Boston, Massachusetts 02109-3912

Governor John Lynch (by certified mail)
State of New Hampshire
Office of the Governor
107 North Main Street, Room 208
Concord, New Hampshire 03301

Thomas Burack, Commissioner (by certified mail)
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, New Hampshire 03301

Robert Scott, Director, Air Resources Division (by certified mail)
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, New Hampshire 03301



\$457 Million + Cost For Merrimack Power Pland Deserves Extra Scrutiny: Conservationists Say More Information, Transparency Needed to Fully Understand Long-Term Impacts

Contact
Colin Durrant, CLF Director of Communications
617-850-1722

Concord, NH (January 15, 2009) – At a public hearing this evening on the Merrimack Station power plant, conservationists will urge state officials to ask for additional information and full transparency in the air pollution permitting process so that decision makers and the public can fully assess the public health and environmental impacts of the coal plant’s ratepayer-funded mercury scrubber installation plans.

Merrimack Station is among the most polluting power plants in New England and questions remain as to why the plant’s owners, Public Service Company of New Hampshire (PSNH), have not opted to install more efficient mercury control equipment that would achieve much greater mercury emissions reductions at a fraction of the scrubber project cost. PSNH’s permit application to install mercury pollution control equipment does not include a full accounting of pollution emissions associated with all work done in connection with the project, including modifications made by PSNH to increase the capacity of one of its steam turbine generators. And, the costly planned mercury controls would not achieve the level of mercury pollution reduction soon anticipated to be required by the federal government, a circumstance that likely will lead to additional ratepayer costs in the future.

“The \$457 million dollar-plus question is whether this is the right decision for New Hampshire, from an environmental, economic and energy security standpoint. To answer that question, New Hampshire citizens and ratepayers need to know the true costs of continued operation of this over forty-year old coal plant, and compare that to the cost of cleaner reliable alternatives,” said Melissa Hoffer, Director of the Conservation Law Foundation’s New Hampshire Advocacy Center. “The permitting process requires that PSNH provide a full picture of all pollution emissions associated with all the modifications made as part of the scrubber project-including the turbine upgrades PSNH represents are necessary to satisfy the additional power requirements of the scrubber. We just don’t have a complete picture, and the project should not move forward until we do.”

PSNH is required under the New Hampshire Clean Power Act (CPA) to install by 2013 a wet flu gas desulphurization scrubber system that will reduce mercury emissions from the plant by eighty percent. PSNH failed to obtain necessary clean air permits before beginning construction on aspects of the scrubber project last year.

In 2007, Merrimack Station was one of New England’s highest emitters of carbon dioxide (3.7 million tons), a key global warming pollutant. Additionally, the coal plant released 36,484 tons of sulfur dioxide, 3,227 tons nitrogen oxide, and over 137 pounds of toxic mercury compounds. Unlike most of the power plants in New England, its owner is a regulated utility that receives full rate-based support for the costs to operate and upgrade Merrimack station. As a consequence, the costs for scrubbers and environmental requirements will be borne by the ratepayers providing an incentive to PSNH to extend the plant’s useful life.

The Department of Environmental Services’ public hearing on Merrimack Station’s “Flue Gas Desulphurization System” permit will be held TODAY, Thursday, January 15, at 6:00PM in the Auditorium at New Hampshire Department of Environmental Service located at 29 Hazen Drive, Concord, NH. Public comment must be received no later than Friday, January 23, 2009.

###

The Conservation Law Foundation (www.clf.org) works to solve the most significant environmental challenges facing New England. CLF’s advocates use law, economics and science to create innovate strategies to conserve natural resources, protect public health and promote vital communities in our region. Founded, in 1966, CLF is a nonprofit, member-supported organization with offices in Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

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DEC 2013

22 Getting Around — WITHOUT the Circ Highway
NOV 2013

New Hampshire PUC Docket DE 11-250

Data Request PSNH-SC-001

Dated: January 16, 2014

Q-PSNH-SC-030

Witness: Catherine Corkery

Request from: Public Service Company of New Hampshire

Question 30:

30. Please provide a copy of any document provided to any elected or appointed government official in New Hampshire by SC related to "An ACT relative to the reduction of mercury emissions" that took effect on June 8, 2006.

Response to Question 30:

Sierra Club objects to Question 30 on the grounds that it is not reasonably calculated to lead to the discovery of evidence relevant to any cause or claim in this docket, is unduly burdensome, is overly broad in that it would seek production of information unrelated to any cause or claim in this docket, fails to be limited as to time, and fails to be limited as to relevant subject matter.

