AR 4005

Tetra Tech Incorporated
Brayton Point NPDES Permitting Effort

Addendum to Noise Impact Assessment

Prepared under subcontract to
Tetra Tech, Inc. under EPA
Contract 68-C99-263, WA 6-09

H322455-RPT-0001-CA01
Rev. 1
November 20, 2006

AR 4005
EXHIBIT R12

Project Report

H322455-RPT-0001-CA01
Rev. 1

November 20, 2006

Tetra Tech Incorporated
Brayton Point NPDES Permitting Effort

Addendum to Noise Impact Assessment

Prepared under subcontract to Tetra Tech, Inc. under EPA Contract 68-C99-263, WA 6-09

HATCH™

Project Report

November 20, 2006

Tetra Tech Incorporated

Brayton Point NPDES Permitting Effort

DISTRIBUTION

Shari Goodwin	– Tetra Tech, Inc.
Mark Stein	– EPA
Damien Houlihan	– EPA
Bernard Bruman	– Hatch
Tim Kelsall	– Hatch

Prepared under subcontract to Tetra Tech, Inc. under EPA Contract 68-C99-263, WA 6-09

Table of Contents

Attachments:

Attachment A - Noise Impact Assessment (September 29, 2003)
Attachment B1 - Conditional Approval A
B2 - TRC Plan Approval Application
Attachment C - Revised Conditional Approval of Brayton Point Air Pollution Control Equipment

1. Introduction

Hatch previously prepared a "Noise Impact Assessment" (PR313582.001) (September 29, 2003), to assess the sound emissions that would result from using mechanical draft wet cooling towers at the Brayton Point Station power plant to service all four electrical generating units at the facility (a copy of Hatch's initial Noise Impact Assessment is appended as Attachment A). Cooling tower sound emissions are one of the factors that the Environmental Protection Agency (EPA) considered in determining the appropriateness of cooling water intake permit conditions for the potential installation of such cooling towers at Brayton Point Station.

EPA ultimately issued the permit with technology-based cooling water intake limits based on the use of cooling towers at Brayton Point Station. The company appealed the permit and EPA's Environmental Appeals Board (EAB) remanded the permit to EPA for further consideration of the noise issues. As a result, EPA asked Hatch (under subcontract to Tetra Tech, Inc.) to prepare this Addendum to Hatch's initial Noise Impact Assessment.

While neither the EAB nor EPA identified any technical problems with regard to the methodologies used in the initial Noise Impact Assessment, EPA requested that we address some additional issues in light of the EAB's remand of the permit. In addition, follow-up discussions with the Massachusetts Department of Environmental Protection (DEP) related to this additional work further clarified how the DEP implements its noise regulations.

The issues posed by EPA did not raise significant new questions or require substantial new analysis. No new data was collected. Rather, we looked at the existing data in some additional ways, such as including the sound emissions from the new air pollution control equipment together with sound emissions from the cooling towers. Hatch conducted these analyses using the existing information and we reached the same ultimate conclusion as we did in our earlier report. In the initial Noise Impact Assessment (Attachment A (denoted PR313582.001), p. 9), our primary conclusion was as follows:

"It is concluded that the cooling towers can be installed using technology known to the industry without violating the Massachusetts regulation and at a level that would be acceptable in most jurisdictions. It will require noise control measures beyond a simple low noise cooling tower but well within the current state of the art."

This conclusion remains unchanged and on that basis we can conclude that sound emissions from the plant (including appropriate cooling towers and barriers and the new air pollution control equipment) are likely to comply with the State's regulations.

2. Massachusetts Noise Standards

Massachusetts noise standards are discussed and explained in EPA's "Brayton Point Station NPDES Permit Remand Determination Document." Hatch relies upon this discussion and explanation in this Addendum to Hatch's initial Noise Impact Assessment.

3. Analysis

At the DEP's recommendation, the basic approach Hatch followed for the initial Noise Impact Assessment was patterned after the analysis submitted to DEP by Brayton Point Station in support of its 310 CMR 7.02 Plan Approval Application for its proposed air pollution control equipment (prepared by TRC, Revision 2, April 2003, with Revision 3 – May 2003 Replacement Pages). The DEP issued a Conditional Approval of this application on June 27, 2003, after public hearing and public comment.[1].

3.1 Brayton Point Station's Analysis for the Proposed New Air Pollution Control Equipment

For its analysis, Brayton Point Station first measured baseline sound levels in the area, *including* noise from the existing power plant. The following is excerpted from the Brayton Point Station report (id. Section 5.2) submitted to the MA DEP (see Attachment B2).

The following Tables 1-3 are Tables reprinted from Brayton Point Noise Study by TRC:

Table 1: Observed Noise Sources – March and May 2002 Daytime Monitoring

Monitoring Location	March 2002	May 2002
Home Street	Route 195 traffic, birds, Wilbur Road traffic, faint Facility	Route 195 traffic, birds, Wilbur Road traffic
Jackson Avenue	Route 195 traffic, birds, occasional Brayton Point Road traffic	Route 195 traffic, birds, Brayton Point Road traffic, lawn maintenance equipment, occasional people talking
Perkins Street	Facility, birds, faint traffic	Facility, birds, occasional people talking, faint traffic
Bayside Avenue	Facility, waves on shore, birds	Facility, birds, waves on shore
New Gardners Neck Road	Facility, birds, occasional New Gardners Neck Road traffic	Facility, lawn maintenance equipment, birds

Table 2: Observed Noise Sources – March and May 2002 Late Night Monitoring

Monitoring Location	March 2002	May 2002
Home Street	Facility, Route 195 traffic	Route 195 traffic, Facility, insect chirps
Jackson Avenue	Route 195 traffic, Facility	Route 195 traffic, Facility, occasional night birds
Perkins Street	Facility	Facility, dog barks
Bayside Avenue	Facility, waves on shore	Facility, birds, occasional night birds
New Gardners Neck Road	Facility, occasional night birds, faint traffic	Facility

[1] The DEP faxed pertinent pages of the Brayton Point Station analysis and the DEP's conditional approval to Hatch on September 2, 2003. The materials provided by the DEP were referenced on page 3 of Hatch's initial Noise Impact Assessment. They are also presented here as Attachment B1&2.

The measured late night L_{90} noise levels data were tabulated and are presented in Table 3. The data are presented for each monitoring program, as well as the average baseline levels.

Table 3: Overall Measured Ambient Night time L_{90} Noise Levels (dBA)

Receptor	March 2002 Late Night L_{90}	May 2002 Late Night L_{90}	Average Baseline Late Night L_{90}
Home Street	39	37	38
Jackson Avenue	43	40	42
Perkins Street	47	47	47
Bayside Avenue	46	44	45
New Gardners Neck Road	36	38	37

Brayton Point Station then obtained estimates of the sound levels that would be emitted by the proposed air pollution control equipment. Id. Section. 6-1. Finally, Brayton Point Station modeled the sound level increases that would occur above the existing sound levels (including the power plant noise) as a result of the air pollution control equipment together with various sound mitigation measures. Id. 1-1, 6-1 to 6-3. Brayton Point Station did not provide, and was not required to provide, an estimate of sound levels without power plant operations. The predicted sound levels were, instead, compared to a baseline of the sound levels measured *including* sound from the existing power plant. Id. Sections 3-1, 6-1, 6-3, 7-1. In addition, Brayton Point Station indicated that it had developed a "noise assessment protocol" under which sound level increases of more than 5 dBA above the existing levels, including the power plant, would not be allowed. Id. Sections 3-1, 6-3, 7-1. The facility's conclusions emphasized that the new equipment would satisfy this "protocol." Id. Sections 6-3 and 7-1.

While the facility's report also mentioned the 10 dBA over ambient guideline from the state's written noise control policy, the report never discusses whether the sound emissions from the new air pollution control equipment would meet this standard, regardless of whether "ambient" sound levels are defined to exclude sound from the existing facility. The facility's report never provides any estimate or measurement of sound levels in the area of Brayton Point Station excluding sound from the existing facility. Thus, the company appeared to be applying the state's noise policy using a definition of "ambient" that included existing facility noise. The DEP approved the company's application.

Without referring to the protocol identified by Brayton Point Station, the DEP accepted the facility's analysis and gave conditional approval for the addition of the air pollution control equipment, with specified noise mitigation measures. The DEP has also informed EPA that the state went to a public hearing on its proposed approval of Brayton Point Station's air pollution control equipment and received no public comments regarding sound emissions. The DEP's conclusions regarding sound emissions related to the air pollution control equipment included the following points:

a) "Based on a review of DEP records, the existing facility has not caused a condition of air pollution due to sound emissions since the coal conversion in the 1980s";

b) "Four of the five receptor locations will result in an increase of 1 dB(A) or less for a total impact of between 39-47 dB(A). The fifth receptor will result in an increase of 3 dB(A) [over existing levels including the facility] for a total impact of 40 dB(A)."

c) "At the fifth receptor that will realize a 3 dB(A) increase, the overall sound impact will be 2-7 dB(A) less than three of the four other receptors and 1 dB(A) greater in comparison to the fourth receptor"; and,

d) "Sound impacts proposed in the pending application meet the requirements contained in 310 CMR 7.10 Noise and will not cause or contribute to a condition of air pollution."

(See pp. 17 – 18 in Attachment B1). The DEP also required post-construction sound measurements to define actual sound levels from the project.

3.2 Existing Sound Levels and Ambient

Hatch's initial Noise Impact Assessment (Attachment A) followed the same approach as Brayton Point Station's assessment of sound emissions from the air pollution control equipment. Hatch took its own measurements of existing sound levels, including the power plant, at or close to the same receptor sites that the company used for the air pollution control equipment assessment (shown in the following Figure 1 from that report) on a late summer evening.

Figure 1: Measurement Locations Showing Measurements from PG&E Report

Although summer is the season when sound emissions are most likely to affect a community because people are more likely to spend time outdoors or have their windows open, Hatch and EPA decided in the initial Noise Impact Assessment to use the company's own lower estimates of existing sound levels based on March and May measurements to render our analysis more conservative (i.e. more likely to identify noise effects).[2] Hatch also used the same sensitive receptor locations that Brayton Point Station had used and that DEP had accepted. As the facility did for its analysis, Hatch then obtained vendor estimates of noise emissions from the cooling tower equipment, including the levels that would result from using various potential noise mitigation measures. Finally, we estimated sound levels that would result from adding cooling towers at Brayton Point Station, based on simple energy addition. This approach was also conservative, as we did not take into account air absorption past 2000', or the effects of terrain or structures, such as intervening cooling towers, residences, or vegetation. Like Brayton Point Station, we did not provide an analysis of noise increases as compared to a baseline of sound levels without noise from the power plant.

On the basis of this analysis, we concluded that increases in sound emissions that would result from the cooling towers were significantly less than 10 dB above the existing sound levels with the plant running. As stated above, this appeared to be how Brayton Point Station understood the DEP's written noise policy and DEP appeared to accept this approach. We also concluded that octave band data provided by the cooling tower manufacturers showed no indication that a pure tone condition as defined by DEP would be created by installing the cooling towers and there should be no problem in this regard.[3] EPA shared Hatch's analysis with the DEP and the DEP indicated to EPA that the analysis and conclusions appeared acceptable and appropriate, at least for this current preliminary phase of the DEP's review of the project. Any proposal to install cooling towers at Brayton Point Station would still later be subject to DEP licensing under state clean air laws, at which point actual licensing determinations would be made by the state based on the company's application and information available at the time.

3.3 The DEP's Revised Conditional Approval of the Brayton Point Station Air Pollution Control Equipment

EPA issued the new NPDES permit to Brayton Point Station in October 2003. Since that time, the DEP issued, for public hearing and public comment, a Revised Conditional Approval on August 22, 2005, for the Brayton Point Station air pollution control equipment. The DEP provided EPA and Hatch with a copy of this document and it is attached as Attachment C. The DEP again approved the installation of the air pollution control equipment at Brayton Point Station using the same analytical approach for the consideration of sound emissions as that described above (see p. 17-18 in Attachment C). The DEP's conclusions in the August 22, 2005, Revised Conditional Approval mirror its conclusions from the 2003 Conditional Approval, which are also described above. Id.

[2] For the sake of comparison, we present in Section 3.5 an estimate of sound levels that would result from adding cooling towers to the existing environment using the company's estimates of existing sound levels and a separate estimate using Hatch's summer measurements of existing sound levels.

[3] In TRC's comments, at p. 3, on EPA's Draft NPDES Permit submitted on behalf of Brayton Point Station, TRC stated ". . . cooling towers typically add noise that can be subsumed into the background noise (i.e. the sound level is relatively constant, with no significant tones)."

3.4 Updated Analysis for this Addendum

For this Addendum, we follow the same approach as we did for our initial Noise Impact Assessment (Attachment A), except that, as requested by EPA, we have assessed the sound levels that would be produced *including* the air pollution control equipment, the cooling towers and the existing facility. We also present separate estimates based either on results using Brayton Point Station's winter/spring measurements or results using Hatch's summer noise measurements at Brayton Point Station. This analysis and the reasons for it are presented below.

The following Table 4, updated from our earlier report, shows the sound level predicted in that report at locations around the plant due to installing the proposed air pollution control equipment and the proposed cooling towers.[4] The L_{90}[5] with Plant (column B) shows the existing L_{90} in the area measured by Brayton Point Station's consultant including sound from the existing facility, and the column entitled, "BPS estimated Sound Level with Plant and Air Pollution Controls (column C)" shows the company's predicted sound level with the plant plus the air pollution control upgrade equipment installed, as approved by DEP in August 2005. Column D showing Hatch's prediction of the sound levels produced by the cooling towers alone (based on the manufacturer's prediction at 2000') is in two parts, with separate columns for estimates including the effects of air absorption and estimates excluding those effects. Column E shows Hatch's estimate for the Future Sound Level including the existing ambient, the plant, air pollution control equipment and the cooling towers installed, based on logarithmic addition. Again, column E is split into two parts, showing the change in sound levels including and excluding an adjustment for air absorption beyond 2000' (the distance at which the cooling tower manufacturer provided their estimates). As sound travels through the air, some of it is absorbed; further reducing sound levels at a distance. This air absorption was included in the Brayton Point Station's report on its proposed Air Pollution Control Equipment. It was not included in the original report by Hatch for simplicity, but its inclusion improves the prediction accuracy, since air absorption is always present when sound propagates and the cooling tower manufacturer will have included it in predicting the sound level at 2000'.[6]

[4] Data from Manufacturer 2 in Hatch's initial Noise Impact Assessment, including a barrier.

[5] L_{90}, the sound level exceeded 90% of the time, is representative of the quietest periods measured and is used in Massachusetts for assessing noise.

[6] The cooling tower sound level estimates at 2000' provided by the vendors will have included air absorption. In adjusting these values for the actual distances of the receptor locations, however, Hatch did not take account of the additional air absorption that would occur for the sites farther away than 2000'. Thus, the first column of the two-part Column D is labeled "Without Air Absorption (as in prior report)." The only adjustments made for the more distant receptors were for hemispheric spreading and, as a result, these figures would slightly over-estimate the results for the more distant sites. *See* Attachment A at p. 6,7 and in its Appendix C, p. 3. At the same time, two of the receptor sites (Perkins and Bayside Ave.) are slightly closer than 2000'. Because of the closer location, these sites would benefit from very slightly less air absorption (as well as less hemispheric spreading) than the vendors would have calculated for 2000'. Again, Attachment A adjusted the vendor values only for the reduced hemispheric spreading. Therefore, while the "Without Air Absorption" sound levels for Perkins and Bayside Ave. increase from the 2000' prediction of the vendors due to the reduced hemispheric spreading, they would very slightly underestimate the sound levels because no adjustment was made for the reduced air absorption. The effects of air absorption have been accounted for in the second column of Column D and, accordingly, the sound levels are reduced at Home, Jackson and New Gardner's Neck, and are slightly increased at Perkins and Bayside Ave.

Table 4: Predicted Sound Levels from Plant with Air Pollution Controls and Cooling Towers, Based on PG&E's Measurements (shown in Figure 1)

Column A	Column B	Column C	Column D		Column E		Column F	
Receptor Site	BPS* measured L_{90} with Plant (dBA)	BPS estimated sound level with plant and air pollution controls (dBA)	Hatch/EPA Predicted Sound Level from Cooling Towers Only (based on 43.1 dBA at 2000' predicted by manufacturer, including air absorption) (dBA)		Hatch/EPA estimated Future Sound Level (dBA), including Air Pollution Controls Cooling Towers and Plant (dBA)		Hatch/EPA estimate of Increase Above Measured L_{90} With Plant (dB)	
			Without Air Absorption (as in prior report)	With Air Absorption[7]	Without Air Absorption	With Air Absorption	Without Air Absorption	With Air Absorption
Home	38	39	40.2	39.3	43	42	5	4
Jackson	42	42	40.3	39.4	44	44	2	2
Perkins	47	47	43.6	43.7	49	49	2	2
Bayside Ave	45	46	43.3	43.4	48	48	3	3
New Gardner's Neck	37	40	39.1	37.9	43	42	6	5

*Brayton Point Station

It should also be understood that we do not have measured ambient baseline values without sound from the existing plant, as the plant runs virtually continuously and is at least slightly audible throughout the area. Neither Hatch nor Brayton Point Station could obtain such a measurement.

