COMMONWEALTH OF MASSACHUSETTS

Energy Facilities Siting Board

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In the Matter of the Petition of)

The Berkshire Gas Company for Approval)

to Construct a Liquified Natural Gas Storage and) EFSB 99-2

Vaporization Facility in Whately, Massachusetts)

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The Petition of The Berkshire Gas Company)

for an Exemption from the Zoning Bylaws of)

the Town of Whately in Connection with the) D.T.E. 99-17

Construction and Operation of a Liquified)

Natural Gas Storage and Vaporization Facility)

)

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FINAL DECISION

M. Kathryn Sedor

Hearing Officer

September 13, 1999

On the Decision:

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The Energy Facilities Board ("Siting Board") hereby APPROVES subject to conditions (1) the Petition of the Berkshire Gas Company for approval to construct and operate a liquified natural gas storage and vaporization facility at the Company's preferred site in the Town of Whately, Massachusetts, and (2) the Petition of the Berkshire Gas Company for certain exemptions from the Town of Whately Zoning ByLaw.

I. INTRODUCTION

A. Summary of the Proposed Project

Berkshire Gas Company ("Berkshire") distributes and supplies gas for residential, commercial, and industrial use in nineteen communities of western Massachusetts (Exh. EFSB-N-8, at 4). These communities are served by three separate divisions of Berkshire's distribution system, the Pittsfield, North Adams, and Greenfield Divisions (id. at 14). Berkshire is proposing to establish a liquified natural gas ("LNG") storage facility within the Town of Whately, Massachusetts in order to provide additional energy resources for the Greenfield Division of its distribution system (Exh. EFSB-1, at 1).

Berkshire indicated that, on several occasions, it has had difficulty maintaining adequate feedline pressures in the northern portion of the Greenfield distribution system (Exh.

EFSB-N-1). Berkshire attributed this problem to the length of the Division's 200 psig feedline and unforseen decreases in inlet pressure at Tennessee Gas Pipeline Company's ("Tennessee") Northampton gate station[(1)] (Exhs. BG-RMA-1, at 3; BG-1, at 1-2, 3-1). Berkshire predicted that the vulnerability of the Greenfield Division would become more acute in the near future due to forecast increases in demand (Exh. BG-1, at 1-2, 3-1). Berkshire stated that the proposed LNG storage and vaporization facility would make it possible to "maintain adequate operating pressures during peak or near peak periods" for the next twenty years (Exh. EFSB-1, at 2).

Berkshire's proposed facility would consist of five prefabricated above ground storage tanks, each with a nominal capacity of 70,000 gallons (id. at 2). The first two tanks are proposed for installation in 1999 (id.). The three remaining tanks would be installed over twenty years, as needed to meet projected sendout requirements (id.). A shop fabricated building that houses vaporization, odorization, and onsite control facilities would be installed with the two initial storage tanks (Exh. BG-1 (att. G)). Berkshire also indicated that construction of an interconnecting gas line from the LNG storage facility to the Greenfield Feedline would be part of the project (id. (att. 5-H)). Major safety features of the proposed facility include earthen dikes between tanks, remote impoundment sumps for each tank, and a vapor barrier/security fence (Exh. BG-1 (att. F at 1-1, 1-4)).

Berkshire intends to remotely[(2)] control, monitor, and initiate facility operations from its control center in Pittsfield, Massachusetts (Exh. EFSB-S-3). The proposed facility would be operated as a peaking unit during periods when an additional gas supply is needed to maintain system integrity for the Greenfield Division (Tr. 3, at 330-331).

Berkshire has proposed a preferred site and an alternative site for the LNG storage facility (Exh. BG-1, at 1-1). The preferred site is a 16.2 acre parcel located in the northeast corner of Whately, immediately south of the Ukrainian Greek Catholic Church Cemetery and between the Boston & Maine Railroad and Long Plain Road (id. (atts. 1-A, 5-E)). The alternative site is a 17 acre parcel located near the center of Whately, 0.5 miles north of interchange 23 off of Interstate 91 (id. (atts. 1-B, 5-E)). The alternative site is bounded by Route 5/10 to the west and Interstate 91 to the east (id.).