Supplemental Response to Question 30:

Without waiving the above objections for the purpose of any potential reconsideration or rehearing of a final order by the Commission, and consistent with the New Hampshire PUC's April 8, 2014 Order No. 25,646, the Sierra Club responds: please see the materials attached hereto.

HB 1673 Mercury Reductions
February 2, 2006 4:15 p.m.
Meeting with Governor Lynch and the Clean Power Coalition

We know that the Governor has indicated strong support for mercury legislation. We also believe that the bill is a good start but it can be significantly improved. Towards this end the Clean Power Coalition is seeking the following improvements in the bill, to better meet the state's prior commitment to "virtual elimination" of mercury emissions:

- 1. Scrubber technology is well established and it will not take 7 years to install on Merrimack Station. The bill should mandate a more reasonable compliance date of 2010.**
- 2. Interim technology dealing directly with mercury reductions is advancing rapidly and is being mandated in several states already. PSNH has publicly committed that it would put up to \$5 million towards an interim fix: using ACI (activated carbon injection) control technology. The bill should memorialize this commitment and once the control technology has been installed, tested and optimized, PSNH should be required to maintain this level of reduction until such time as the scrubber technology comes on line.**
- 3. 80% versus 90% mercury control (60% versus 80% reduction). Scrubber technology has been demonstrated to be capable of better than 90% mercury reduction.**
- 4. The current bill allows for inter-pollutant trading; mercury credits for sulfur dioxide credits. This will set a new environmentally-indefensible standard and will establish a nationwide precedent for which NH does not want to be responsible. We do not want to see any inter-pollutant trading, especially when the toxin mercury is involved, and when it will erode existing requirements for sulfur dioxide reduction.**

PSNH's first responsibility is to its shareholders, not the ratepayers and citizens of New Hampshire. This state is responsible for the health and well being of its citizens and future generations, and it is the steward of our natural resources. We must make all efforts to uphold this fiduciary as well as moral responsibility.

Speakers List for NH House Science, Technology and Energy Committee **RE: HB1673, Mercury Health Effects, Technology Options and Environmental Impact**

Hubbard Brook Research Foundation (HBRF)

Kathy Fallon Lambert, Mercury Project Leader (802-457-9712, kfl@ecosysteminfo.com)

*Area of expertise: connecting mercury emissions w/deposition & accumulation in NH's fish/wildlife, new research has been focused on the local impacts of mercury emissions in NH

Biodiversity Research Institute (BRI)

Dr. David Evers, Executive Director (207-839-7600, x. 110, david.evers@briloon.org)

*Area of expertise: extent and impacts of mercury contamination in NH's fish, wildlife - research has found mercury hotspots in NH

***** Given the connections between BRI & HBRF's research, it would make sense to have them speak to the committee on the same day, if at all possible *****

Northeast States for Coordinated Air Use Management (NESCAUM)

Praveen Amar, Science & Policy Director (617-259-2026, pamar@nescaum.org)

*Area of expertise: feasibility/cost of mercury control technology for power plants, regional perspective on progress being made by other states on mercury emissions, importance of strong regulatory requirements for mercury controls, etc.

ADA Environmental Solutions

Michael Durham, 303-734-1727

Leading expert from a mercury control technology company

Institute of Clean Air Companies

Dave Foerter, 202-457-0911, <http://www.icac.com/>

National association of companies that supply air pollution monitoring and control systems, equipment, and services, well versed on the status of mercury control

New Hampshire Department of Environmental Services (NHDES)

Pam Schnepfer, Senior Toxicologist 271-3994, pschnepfer@des.state.nh.us

*Area of Expertise: Health affects from mercury in children and adults, state specific information on exposure levels and effective education programs.

Clean Power Coalition

The NH Clean Power Coalition represents the interests of over **24,000** NH residents from the combined group membership of Citizens for a Future NH, Conservation Law Foundation, Clean Water Action, National Wildlife Federation, NH Medical Society, NH PIRG NH Rivers Council NH Sierra Club, NH Wildlife Federation, NH Unitarian Universalist Social Responsibility Department, Worldview, Ltd

TBA, Contact Catherine Corkery 224-8222, Catherine.corkery@sierraclub.org

*Area of Expertise: The Coalition would like to examine and analyze the results from the scientific mercury tests conducted this summer at Merrimack Station in Bow and present our findings to the committee. **THEREFORE, we request time in the committee's agenda** schedule after the results are made public.