Considering the results for the addition of both the cooling towers and the air pollution control equipment, and accounting for air absorption, one sees that only at Home and New Gardner's Neck would the L_{90} increase by more than 3 dB over existing conditions and the predicted overall sound levels at these two receptors are the quietest of all the receptors, 2-7 dB quieter than the other three. The ambient (without existing facility sound) would have to be 31 dBA or below at these two sites in order for them to exceed the 10 dB criterion from the DEP's written policy – which is discussed in more detail in EPA's Permit Remand Determination Document. This would be very low for a residential area, especially one with a highway running through and around it. At the other three sites, the increase is even smaller (3 dB or less). An increase of 2-3 dB in a sound is barely noticeable.

[7] Adjustments for air absorption use the assumption 68 degrees Fahrenheit and 70% relative humidity. The spectrum used is based on Manufacturer's data without a barrier, plus a barrier adjustment (-1 dB at 500 Hz,-3 dB/octave above 500 Hz) giving the same A-weighted sound level at 2000' as the manufacturer's estimate with a barrier (since we only have spectrum data without a barrier).

In addition, all results are below the sound level value that EPA has in the past determined would protect public health and welfare, with a margin of safety, for outdoors in residential areas, farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.[8] This EPA-posited value is not a regulatory limit but is sometimes used as a helpful guideline for assessing overall noise levels. This value is L_{DN} = 55 dBA, which, for a steady source of sound like the Power Station, is equivalent to 49 dBA at night.[9] When we consider that cooling tower noise is steady and produced, at least in part, by falling water, it appears unlikely that it would be a cause for complaint at this level.[10] Perkins and Bayside would be 54 and 55 dBA L_{DN} respectively. However the sound level is changed very little at these two locations by the cooling towers, so it is unlikely there would be any change in community reaction at either site.

Thus, due to either a small increase or a low final value, as well as the absence of any problematic pure tones, the effect of adding both the air pollution control equipment and the proposed cooling towers should not unreasonably interfere with the comfortable enjoyment of life and property for the residents and thus sound emissions from such a plant should not be considered by the DEP to cause a condition of air pollution.

3.5 Estimated Ambient in Summer

As explained in our report, the levels we measured in the summer were considerably higher than those measured by Brayton Point Station, which were taken on two evenings, one in the winter and the other in the spring. The greater sound levels during our summer measurements were attributed to sounds from insects, frogs and other wildlife (see p. 2-3 in Attachment A). Insect noise is generally present only under warm weather conditions and is a plausible explanation for the difference between the measurements. [11]

Table 5 presents a comparison of the sound levels measured by Hatch with those measured by Brayton Point Station's consultant. This table is the same as the one presented in Section 2 of our initial Noise Impact Assessment (Attachment A), except for the addition of the rightmost column and deletion of a column not relevant here. The new (rightmost) column provides estimated minimum ambient sound levels at the various receptor locations *without the plant,* during our measurements in September 2003, based on the assumptions:

- That the plant made all the sound in the earlier Brayton Point Station measurements (which is clearly an over-estimate, as the Brayton Point Station's report, quoted above, indicates that its measurements also reflected sound from other sources such as highway traffic, waves on the shore, etc.), and;

[8] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March, 1974.
[9] EPA Levels Document, 1974. Note that the initial Noise Impact Assessment erroneously gave this value to be 48 dBA. This did not affect the initial Noise Impact Assessment's conclusions.
[10] In TRC's comments, at p. 3, on EPA's Draft NPDES Permit submitted on behalf of Brayton Point Station, TRC stated ". . . cooling towers typically add noise that can be subsumed into the background noise (i.e. the sound level is relatively constant, with no significant tones).
[11] Consistent with this fact, Table 2 from the TRC study extracted above mentions birds, but only once mentions insect noise ("Insect Chirps" at the Home site in May) and does not mention frogs during their measurements, indicating these sounds may not have been as widespread.

- That the plant produced the same sound on both occasions. (The TRC report made no reference to any seasonal variation in their submission and indeed their impact assessment implicitly assumed that the sound from the plant was steady. This is typical for large industrial sources. The wind, which can affect results, appears to have been similar during the Hatch measurements and the earlier TRC measurements.)

While we did not provide the following estimate in our original report, it is based on our existing data and was developed by simply subtracting the two sets of measurements logarithmically assuming the plant was emitting the same sound in each case. Given that the plant is producing the same sound year round, the large increase in measured sound levels in the summer compared to the cooler months must be due to other sounds and indicates that the ambient due to sounds other than the power plant must have increased well above the sound from the power plant in the area in summer. The last column gives a conservative estimate of the lowest value this summer ambient sound level without the plant could have been.

Table 5: Background Sound Level Measurements and Estimates (dBA)

Receptor Site	BPS* measured existing sound levels Mar-03	BPS measured existing sound levels May-02	Average of BPS measured sound levels	Hatch/EPA measured sound levels Sep-03	Hatch/EPA Estimated Minimum Ambient Sound Levels (Without Plant) Sept 2003 (by subtracting older measurements)
Home (Kenneth)	39	37	38	51.9	51.7
Jackson	43	40	42	50.8	50.2
Perkins	47	47	47	52.6	51.2
Bayside Ave	46	44	45	50.5	49.1
New Gardner's Neck	36	38	37	47.5	47.1

*Brayton Point Station

3.6 Prediction Based on Hatch Measurements in September 2003

Table 5 above gives estimates of the ambient without the plant present during our September 2003 measurements, which should be more representative of the warmer conditions when people will actually have their windows open or be outside in the evening and thus are most likely to notice noise. The following Table 6 shows the predicted increase above that ambient due to the plant with the proposed air pollution control equipment and the proposed cooling towers.

Table 6: Predicted Sound Levels from Plant with Air Pollution Controls and Cooling Towers, Based on Hatch September 2003 Measurements

Receptor Sites	Estimated Minimum Ambient Sound Levels (Without Plant) Sept 2003	BPS* Estimate of Sound Level with Plant and Air Pollution Controls (dBA)	Hatch/EPA Estimated Sound Level from Cooling Towers Only (including air absorption) (dBA)	Hatch/EPA Estimated Sound Level from Cooling Towers, Air Pollution Controls and Plant (dBA)	Increase Above Estimated Ambient Without Plant (dB)
Home	51.7	39	39.3	52.2	0.5
Jackson	50.2	42	39.4	51.1	0.9
Perkins	51.2	47	43.7	53.1	1.9
Bayside Ave	49.1	46	43.4	51.5	2.5
New Gardner's Neck	47.1	40	37.9	48.3	1.2

*Brayton Point Station

Under the summer conditions referred to in Table 5, the increase above the background L_{90} sound levels due to the cooling towers, air pollution control equipment and the plant would be small (2.5 dB or less). Thus, it can be concluded that during the warmer months, when residents are most likely to be affected by sound from the plant, the increased sound emissions from the addition of both the air pollution control equipment and the proposed cooling towers would not unreasonably interfere with the comfortable enjoyment of life and property for residents near the plant. As a result, these sound emissions should not be regarded to cause a condition of air pollution during these months.

3.7 Conclusion

This report, and our previous one, provides preliminary results indicating what the expected total increase in sound emissions will be at the station's neighbours from the installation of air pollution control equipment and from a full cooling tower array using quiet wet mechanical draft cooling towers with barriers. By reviewing the results of this report, the reader can understand the potential noise effects and see that they would be likely to comply with Massachusetts noise permitting requirements. However, the reader should remember that only the DEP could ultimately make such a determination based on its case-by-case review of sound impacts in the context of an application for plan approval.

3.8 Further Mitigation

It should be noted that the barrier sizes chosen by the manufacturer could likely be made higher to reduce these sound levels further, though at some increase in cost.

Finally, it may be possible that other sources of sound within the plant may be amenable to mitigation, allowing this prediction to be reduced. However, this would involve review of the existing plant systems, which is outside the scope of this study. DEP and BPS could, however, consider this during any state licensing proceeding.

T. Kelsall

TK:pdm

Attachments:

Attachment A - Noise Impact Assessment (September 29, 2003)
Attachment B1 - Conditional Approval A
B2 - TRC Plan Approval Application
Attachment C - Revised Conditional Approval of Brayton Point Air Pollution Control Equipment

Attachment A

Noise Impact Assessment (September 29, 2003)

Project Report

Tetratech
Brayton Point Power Station Cooling Towers

DISTRIBUTION

Damien Houlihan – EPA
Mark Stein – EPA
Shari Goodwin – Tetra Tech
Bernard Bruman – Hatch
Tim Kelsall – Hatch

Noise Impact Assessment

Table Of Contents

1. Introduction

The Environmental Protection Agency has determined that Brayton Point Station must reduce the cooling water flow and associated thermal discharge to Mount Hope Bay. In order to meet the performance limits contained in the permit, the company is expected to employ mechanical draft cooling towers at the facility for all four generating units. There has been a concern about the effect of noise from the cooling towers on the surrounding community. This report examines the sound levels expected, the effect on the community and the measures available to control the noise. This work was originally done without access to the plant or the community. Thus, all data was from others. Subsequently a site visit was arranged and this revision reflects results from the site visit. It was decided that there was no reason to change the results after the site visit and they remain the same.

2. Existing Conditions

Figure 1 shows ambient sound levels measured in the community as part of an application by the plant for introducing air controls. These air controls may have slightly increased sound levels from those shown, although by 1 dB or less, except at New Gardner's Neck where the sound level was expected to increase from 37 to 40 dBA. This data was provided in a telephone conversation with John Winkler of the Massachusetts Department of Environmental Protection.

Figure 1: Ambient Sound Levels at Selected Locations Around Plant (Locations Approximate)

These sound levels were measured as L90, the sound level exceeded 90% of the time, i.e. sound levels representative of the quietest times at each location.

The measurements shown in Figure 1 were averages of short term measurements taken in March and May 2002 for a Tetratech study. On September 5-7, further measurements were taken. All measurements are summarized below:

	March 2003	May 2002	Average	Expected after Tetratech installs air pollution controls	Measured September 2003
Home (Kenneth)	39	37	38	39	51.9
Jackson	43	40	42	42	50.8
Perkins	47	47	47	47	52.6
Bayside Ave	46	44	45	46	50.5
New Gardner's Neck	36	38	37	40	47.5

The first two columns were measured by a Tetratech consultant and submitted to the Massachusetts Department of Environmental Protection as part of a study for a proposed new air pollution control system. The third column is an average of the first two and is used in Figure 1. The fourth column represents the estimated sound levels expected after Tetratech installs these pollution controls.

The final column shows values measured during September 2003 by the author. They are considerably higher than the earlier results and this appears to be basically due to insect and frog noise at night in the area. Figure 2 shows the results of 24 hour monitoring in the area.

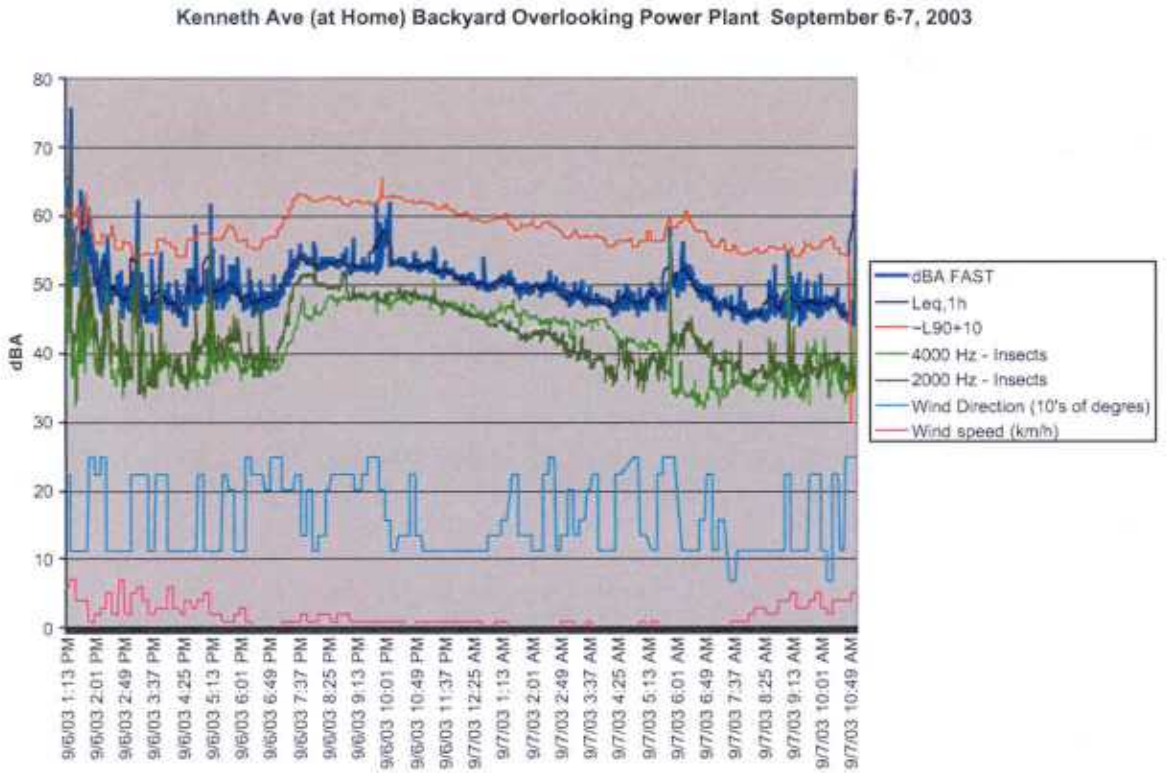


Figure 2

As can be seen, the winds were very light out of the SE to SW. Octave bands showing the sound levels at the frequencies at which insects and other wildlife make noise in the area are plotted and indicate that in the evening and at night they dominate the acoustical environment. The upper tracing shows an estimate[3] of L_{90}+10, the Massachusetts limit. It is concluded that the 2002 measurements must have been made on much cooler nights when natural sounds are lower. Although summer nights are the main concern for community noise (fewer people complain about noise in cold weather when they are inside with the windows closed), recommendations in this report will be based on the Massachusetts limits using Tetratech's earlier measurements as shown in Figure 1, which should represent the quieter times in this community. This also keeps consistency with their earlier application.

[3] L_{90} estimated using a running minimum of the following 10 $L_{eq,1min}$.

3. Criteria

3.1 Massachusetts

The Commonwealth of Massachusetts Air Pollution Control Regulation 310 CMR 7.10 : Noise states

> A source of sound will be considered to be violating the Department's noise regulation (310 CMR 7.10) if the source:
>
> 1. Increases the broadband sound level by more than 10 dB(A) above ambient, or
> 2. Produces a "pure tone" condition - when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.
>
> These criteria are measured both at the property line and at the nearest inhabited residence. Ambient is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment operating hours.

No data is available at the property line, but the data in Figure 1 can be used for the ambient at the nearest residences, which is the more important limitation because it affects plant neighbors directly.

3.2 Other Jurisdictions

The EPA published their classic levels document[4] on recommended sound levels in various conditions. The base case was 55 dBA L_{DN}, which corresponds to 48 dBA at night for a steady source. Ontario is one of the few jurisdictions in North America that routinely reviews new industrial installations for noise. They use the existing One Hour Equivalent Sound Level from other sources (mostly traffic) as their limit (except in very rural areas where L_{90}+10 is used). Their lowest limit in built up areas is 45 dBA. Specifically Section 13 of NPC 205 states:

> "No restrictions apply to a stationary source resulting in a One Hour Equivalent Sound Level (L_{eq}) or a Logarithmic Mean Impulse Sound Level (LLM) lower than the minimum values for that time period specified in Table 205-1."

TABLE 205-1

Minimum Values of One Hour L_{eq} or LLM by Time of Day

One Hour L_{eq} (dBA) or LLM (dBAI)

Time of Day	Class 1 Area	Class 2 Area
0700 - 1900	50	50
1900 - 2300	47	45
2300 - 0700	45	45

Brayton Point would be either a Class 1 or Class 2 area, since there is clearly industrial and traffic noise present. Quebec also has a lower limit of 45 dBA. Other jurisdictions use similar values.

4. Cooling Towers

Two established cooling tower manufacturers were asked to provide preliminary equipment selections to meet the cooling water requirements for the four powerhouses at an unidentified station similar to Brayton Point Station. As per discussions with the EPA, the entering wet bulb temperature specified was 77 F. Details of the cooling towers are provided in Appendix A. The cooling towers proposed by Stone & Webster are also detailed.

5. Predicted Sound Levels

The cooling tower manufacturers provided predicted sound levels from the three sets of towers at 2000'. These sound levels have been combined in Table 1 and summarized in terms of the total predicted sound level from the cooling towers at 2000'.

The sound levels were then predicted at each of the locations shown in Figure 1 to determine how much increase there might be in the L_{90}.

The suppliers were first asked to provide their normal low noise cooling towers. They then were asked what noise control measures they would recommend to reduce these sound levels and the predicted improvement. The results at 2000' are shown in Table 1.

The bolded figures were more than 10 dB above the L_{90} at least one location in Figure 1 and thus would not meet Massachusetts regulations. All others would meet the regulation. The last value is more than 4 dB below the L_{90} and thus provides a reasonable margin of safety that they will meet the regulation. Appendix C contains more detailed results for each location.

Table 1 – Predicted Sound Levels from Cooling Towers

Manufacturer	dBA total at 2000'	Treatment
1	**53.1**	Quiet Fan
1	**50.8**	With water attenuation
1	49.8	With heavier casing
1	48.2	Low noise fan
1	47.4	Extra low noise fan
2	49.1	Normal
2	43.1	Barriers on fan deck & ground

The results for the quietest alternative, Manufacturer 2 with barriers on the fan deck and on the ground are given below for the locations in Figure 1. They are based on the 2000' prediction adjusted for

[4] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", EPA/ONAC 550/9-74-004, March, 1974.

hemispheric spreading only and thus may slightly over-estimate the more distant results. The new L_{90} is estimated by simple energy addition of the existing L_{90} and the sound level calculated for the cooling towers. It can be seen that the level at 2000' is typical for the closest locations. Note that the distance to New Gardner's Neck is to a location about half way down from Bayside, as shown approximately in Figure 1, rather than at the end of the public road, as measured in September 2003. This distance is more representative of the community and is conservative.