B. Jurisdiction

1. Petition to Construct

The Company's petition to construct a natural gas storage and vaporization facility was filed in accordance with G.L. c. 164, § 69H, which requires the Siting Board to implement the energy policies in its statute to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, and pursuant to G.L. c. 164,

§ 69J, which requires a project applicant to obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency.

As a unit designed for and capable of the storage of natural gas, the Company's proposed LNG Facility falls squarely within the definition of "facility" set forth in

G.L. c. 164, § 69G(5), which provides that a "facility" is:

a unit, including associated buildings and structures, designed for or capable of the manufacture or storage of gas, except such units below a minimum threshold size as established by regulation.

2. Zoning Exemption Petition

The Company's petition for a zoning exemption was filed in accordance with

G.L. c. 40A, § 3, which authorizes the Department of Telecommunications and Energy ("Department") to exempt a public service corporation from the requirements of local zoning bylaws. The Company's petition is reviewable by the Siting Board in this proceeding in accordance with G.L. c. 164, § 69H(2), which authorizes Siting Board review of any petition referred to the Siting Board by the Department pursuant to G.L. c. 25, § 4.

C. Procedural History

On February 2, 1999, Berkshire filed with the Siting Board a petition to construct

a new LNG storage and vaporization facility ("project") in the Town of Whately. The Siting Board docketed the petition as EFSB 99-2. On February 2, 1999, Berkshire also filed with the Department a petition for an exemption from certain provisions of the Town of Whately Zoning ByLaw. The Department docketed the petition as D.T.E. 99-17.

Also on February 2, 1999, Berkshire filed with the Siting Board and with the Department a motion requesting that the petition in EFSB 99-2 and the petition in D.T.E. 99-17 be consolidated for hearing. On February 19, 1999, the Chair of the Department referred D.T.E. 99-17 to the Siting Board, and directed the Siting Board to review both petitions in a consolidated proceeding.

On March 24, 1999, the Siting Board conducted a public hearing in Whately. In accordance with the direction of the Hearing Officer, the Company provided notice of the public hearing and adjudication.

Timely petitions to intervene in the proceeding were filed by Colonial Gas Company, the Town of Deerfield and the Deerfield Planning Board ("Town of Deerfield"), and the Town of Whately. Timely petitions to participate as an interested person were filed by Cabot LNG Corporation ("Cabot") and Theodore F. Cycz. The Company did not file opposition to the petitions to intervene or the petitions to participate as an interested person.

The Hearing Officer granted the petitions to intervene filed by Colonial, the Town of Deerfield and the Town of Whately Berkshire Gas Company, EFSB 99-2/D.T.E. 99-17, Hearing Officer Memorandum, April 15, 1999. Cabot and Mr. Cycz were granted status as interested persons (id.).

The Siting Board conducted four days of evidentiary hearings commencing on June 7, 1999, and ending on June 11, 1999. The Company presented the testimony of four witnesses: Robert M. Allessio, Vice President of Utility Operations for Berkshire, whose testimony addressed the need for the proposed project, project alternatives, and site selection; Richard E. Nasman, Manager of Engineering for Berkshire, whose testimony addressed the need for the proposed project, project alternatives, site selection, and safety matters; Thomas G. Quine, engineering consultant to the Company, whose testimony addressed project design, project alternatives, and safety matters; and Gary A. Jacob, environmental consultant to the Company, whose testimony addressed environmental and site selection matters.

The Company, The Town of Deerfield, and the Town of Whately each filed an Initial Brief. The Company filed a Reply Brief.

The Hearing Officer entered 285 exhibits into the record, consisting primarily of information request responses and record request responses. The Company entered twelve exhibits into the record.