NH CLEAN POWER COALITION

Citizens for a Future NH • Clean Water Action • Conservation Law Foundation
Granite State Disability Coalition • National Wildlife Federation • NH Medical Society
NH Rivers Council • NH Public Interest Research Group • NH Sierra Club
Worldview, Ltd • NH Unitarian Universalist Social Responsibility Dept.

Senator Bob Odell, Chairman
Energy and Economic Development Committee
Legislative Office Building, Room 102
Concord, New Hampshire 03301

Re: **House Bill 1673**

Dear Chairman Odell and Committee Members,

The NH Clean Power Coalition, a group of 11 organizations representing over 20,000 citizens and ratepayers in New Hampshire, appreciates the opportunity to testify before your committee to offer our input on HB1673. This bill does not go far enough in protecting the ratepayers, the health of New Hampshire citizens or our environment of which we are all so proud. The Senate has an opportunity to improve this bill, in order to craft a solution that better serves the interests of New Hampshire's public health and economy – and we respectfully request that you take this opportunity.

Specifically, the NH Clean Power Coalition supports a stronger bill that:

- **Sets up a more reasonable timetable.** 2013, the current deadline in the bill, is far too lenient and places an unacceptably high financial burden on New Hampshire ratepayers. This bill should require PSNH to install scrubber technology by 2011 - with opportunities for an extension, if needed.
- **Requires near-term action to control mercury pollution.** PSNH has verbally agreed to study and implement mercury control technology with the assistance of a Department of Energy grant of \$2.5 million. This bill should memorialize that commitment and require PSNH to keep this technology in place to achieve the highest level of mercury reduction feasible - unless a higher level of mercury reduction is achieved once the scrubber is installed.
- **Calls for a higher level of mercury reduction.** Other states have required 90% mercury control, and higher, rather than the 80% currently required in HB 1673. Results for the industry demonstrate that reduction levels are commonly higher than 80% using existing technology and New Hampshire should require nothing less.
- **Eliminates the controversial inter-pollutant trading scheme.** HB1673 currently creates a legally questionable system of mercury credit banking and conversion to sulfur dioxide credits - making New Hampshire the first in the nation to consider such an "apples to oranges" approach. Not only is this a bad precedent, it weakens state law aimed at reducing the sulfur pollution.

The Appalachian Mountain Club (AMC) has proposed an alternative scenario that would similarly provide economic incentives that commit to reducing mercury and sulfur dioxide without engaging in the controversial and questionable practice of using mercury credits as sulfur dioxide credits. AMC's proposal would save New Hampshire ratepayers - both residential and commercial - more money. The faster PSNH moves to control their mercury and sulfur dioxide pollution, the more money we save. This is a win/win for New Hampshire citizens and our environment. While the proposal does not address all of the NH Clean Power Coalition's concerns with HB1673, we believe the approach deserves full consideration by this Committee as it appears to achieve the environmental goals sooner, and more affordably, than the current bill. Anything less is a dereliction of legislator responsibility to their constituents.

When this process is over, the people and businesses of New Hampshire will ask their Senators this question: "what did you do to keep my electric rates down?" and "why can't I consume the fish from our lakes?" They deserve a better answer than "HB1673 was better than nothing". They deserve to be told that "the NH Senate improved the bill so that our local environment is safer and our ratepayers are protected from unnecessary increases."

NH's Clean Power Coalition is asking for a smart solution - one that requires a thorough examination from the NH Senate, with resolve to send this bill back to the House better for the environment, healthier for our children and cheaper for the ratepayers. It is with perseverance, legacy and reason that this will be possible. We can do this.

Sincerely,
New Hampshire Clean Power Coalition

New Hampshire Clean Power Coalition
Citizens for a Future NH -Clean Water Action -Conservation Law Foundation
Granite State Disability Coalition -National Wildlife Federation –NH Rivers Council-
NHPIRG –NH Sierra Club-NH Wildlife Federation- Worldview, Ltd. – NH UU Social
Responsibility Department

January 19, 2006

The Honorable Lawrence C. Ross, Chairman
House Science, Technology and Energy Committee
Legislative Office Building, Room 304
Concord, NH 03301

RE: HB 1673

Dear Chairman Ross and Members of the Committee:

The New Hampshire Clean Power Coalition wishes to follow-up on comments and questions raised during the previous hearing on HB 1673.¹ The original Clean Power Act passed in 2002, which HB 1673 would amend, called for aggressive reductions in mercury emissions by the imposition of an annual cap on mercury emissions from coal power plants, to be set by July 2005. RSA 125-O:3, III(c). As discussed previously, however, what started out as legislation to meet this goal, i.e. SB 128, has become legislation directed at reductions in sulfur dioxide emissions. In fact, HB 1673 would *significantly undermine important economic incentives* created in 2002 under the original Clean Power Act, and unreasonably delay installation of pollution controls.