	L_{90}	Distance, miles	Feet	L_p from Cooling Towers	New L_{90}	Increase in L_{90}
			2000	43.13	dBA	
Home	38	0.53	2798	40.2	42.3	4.3
Jackson	42	0.525	2772	40.3	44.2	2.2
Perkins	47	0.36	1901	43.6	48.6	1.6
Bayside Ave	45	0.37	1954	43.3	47.3	2.3
New Gardner's Neck	37	0.6	3168	39.1	41.2	4.2

The cost of this alternative is provided in Appendix B.

The sound level at these locations due to the cooling towers is less than 45 dBA.

Figure 2 shows the octave band spectra predicted by the manufacturers for the cooling towers.

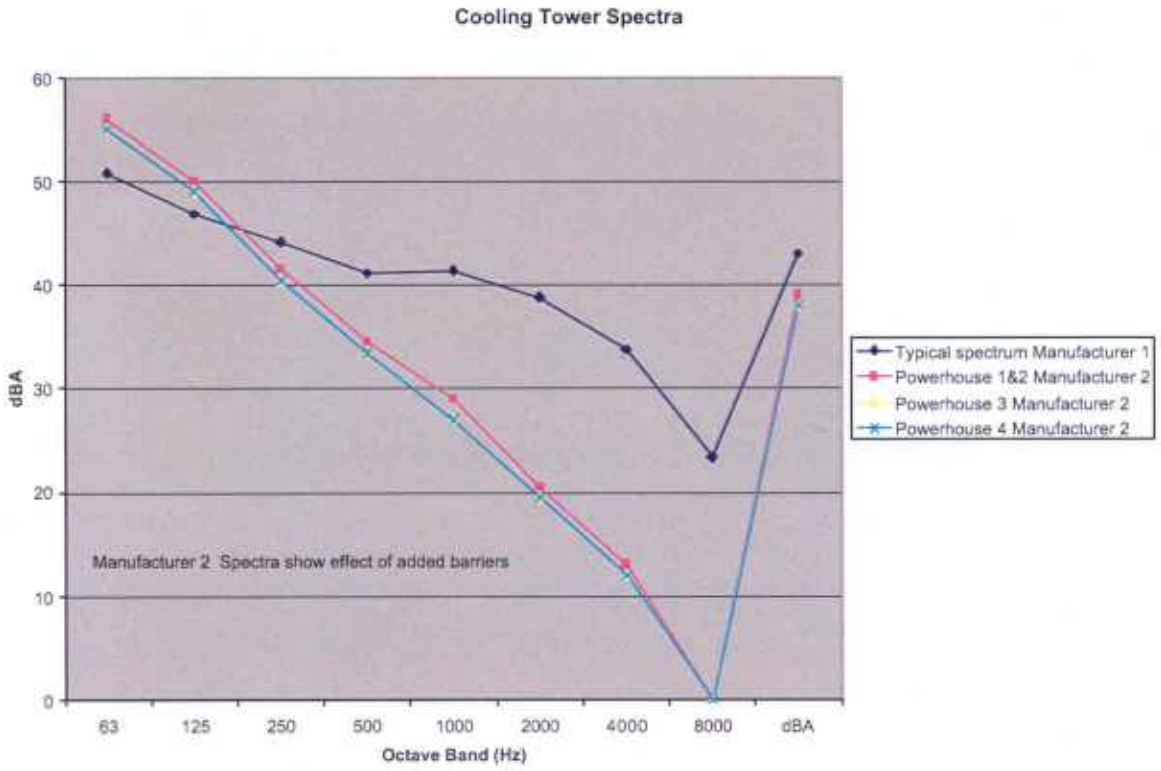


Figure 3

There is no indication of a tonal condition as defined by the Massachusetts regulation: "when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.", i.e. none of the above octave band sound levels exceed both adjacent values by 3 dB or more. This would have shown as a 3 dB peak in the spectrum.

6. Costs

The total cost of the cooling tower installations depends on the degree of sound reduction implemented. Appendix B provides a breakdown of the costs to be incurred in order to meet the predicted sound levels indicated in Section 5. The costs are shown for cooling tower manufacturers 1 and 2 as well as for the cooling towers proposed by Stone & Webster. However, in the latter case no information has been provided regarding noise abatement features.

7. Conclusion

It is concluded that the cooling towers can be installed using technology known to the industry without violating the Massachusetts regulation and at a level that would be acceptable in most jurisdictions. It will require noise control measures beyond a simple low noise cooling tower but well within the current state of the art. The costs for the design, supply and erection of the cooling towers with noise abatement for all four powerhouses will be in the neighborhood of $28,500,000 for cooling tower manufacturer 2 to $39,000,000 for cooling tower manufacturer 1 depending on the final design and cooling tower selected.

Tim Kelsall INCE Bd.Cert.

Bernard Bruman, Eng., Principal Consultant

TK: db/gt

APPENDIX A

Cooling Tower Details

APPENDIX A – Cooling Tower Details

	Stone & Webster	Cooling Twr Mfgr 1	Cooling Twr Mfgr 2
POWERHOUSE 1&2			
Flow, USGPM	360,000	372,000	372,000
HW Temp, F.	97.2	97	97
CW Temp, F	85	85	85
Wet Bulb, F	77	77	77
No. of cells	30	26	20
Heat Rejection per cell, BTU/h	73,200,000	85,846,154	111,600,000
Fan HP	200	200	250
Fan Dia, Ft	28	28	Not provided
Design air flow, cfm	1,365,000 per fan	1,196,850 per fan	Not provided
Dimensions, Ft	810 L x 108 W	687 L x 106 W	545 L x 120 W
Arrangement	Back-to-Back	Back-to-Back	Back-to-Back
POWERHOUSE 3			
Flow, Usgpm	280,000	290,000	290,000
HW Temp, F	103.5	104	104
CW Temp, F	85	85	85
Wet Bulb, F	77	77	77
No. of cells	22	20	18
Heat Rejection per cell, BTU/h	117,720,000	137,750,000	153,050,000
Fan HP	200	250	250
Fan Dia, Ft	28	30	Not provided
Design air flow, cfm	1,365,000 per fan	1,521,411 per fan	Not provided
Dimensions, Ft	594 L x 108 W	595 L x 120 W	487 L x 120 W
Arrangement	Back-to-Back	Back-to-Back	Back-to-Back
POWERHOUSE 4			
Flow, Usgpm	260,000	270,000	270,000
HW Temp, F	103	103	103
CW Temp, F	85	85	85
Wet Bulb, F.	77	77	77
No. of cells	20	20	18
Heat Rejection per cell, BTU/h	117,000,000	121,500,000	135,000,000
Fan HP	200	250	250
Fan Dia, Ft	28	30	Not provided
Design air flow, cfm	1,365,000 per fan	1,363,736 per fan	Not provided
Dimensions, Ft	540 L x 108 W	529 L x 106 W	487 L x 110 W
Arrangement	Back-to-Back	Back-to-Back	Back-to-Back
Total No. of cells for the entire station	**72**	**66**	**56**

Notes :

1. Cooling tower structure is FRP; tower designed for a sea water application.
2. The cooling towers selected by manufacturers 1 and 2 include the service water as well as condenser cooling water loads.
1. Cooling tower manufacturer 1 provided the heat rejection values per cell.
2. The heat rejection values per cell for cooling tower manufacturer 2 have been calculated. The calculations are presented in Appendix D.
3. Cooling tower manufacturer 2 stated that the life expectancy of a FRP structure is approximately 30 years. Cooling tower manufacturer 1 has never constructed a FRP cooling tower in a salt water environment and did not provide any indication of useful life expectancy

APPENDIX B
Cooling Tower Costs

APPENDIX B – Cooling Tower Costs

Predicted Sound Levels, dBA*	Stone & Webster	Cooling Tower Manufacturer 1	Cooling Tower Manufacturer 2
Powerhouse 1 &2			
53.1		$12,025,000	
50.8		$12,577,500	
49.8		$12,774,000	
48.2		$13,256,000	
47.4		$13,984,000	
49.1			No budget price provided
43.1			$10,379,357
	10,100,000		
Powerhouse 3			
53.1		$11,855,000	
50.8		$12,402,500	
49.8		$12,587,000	
48.2		$13,087,000	
47.4		$13,762,000	
49.1			No budget price provided
43.1			$9,469,558
	7,800,000		
Powerhouse 4			
53.1		$9,258,000	
50.8		$9,689,500	
49.8		$ 9,860,000	
48.2		$10,360,000	
47.4		$11,035,000	
49.1			No budget price provided
43.1			$8,562,763
	7,300,000		

* Predicted Sound Levels shown are at 2000' with all cooling towers running, assuming no barrier attenuation due to other towers, intervening structures or terrain.

Notes :

1. For cooling tower manufacturer 1, the costs are based on the following:
   - For 53.1 dBA, a cooling tower with a low noise fan.
   - For 50.8 dBA, a cooling tower with a low noise fan and basin attenuation.
   - For 49.8 dBA, a cooling tower with a low noise fan, basin attenuation and heavier casing.
   - For 48.2 dBA, a cooling tower with a lower noise fan, basin attenuation and heavier casing.
   - For 47.4 dBA, a cooling tower with an even lower noise fan, basin attenuation and heavier casing.
2. For cooling tower manufacturer 2, the cost includes a cooling tower with a 16-foot tall fan deck barrier wall (part of the cooling tower installation) and a 18-foot grade level barrier wall located 36 feet from the sides of the cooling tower (not part of the cooling tower installation).
3. The noise abatement features and dBA values associated with the cooling towers proposed by Stone & Webster have not been provided.
4. The costs presented are for the design, supply and erection of the cooling towers.

APPENDIX C

Sound Level Predictions

Community Noise Data in Brayton Point Area — Units 1&2 — 3 — 4 Total
Telecon with John Winkler of Mass. Dept. of Env. Protection — **Manuf. 2** 77F — 45 44 — 44 49.13074

	L_{90}	Distance, miles	Feet	Towers		**Normal low noise**
			2000	49.13	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	46.2	46.82	8.8
Jackson	42	0.525	2772	46.3	47.67	5.7
Perkins	47	0.36	1901	49.6	51.48	4.5
Bayside Ave	45	0.37	1954	49.3	50.7	5.7
New Gardner's Neck	37	0.6	3168	45.1	45.76	8.8

Community Noise Data in Brayton Point Area — Units 1&2 — 3 — 4 Total
Manuf. 2 77F treated — 39 38 — 38 43.13074

	L_{90}	Distance, miles	Feet	Towers		**With Barriers**
			2000	43.13	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	40.2	42.26	4.3
Jackson	42	0.525	2772	40.3	44.24	2.2
Perkins	47	0.36	1901	43.6	48.63	1.6
Bayside Ave	45	0.37	1954	43.3	47.26	2.3
New Gardner's Neck	37	0.6	3168	39.1	41.21	4.2

Community Noise Data in Brayton Point Area — Units 1&2 — 3 — 4 Total
Manuf. 1 77F — 49 48 — 48.2 53.13357

	L_{90}	Distance, miles	Feet	Towers		**Quiet Fan**
			2000	53.13	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	50.2	50.47	**12.5**
Jackson	42	0.525	2772	50.3	50.9	8.9
Perkins	47	0.36	1901	53.6	54.44	7.4
Bayside Ave	45	0.37	1954	53.3	53.93	8.9
New Gardner's Neck	37	0.6	3168	49.1	49.4	**12.4**

Community Noise Data in Brayton Point Area — Units 1&2 — 3 — 4 Total
Manuf. 1 77F — 46.8 45 — 45.9 50.84366

	L_{90}	Distance, miles	Feet	Towers		**With water atttenuation**
			2000	50.84	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	47.9	48.35	**10.3**
Jackson	42	0.525	2772	48.0	48.98	7.0
Perkins	47	0.36	1901	51.3	52.66	5.7
Bayside Ave	45	0.37	1954	51.0	52.01	7.0
New Gardner's Neck	37	0.6	3168	46.8	47.28	**10.3**

Community Noise Data in Brayton Point Area

				Units 1&2	3	4 Total
				Manuf. 1 77F	45.7 44	45 49.80874
	L_{90}	Distance, miles	Feet	Towers		**Heavier Casing**
			2000	49.81	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	46.9	47.42	9.4
Jackson	42	0.525	2772	47.0	48.17	6.2
Perkins	47	0.36	1901	50.3	51.93	4.9
Bayside Ave	45	0.37	1954	50.0	51.2	6.2
New Gardner's Neck	37	0.6	3168	45.8	46.35	9.3

Community Noise Data in Brayton Point Area

				Units 1&2	3	4 Total
				Manuf. 1 77F	43.8 43	43.4 48.15341
	L_{90}	Distance, miles	Feet	Towers		**Low Noise Fan**
			2000	48.15	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	45.2	45.99	8.0
Jackson	42	0.525	2772	45.3	46.98	5.0
Perkins	47	0.36	1901	48.6	50.88	3.9
Bayside Ave	45	0.37	1954	48.4	50.01	5.0
New Gardner's Neck	37	0.6	3168	44.2	44.92	7.9

Community Noise Data in Brayton Point Area
Telecon with John Winkler of Mass. Dept. of Env. Protection

				Units 1&2	3	4 Total
				Manuf. 1 77F	43 42	42.6 47.44509
	L_{90}	Distance, miles	Feet	Towers		**Extra Low Noise Fan**
			2000	47.45	L_{90} new	**Increase in L_{90}**
Home	38	0.53	2798	44.5	45.4	7.4
Jackson	42	0.525	2772	44.6	46.51	4.5
Perkins	47	0.36	1901	47.9	50.48	3.5
Bayside Ave	45	0.37	1954	47.6	49.53	4.5
New Gardner's Neck	37	0.6	3168	43.4	44.34	7.3

Lp estimates based on the 2000' prediction adjusted for hemispheric spreading only and thus may slightly over-estimate the more distant results. The new L_{90} is estimated by simple energy addition of the existing L_{90} and the sound level calculated for the cooling towers. Bolded increases in L_{90} are above Massachusetts limit.

APPENDIX D

Heat Rejection Calculations for Cooling Tower Manufacturer 2

Powerhouse 1 & 2

Heat load = $372{,}000 \text{ USgpm} \times \frac{500 \text{ lb/h}}{\text{USgpm}} \times \frac{1 \text{ BTU}}{\text{lb °F}} \times (97-85) \text{ °F} = 2.232 \times 10^9 \text{ BTU/h}$

Number of cells = 20

Heat rejection per cell = Heat load / Number of cells

= 2.232×10^9 BTU/h/20

= 111,600,000 BTU/h

Powerhouse 3

Heat load = $290{,}000 \text{ USgpm} \times \frac{500 \text{ lb/h}}{\text{USgpm}} \times \frac{1 \text{ BTU}}{\text{lb °F}} \times (104-85) \text{ °F} = 2.755 \times 10^9 \text{ BTU/h}$

Number of cells = 18

Heat rejection per cell = Heat load / Number of cells

= 2.755×10^9 BTU/h/18

= 153,050,000 BTU/h

Powerhouse 4

Heat load = $270{,}000 \text{ USgpm} \times \frac{500 \text{ lb/h}}{\text{USgpm}} \times \frac{1 \text{ BTU}}{\text{lb °F}} \times (103-85) \text{ °F} = 2.43 \times 10^9 \text{ BTU/h}$

Number of cells = 18

Heat rejection per cell = Heat load / Number of cells

= $2.43 \times 10^9/18$

= 135,000,000 BTU/h

APPENDIX E

Heat Rejection Calculations for the Stone & Webster Cooling Towers

Powerhouse 1 & 2

Heat load = 360,000 USgpm x $\frac{500 \text{ lb/h}}{\text{USgpm}}$ x $\frac{1 \text{ BTU}}{\text{lb °F}}$ x (97.2-85) °F = 2.196×10^9 BTU/h

Number of cells = 30

Heat rejection per cell = Heat load / Number of cells

= 2.196×10^9/BTU/h/30

= 73,200,000 BTU/h

Powerhouse 3

Heat load = 280,000 USgpm x $\frac{500 \text{ lb/h}}{\text{USgpm}}$ x $\frac{1 \text{ BTU}}{\text{lb °F}}$ x (103.5-85) °F = 2.59×10^9 BTU/h

Number of cells = 22

Heat rejection per cell = Heat load / Number of cells

= 2.59×10^9/BTU/h/22

= 117,720,000 BTU/h

Powerhouse 4

Heat load = $260{,}000 \text{ USgpm} \times \frac{500 \text{ lb/h}}{\text{USgpm}} \times \frac{1 \text{ BTU}}{\text{lb °F}} \times (103\text{-}85) \text{ °F} = 2.34 \times 10^9 \text{ BTU/h}$

Number of cells = 20

Heat rejection per cell = Heat load / Number of cells

$= 2.34 \times 10^9 \text{/BTU/h/20}$

$= 117{,}000{,}000 \text{ BTU/h}$

Attachment B1

Conditional Approval A

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

COPY

ELLEN ROY HERZFELDER
Secretary

EDWARD P. KUNCE
Acting Commissioner

June 27, 2003

Barry A. Ketschke
USGen New England, Inc.
Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

RE: **CONDITIONAL APPROVAL**
Application for: BWP AQ 03
Major Comprehensive Plan Applications
310 CMR 7.02 Plan Approval and Emission Limitations
Transmittal No.: W027692
Application No.: 4B02012
Source Number: 0061
Action Code: E-V9

AT: Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

Dear Mr. Ketschke:

The Department of Environmental Protection (the "Department"), Bureau of Waste Prevention, has reviewed the Major Comprehensive Plan Application (MCPA), submitted by USGen New England, Inc. (the "Applicant"), for proposed modifications to the Brayton Point Station ("Facility") located at Brayton Point Road, Somerset, Massachusetts. Proposed modifications to the Brayton Point Station include alterations to existing coal fired electric utility generating Units 1 and 3, and ash processing equipment. The application bears the seal and signature of John C. Steverman, Jr., P.E. No. 31430.