D. Scope of Review

1. Petition to Construct

In accordance with G.L. c. 164, § 69J, before approving a petition to construct facilities, the Siting Board requires an applicant to justify its proposal in three phases. First, the Siting Board requires the applicant to show that additional energy resources are needed (see Section II.A, below). Next, the Siting Board requires the applicant to establish that, on balance, its proposed project is superior to alternative approaches in terms of cost,

environmental impact, reliability, and ability to address the identified need (see Section III.C, below). Finally, the Siting Board requires the applicant to show that its site selection process has not overlooked or eliminated clearly superior sites, and that the proposed site for the facility is superior to a noticed alternative site in terms of cost, environmental impact, and reliability of supply (see Section III.B and III.C, below).

Additionally, in the case of a gas company which is required by G.L. c. 164, § 69I to file a long-range forecast with the Department, the applicant must show that the facility is consistent with the gas company's most recently approved long-range forecast. G.L. c. 164, § 69J. Berkshire is a gas company required to make such a filing and to make such a showing (see Section II.A, below).

Additionally, in the case of a proposed LNG facility, the applicant must show that the facility will comply with the Siting Board regulations governing the siting of such facilities (see Section III.D, below).

2. Zoning Exemption Petition

In accordance with G.L. c. 164, § 69H(2), in reviewing a petition referred by the Department, the Siting Board applies Department and Siting Board standards in a consistent manner. In accordance with G.L. c. 40A, § 3, and consistent with Department standards, the Siting Board requires an applicant that is seeking a zoning exemption to make a three-part showing. First, the applicant must qualify as a public service corporation. Second, the applicant must establish that it needs an exemption from the local zoning bylaw. Finally, the applicant must demonstrate that the present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare (see Section IV, below).

II. ANALYSIS OF THE PROPOSED PROJECT

A. Need

1. Standard of Review

In accordance with G.L. c. 164, § 69J, the Siting Board is charged with the responsibility for implementing the energy policies in its statute to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. In carrying out its statutory mandates with respect to proposals to construct energy facilities such as Berkshire's proposed LNG facility, the Siting Board first evaluates whether there is a need for additional energy resources[(3)] to meet reliability, economic

efficiency, or environmental objectives. The Siting Board must find that additional energy resources are needed as a prerequisite to approving a proposed energy facility. New England Power Company, EFSB 97-3, at 6 (1998)("NEPCo Decision"); Boston Edison Company, EFSB 96-1, at 9 (1997) ("1997 BECo Decision"); Massachusetts Electric Company, 18 DOMSC 383, at 393 (1989) ("MassElectric Decision").[4]

2. Description of Existing System

Berkshire Gas Company serves approximately 33,000 customers within Berkshire, Hampshire, and Franklin Counties of western Massachusetts (Exh. BG-1, at 2-1). The Greenfield Division is the easternmost division in Berkshire's system and includes the towns of Amherst, Turners Falls, Deerfield, Whately, Hatfield, Hadley and Greenfield (id. at 1-1, 2-1). Gas supplies for the Greenfield Division are received from Tennessee's Northampton lateral at the Northampton Gate Station (id. at 2-1). Berkshire's main feedline for the Greenfield Division is a 200 psig pipeline which starts at the Northampton Gate Station and extends northward following Route 5/10 for 22 miles through the towns of Hatfield, Whately, and Deerfield to the center of Greenfield ("Greenfield Feedline") (id. at 5-2, (att. 2-B)). Five miles north of the Northampton Gate Station, a 200 psig lateral branches off of the Greenfield Feedline to supply gas to the Amherst area ("Amherst Feedline") (id. at 2-1). A compressor station[5] is located at the interconnection point of the Greenfield and Amherst Feedlines ("Northampton compressor station") (id. at 2-2). At the north end of the Greenfield Division, within the Town of Greenfield, Berkshire maintains a temporary LNG facility and a liquified propane ("LP") facility (id. at 2-2). These facilities are located on the same site and feed directly into the Greenfield Division's intermediate pressure system (id.; Exh. EFSB-N-15). In 1991, 2.5 miles of looping pipeline at the southern end of the Greenfield Feedline was approved to augment system capacity. Berkshire Gas Company 23 DOMSC 294 (1991). Only a 0.25 mile segment of the pipeline was completed (Exh. EFSB-N-21).