The Committee's consideration of HB 1673 must therefore start with a thorough understanding of the mandates and economic incentives of the original Clean Power Act, and address certain fundamental issues that require further exploration before final decisions can be made about what is in the best interests of New Hampshire's ratepayers and its citizens downwind of the Bow power plant. The Coalition submits that these fundamental questions must be answered during this Committee's deliberative process:

- 1) **What economic incentives provided by the current Clean Power Act would be undermined by HB 1673 to the detriment of New Hampshire ratepayers?**
- 2) **What is a reasonable deadline goal for the implementation of sulfur dioxide scrubber controls at the Bow power plant?**
- 3) **In the meantime, what mercury control technology is economically and technically feasible and should be installed in the near term?**

¹ The Coalition includes environmental, wildlife, consumer, health and faith-based organizations representing thousands of citizens from all walks of life in New Hampshire

The Coalition provides the following responses to each of these fundamental questions:

1) What economic incentives provided by the current Clean Power Act would be undermined by HB 1673 to the detriment of New Hampshire ratepayers?

To begin with, the original Clean Power Act provided a carefully negotiated set of economic incentives for the early implementation of sulfur dioxide (SO₂) scrubber controls at PSNH's coal plants. These economic incentives are structured on the federal SO₂ emission cap and trade program. Under the federal CAA, PSNH currently has an SO₂ emissions cap of approximately 29,000 tons. They emit on average 54,000 tons of SO₂ annually from 3 power plants, and therefore are *currently purchasing* about 24,000 tons/ credits per year. The costs of these credits fluctuate, from \$600 to over \$1500 per credit currently, and PSNH has therefore been *paying about \$15 million to potentially \$24 million or more annually* to meet its current obligations. (An accounting of these expenditures should be contained in filings by PSNH with the PUC.)

Starting in January 2007, the current Clean Power Act (RSA 125-O:3, III(a)) *lowers* the SO₂ cap to 7289 tons, and PSNH will then need to purchase another 21,000 SO₂ credits per year, at an *additional cost of \$13 million to \$21 million or annually until scrubbers are installed*. The Clean Power Act therefore has an economic incentive provision, negotiated and agreed to by PSNH in 2002, to help it meet the 2007 emission cap. For every ton PSNH reduces its SO₂ emissions, it will: 1) no longer need to buy a SO₂ allowance credit to meet the 7,289 cap, and 2) receive an *additional SO₂ allowance credit* to use as it pleases. RSA 125-O:4,IV (a) (2). These additional credits are capped at 20,000 per year and phase out over 3 years.

So, after PSNH installs scrubbers at the Bow plant to reduce its SO₂ emissions by 90%, i.e from 29,800 tons to 1500 tons, PSNH will earn approximately 20,000 credits in the first 2 years, and about 10,000 credits in year 3. PSNH therefore would:

- a. no longer need to purchase about 28,000 credits per year, **saving about \$28 million per year** (assuming \$1000 per ton), and
- b. **earn an additional 50,000 credits, or \$50 million**, over the next 3 years.²

The current economic incentives therefore work to the benefit of NH ratepayers *the sooner scrubbers are installed*. And, HB 1673 will significantly undermine these economic incentives by allowing PSNH to *further delay installing scrubbers for eight more years*, until 2013. These projections will of course vary with the market value of SO₂ credits, but it is clear that PSNH, and therefore the ratepayers, will save \$ millions by reducing SO₂ emissions as soon as scrubbers are installed. *The value of these economic incentives to ratepayers is clear, and this Committee should request a thorough analysis of these economic impacts by the NH PUC.*

In addition, a complete analysis of the ultimate benefit or impact to ratepayers from installing scrubbers will require a realistic and accurate determination of the costs of scrubber installation. At this point, the number argued by PSNH is \$250 million; this number appears,

² While some portion of the credits earned will likely be used by PSNH to meet its cap obligation, the \$ value to ratepayers is the same as PSNH will no longer need to purchase credits on the market.

however, to be stated in \$2013. A recent estimate by DES, in \$2004, is \$189 million. Moreover, EPA has projected the average costs for scrubber installation to be nearly half of PSNH's estimates. *This variation is clearly significant, and a thorough analysis of a low and high range of projected costs should be completed independently of PSNH's estimates.*

Finally, HB 1673 contains a much-discussed provision allowing the conversion of mercury credits to SO₂ credits, as an additional financial incentive to install controls. It is clear, however, that the current economic incentives provide substantial value to PSNH, without the additional issues these mercury conversion credits will raise, such as the legality of converting mercury credits to SO₂ credits.