The Department on June 7, 2002 issued an Emission Control Plan (ECP) Final Approval that defined how USGen New England, Inc would come into compliance with 310 CMR 7.29 Emission Standards for Power Plants. The ECP Final Approval and 310 CMR 7.29 required that USGen New England, Inc. submit to the Department an application pursuant to 310 CMR 7.02 Plan Approval and Emission Limitations for the proposed alterations/construction. In response, the

applicant submitted the Major Comprehensive Plan Application (MCPA) that is the subject of this Conditional Approval.

The Department is of the opinion that the material submitted is in conformance with the current Massachusetts Air Pollution Control Regulations and hereby issues the **CONDITIONAL APPROVE** for the proposed alterations of the facility, subject to the conditions and provisions stated herein.

The MCPA was submitted in accordance with Section 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control Regulations", adopted by the Department pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-M. The Department's review has been limited to compliance with applicable Air Pollution Control Regulations and does not relieve you of the obligation to comply with all other permitting requirements contained in other regulations or statutes.

This CONDITIONAL APPROVAL combines and includes: the 310 CMR 7.02 Comprehensive Plan Approval; and the 310 CMR 7.00: Appendix A: Emission Offsets and Nonattainment Review analysis; and hereby incorporates the MCPA submitted by USGen New England, Inc. by reference, including the June 7, 2002 ECP Final Approval.

A Public Notice was published, in the Boston Globe and the Fall River Herald News on May 20, 2003, the commencement date of the mandatory 30-day public comment period. The Department held a Public Hearing at the Somerset Middle School on June 19, 2003 to receive public comment on the Department's Proposed Conditional Approval. Three (3) individuals provided public comment during the Public Hearing and two (2) written public comments were received during the comment period. All comments were evaluated and the Conditional Approval incorporates additional requirements based on the comments received.

The CONDITIONAL APPROVAL allows for commencement of proposed construction and or alterations of the facility and its operation, and provides information on the project description, emission control systems, facility limits, continuous emission monitors, record keeping, reporting and testing requirements.

Enclosed is a stamped approved copy of the application. A list of submitted information pertinent to the application is delineated on page 25 and 26.

Should you have any questions concerning this matter, please feel free to contact the undersigned at (508) 946-2779.

Very truly yours,

John K. Winkler, Chief
Permit Section
Bureau of Waste Prevention

Enclosure

cc: Brendan McCahill
U.S. EPA Region I – Air Permits
One Congress St., (CAP)
Boston, MA 02114

John K. Winkler, DEP/BWP-SERO

ecc: Board of Health, Somerset, MA
Fire Department, Somerset, MA
Kenneth Small, USGen New England, Inc.
Mark Slade, TRC Environmental Corp., Lowell, MA
David Shotts, P.E., TRC Environmental Corp., Lyndhurst, NJ
Seth Kaplan, CLF, Boston, MA
Christopher D'Ovidio, CLF, Providence, RI
Nancy Seidman, DEP/BWP–Boston
Robert Donaldson, DEP/BWP-Boston
Don Squires, DEP/BWP–Boston
Diane Langley, DEP/OGC–Boston
Sharon Weber, DEP/BWP–Lawrence
James Belsky, DEP/BWP-NERO
Ed Braczyk, DEP/BWP-NERO
Craig Goff, DEP/BWP-WERO
Thomas Cusson, DEP/BWP-CERO
David Howland, DEP/BWP-WERO
David Johnston, DEP/BWP-SERO
Mark Poudrier, DEP/BWP-SERO

TABLE OF CONTENTS

C. Ammonia (NH_3) BACT Analysis

$SCONO_x$	0 ppmvd @ 3% O_2	No	N/A	The technology has not been demonstrated on boilers burning residual oil or coal. Technology has been demonstrated on gas fired combustion turbines.
SCR	2 ppmvd @ 3% O_2	Yes	$$	Method chosen to achieve BACT and lower than the lowest emission rate demonstrated from a coal fired boiler with SCR. The lowest emission rate identified for a coal fired boiler with SCR is 5 ppmvd @ 3% O_2, or 2.5 times higher than that proposed. NH_3 preferentially reacts with SO_3 to form particulate ammonia salts downstream of the SCR systems with little anticipated impact to the wastewater and represents BACT for the WWTP as well.

Note:
1 - Potential Emissions
2 - $ = least expensive (relative to control technologies for that specific pollutant)
$$ = moderately expensive (relative to control technologies for that specific pollutant)
$$$ = fairly expensive (relative to control technologies for that specific pollutant)
$$$$ = very expensive (relative to control technologies for that specific pollutant)
$$$$$ = extremely expensive (relative to control technologies for that specific pollutant)

Conclusion:
Therefore, based upon the economic analysis portion of the top-down BACT process, currently available data, and the tenets and procedures of the BACT process, the Department has concluded that limiting the NH_3 emissions to no greater than 2 ppmvd @ 3% O_2 is a cost-effective means to achieve BACT for NH_3.

VII. SOUND

A. Background

The Department regulation concerning sound emissions is contained in 310 CMR 7.10 Noise. This regulation requires that necessary equipment and precautions be used to prevent a condition of air pollution due to sound emissions from the facility. The Department's existing guideline for enforcing the noise regulation is contained in the Department's Policy 90-001; the policy provides broadband and pure tone sound level criteria.

Based upon a review of Department records, the existing facility has not caused a condition of air pollution due to sound emissions since the coal conversion in the 1980's.

B. General Information

Sound mitigation measures

1. Thermal lagging on the following fans/blowers:
   - Unit 3 vent filter fan
   - Fluidized Bed or Multiple Hearth Combustion Force Draft Fan
   - Dust Collection System Surge Bin Aeration Blower
   - Dust Collection System Induced Draft Fan
   - Selective Catalytic Reduction Ammonia Injection Dilution Air Blowers
   - Product Ash Transport Air Supply Fans
   - Selective Catalytic Reduction Replacement Fans

2. Acoustical lagging on the following fans:
   - Unit 3 Induced Draft Fans
   - Unit 3 Flue Gas Booster Fans

3. A three sided barrier (firewalls) around the auxiliary transformers (two feet higher than transformers).

Sound Monitoring/Modeling

1. Sound monitoring at five nearby receptor locations was performed during March and May, 2002.

2. Predicted impacts reveal that four of the five receptor locations will result in an increase of 1 dB(A) or less for a total impact between 39-47 dB(A). The fifth receptor will result in an increase of 3 dB(A) for a total impact of 40 dB(A).

3. At the fifth receptor that will realize a 3 dB(A) increase, the overall sound impact will be 2-7 dB(A) less than three of the four other receptors and 1 dB(A) greater in comparison to the forth receptor.

C. Conclusion

Sound impacts proposed in the pending application meet the requirements contained in 310 CMR 7.10 Noise and will not cause or contribute to a condition of air pollution.

A post construction sound survey shall be conducted to define actual sound impacts in comparison to impacts proposed in the application approved herein. The post construction sound survey shall be conducted no later than 180 days after the date specified in Section XI.4.d. with the final report submitted to the Department within 60 days thereafter.

12. All provisions contained in existing plan approvals and the Operating Permit concerning the subject facility issued by the Department to USGen New England, Inc, and/or previous owners, remain in effect other than those specifically altered herein

XIV. CONSTRUCTION REQUIREMENTS

During the construction phase of the proposed modifications at the facility, the Applicant shall ensure that facility personnel take all reasonable precautions (noted below) to minimize air pollution episodes (dust, odor, noise):

1. Facility personnel shall exercise care in operating any noise generating equipment (including mobile power equipment, power tools, etc.) at all times to minimize noise.

2. Construction vehicles transporting loose aggregate to or from the facility shall be covered and shall use leak tight containers.

3. The construction open storage areas, piles of soil, loose aggregate, etc. shall be covered or watered down as necessary to minimize dust emissions.

4. Any spillage of loose aggregate and dirt deposits on any public roadway, leading to or from the proposed facility shall be removed by the next business day or sooner, if necessary.

5. On site unpaved roadways/excavation areas subject to vehicular traffic shall be watered down as necessary or treated with the application of a dust suppressant to minimize the generation of dust.

XV. MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

An Environmental Notification Form (EOEA No. 13022) was submitted to the Executive Office of Environmental Affairs, for air quality control purpose, pursuant to the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00 MEPA Regulations. The ENF was designated EOEA No. 13022.

On May 22, 2003 the Secretary of Environmental Affairs issued a Certificate on the ENF with a determination the project does not require the preparation of an Environmental Impact Report.

XVI. LIST OF PERTINENT INFORMATION

Name of Facility:	USGen New England, Inc. Brayton Point Station
Location:	Brayton Point Road, Somerset, Massachusetts 02726
Submitted by:	TRC Environmental Corporation

Attachment B2

TRC Plan Approval Application

310 CMR 7.02 Plan Approval Application as part of 310 CMR 7.29 Implementation at Brayton Point Generating Station

Prepared for:

PG&E National Energy Group™

USGen New England, Inc.
PG&E National Energy Group
Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

Prepared by:

TRC

TRC Environmental Corporation
1200 Wall Street West, 2nd Floor
Lyndhurst, New Jersey 07071

TRC Project No. 33332

Revision 2 – April, 2003
(With Revision 3 – May, 2003 Replacement Pages)

LIST OF FIGURES

LIST OF APPENDICES

- MADEP Best Available Control Technology (BACT) assessment for VOC (including formaldehyde) and ammonia (pollutants with potential emission net increases greater than 1 ton/year);

- Air quality impact dispersion modeling study demonstrating that predicted facility impacts do not cause or contribute to exceedances of federal and state ambient air quality standards; and

- Noise impact and control assessment.

3.3 Other Applicable MADEP Requirements

3.3.1 Massachusetts Acid Rain Program

The Massachusetts Acid Rain Program requires fossil fuel utilization facilities having maximum heat inputs greater than 100 mmBtu/hr to achieve SO_2 emission levels of less than 1.2 lb/mmBtu. In conjunction with USGen NE's Salem Harbor Station, Brayton Point Station has been in compliance with this SO_2 emission limit and will now also be required to meet the more stringent SO_2 emission rate requirement contained in 310 CMR 7.29.

3.3.2 Massachusetts Noise Standard

The State of Massachusetts regulates noise impacts under air regulation 310 CMR 7.10. The regulation limits noise as follows:

- Increases in broadband noise may not exceed 10 dBA above ambient; and

- A source may not produce a "pure tone" condition. A pure tone is defined as any octave band center frequency sound pressure level that exceeds the two adjacent center frequency sound pressure levels by 3 dBA or more.

Ambient noise is defined as the background A-weighted sound level exceeded 90 percent of the time (L_{90}). A noise impact analysis for the project was provided to MADEP under separate cover in October 2002 and a revised attached to this document as Appendix H. Based on this analysis of predicted noise impacts at various locations around the station, the project does not cause a modeled increase of greater than 3 dBA at any location or an impact more than 10 dBA above ambient.

3.4 Attainment Status and Ambient Air Quality Standards

The U.S. EPA has developed air quality standards for six pollutants, known as criteria pollutants, for

APPENDIX H

Noise Assessment Study

Noise Control Supplement to 310 CMR 7.02 Plan Approval Application as part of 310 CMR 7.29 Implementation at Brayton Point Generating Station

Prepared for:

PG&E National Energy Group

USGen New England, Inc.
PG&E National Energy Group
Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

Prepared by:

TRC

TRC Environmental Corporation
1200 Wall Street West, 2nd Floor
Lyndhurst, New Jersey 07071

TRC Project No. 33332

Revision 2 – April, 2003

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) has performed a noise assessment study of the proposed retrofitting of air pollution control equipment (the Project) at PG&E's Brayton Point Power Generating Facility in Somerset, Massachusetts. The assessment consisted of two parts: a background noise monitoring program in the vicinity of the proposed Project, and a noise modeling study. The background noise monitoring program with the existing plant in operation was conducted on March 11-12 and May 28-29, 2002, in order to establish current noise levels in the area. The noise modeling study was performed by modeling a combination of vendor supplied and derived noise data for the major noise producing equipment, and by determining projected noise levels in the surrounding community.

2.0 GENERAL INFORMATION ON NOISE

Noise is defined as unwanted sound resulting from vibrations in the air. Excessive noise can cause annoyance and adverse health effects; it can also distract attention and make activities more difficult to perform. Annoyance can include sleep disturbance and speech interference.

The range of pressures that cause the vibrations that create noise is large. Noise is therefore measured on a logarithmic scale, expressed in decibels (dB). The frequency of a sound is the "pitch" (high or low). The unit for frequency is hertz (hz). Most sounds are composed of a composite of frequencies. The normal human ear can usually distinguish frequencies from 20 hz (low frequency) to about 20,000 hz (high frequency), although people are most sensitive to frequencies between 500 and 4000 hz. The individual frequency bands can be combined into one overall dB level.

Noise is typically measured on the A-weighted scale (dBA). The A-weighting scale was designed to establish and has been shown to provide a good correlation with the human response to sound and is the most widely used descriptor for community noise assessments. (The faintest sound that can be heard by a healthy ear is about 0 dBA, while an uncomfortably loud sound is about 120 dBA. In order to provide a frame of reference, some common sound levels are listed below.

Pile Driver at 100 feet	90 to 100 dBA
Chainsaw at 30 feet	90 dBA
Truck at 100 feet	85 dBA
Noisy Urban Environment	75 dBA
Average Speech	60 dBA
Lawn Mower at 100 feet	65 dBA
Typical Suburban Daytime	50 dBA
Quiet Office	40 dBA
Quiet Suburban nighttime	35 dBA
Soft Whisper at 15 feet	30 dBA

Common terms used in this noise analysis are defined below.

L_{eq} The equivalent noise level over a specified period of time (e.g., 1-hour). It is a single value of sound that includes all of the varying sound energy in a given duration.

Statistical Sound Levels. This category includes the A-weighted L_{90} and L_{10} sound levels exceeded a certain percentage of the time. The L_{90} is the sound level exceeded 90 percent of the time and is often considered the background or residual noise level. The L_{10} is the sound level exceeded 10 percent of the time and is a measurement of intrusive sound, such as aircraft overflight.

3.0 NOISE ASSESSMENT PROTOCOL

A noise assessment protocol was developed for the Project. The protocol established the methods and criteria which would be used in establishing baseline noise levels, determining Project noise levels, and assessing potential noise impacts.

Under the protocol, the existing L_{90} noise level would be used to establish current noise conditions. The calculated Project noise levels, determined through computer noise modeling, would be added to current noise levels in order to determine cumulative future levels, and expected increases over baseline.

4.0 APPLICABLE STANDARD

The Commonwealth of Massachusetts has a noise standard that is applicable to the Project. A source of sound will be in violation of the Department's noise regulation (310 CMR 7.10) if the source increases the ambient broadband L_{90} dBA sound level by over 10 dBA.