Berkshire indicated that it uses the Northampton compressor station, the LP facility, and the temporary LNG facility to augment pipeline gas supplies during periods of peak or near peak sendout[6] (Exh. BG-1, at 3-2). According to Berkshire, all of these peaking measures can be dispatched independently and the compressor station can be dispatched in combination with the LP or temporary LNG facilities (id. at 3-3). However, Berkshire indicated that the LP facility and the temporary LNG facility cannot be operated simultaneously[7] (id.). Currently, the maximum available daily supplies for the Division are 14,180 Mcf for pipeline supplies augmented by the temporary LNG facility or 14,480 Mcf for pipeline supplies augmented by the LP facility[8] (Exh. EFSB-N-9 (b+c)). Berkshire also maintains a load management rate agreement with the University of Massachusetts in Amherst ("UMass") as a peak shaving resource[9] (Exh. BG-1, at 3-2). Berkshire's load management rate with UMass can reduce sendout requirements by at least 1600 Mcf per day during peak usage periods (Exh. EFSB-N-15d).

3. Reliability of Supply

Berkshire asserted that additional natural gas resources are needed to maintain system reliability in the Greenfield Division (Exh. BG-1, at 1-1). Specifically, Berkshire claimed that under certain contingencies, it would not have sufficient system pressure or gas volumes to maintain reliable service in the northern portion of the Greenfield Division during peak or near- peak usage (id.). Berkshire attributed this system vulnerability both to the length of the Greenfield Feedline and to increased system demand (Exhs. BG-RMA-1, at 3; BG-1, at 3-3 n. 4). Unpredictable reductions of inlet pressure at the Northampton Gate Station and a dependance upon several separate components for adequate peaking resources were also cited by Berkshire as major contributing factors to system vulnerability (Exh. BG-RMA-1, at 5 - 6).

Berkshire indicated that an inability to maintain minimum system pressures would lead to a temporary loss of service for substantial portions of its service area (Exh. EFSB-N-1). Berkshire also stated that any loss of service would result in significant costs to the Company for service restoration, unserved demand, production loss, and property damage and could result in health and safety issues for the Company's customers (Exh. EFSB-N-22).

a. Design Standards

Berkshire indicated that it used four sets of planning standards to predict sendout for its distribution system and to evaluate the adequacy of its existing facilities: a normal year of 7624 heating degree days[(10)] ("DD"); a design year of 8194 DD; a design day of 75 DD; and a ten-day cold snap of 620 DD (Exh. EFSB-N-8a, at 15-21). These standards, which were derived from a comprehensive weather analysis performed by Management Applications Consulting, Inc., are taken from Berkshire's Long Range Forecast and Resource Plan (1998-1999 to 2002-2003) filed with the Department on October 1, 1998 ("LRF"), docketed as D.T.E. 98-99, and approved by the Department on August 27, 1999 (id. at 10).

Berkshire indicated that one measure of the adequacy of its distribution system is the ability to maintain system pressure (Exh. BG-1, at 3-1, 3-4 to 3-6). Berkshire stated that loss of service in Greenfield may occur when the delivery pressure for the intermediate system drops to 85 psig (id. at 3-9). Berkshire asserted that to maintain system reliability in the Greenfield Division, it designs the high pressure system to maintain a minimum inlet pressure of 100 psig at regulator stations for the intermediate distribution system (id. at 2-2). In support of this standard, Berkshire noted that flow rate requirements of greater than 180 Mcf per hour have been observed at the Greenfield regulator station,[(11)] but when the regulator inlet pressure drops to 85 psig the maximum flow capacity is only 175 Mcf per hour (Exh. EFSB-N-1). Therefore, Berkshire stated at inlet pressures below 100

psig there is a "significant risk" that flow capacity would be insufficient to meet demand requirements (id.).