2) What is a reasonable deadline goal for the implementation of sulfur dioxide scrubber controls at the Bow power plant?

Setting a reasonable deadline goal for implementing sulfur scrubber controls should be based on a straightforward, objective determination of how long the design, permitting and construction is likely to take. Scrubber controls have been in use for many years at numerous large coal power plants across the U. S., and other industrial countries across the world. Scrubber technology has significantly advanced, and numerous engineering designs are available. In other words, PSNH would not be starting from scratch, and likely has already done some pre-engineering work to reach its estimation of projected cost. As Director Scott projected at the recent hearing, the state permitting should reasonably be completed by early 2009 at the latest, and construction completed in one to two years. The timeframe for completing the permitting process will depend to some degree on whether there is opposition from interest groups - however a well-crafted bill with acceptable provisions will likely eliminate these types of delays, allowing permitting to be completed well before 2009. A reasonable deadline goal for the implementation of SO₂ controls is therefore 2010.

3) In the meantime, what mercury control technology is economically and technically feasible and should be installed in the near term?

Among the current flaws in HB1673 is the lack of a requirement to reduce mercury emissions from Merrimack Station in the next few years. Emissions from Merrimack Station are a major contributor to the hotspot of mercury contamination in southeast New Hampshire. As a result, the Committee should focus on achieving the most significant reductions in mercury pollution possible, as quickly as possible. *To argue that HB1673 accomplishes this is misinformed at best, and misleading at worst.*

The development of mercury emissions control technology is rapidly advancing, leading Massachusetts, Connecticut, New Jersey – with Pennsylvania and Illinois – to conclude that 90% control of mercury emissions by the end of this decade is a reasonable regulatory target for coal-fired power plants. PSNH took a very brief, first look at Activated Carbon Injection (ACI) this summer, and a report of this test has yet to appear before the Committee. PSNH has indicated, in vague and nonspecific terms, that this test did not go as well as hoped and therefore the emission targets and timelines in SB 128 have been proven infeasible. This Committee and the people of

New Hampshire have a right to see a report on this test in order to understand what occurred, why, and how any challenges encountered could be addressed.

Most importantly, the ACI test performed at PSNH last summer is just the tip of the iceberg of the power of this technology. To draw from it the conclusion that ACI is not an option for mercury control at Merrimack Station, and therefore the plan laid out in HB1673 is the best we can do for mercury reduction, overlooks the significant potential of this technology. Experts in this field readily argue that 90% control of mercury is possible at all types of coal plants, quickly and cheaply. *The Coalition strongly urges the Committee to seek additional testimony from leading experts in this field, and not overlook the feasibility of strengthening HB1673 to require more mercury reduction, sooner, than is currently proposed.*

In conclusion, it is time to go beyond only asking PSNH what's possible for reducing mercury pollution. The people of New Hampshire expect, and deserve, more from the legislative process. The Committee must fulfill its role by taking a hard look at the numbers and assumptions provided by PSNH, and reach its own independent determination as to what must be done in the best interests of New Hampshire's ratepayers and citizens. Scrubbers should have been priority number one for PSNH as soon as the Clean Power Act passed in 2002; if scrubbers were on line by 2007, PSNH would have saved ratepayers about \$47 million in 2007 when the new cap and these incentives kick in. At this point there should be no further delays, a target date of 2010 for scrubbers, and interim controls for mercury should be incorporated into the bill.