5.0 NOISE MONITORING PROGRAM

5.1 Noise Monitoring Methodology

The Somerset and Swansea areas bordering the site currently include residential and some commercial uses. The existing noise environment in the vicinity of the proposed Project has been characterized through ambient noise monitoring (conducted on March 11-12 and May 28-29, 2002) at selected noise sensitive areas, which were identified through the use of topographic maps, and later confirmed during the noise monitoring program. These locations are identified on Figure 1 and include the following:

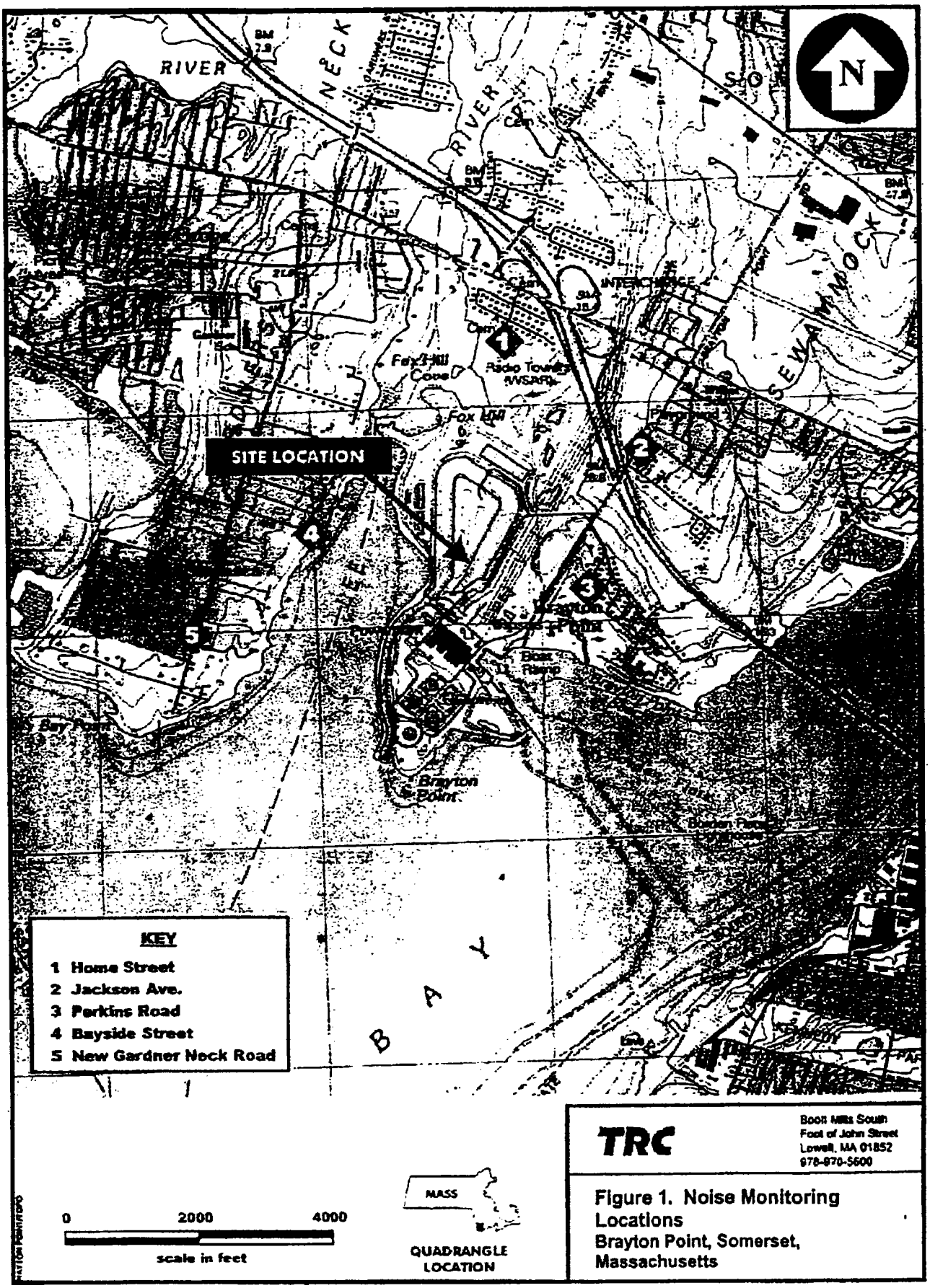
- Home Street, at its intersection with Kenneth Avenue
- Jackson Avenue, near its intersection with Brayton Point Road
- Perkins Street, at its intersection with Carey Street
- Bayside Avenue in Swansea, by the shoreline of Lees River
- New Gardners Neck Road in Swansea, near its intersection with Mattapoisett Avenue

Short-term monitoring (30 minutes in duration at each location) was conducted during the day and late at night. Monitoring was conducted with a RION NA-27 precision integrating Type 1 sound level meter with precision integrating octave band analyzer. The meter meets ANSI S1.4-1983 requirements for precision Type 1 sound level meters. The meter was calibrated before and after each survey period using a Bruel & Kjaer Model 4231 sound level calibrator. The microphone was fitted with a windscreen to reduce wind-generated noise and was mounted at a height of approximately five feet above the ground. The meter was configured to measure and store the L_{eq}, L_{90} and L_{10} one-third octave band levels.

In addition to noise level measurements, the contributing noise sources were identified and recorded, along with the prevailing meteorological conditions. Wind speed and direction and sky conditions were observed and recorded at each location.

5.2 Existing Noise Levels

Meteorological conditions during the March 2002 monitoring program consisted of clear skies at night and cloudy skies during the day. Temperatures ranged from the low 30's F at night to the mid 40's F during the day. Winds were from the southwest, somewhat gusty during the day, generally from 10 to 15 miles per hour (mph), but were lighter at night (5 to 10 mph).


N
SITE LOCATION
KEY
1 Home Street
2 Jackson Ave.
3 Perkins Road
4 Bayside Street
5 New Gardner Neck Road
RIVER
NECK
SEWAMMOCK
Fox Hill
Fox Hill Cove
Brayton Point
Bay Point
Boat Ramp
B A Y
0
2000
4000
scale in feet
MASS
QUADRANGLE LOCATION
TRC
Boott Mills South
Foot of John Street
Lowell, MA 01852
978-970-5600
Figure 1. Noise Monitoring Locations
Brayton Point, Somerset, Massachusetts

During the May 2002 monitoring program, skies were mostly cloudy and temperatures ranged from about 60 to 75 degrees F. Winds were very light, generally from the south at about 5 mph during the day and near calm at night.

Dominant existing noise sources in the area were essentially the same during both programs. These included the existing plant and traffic noise from I-195. Other sources of noise included natural sounds (birds, insects) lawn maintenance equipment, and waves on the shore. Noise from the existing plant was generally the dominant noise source at all locations except Home Street and Jackson Avenue, where Route 195 traffic contributed more significantly. Provided in Tables 1 and 2 are the contributing noise sources by location for each monitoring program.

Table 1: Observed Noise Sources – March & May 2002 Daytime Monitoring

Monitoring Location	March 2002	May 2002
Home Street	Route 195 traffic, birds, Wilbur Road traffic, faint Facility	Route 195 traffic, birds, Wilbur Road traffic
Jackson Avenue	Route 195 traffic, birds, occasional Brayton Point Road traffic	Route 195 traffic, birds, Brayton Point Road traffic, lawn maintenance equipment, occasional people talking
Perkins Street	Facility, birds, faint traffic	Facility, birds, occasional people talking, faint traffic
Bayside Avenue	Facility, waves on shore, birds	Facility, birds, waves on shore
New Gardners Neck Road	Facility, birds, occasional New Gardners Neck Road traffic	Facility, lawn maintenance equipment, birds

Table 2: Observed Noise Sources – March & May 2002 Late Night Monitoring

Monitoring Location	March 2002	May 2002
Home Street	Facility, Route 195 traffic	Route 195 traffic, Facility, insect chirps
Jackson Avenue	Route 195 traffic, Facility	Route 195 traffic, Facility, occasional nightbirds
Perkins Street	Facility	Facility, dog barks
Bayside Avenue	Facility, waves on shore	Facility, waves on shore, occasional nightbirds
New Gardners Neck Road	Facility, occasional nightbirds, faint traffic	Facility

The measured late night L_{90} noise levels data were tabulated and are presented in Table 3. The data are presented for each monitoring program, as well as the average baseline levels.

Table 3: Overall Measured Ambient Nighttime L_{90} Noise Levels (dBA)

Receptor	March 2002 Late Night L_{90}	May 2002 Late Night L_{90}	Average Baseline Late Night L_{90}
Home Street	39	37	38
Jackson Avenue	43	40	42
Perkins Street	47	47	47
Bayside Avenue	46	44	45
New Gardners Neck Road	36	38	37

A review of the data in Table 3 reveals that very similar, and at one location identical, noise levels were measured on both nights. The highest noise levels were measured at Perkins Street, where noise from the existing facility was dominant. The lowest late night sound level was measured at New Gardners Neck Road, where the power plant, although the dominant noise source, was quieter than at Perkins Street.

6.0 NOISE MODELING

6.1 Methodology

Computer modeling was performed in order to calculate noise levels that would be generated by the Project. These levels were evaluated against the existing baseline noise levels identified in Table 3 to determine potential impacts of the Project at the representative receptor locations.

The retrofitting of air pollution control equipment at the Facility will include the addition of mostly fan related sources. Estimated noise level data for these sources were provided by Stone & Webster. These data were input into the CadnaA software model, developed by DataKustik.

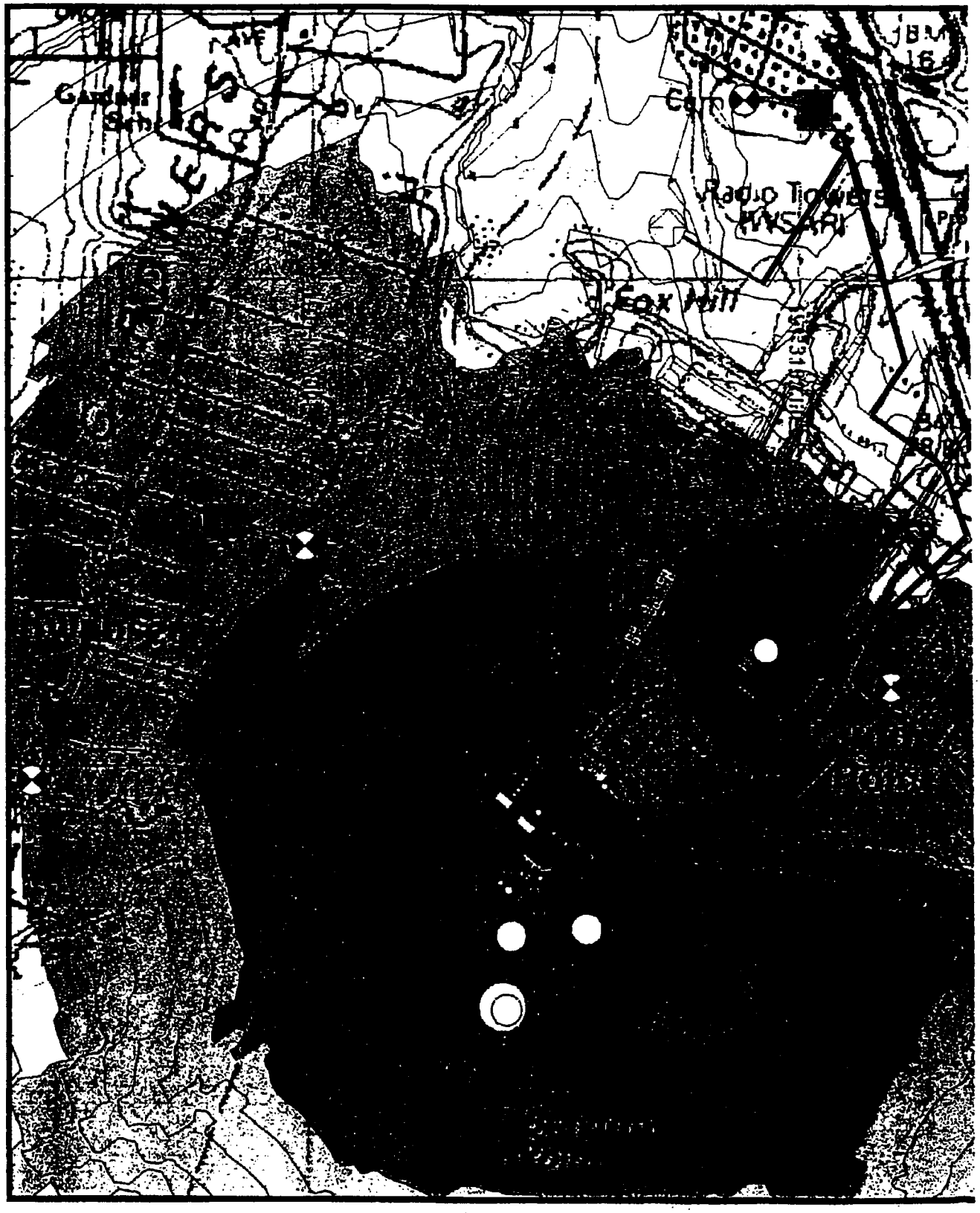
The modeling considered hemispherical spreading and atmospheric absorption for this analysis. The model was configured to accept atmospheric conditions of 10° C and 70 percent relative humidity. No credit was taken for ground absorption, although topographic features were accounted for. Modeling receptors were chosen in the same residential locations as where background monitoring was performed in order that direct comparison to existing noise levels could be conducted. Distances to modeled receptor locations were scaled from the USGS 7.5 X 15 minute Fall River topographic map.

6.2 Modeling Results

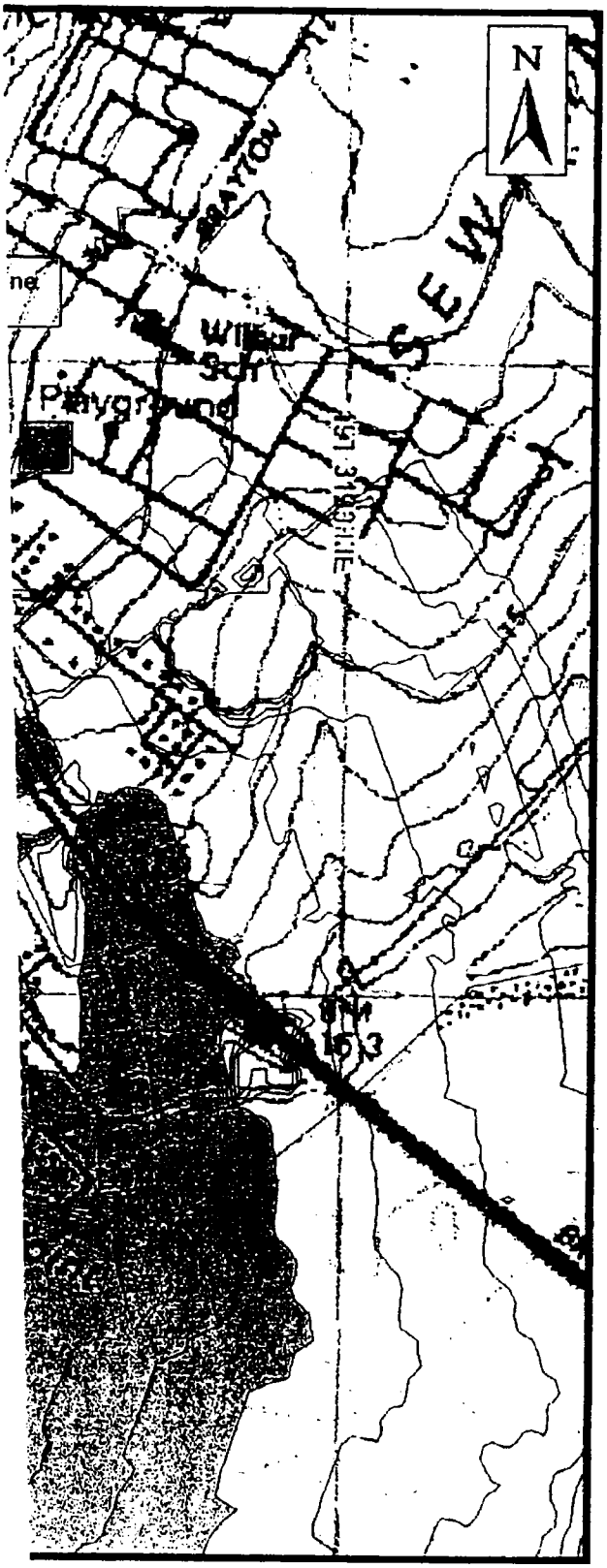
Several iterations of noise modeling were conducted, and noise control measures were added, until the project acoustic goal was achieved or exceeded. The final noise modeling results for the residential locations, reflecting the necessary noise mitigation measures, are provided in Table 4 below. Also presented in the table are the measured late night baseline L_{90} noise levels, and projected increases at each location. The noise mitigation measures incorporated in the modeling to achieve the results presented are identified in Section 6.3. A noise contour map created using the CadnaA model is also presented as Figure 2.

Table 4: Brayton Point Noise Modeling Results Summary (dBA)

Receptor	Measured Late Night L_{90} Baseline	Calculated Project Noise	Cumulative Future Noise Level	Increase Over Baseline
Home Street	38	29	39	1
Jackson Ave	42	29	42	0
Perkins St	47	37	47	0
Bayside Ave	45	40	46	1
New Gardners Neck Rd	37	36	40	3



TRC



Location	Overall dBA
1. Home Street	29
2. Jackson Avenue	29
3. Perkins Street	37
4. Bayside Avenue	40
5. New Gardner Neck Road	36

Legend

- Point Source
- vert. Area Source
- Building
- Cylinder
- Barrier
- Contour Line
- Receiver

- > -99.0 dB
- > 35.0 dB
- > 40.0 dB
- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB
- > 80.0 dB
- > 85.0 dB

Notes:

1. Base map source: Fall River, MA Quadrangle, Photorevised 1979
2. Site Plan based on Stone & Webster Drawing 13036.16-EM-1B.
3. Contour height is 3.05 meters.

Brayton Point

Figure 2. Sound Contour Map

Cadna File Name: Brayton Point rev0_plus berm.cna

A review of the data in Table 4 reveals that calculated noise levels anticipated from operation of the new air pollution control equipment, when added to existing late night baseline noise levels, would result in increases in noise of 3 dBA or less at all locations. In fact, two locations would experience no increase while two other locations would only experience a one dBA increase in noise. Increases of 3 dBA or less are considered to essentially be imperceptible (FHWA, 1995) (NYSDEC, 2001). The maximum 3 dBA increase shown represents lower increases than stipulated in the acoustic design goal set by the Project (5 dBA) in the noise assessment protocol.

6.3 Noise Minimization Measures

The following noise mitigation measures (for modeling purposes) were required in the analysis to achieve the noise levels presented herein. These include the following:

- Thermal lagging on the following fan sources:
  - Unit 3 Vent Filter Fan
  - Fluid Bed Combustion FD fan
  - Dust Collection System Surge Bin Aeration Blower
  - Dust Collection System ID Fan
  - SCR Ammonia Injection Dilution Air Blowers
  - Product Ash Transport Air Supply Fans
  - SCR 3000 Hp Replacement Fans

- Acoustical lagging on the following fans:
  - Unit 3 7000 HP ID Fans
  - Unit 3 3000 HP FG Booster Fans

- A three sided barrier (firewalls) around the auxiliary transformers (two feet higher than transformers)

7.0 CONCLUSION

A noise assessment of the proposed Project, consisting of background noise monitoring and computer noise modeling, was conducted in order to determine noise levels and associated potential impacts. Background noise monitoring was conducted during two different periods. The results of these programs revealed similar late night noise levels in the area for the two periods.

The State of Massachusetts has a noise standard which is applicable to the proposed Project. In addition, a draft noise assessment protocol was prepared and submitted to MADEP for review. The protocol established the methods and criteria which would be used in developing the noise study. The protocol also established a noise limit increase of no more than 5 dBA above existing late night baseline levels.

Computer noise modeling of the proposed Project was conducted. The modeling revealed that noise mitigation measures would be needed in order to achieve the acoustic design goals set forth in the protocol. Following incorporation of these measures, the calculated Project noise levels were shown to limit increases in noise at all residential receptors to no more than 3 dBA, with increases of only one dBA or less at most locations. These increases are below the limit PG&E set forth in the noise assessment protocol.

8.0 REFERENCES

Federal Highway Administration, 1995. Highway Traffic Noise Analysis and Abatement Policy and Guidance. Prepared by U.S. Department of Transportation. Federal Highway Administration Office of Environment and Planning. Noise and Air Quality Branch. Washington, D.C.

New York State Department of Environmental Conservation. 2001. Assessing and Mitigating Noise Impacts.

Attachment C

Revised Conditional Approval of Brayton Point Air Pollution Control Equipment

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

STEPHEN R. PRITCHARD
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

August 22, 2005

Barry A. Ketschke
Dominion Energy Brayton Point, LLC
Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

RE: **REVISED CONDITIONAL APPROVAL**
Application for: BWP AQ 02
Non-Major Comprehensive Plan Approval
310 CMR 7.02 Plan Approval and Emission Limitations
Transmittal No.: W053973
Application No.: 4B04025
Source Number: 0061
Action Code: E-V6

AT: Brayton Point Station
Brayton Point Road
Somerset, Massachusetts 02726

Dear Mr. Ketschke:

The Department of Environmental Protection (the "Department"), Bureau of Waste Prevention has reviewed the Non-Major Comprehensive Plan Application (NMCPA) submitted by USGen New England, Inc., for proposed modifications to the Brayton Point Station ("Facility") located at Brayton Point Road, Somerset, Massachusetts. Effective January 1, 2005, the ownership of Brayton Point Station was transferred from USGen New England, Inc. to Dominion Energy Brayton Point, LLC.

Proposed modifications to the Brayton Point Station include alterations to existing coal fired electric utility generating Units 1 and 3, and ash processing equipment. The application bears the seal and signature of Val F. Madden, P.E. No. 33713.

The Department on October 20, 2004 issued an Amended Emission Control Plan (ECP) Final Approval that defined how USGen New England, Inc. would come into compliance with 310 CMR 7.29 Emission Standards for Power Plants. The Amended ECP Final Approval and 310 CMR 7.29 required that USGen New England, Inc. submit to the Department an application pursuant to 310 CMR 7.02 Plan Approval and Emission Limitations for the proposed alterations/construction. In response, the applicant submitted the NMCPA that is the subject of this Revised Conditional Approval.

The Department is of the opinion that the material submitted is in conformance with the current Massachusetts Air Pollution Control Regulations and hereby issues the **REVISED CONDITIONAL APPROVAL** for the proposed alterations of the facility, subject to the conditions and provisions stated herein. The Revised Conditional Approval supersedes the June 27, 2003 Conditional Approval.

The NMCPA was submitted in accordance with Section 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control Regulations", adopted by the Department pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-M. The Department's review has been limited to compliance with applicable Air Pollution Control Regulations and does not relieve you of the obligation to comply with all other permitting requirements contained in other regulations or statutes.

This Revised Conditional Approval combines and includes: the 310 CMR 7.02 Comprehensive Plan Approval; and the 310 CMR 7.00: Appendix A: Emission Offsets and Nonattainment Review analysis; and hereby incorporates the NMCPA submitted by USGen New England, Inc. and revisions submitted by Dominion Energy Brayton Point, LLC by reference, including the October 20, 2004 Amended ECP Final Approval.

A stamped approved copy of the NMCPA is enclosed. A list of submitted information pertinent to the application is delineated on page 26.

Should you have any questions concerning this matter, please feel free to contact the undersigned at (508) 946-2779.

Very truly yours,

John K. Winkler, Chief
Permit Section
Bureau of Waste Prevention

Enclosure

cc: Brendan McCahill
U.S. EPA Region I – Air Permits
One Congress St., (CAP)
Boston, MA 02114

ecc: Board of Health, Somerset, MA
Fire Department, Somerset, MA
Lou Arak, Dominion Resources Services, Inc.
Kenneth Small, Dominion Energy Brayton Point, LLC
David Shotts, P.E., TRC Environmental Corp., Lyndhurst, NJ
Seth Kaplan, CLF, Boston, MA
Christopher D'Ovidio, CLF, Providence, RI
Cindy Luppi, Clean Water Action, Boston, MA
Nancy Seidman, DEP/BWP–Boston
Robert Donaldson, DEP/BWP-Boston
Don Squires, DEP/BWP–Boston
Yi Tian, DEP/BWP-Boston
Susan Ruch, DEP/OGC–Boston
Sharon Weber, DEP/BWP–Lawrence
Ed Braczyk, DEP/BWP-NERO
David Johnston, DEP/BWP-SERO
Mark Poudrier, DEP/BWP-SERO

TABLE OF CONTENTS

List of Abbreviations

ARP..... ash reduction process
BACT.....Best Available Control Technology
Btu/kWh.....British Thermal Units per kilowatt hour
Btu/lb.....British Thermal Units per pound
CEM.....continuous emission monitor
COM..... continuous opacity monitor
CO.....carbon monoxide
CO_2.....carbon dioxide
ECP..... Emission Control Plan
EPA..... U.S. Environmental Protection Agency
ESP.....electrostatic precipitator
FGD.....flue gas desulfurization
Hg..... mercury
HAP..... Hazardous Air Pollutant
HHV.....higher heating value
lb/hr..... pound per hour
lb/MMBtu..... pound per million British Thermal Units
lb/MWh..... pound per megawatt hour
LAER..... lowest achievable emission rate
LOI.....loss-on-ignition
MCPA.....Major Comprehensive Plan Application
MCR..... maximum continuous rating
MMBtu/hr.....Million British Thermal Units per hour
MW..... megawatt
NAAQS.....National Ambient Air Quality Standards
NH_3.....ammonia
NMCPA.....Non-Major Comprehensive Plan Application
NO_2.....nitrogen dioxide
NO_x.....nitrogen oxides
O_3..... ozone
ppm_{vd} @ 3% O_2..... parts per million volume dry corrected to three percent oxygen
Pb..... lead
PM.....particulate matter
PM_{10}.....particulate matter up to 10 microns in size
$PM_{2.5}$.....particulate matter up to 2.5 microns in size
POTW.....publicly owned treatment works
PTE.....potential to emit
SCR.....selective catalytic reduction
SO_2.....sulfur dioxide
SO_3.....sulfur trioxide
tpy.....tons per consecutive twelve-month period
VOC.....volatile organic compound
WWTP.....wastewater treatment plant

I. FACILITY DESCRIPTION

A. Site Description

The Dominion Energy Brayton Point, LLC (the "Applicant"), formally USGen New England, Inc., Brayton Point Station site consists of approximately 250 acres of land situated in a mixed use area of Somerset, Massachusetts consisting of residential and commercial properties. The existing Brayton Point Station includes approximately 1,589 MW net of coal, residual oil and natural gas boiler based electric power generation equipment, and approximately 11 MW of No. 2 distillate oil diesel engine based electric power generation equipment. The site is bordered by the Lee River to the west; the Taunton River to the east; residential properties and U.S. 195 to the north; and Mount Hope Bay to the south.

B. Project Description

Dominion Energy Brayton Point, LLC Brayton Point Station is subject to 310 CMR 7.29 Emission Standards for Power Plants that were promulgated on May 11, 2001. These regulations impose new facility-wide annual and calendar month emission limits for NO_x, SO_2, and CO_2, in units of lb/MWh net, and will result in future Hg control requirements. These regulations did not impose CO and $PM_{2.5}$ emission standards at this time but indicated that development of emission standards is reserved. These regulations required applicable power plants to submit an Emission Control Plan (ECP) that defined how the facility would comply with the 310 CMR 7.29 requirements. The Department of Environmental Protection (the "Department") issued Final Approval of the ECP to USGen New England, Inc. on June 7, 2002. The Final Approval advised USGen New England, Inc. of the requirement to receive a Plan Approval pursuant to 310 CMR 7.02 for the proposed alterations/construction. On April 26, 2002, the Department received the Applicant's Major Comprehensive Plan Application (MCPA) requesting Plan Approval of the proposed alterations/construction. The Department issued Conditional Approval of MCPA to USGen New England, Inc. on June 27, 2003.

310 CMR 7.29 Emission Standards for Power Plants were amended on June 4, 2004. The amendments imposed new facility-wide calendar year Hg emission cap and imposed Hg removal efficiencies or Hg emission limits in units of lb/MWh net. These regulation amendments required applicable power plants to submit an amendment to the approved ECP to incorporate the Hg emission cap. On July 30, 2004, the Department received the applicant's amended ECP application that requested approval of the Hg emission cap, the use of aqueous ammonia for use in the SCR NO_x control systems, and clarification of the construction schedule. The Department issued an Amended Emission Control Plan Final Approval to USGen New England, Inc. on October 20, 2004. On August 11, 2004, the Department received the applicant's Non-Major Comprehensive Plan Application (NMCPA) for the proposed alterations/construction.

Air contaminant emission increases due to the alterations/construction are addressed in the Best Available Control Technology (BACT) analysis section of this Revised Conditional Approval. The minor emission increases associated with the material handling and storage systems

described herein are exempt from 310 CMR 7.02 Plan Approval and Emission Limitations, pursuant to 310 CMR 7.03(12) and (22); minor emission increases associated with the transfer of ship-delivered limestone to a receiving hopper with wind barrier as dust control and the use of gray water from the Town of Somerset POTW in the FGD system, bottom ash system makeup and boiler seal are exempt from 310 CMR 7.02 Plan Approval and Emission Limitations, pursuant to 310 CMR 7.02(2)(b)7. *De minimus* Increase in Emissions.

The Applicant proposes alterations of Unit 1, Unit 3 and the Fly Ash Separation System. These alterations will change air contaminant emissions to the ambient air and the estimated actual emission changes are defined in Table 1.

Table 1: ACTUAL EMISSION CHANGE ESTIMATE

		Past Actual Baseline[1]		Future Actual Estimate		Net Change
		Unit 1	Unit 3	Unit 1	Unit 3	
Fuel	MMBtu/yr	15,956,468	35,640,854	15,956,468	35,640,854	0
Fuel	% of max.[2]	81	72	81	72	0
NO_x	tons/yr	2362	7,306	638	1,426	**-7,604**
CO	tons/yr	167	1388	167	1,384	**-4**
VOC	tons/yr	20.0	43.5	20.0	44.0	**+0.5**[3]
SO_2	tons/yr	8,718	20,405	8,630	1,960	**-18,533**
PM	tons/yr	120	125	167	535	**+457**[4]
NH_3	tons/yr	0	0	8	18	**+26**[5]
Opacity[6]	%	0-5	0-5	0-5	0-5	**0**

Note:
1 – Average for years 2000 and 2001.
2 – Equivalent heat input capacity factor.
3 – Increase due to VOC from FGD make-up water.
4 – Increase based on 100% of NH_3 conversion to ammonia bisulfate and FGD limestone slurry based particulate and no air pollution controls.
5 – Estimate is conservative since based on SCR NH_3 slip with no conversion to ammonia bisulfate (refer to Note-4) and no reduction due to FGD.
6 – Exclusive of uncombined water

C. Description of Proposed Alterations

The Applicant proposes alterations to Unit 1, Unit 3 and the Fly Ash Separation System, as follows:

Unit 1

Unit 1 is rated at 255 MW net with steam provided by a Combustion Engineering boiler that utilizes pulverized coal at 100% MCR as the primary fuel, natural gas at 25% MCR as a secondary fuel, No. 6 Fuel Oil at 100% MCR as a back-up fuel, and No. 2 Fuel Oil at 100% MCR as an alternate back-up fuel. The boiler is rated at 2,250 MMBtu/hr heat input. Products of

combustion are released to the ambient air from a stack 352.8 feet above ground level (367.3 feet above sea level) with an inside exit diameter of 174 inches.

Unit 1 will be equipped with a selective catalytic reduction (SCR) system for the control of NO_x emissions. The SCR system is designed for up to 90% control of NO_x. The facility will utilize aqueous ammonia solution (ammonia concentration less than 20% by weight) to generate ammonia for injection at the SCR inlet.

Unit 1 is currently equipped with ABB-Combustion Engineering low-NOx burners and two ESPs in series with the Koppers ESP upstream of the Research-Cottrell ESP. An EPRICON flue gas conditioning system can provide SO_3 upstream of the Koppers ESP to increase the resistivity of the particulate to improve particulate collection by the ESPs. The EPRICON flue gas conditioning system will be removed since SO_2 passing through the proposed SCR NO_x controls will partially convert SO_2 to SO_3 and provide SO_3 for particle conditioning upstream of the ESPs. The Chemithon flue gas condition system described below and currently used with Unit 3 may be used to supply SO_3 to Unit 1 during the construction of the equipment approved herein. Babcock Power Environmental, Inc. has been selected as the vendor for the SCR emission control system for Unit 1.

Unit 3

Unit 3 is rated at 633 MW net with steam provided by a Babcock and Wilcox boiler that utilizes pulverized coal at 100% MCR as the primary fuel, natural gas at 10% MCR as a secondary fuel, No. 6 Fuel Oil at 100% MCR as a back-up fuel, and No. 2 Fuel Oil at 100% MCR as an alternate back-up fuel. The boiler is rated at 5,655 MMBtu/hr heat input. Products of combustion are released to the ambient air from a new stack 504.5 feet above ground level (544.5 feet above sea level) with an inside exit diameter of 258 inches when the wet FGD system is in operation. When the FGD system is not in operation the products of combustion will be released from the existing stack 352.8 feet above ground level (367.3 feet above sea level) with an inside exit diameter of 234 inches.

Unit 3 will be equipped with an SCR system for the control of NO_x emissions and Wet Flue Gas Desulfurization (FGD) system, using limestone as the reagent, for the control of SO_2, including residual SO_3. The SCR system is designed for up to 90% control of NO_x and the FGD system is designed for up to 95% control of SO_2. A proposed new stack 504.5 feet above ground level with an inside diameter of 258 inches will serve the FGD system. The existing stack will continue to serve Unit 3 when the FGD system is shutdown. The facility will utilize aqueous ammonia solution (ammonia concentration less than 20% by weight) to generate ammonia for injection at the SCR inlet.

Unit 3 is currently equipped with Babcock & Wilcox low-NOx burners and two ESPs in series with the Koppers ESP upstream of the Research-Cottrell ESP. A Chemithon flue gas conditioning system can provide SO_3 upstream of the Research-Cottrell ESP to increase the resistivity of the particulate to improve particulate collection by the ESPs. The Chemithon flue gas conditioning system will be removed since SO_2 passing through the proposed SCR NO_x

controls will partially convert SO_2 to SO_3 and provide SO_3 for particle conditioning upstream of the ESPs.

Babcock Power Environmental, Inc., has been selected as the vendor for the SCR and FGD emission control systems for Unit 3.

Fly Ash Separation System

The existing fly ash separation system, which includes Separation Technologies, Inc. (STI) equipment, processes coal fly ash from Unit 1, 2 & 3 due to the fly ash carbon content. Fly ash from Unit 1,2 & 3 ESP hoppers is pneumatically conveyed to the fly ash storage silos and the transport air is returned to the ESP inlets. The STI equipment electrostatically separates ash into low-carbon ash and high-carbon ash and conveys the ash to separate silos. Low-carbon ash is sold as a product for concrete manufacturing, and the high-carbon ash is land filled or sent to cement kilns.

An Ash Reduction Process (ARP) is proposed to replace the STI equipment to improve the beneficial use of the coal fly ash. The ARP will produce a high quality ash with a lower carbon content to be used as a replacement of Portland cement in the production of concrete.

Approximately 85% of the total ash produced by Units 1, 2 & 3 is fly ash, with the remainder being bottom ash.

Ash Reduction Process

The proposed ARP will process coal fly ash as described in the NMCPA. NO_x emission controls tend to increase Unit 1, 2 & 3 BTU/kWh heat rates due in part to unburned carbon remaining in the fly ash. The percentage of carbon in the ash is expressed as loss-on-ignition (LOI) and a high LOI represents a loss of combustion efficiency and an overall increase in heat rate, resulting in lower overall power generation efficiency.

Units 1, 2 & 3 produce relatively high-carbon fly ash, typically as high as 10.6%, which reduces its marketability as a product. Low-carbon ash, typically 2.5% or less, is used in the manufacturing of concrete. As proposed the ARP will be either a fluidized bed furnace or a multiple hearth furnace to recover a substantial amount of the heat that would normally be wasted through the disposal of high-carbon fly ash. The chosen furnace will have a maximum design heat input of 97 MMBtu/hr with the exhaust routed through a new baghouse fabric filter particulate control device and then conveyed to the windbox of Unit 3. When Unit 3 is not available the exhaust will be directed to the windbox of Unit 1, and when both Unit 1 and Unit 3 are not operating the ARP will be shutdown.