Sincerely,

Brad Kuster
Conservation Law Foundation
New Hampshire Advocacy Center

For the: New Hampshire Clean Power Coalition:

Citizens for a Future New Hampshire
Clean Water Action
Conservation Law Foundation
Granite State Disability Coalition
New Hampshire PIRG
New Hampshire River Council
New Hampshire Sierra Club
National Wildlife Federation
New Hampshire Wildlife Federation
Worldview, LTD
New Hampshire UU Social Responsibility Department

New Hampshire Clean Power Coalition
Citizens for a Future NH -Clean Water Action -Conservation Law Foundation
Granite State Disability Coalition -National Wildlife Federation -NH Rivers Council-
NHPIRG -NH Sierra Club-NH Wildlife Federation- Worldview, Ltd. - NH UU Social
Responsibility Department

January 12, 2006

The Honorable Lawrence C. Ross, Chairman
House Science, Technology and Energy Committee
Legislative Office Building, Room 304
Concord, NH 03301

RE: HB 1673

Dear Chairman Ross and Members of the Committee:

Once again, the New Hampshire Clean Power Coalition, a group of environmental, wildlife, consumer, health and faith-based organizations representing thousands of citizens from all walks of life in New Hampshire, is before you to discuss HB 1673. I am Nancy Girard, Director and Vice President of the Conservation Law Foundation's New Hampshire Advocacy Center, a member of the Clean Power Coalition. The Coalition has come together to advocate for mercury reduction because of the high cost of mercury contamination to our environment and to human health.

Since this topic of mercury reduction with respect to the Merrimack and Schiller coal powered stations was introduced to the Senate and House last year, significant efforts have been made to reach compromises on legislative proposals. SB128 as passed by the Senate reduced mercury in two phases, first to 50 pounds by 2009 and then to 25 pounds by 2013. This bill was clear and did not mandate the type of technology to the owner of the power plant. The proposal currently before you was worked out for the most part without input from the environmental community represented by our Coalition. Although we applaud certain aspects of this current proposal, we urge this Committee to tighten deadlines, force greater air emissions reductions and require PSNH to address a number of issues important in determining the best outcome for NH ratepayers.

The New Hampshire Clean Power Coalition's key concern is that HB 1673 does not set a strong enough standard to protect the people of New Hampshire, and our lakes, rivers, fish, and wildlife from ongoing mercury pollution. This new proposal would weaken the requirements in the Senate bill by allowing substantially more mercury to be released into the environment over a longer period of time. And, it would create a new and legally untested policy of creating credits from mercury reductions which can then be converted into SO2 credits. In short, this new proposal replaces the simple, timely and strong protections offered by Senate Bill 128 with a

complex mix of compliance schedules, and credit formulas, resulting in weak standards and a lax timeline for cleaning up mercury pollution.

Moreover, what started out in the Senate as a mercury control bill has now become a bill based on technologies designed to reduce sulfur dioxide emissions. HB 1673 currently calls for an 80% reduction of mercury, and requires that these reductions be achieved by sulfur dioxide scrubber control technology, allowing 8 years -until 2013- before this scrubber technology must be installed at Merrimack Station. In addition, it gives PSNH incentives to further reduce emissions by allowing early mercury reductions to be converted to additional sulfur credits.

This Committee has been provided with scientific studies (see attached testimony package from SB 128 hearing on April 12, 2005) showing that when local emissions are reduced, mercury levels in fish and wildlife will also drop. The recent studies published in the science journal *Ecotoxicology* show the high levels of mercury contamination found in numerous waterbodies, and the fish and wildlife they support, in southeastern New Hampshire- immediately downwind of PSNH's Bow power plant. Local mercury emissions are therefore significant, and every reduction in mercury emissions will provide a health and environment benefit.

It is essential then that we take a strong position on controlling mercury emissions in our own state. New Hampshire is surrounded by and downwind of other states calling for the 90% control of mercury emissions from power plants. Illinois, a major Midwest contributor to mercury in New England, announced just last week a proposed 90% reduction of mercury emissions by 2009. New York is addressing a similar legislative proposal. Other states now requiring major reductions in mercury emission from coal plants include Massachusetts, Connecticut, and New Jersey. New Hampshire cannot fall back on the argument that our mercury comes from the Midwest and from global sources when we have documented high levels of mercury pollution that have come substantially from sources in this state. Every pound reduced will make a difference in New Hampshire's ecosystems.

Current economic incentives under the Clean Power Act provide greater benefit to NH rate payers if scrubber controls are installed sooner:

To begin with, the impact HB 1673 could have on New Hampshire's ratepayers must be assessed, and a number of important issues must be explored. The Committee's analysis should start with the CPA now in effect, as negotiated by PSNH and passed in 2002. RSA 125-O acknowledges the need for "aggressive" and "substantial further" reductions in sulfur dioxide, mercury and other pollutants. RSA 12-O: 1, III and V. To accomplish these reductions the CPA set up a market-based approach and provides significant economic incentives to PSNH to reduce the sulfur dioxide emissions from its power plants. In simple terms, the CPA provides a double credit for each ton of sulfur dioxide removed on site, beyond previous years' emission levels. The value of these credits, and the economic benefit they provide to New Hampshire's ratepayers, is then equal to the market value of those credits under the federal sulfur dioxide credit trading program.