Material Handling And Storage

Additional material handling and storage activities will be needed to support the FGD and SCR emission control systems. Storage domes, fully enclosed conveyors and transfer points and fabric filter particulate collectors will be used to minimize particulate emissions to the ambient air. The transfer of ship-delivered limestone to a receiving hopper with wind barrier as dust control, and the gray water on-site use are exempt from 310 CMR 7.02 Plan Approval and Emission

Limitations pursuant to 310 CMR 7.02(2)(b)7. *De minimus* Increase in Emissions. All other material handling and storage activities are exempt from 310 CMR 7.02 Plan Approval and Emission Limitations pursuant to 310 CMR 7.03(12) and (22). Material handling and storage include the following:

Limestone

Limestone will be delivered to the facility by ships or covered trucks. Limestone will be unloaded by the ship's unloading boom conveyor and transferred to a new receiving hopper with a wind barrier at the top of the hopper to minimize particulate emissions. The transfer of ship-delivered limestone to a receiving hopper with wind barrier as dust control is exempt from 310 CMR 7.02 Plan Approval and Emission Limitations pursuant to 310 CMR 7.02(2)(b)7. *De minimus* Increase in Emissions. From the receiving hopper, limestone is conveyed through two transfer towers to a conveyor that transports the limestone to the storage dome. Trucks will dump limestone inside the dome. The storage dome will be ventilated thorough a fabric filter particulate collector(s) to minimize particulate emissions.

Limestone will be loaded by front-end loaders onto a conveyor within the storage dome and delivered to the lime stone storage silo that will be equipped with a fabric filter particulate collector. From the storage silo, the limestone will be fed to the wet FGD equipment.

Gypsum

Gypsum, the product of the FGD system, will be handled in the same storage dome as the limestone. Dewatered gypsum will be removed from the site by ship or truck. From within the storage dome, gypsum will either be loaded onto a conveyor or a front-end loader will load gypsum into trucks. For ship loading, a series of conveyors, transfer towers and a telescoping chute that discharges into the ship will be used.

Ammonia

Ammonia in an aqueous solution less than 20% by weight ammonia will be utilized as the reagent for the SCR systems for Units 1 and 3. The aqueous ammonia will be delivered to the site by truck and stored in four 55,000-gallon tanks. Each tank will have its own contaminant equipped with control measures designed to minimize ammonia evaporation and air emissions in the event of a spill.

Fly Ash and ARP Product

Fly ash from will be pneumatically transferred to the ARP fly ash feed silo. From the ARP, the fly ash will be stored in the ARP fly ash storage dome and transferred pneumatically to the fly ash load-out silo for load-out into tank trucks, or will be directly transferred from the storage dome pneumatically to the barge. Ash transferred from the silos to trucks or from the dome to the barge will be equipped with telescoping air slide load-out chutes and particulates will be controlled by fabric filters at a particulate control efficiency of at least 99.5%. Each silo and the ARP fly ash storage dome will be equipped with a fabric filter particulate collector.

Gray Water On-site Use

Gray water from the Somerset POTW will be used in the FGD system; other potential uses include bottom ash system makeup and boiler seal. Gray water will not be used for FGD final stage mist eliminator spray wash.

II. EMISSIONS

A. Background

Emissions to the ambient air from Units 1 and 3 operation currently include the following criteria air contaminants: PM, PM_{10}, SO_2, CO, NO_x, Pb and VOC. With the addition of the proposed modifications, none of the criteria air contaminants will realize a potential to emit increase greater than 1 ton per year. A non-criteria air contaminant, NH_3, PTE is proposed to increase by 35 tons per year and post construction NH_3 emission testing will define NH_3 control efficiencies and emission rates for the various air pollution control systems and it is anticipated that the data will reveal that the PTE for NH_3 will be significantly less than 35 tons per year.

B. New Emission Limits

1. Unit 1 shall not exceed the ammonia emission limits as specified in Table 2:

Table 2: UNIT 1 AMMONIA EMISSION LIMITS

Emission	ppm_{vd} @ 3% O_2[1]	lb/MMBtu[1]	lbs/hr[1]	tpy[2]
NH_3	2	0.001	2.26	9.9

Note:
1 - One-hour average, measured at the stack.
2 - Tons per consecutive 12-month period.

2. Unit 3 shall not exceed the ammonia emission limits as specified in Table 3:

Table 3: UNIT 3 AMMONIA EMISSION LIMITS

Emission	ppm_{vd} @ 3% O_2[1]	lb/MMBtu[1]	lbs/hr[1]	tpy[2]
NH_3	2	0.001	5.71	25.0

Note:
1 - One-hour average, measured at the stacks (existing Stack No. 3 and new Stack No. 5).
2 - Tons per consecutive 12-month period.

3. Unit 1 will become subject to Table 2 emission limits as of the date specified in Section XI.4.c, but not later than 180 days after initial injection of NH_3 up-stream of the SCR catalyst.

4. Unit 3 will become subject to Table 3 emission limits as of the date specified in Section XI.4.d, but not later than 180 days after initial injection of NH_3 up-stream of the SCR catalyst, and no later than 10/01/06

5. The Department reserves the right to establish new final particulate emission limits at the stacks serving Units 1 and Unit 3 (both stacks) based upon post construction emission testing and operating data.

III. PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

A. Background

The federal government under the jurisdiction of the Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for six air contaminants, known as criteria pollutants, for the protection of public health and welfare. These criteria pollutants are Sulfur Oxides as SO_2, PM_{10}, NO_2, CO, O_3, and Pb.

The state government under the jurisdiction of the Department of Environmental Protection (the "Department") has adopted these ambient air quality standards for the Commonwealth of Massachusetts as stated under 310 CMR 6.00 Ambient Air Quality Standards for the Commonwealth of Massachusetts. One of the basic goals of federal and state air regulations is to ensure that ambient air quality, including the impact of existing and new sources, complies with ambient standards. Towards this end, EPA classified all areas of country as "attainment", "nonattainment", or "unclassified" with respect to the NAAQS.

New major sources of regulated air pollutants or major modifications to existing major sources of regulated air pollutants that are located in areas classified as either "attainment" or "unclassified" are subject to 40 CFR Section 52.21 Prevention of Significant Deterioration of Air Quality ("PSD") regulations. Pursuant to 40 CFR 52.21(b)(1)(I)(a.), a source is considered "major" if it has the potential to emit 100 tons per year (tpy) or more of any pollutant and is listed as one of the 28 designated PSD stationary source categories, and is considered a "major modification" if the physical change or change in the method of operation of a "major" source would result in a significant net emission increase.

Effective July 1, 1982, the PSD program has been implemented by the Department in accordance with the Department's "Procedures for Implementing Federal Prevention of Significant Deterioration Regulations". On April 26, 2002, USGen New England, Inc. submitted to the Department an application, pursuant to 310 CMR 7.02 to alter and operate existing Brayton Point Station Units 1 and 3, steam to electric power generation units. Unit 1 design basis is 2,250 MMBtu/hr heat input and Unit 3 design basis is 5,655 MMBtu/hr, per the Title V Permit. Thus, the Brayton Point Station is one of the 28 designated PSD stationary source categories, namely a fossil fuel fired steam electric plant of more than 250 MMBtu/hr heat input. The Brayton Point Station is an existing major source of regulated air pollutants.

Effective March 3, 2003, the Department notified U.S. EPA Region 1 that Massachusetts would no longer implement the PSD program and returned delegation of the PSD program to the US EPA. Therefore, the US EPA Region 1 has the responsibility to determine PSD applicability for this project.

B. General Information

The Applicant is proposing to alter Units 1 and 3 at the electric utility steam generating facility in Somerset, Massachusetts. The facility is located in an area which is in either "attainment" or "unclassified" for Sulfur Oxides measured as SO_2, NO_2, CO, Pb, and PM, which includes PM_{10}. Therefore, the facility is located in a PSD area for these pollutants.

IV. EMISSION OFFSETS AND NONATTAINMENT REVIEW

A. Background

The entire Commonwealth of Massachusetts is designated "serious" nonattainment for the pollutant O_3 NAAQS. NO_x and VOC emissions are precursors to the formation of O_3.

New major sources of regulated air pollutants or major modifications to an existing major sources of regulated air pollutants that are located in areas classified as "nonattainment" are subject to 310 CMR 7.00 Appendix A: Emission Offsets and Nonattainment Review. Pursuant to 310 CMR 7.00 Appendix A(2), a source is considered "major" if it has a potential to emit 50 tons per year (tpy) or more of NO_x or VOC, and is considered a "major modification" if the physical change or change in the method of operation of a "major" source would result in a significant net emission increase. A significant net emission increase for applications received after November 15, 1992 is defined as 25 tpy of either VOC or NO_x emissions. A physical change or change in the method of operation does not include the addition, replacement or use of a pollution control project at an existing electric utility steam generating unit, unless the Department determines that such addition, replacement, or use renders the unit less environmentally beneficial.

Applicable requirements for any proposed new major stationary source of NO_x and/or VOC require the source to meet Lowest Achievable Emission Rate (LAER) and obtain emission offsets.

B. General Information

Alteration of Unit 1 and Unit 3 are not categorized as a "major modification" to an existing major source since the alteration has been determined by the Department to be a "pollution control project" at an existing steam generating unit that is "environmentally beneficial".

Table 4 identifies NO_x and VOC emission factors for past actual baseline 2000-2001 average emissions and predicted post retrofit with SCR, FGD and ARP average emissions.

Table 4: EMISSION FACTORS – lb/MMBtu				
	Past Actual Baseline 2000-2001 Average		Predicted Post Retrofit W/SCR, FGD & ARP	
Emission	Unit 1	Unit 3	Unit 1	Unit 3
NO_x	0.30	0.41	0.08	0.08
VOC	0.0025	0.0024	0.0025	0.0025

Table 5 identifies the net emission changes for Unit 1 and Unit 3 for emissions subject to Nonattainment review.

Table 5: NONATTAINMENT REVIEW						
		Past Actual Baseline 2000-2001 Average		Future Representative Actual Annual Emissions[2]		Net Change
		Unit 1	Unit 3	Unit 1	Unit 3	
Fuel	MMBtu/yr	15,956,468	35,640,854	15,956,468	35,640,854	0
Fuel	% of max.[1]	81	72	81	72	0
NO_x	tons/yr	2362	7,306	638	1,426	**-7,604**
VOC	tons/yr	20.0	43.5	20.0	44.0	**+0.5**

Note:
1 – Equivalent heat input capacity factor.
2 – Future Representative Actual Annual Emissions based on the same heat input rate as Past Actual Baseline.

The project, based on past actual emissions to future representative actual annual emissions, will result in significant NO_x emission reductions, and less than significant net increase in representative actual emissions of VOC. The minor facility wide collateral VOC actual emission increase will not adversely affect NAAQS for ozone due to the substantial reductions of NO_x emissions.

C. Conclusion

Unit 1 and Unit 3 modifications, based on current information and pursuant to 310 CMR 7.00 Appendix A(2), is not considered a "major modification" to an existing major source. The proposed alteration/construction has been determined by the Department, pursuant to 310 CMR 7.00 Appendix A(2)("major modification")(c)(8), to be a "pollution control project" at existing electric utility steam generating units that is "environmentally beneficial". Based on current information, LAER and Offsets pursuant to 310 CMR 7.00 Appendix A are not required for the

alterations/construction. Refer to Section X and XI for emission record keeping and reporting requirements.

V. NEW SOURCE PERFORMANCE STANDARDS (NSPS)

Unit 1 and Unit 3 are considered to be a "fossil-fuel fired steam generating unit" and an "electric utility steam generating unit" since each Unit burns fossil fuels at a rate greater than 250 MMBtu/hr and more than one third of each Unit's net electrical output will be sold to a utility.

Construction/alteration of Unit 1 and Unit 3 will not constitute a "modification" since the primary function is the reduction of air pollutants. Substantial emission reductions of NO_x will be realized with the SCR system on Unit 1; substantial emission reductions of NO_x and SO_2 will be realized with the SCR & FGD systems on Unit 3; and potential particulate emissions will not increase. In addition, the construction/alterations are not by definition "reconstruction" since the additional air pollution controls do not constitute "replacement of components".

The New Source Performance Standards (NSPS) for fossil-fuel fired steam generators and electric utility steam generating units, Title 40 Part 60 Subpart D and Subpart Da, respectively, of the Code of Federal Regulations, are not applicable to either Unit 1 or Unit 3.

Based on a recent determination issued by USEPA Region 4, NSPS Subpart Dc applies to the ash reduction process (ARP) that is proposed as an integrated element of the ECP, because the ARP heat recovery meets the definition of a "steam generating unit." Because the fly ash is not considered to meet the definition of coal, no Subpart Dc emission standards apply. However, the facility must meet the record keeping and reporting requirements of Section 60.48c(g) and the general provisions in 40 CFR 60.7.

VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

A. Background

Pursuant to 310 CMR 7.00 Definitions and 310 CMR 7.02(3)(j)6., the Applicant is required to evaluate Best Available Control Technology (BACT) for the "alterations" and "construction" as it applies to any air contaminant that will result in a potential emission increase. BACT is defined as an emission limitation using the optimum level of control applied to pollutant emissions based upon consideration of technical, economic, energy and environmental factors.

Unit 1 and Unit 3 will have potential emission increases greater than 1 ton per year for NH_3 associated with the SCR NO_x emission control systems. Excess NH_3 that does not react in the SCR system catalyst bed, referred to as NH_3 slip, will be emitted from stacks of Units 1 and 3. Therefore, BACT review requirements are limited to NH_3 emissions.

In addition, the wastewater treatment plant (WWTP) will have a potential emission increase of NH_3 due to treatment of wastewater streams containing NH_3 from Units 1 and 3 air pre-heater and electrostatic precipitator washes and the Unit 3 FGD blow-down. Therefore, the WWTP BACT review requirements are limited to NH_3 emissions.

The first step in a BACT analysis is to determine for the emission source, the most stringent control available for a similar or identical source or source category. The proposed facility must utilize BACT to control NH_3 emissions. The Department has verified and concurs with the following BACT Analysis (as referenced in the Applicant's MCPA).

B. Ammonia (NH_3) BACT Analysis

Table 6: NH_3 Comparative BACT Analysis Unit 1 and Unit 3

Control Technology	Emission Rate[1]	BACT	Costs[2]	Reason
$SCONO_x$	0 ppmvd @ 3% O_2	No	N/A	The technology has not been demonstrated on boilers burning residual oil or coal. Technology has been demonstrated on gas fired combustion turbines.
SCR	2 ppmvd @ 3% O_2	Yes	$$	Method chosen to achieve BACT and lower than the lowest emission rate demonstrated from a coal fired boiler with SCR. The lowest emission rate identified for a coal fired boiler with SCR is 5 ppmvd @ 3% O_2, or 2.5 times higher than that proposed. NH_3 preferentially reacts with SO_3 to form particulate ammonia salts downstream of the SCR systems with little anticipated impact to the wastewater and represents BACT for the WWTP as well.

Note:
1 - Potential Emissions
2 - $ = least expensive (relative to control technologies for that specific pollutant)
$$ = moderately expensive (relative to control technologies for that specific pollutant)
$$$ = fairly expensive (relative to control technologies for that specific pollutant)
$$$$ = very expensive (relative to control technologies for that specific pollutant)
$$$$$ = extremely expensive (relative to control technologies for that specific pollutant)

Conclusion:
Therefore, based upon the economic analysis portion of the top-down BACT process, currently available data, and the tenets and procedures of the BACT process, the Department has concluded that limiting the NH_3 emissions to no greater than 2 ppmvd @ 3% O_2 is the best achievable control technology, or BACT, for NH_3.

VII. SOUND

A. Background

The Department regulation concerning sound emissions is contained in 310 CMR 7.10 Noise. This regulation requires that necessary equipment and precautions be used to prevent a condition of air pollution due to sound emissions from the facility. The Department's existing guideline for enforcing the noise regulation is contained in the Department's Policy 90-001; the policy provides broadband and pure tone sound level criteria.

Based upon a review of Department records, the existing facility has not caused a condition of air pollution due to sound emissions since the coal conversion in the 1980's.

B. General Information

Sound mitigation measures

1. Thermal lagging on the following fans/blowers:
   - Unit 3 vent filter fan
   - Fluidized Bed or Multiple Hearth Combustion Force Draft Fan
   - Dust Collection System Surge Bin Aeration Blower
   - Dust Collection System Induced Draft Fan
   - Selective Catalytic Reduction Ammonia Injection Dilution Air Blowers
   - Product Ash Transport Air Supply Fans
   - Selective Catalytic Reduction Replacement Fans

2. Acoustical lagging on the following fans:
   - Unit 3 Induced Draft Fans
   - Unit 3 Flue Gas Booster Fans

3. A three sided barrier (firewalls) around the auxiliary transformers (two feet higher than transformers).

Sound Monitoring/Modeling

1. Sound monitoring at five nearby receptor locations was performed during March and May, 2002.

2. Predicted impacts reveal that four of the five receptor locations will result in an increase of 1 dB(A) or less for a total impact between 39-47 dB(A). The fifth receptor will result in an increase of 3 dB(A) for a total impact of 40 dB(A).

3. At the fifth receptor that will realize a 3 dB(A) increase, the overall sound impact will be 2-7 dB(A) less than three of the four other receptors and 1 dB(A) greater in comparison to the forth receptor.

C. Conclusion

Sound impacts proposed in the pending application meet the requirements contained in 310 CMR 7.10 Noise and will not cause or contribute to a condition of air pollution.

A post construction sound survey shall be conducted to define actual sound impacts in comparison to impacts proposed in the application approved herein. Post construction sound surveys shall be conducted no later than 180 days after the later of the dates specified in Section XI.4.c and d. and again within 180 days after the date specified in Section XI.4.e. with the final reports submitted to the Department within 60 days after each survey.