In short, the current CPA provides significant economic incentives to PSNH to install sulfur dioxide scrubber control technology. These economic incentives have been in place since 2002, and will provide significant cost savings to ratepayers as soon as scrubber technology is installed and the economic value of credits earned by sulfur reductions is credited back to the rate payers. An economic analysis from last year by DES, assuming credit values (\$500 to \$600 per ton) that are much lower than current market values, shows how these credits can significantly reduce the actual impacts to the rate payer of installing these control technologies. (See "Mercury Control Cost Estimates" prepared by DES, dated April 11, 2005, addressing costs estimates for sulfur dioxide scrubber scenarios, attached hereto.) In fact, the *current* market value of these sulfur dioxide credits (currently trading over \$1500 per ton) would *reduce* the costs borne by rate payers *below* current rates. (See Argus Air Daily, January 10, 2006 issue, attached hereto.)

Given the importance of assessing the impact HB 1673 will have on New Hampshire's ratepayers, a number of important issues must be explored. Only then can the actual costs, and potentially reduced costs to ratepayers, be assessed. To begin with, a careful look should be given to the projected cost of installing scrubber controls, and how those cost will be borne by the rate payers. The economic benefit of the sulfur dioxide credits that will be earned by PSNH should then be assessed based on projected market values of those incentives when earned. Finally, a careful analysis should be performed of the economic benefit to rate payers of installing scrubber technology as soon as possible, by 2009, as compared to delaying installation until 2013.

Based on our preliminary analysis, significant benefit to New Hampshire's rate payers will occur if scrubber controls are installed by 2009 --2010, with potentially greater savings to rate payers over the long term. A careful analysis must be performed to determine the cost savings to ratepayers from installing scrubber controls as soon as practicable, so the true economic costs and benefits can be assessed. This economic analysis should then be considered along with the public health and environmental *benefits* from reducing mercury and sulfur dioxide emissions.

PSNH's public commitment to install interim Mercury control technologies should be memorialized to begin reducing emissions as soon as practicable:

The commercial availability and benefits of interim mercury controls is rapidly evolving. PSNH has applied for a grant from the US Department of Energy for up to \$2.5 million toward a pilot project at Merrimack Station using activated carbon injection (ACI) control technology to reduce mercury emissions, and has pledged an additional \$2.5 million toward this project. PSNH should then have the flexibility to test and propose the best combination of the available current technologies, with review and input by DES and interested stakeholders. Experts in this rapidly advancing field are confident that expenditures in the \$1 to \$5 million range are likely to accomplish up to 90% reductions in mercury emissions, and can be implemented in one year or less. HB 1673 should therefore hold Merrimack Station to an interim reduction level, once the pilot project testing shows the optimum control level achievable by these currently available technologies, by 2007.

Currently available scrubber control technologies support a 90% reduction goal:

Finally, the long term target for Mercury reductions should also reflect the demonstrated commercial feasibility of reaching 90% control of mercury emissions. Current state-of-the-art scrubber controls have been demonstrated, on the same plant configuration as the Bow plant, to reduce mercury emissions by 90% or more. The target emissions control level should therefore be increased from 80% to 90%.

In conclusion, implementation of the scrubber technology called for by HB 1673 is already called for by the significant economic incentives of the first Clean Power Act adopted in 2002. Needless to say, sulfur dioxide scrubber controls should be implemented with all due speed for the benefit the ratepayers that are paying not only for electricity, but also for the huge economic, public health and environmental costs of sulfur dioxide and mercury pollution. In addition, interim Mercury controls should be implemented, as PSNH acknowledges it intends to do, over the next six months to one year, and an interim target reduction be required once those likely control levels are determined. Combined with a 90% control requirement once the scrubber is installed, this approach will insure that our state's coal plants are reducing their mercury emissions as soon and as much as is practicable.

To do anything less is to shortchange the people of New Hampshire, and to perpetuate an unfair and unnecessary "pollution subsidy" in our state's power generation system. We can do better, and must do better to fully protect our state's public health and environment from the ongoing threat posed by power plant mercury pollution.