VIII. SPECIAL CONDITIONS

A. General Special Conditions

1. The Applicant shall submit to the Department, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), the general plans and specifications, as applicable and available, for the construction/alterations of each system approved herein 30 days prior to commencement of construction/installation of each system.

2. Pursuant to Regulation 310 CMR 7.00: Appendix C and the November 7, 1995 US EPA letter to STAPPA/ALAPCO, the modification approved herein will be a "Minor Modification" to Operating Permit 4V95056 since this Revised Conditional Approval No. 4B02012 is a minor New Source Review action. As such, the Applicant shall comply with Appendix C(4)(b)2. and Appendix C(8)(d) Processing a Minor Modification.

3. The Applicant shall submit Standard Operating and Maintenance Procedures (SOMP) for the new and altered equipment to the Department no later than 60 days after commencement of operation of the proposed facility. Thereafter, the Applicant shall submit updated versions of the SOMP to the Department no later than 30 days prior to the occurrence of a significant change. The Department must approve in writing any significant changes to the SOMP prior to the SOMP becoming effective.

4. The Applicant shall maintain a complaint log concerning emissions, odor, dust and noise from the facility. The Applicant shall make available to the general public a telephone number that will receive and record complaints 24 hours per day, 7 days per week. The complaint log shall be maintained for the most recent five (5) year period. The complaint log shall be made available to the Department upon request. The Applicant shall take all reasonable actions to respond to complaints.

B. Special Conditions Specific to the Installation of the SCR Emission Control Systems

1. The Applicant shall submit to the Department final project design information by October 1, 2006 including, but not limited to, all documents not submitted with application approved herein (refer to Appendix A, Form BWP AQ CPA-1, Section B) and revised forms contained in Appendix A of the application, with the exception of Forms BWP AQ SFC-7.

2. The Applicant, within 15 months after October 1, 2006, shall propose to the Department new particulate emission limits for the existing stacks of Unit 1 and Unit 3 and provide supporting justification for the proposed emission limits. A minimum of four (4) particulate emission tests shall be conducted on each of the two (2) existing stacks serving Units 1 and 3. The Department will establish a final particulate emission limit after review of the applicants proposed final emission limits and supporting documentation.

3. The Applicant shall, within 60 days after the submittal to the Department of the compliance test report, propose a surrogate methodology or parametric monitoring for NH_3 emissions based on compliance test results, NH_3 CEMs and operating experience.

4. The basis for NH_3 emission compliance determination will automatically convert from quarterly compliance testing to the NH_3 CEM system upon each Unit's CEM system demonstration that the relative accuracy of the NH_3 CEM system is within +/- 15% for four consecutive quarters and the NH_3 CEM system was operating 90% of the time during the same period.

5. Unit 1 and Unit 3 shall meet the NH_3 emission limits approved herein within four hours from initiating NH_3 feed to the SCR based upon compliance level ammonia CEM system data. During shutdown of the NH_3 system, Unit 1 and Unit 3 will be exempt from the hourly limits during the last hour of the NH_3 feed to the SCR.

C. Special Conditions Specific to the Installation of the FGD Emission Control System

1. The Applicant shall submit to the Department final project design information prior to installation of the equipment including, but not limited to, all documents not submitted with application approved herein (refer to Appendix A, Form BWP AQ CPA-1, Section B) and revised forms contained in Appendix A of the application, with the exception of Forms BWP AQ SFC-7.

2. The Applicant, within 15-months after the date specified in Section XI.4.e, shall propose to the Department new Unit 3 particulate emission limits and provide supporting justification for the proposed emission limits. A minimum of four (4) particulate emission tests shall be conducted on the new Unit 3 FGD stack. The Department will

establish a final particulate emission limit after review of the applicants proposed final emission limits and supporting documentation. Prior to establishment of this new limit the new Unit 3 FGD stack will be subject to the existing particulate limit of 0.08 lb/MMBtu.

D. Special Condition Specific to the installation of the ARP

1. The Applicant shall submit to the Department final project design information by October 1, 2006 including, but not limited to, all documents not submitted with application approved herein (refer to Appendix A, Form BWP AQ CPA-1, Section B) and a completed Form BWP AQ CPA-1 Comprehensive Plan Approval Application for Fuel Utilization Facilities and BWP AQ SFC-1 Dry Air Filters (Fabric, Bags, Cartridges, etc.) for the ARP and fabric filter for particulate control.

2. The ARP shall not operate when Unit 1 and Unit 3 are both shutdown.

3. During start-up and commissioning, the ARP emissions may be routed to Unit 1.

IX. MONITORING AND RECORDING REQUIREMENTS

1. All current monitoring and recording requirements remain in effect and are not altered herein.

2. Unit 1 and Unit 3 (Stack 5 from FGD) shall be equipped with NH_3 CEMs with the outputs directed to the data acquisition system. These monitors will be used initially as operating indicators versus direct compliance level monitors due to the uncertain NH_3 CEM performance on coal fired boilers. The NH_3 CEMs will become direct compliance monitors upon written notification by the Department to Dominion Energy Brayton Point, LLC based on a determination by the Department that the NH_3 CEMs are reliable and accurate. The NH_3 CEMs shall comply with the linearity check and RATA frequencies and grace periods as specified in 40 CFR 75 in conducting gas audits and RATAs.

3. The new Unit 3 stack (Stack 5 from the FGD) shall be equipped with flow monitoring, NO_x, SO_2, CO and CO_2 or O_2 CEMs and a continuous opacity monitor (COM). The CEMs and COM shall meet 40 CFR 75 requirements, with the exception of the CO CEM that shall meet the 40 CFR 60 Appendix B performance specifications and Appendix F for quality assurance and quality control.

4. The Unit 3 existing stack (Stack 3) CEM for CO shall comply with the linearity check and RATA frequencies and grace periods as specified in 40 CFR 75 in conducting cylinder gas audits and RATAs.

5. At least 60 days prior to commencing construction of the CEM/COM systems, protocols and plans for the new CEM/COM systems, including NH_3 CEMs, and supporting documentation, shall be submitted to the Department for review and approval.

6. NH_3 CEM data will initially be used as an operational tool. Compliance with the NH_3 emission limit will be determined during the initial compliance test, and by quarterly compliance testing performed three, six, nine and every twelve months thereafter. The NH_3 CEMs shall operate during NH_3 compliance testing and the test report shall be submitted to the Department within 30 days after completion of testing. On an annual basis, starting 90 days after the fourth compliance test (initial and following three quarters), the applicant shall submit a report on the performance and relative accuracy of the NH_3 CEMs along with a recommendation on the feasibility of their use as a compliance determination method for each unit.

7. Monitor the fly ash fuel feed rates to the ARP and record daily feed rates in tons per day.

8. Fly ash feed to and flyash product from the ARP shall be sampled on a calendar quarter basis and analyzed for higher heat value (HHV) in units of Btu/lb.

X. RECORD KEEPING REQUIREMENTS

1. A record keeping system for the proposed facility shall be established and maintained on site by the Applicant. All such records shall be maintained up-to-date such that year-to-date information is readily available for Department examination upon request. The record keeping log/system, including any other "credible evidence", shall be kept on-site for a minimum of five (5) years. Record keeping shall, at a minimum, include:

   a) Compliance records sufficient to demonstrate that emissions from the facility have not exceeded emission limits contained in this Revised Conditional Approval. Such records shall include, but are not limited to, fuel usage rate, emissions test results, monitoring equipment data and reports.

   b) Maintenance: A record of routine maintenance activities performed on the proposed control equipment and monitoring equipment including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.

   c) Malfunctions: A record of all malfunctions on the proposed Unit 1 and Unit 3 emission control and monitoring equipment including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the proposed equipment was returned to compliance.

2. The Applicant shall maintain on-site for five (5) years all records of output from all continuous monitors for flue gas emissions and fuel consumption, and shall make these records available to the Department upon request.

3. The Applicant shall maintain a log to record upsets or failures associated with the proposed emission control systems.

4. The applicant shall maintain records of the daily fly ash feed to the ARP in tons per day.

5. The applicant shall maintain calendar quarter records of the fly ash heat input to and fly ash product from the ARP in units of Btu/lb.

6. The use of wastewater from the Somerset POTW that contain VOCs and the transfer of ship-delivered limestone to the receiving hopper controlled by a wind barrier as dust control are subject to the record keeping requirements contained in 310 CMR 7.02(2)(e).

XI. REPORTING REQUIREMENTS

1. All notifications and reporting required by this Revised Conditional Approval shall be made to the attention of:

Department of Environmental Protection
Bureau of Waste Prevention
20 Riverside Drive
Lakeville, Massachusetts 02347
ATTN: Permit Section
Telephone: (508) 946-2770
Fax: (508) 947-6557 or (508) 946-2865

2. Pursuant to 310 CMR 7.00 Appendix A, the Applicant on an annual basis for a period of 5 years from the date each unit (Unit 1 and Unit 3) resumes regular operation after completion of the steps identified in 4.c, 4.d and 4.e of this Section, shall submit information demonstrating that the physical or operational change did not result in an emission increase beyond the "representative actual annual emissions" defined in Section IV Emission Offsets and Nonattainment Review. Should there be an increase beyond that defined in Section IV, the Department will consider information provided by the Applicant that the increase is unrelated to the alterations/construction approved herein, such as, any increased utilization due to the rate of electricity demand growth for the utility system as a whole. If the installations of the Unit 3 SCR and FGD emission control systems do not coincide, Unit 3 will have two different 5-year periods subject to the requirements of this condition.

3. The Applicant shall notify the Department by telephone or fax no later than three (3) business days after the occurrence of any upsets or malfunctions to the proposed facility

equipment, air pollution control equipment, or monitoring equipment which results in an excess emission to the ambient air and/or a condition of air pollution.

4. USGen New England, Inc. shall notify the Department in writing within 10 days after each activity listed below occurs:

   a) The date construction commences.
   b) The date construction is completed.
   c) The date Unit 1 SCR has passed acceptance testing (vendor guarantee).
   d) The date Unit 3 SCR and ARP have both passed acceptance testing (vendor guarantees).
   e) The date Unit 3 FGD has passed acceptance testing (vendor guarantee).

5. Notification as required by 40 CFR 60 Subpart Dc, Section 60.48c(a).

6. The use of wastewater from the Somerset POTW that contain VOCs and the transfer of ship-delivered limestone to the receiving hopper controlled by a wind barrier as dust control are subject to the reporting requirements contained in 310 CMR 7.02(2)(f).

XII. TESTING REQUIREMENTS

1. The Applicant shall ensure that the proposed facility is constructed to accommodate the initial emissions (compliance) testing requirements contained herein. All emissions testing shall be conducted in accordance with the Department's "Guidelines for Source Emissions Testing" and in accordance with the Environmental Protection Agency reference test methods as specified in 40 CFR Part 60, Appendix A, or a method approved by the Department in writing.

2. The Applicant must obtain written Department approval of an emissions test protocol. The protocol shall include a detailed description of sampling port locations, sampling equipment, sampling and analytical procedures, and operating conditions for any such emissions testing. It must be submitted to the Department at least 30 days prior to commencement of testing of the facility. The test protocol shall include a test matrix that will define emission control efficiencies and emission rates, as follows:

   Unit 1
   NO_x (before and after SCR)
   NH_3 (after SCR)

   Unit 3
   NO_x (before and after SCR)
   SO_2 (before and after FGD)
   NH_3 (before and after FGD)

3. The Applicant shall conduct initial emission compliance tests no later than 180 days after the dates specified in Sections XI.4.c, XI.4.d and XI.4.e. The emission compliance test program shall comply with the Department of Environmental Protection Guidelines for Source Emission Testing.

4. The Applicant shall conduct initial compliance tests to demonstrate that Unit 1 and Unit 3 are in compliance with the emission limits (lb/hr, lb/MMBtu, ppmvd as applicable, and opacity) for the pollutants listed below. With respect to Unit 3, the Applicant shall conduct an initial compliance tests on the existing stack after SCR installation and the new FGD stack after FGD installation. If the installations of the SCR and FGD systems coincide, initial compliance testing shall be conducted on each of the two (2) stacks. Testing for the following pollutants shall be conducted at 100% of rated base load:

   a) Nitrogen Oxides (NO_x)
   b) Particulate Matter (PM)
   c) Sulfur Dioxide (SO_2)
   d) Ammonia (NH_3)
   e) Opacity

5. The Applicant shall ensure that a final emissions test results report is submitted to the Department within 60 days of completion of the emissions testing program.

6. In accordance with 310 CMR 7.13 the Department may require additional emissions testing of the proposed facility at any time to ascertain compliance with the Department's Regulations and/or this Conditional Approval.

7. In accordance with 310 CMR 7.04(4)(a), the Applicant shall have Unit 1 and 3 inspected and maintained in accordance with the manufacturer's recommendations and tested for efficient operation at least once in each calendar year. The results of said inspection, maintenance and testing and the date upon which it was performed shall be recorded and posted conspicuously on or near the proposed equipment.

XIII. GENERAL REQUIREMENTS

1. The Applicant shall properly train all personnel to operate the proposed facility and control equipment in accordance with vendor specifications and this Revised Conditional Approval.

2. All requirements of this Revised Conditional Approval that apply to the Applicant shall apply to all subsequent owners and/or operators of the facility.

3. The Applicant shall maintain the standard operating and maintenance procedures for all air pollution control equipment in a convenient location (e.g., control room/technical library) and make them readily available to all employees and the Department.

4. The Applicant shall comply with all provisions of 310 CMR 6.00-8.00 that are applicable to this facility.

5. This Revised Conditional Approval may be suspended, modified, or revoked by the Department if, at any time, the Department determines that the facility is violating any condition or part of the Approval.

6. This Revised Conditional Approval does not negate the responsibility of the Applicant to comply with this or any other applicable federal, state, or local regulations now or in the future.

7. The facility shall be operated in a manner to prevent the occurrence of dust, odor or sound conditions that cause or contribute to a condition of air pollution as defined in Regulations 310 CMR 7.01, 7.09 and 7.10.

8. Should asbestos remediation/removal be required as a result of this Revised Conditional Approval, such asbestos remediation/removal shall be done in accordance with Regulation 310 CMR 7.15 and 310 CMR 4.00.

9. Any proposed increase in emissions above the limits contained in this Revised Conditional Approval must first be approved in writing by the Department pursuant to 310 CMR 7.02. In addition, any emissions increase may subject the facility to additional regulatory requirements.

10. No person shall cause, suffer, allow, or permit the removal, alteration or shall otherwise render inoperative any air pollution control equipment or equipment used to monitor emissions which has been installed as a requirement of 310 CMR 7.00, other than for reasonable maintenance periods or unexpected and unavoidable failure of the equipment, provided that the Department has been notified of such failure, or in accordance with specific written approval of the Department.

11. The facility shall be constructed and operated in strict accordance with this Conditional Approval. Should there be any differences between the Applicant's Non-Major Comprehensive Plan Application (Application No. 4B02012, Transmittal No. W027692) and this Revised Conditional Approval, this Revised Conditional Approval shall govern.

12. All provisions contained in existing plan approvals and the Operating Permit concerning the subject facility issued by the Department to USGen New England, Inc, and/or previous owners, remain in effect other than those specifically altered herein

XIV. CONSTRUCTION REQUIREMENTS

During the construction phase of the proposed modifications at the facility, the Applicant shall ensure that facility personnel take all reasonable precautions (noted below) to minimize air pollution episodes (dust, odor, noise):

1. Facility personnel shall exercise care in operating any noise generating equipment (including mobile power equipment, power tools, etc.) at all times to minimize noise.

2. Construction vehicles transporting loose aggregate to or from the facility shall be covered and shall use leak tight containers.

3. The construction open storage areas, piles of soil, loose aggregate, etc. shall be covered or watered down as necessary to minimize dust emissions.

4. Any spillage of loose aggregate and dirt deposits on any public roadway, leading to or from the proposed facility shall be removed by the next business day or sooner, if necessary.

5. On site unpaved roadways/excavation areas subject to vehicular traffic shall be watered down as necessary or treated with the application of a dust suppressant to minimize the generation of dust.

XV. MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

An Environmental Notification Form (EOEA No. 13022) was submitted to the Executive Office of Environmental Affairs, for air quality control purpose, pursuant to the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00 MEPA Regulations. The ENF was designated EOEA No. 13022.

On May 22, 2003, the Secretary of Environmental Affairs issued a Certificate on the ENF with a determination the project does not require the preparation of an Environmental Impact Report. Furthermore, in response to a Notice of Project Change the Secretary of Environmental Affairs issued a letter, dated August 23, 2004, indicating that no further review is required for the use of aqueous ammonia in place of the urea based system.

XVI. LIST OF PERTINENT INFORMATION

Application Title:	"310 CMR 7.02 Plan Approval Application as part of 310 CMR 7.29 Implementation at Brayton Point Generating Station" Revision 4 dated August 2004 (w/Revision 5 – August 2005 Replacement Pages)
Application Prepared by:	TRC Environmental Corporation
Attested to by:	Val F. Madden, P.E. No. 33713

Submitted by: Dominion
Date Submitted: August 22, 2005

XVII. APPEAL PROCESS

This approval is an action of the Department. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts which are the grounds for the request, and the relief sought. Additionally, the request must state why the plan approval is not consistent with the applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, Massachusetts 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver as described below.

The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

The Department may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Please be advised that this approval does not negate the responsibility of the Applicant to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this approval imply compliance with any other applicable federal, state, or local regulation now or in the future.

Sheridan Science and Technology Park, 2800 Speakman Drive
Mississauga, Ontario, Canada L5K 2R7
Tel 905 855 7600 ◆ Fax 905 855 8270