Sincerely,

Nancy L. Girard
Vice President and Director
Conservation Law Foundation
New Hampshire Advocacy Center

For the: **New Hampshire Clean Power Coalition:**
Citizens for a Future New Hampshire
Clean Water Action
Conservation Law Foundation
Granite State Disability Coalition
New Hampshire PIRG
New Hampshire River Council
New Hampshire Sierra Club
National Wildlife Federation
New Hampshire Wildlife Federation
Worldview, LTD
New Hampshire UU Social Responsibility Department

NH CLEAN POWER COALITION

A concern for protecting NH

A diverse alliance of conservation, recreation, faith-based and public health groups have come together to advocate for passage of a mercury bill because of the well-documented, continuing contamination of our environment and the resulting devastating impacts on human health and wildlife, in addition to the heavy costs to economic, educational and recreational interests in the state of New Hampshire.

Coalition Platform

We **support** legislation to significantly reduce mercury emissions from each of NH's coal plants by the end of this decade and ultimately require 90% or greater control of the mercury emissions from the state's power plants.

We **oppose** legislation to reduce power plant mercury emissions in NH that would allow emissions trading or offsets that allow alternatives to smokestack reductions.

Coalition Members & Profiles

Citizens for a Future NH, *Hopkinton, NH* is a citizens environmental group that is concerned for the protection of the environment of New Hampshire and the public health of its citizens. **225-2252**

Clean Water Action, *Portsmouth, NH* is a citizens' organization working for clean, safe and affordable water, prevention of health-threatening pollution, creation of environmentally safe jobs and businesses, and empowerment of people--including our 5,000 NH members--to make democracy work.
www.cleanwateraction.org / 430-9565

Conservation Law Foundation, *Concord, NH*, is a regional organization that works to solve the most significant environmental problems that threaten New England. CLF's advocates use law, economics and science to create innovative strategies to conserve natural resources, protect public health and promote vital communities in our region.
www.clf.org / 225-3060

Granite State Disability Coalition, *Plymouth, NH*. People with every ability actively involved in enlightening people with any ability on the need to look for better ways to sustain a society that supports people of all abilities. **536-1884**

National Wildlife Federation, *Montpelier, VT*
NWF represents the power and commitment of nearly a million members nationwide, over 7,000 of which reside in

NH. NWF's mission is to inspire Americans to protect wildlife for our children's future.
www.nwf.org/mercury / 802-229-0650

NH Medical Society, *Concord, NH*. Represents over 2000 NH physicians (MD and DO) to advocate for patients and physicians on matters of public health and medical policy. Governed by member physicians who participate in all policy and program decisions. Actively participates in the legislative process to educate state and national elected officials and promote its mission. **www.nhms.org / 224-1909**

NH PIRG, *Concord, NH* delivers persistent, result-oriented public interest activism that protects our environment, encourages a fair, sustainable economy, and fosters responsive, democratic government. NHPIRG has about 2000 members statewide. **www.nhpirg.org / 229-3222**

NH Rivers Council, *Concord, NH*, with 200 members, is the only statewide conservation organization wholly dedicated to the protection and conservation of New Hampshire rivers, by educating the public about the value of the state's rivers, designating rivers in the state's protection program, and advocating for strong public policies and wise management of New Hampshire's river resources.
www.nhrivers.org / 228-6472

NH Sierra Club, *Concord, NH*
is a non-profit member-supported, public interest organization with 6,000 NH members, that promotes conservation of the natural environment by influencing public policy decisions through legislative, administrative, legal, and electoral means. Mission: To explore, enjoy, and protect the wild places of the earth; To practice and promote the responsible use of the earth's ecosystems and resources; To educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.
www.nhsierraclub.org / 224-8222

NH Wildlife Federation, *Concord, NH* is a non-profit 7,500 member organization promoting conservation, environmental education, sportsmanship, and the outdoor activities of hunting, fishing and trapping.
www.nhwhf.org / 224-5953

NH Unitarian Universalist Social Responsibility Department, *Concord, NH* has 200,000 members nationally and 3,500 members in NH. Seeking to make democracy work, honoring the web of existence.
www.nhfaithfuldemocracy.org / 228-8704

Worldview, Ltd, *Peterborough, NH* is a nonprofit organization that produces educational events linking environmental, economic and social justice issues.
924-9750

*The NH Clean Power Coalition represents the interests of over **24,000** NH residents.*

Last updated: 9/20/05