Berkshire's planning standards and its methods for deriving standards for the Greenfield Division are set forth in the LRF. The Department, which has jurisdiction of over Berkshire's LRF, has reviewed the planning standards and determined that they are reviewable, appropriate, and reliable. Berkshire Gas Company, D.T.E. 98-99 (1999). The Siting Board adopts the findings of the Department for this decision. Accordingly, the Siting Board finds that the Company's planning standards are suitable for the purposes of this review.

Berkshire did not present a detailed analysis in support of its minimum 100 psig inlet pressure standard for the Greenfield intermediate distribution system. However, the record suggests that the standard is system-specific and is based on the observation that some portions of the Greenfield Division could experience service loss if inlet pressures for the intermediate distribution system drop to 85 psig or less. We note that the 100 psig standard provides a moderate safety margin (less than a 20 percent) above 85 psig. Accordingly, the Siting Board finds that the Company's reliability criterion with respect to system pressures in the Greenfield Division is suitable for the purposes of this review.

b. Sendout Forecast

Berkshire provided a copy of its LRF showing current and forecast normal year, design year, and design day sendout for its distribution system (Exh. EFSB-N-8a, at 10). Berkshire indicated that its forecast of system sendout is based on market area conditions, projected changes in population, saturation analysis, and projected implementation of demand-side management (id. at 24 - 36).

Berkshire stated that the LNG facility is proposed for use as a peaking facility (Tr. 3, at 331). Therefore, the design day standard is most applicable for analysis of need. Based on its design day planning standard of 75 DD, Berkshire forecasted that peak-day sendout for the Greenfield Division would increase from 11,762 Mcf in 1997/1998 to 12,353 Mcf in 1998/1999 and then to 13,455 Mcf by 2002/2003 (Exh. EFSB-N-9 (atts. b, c)). This corresponds to peak-day LNG requirements of 2,640 Mcf in 1998/1999 growing to 3,809 Mcf in 2002/2003 (Exh. BG-1, at 4-F).

The sendout forecast for the Greenfield Division and the methods which Berkshire used to develop that forecast are set forth in the LRF. The Department, which has jurisdiction of over Berkshire's LRF, has reviewed and approved the LRF[(12)]. Berkshire Gas Company, D.T.E. 98-99. The Siting Board adopts the findings of the DTE for this decision. For purposes of establishing need in this review, the Siting Board finds that the Company's sendout forecast is reliable.

c. System Pressure and Contingency Analysis

To evaluate the need for the proposed facility, Berkshire modeled pipeline delivery pressures for the Greenfield distribution system (Exh. BG-1, at 3-6). Berkshire's modeling of system pressure considered the effect of: (1) pressure losses inherent in pipe flow; (2) estimates of peak day "network load"[(13)] as established in the LRF; and (3) various peak shaving measures (id.). The model was used to calculate system pressure at interconnect points between the intermediate pressure distribution system and the 200 psig Greenfield and Amherst Feedlines (id. at 3-6). Consistent with its system operation criteria, Berkshire stipulated that model inlet pressures for the intermediate distribution system that are less than 100 psig result in system "failure" for the model run (id.). Although not specifically stated by Berkshire, it appears that the Company considers system performance to be "marginal" when the lowest modeled inlet pressures equals 100±5 psig (Exhs. BG-1, at 3-A-2; EFSB-N-2). The variables for the model runs included: 1) inlet pressures at the Northampton Gate Station; 2) operation of the Northampton compressor station; 3) operation of the temporary LNG facility; 4) operation of the LP facility; and 5) forecast peak sendout (Exhs. BG-1, at 3-6 to 3-9;. EFSB-N-2). Service to UMass was assumed to be interrupted for all model runs, and the compressors, LP facility, and temporary LNG facility were assumed to be either running at full capacity or off (id.).

Berkshire provided assumptions and results from 13 model runs that encompass various contingencies at peak-day sendout levels for various years. These model runs are summarized in Table 1, attached to this Decision. The model runs show that system pressure in the Greenfield Division could be adequately maintained during forecast peak-day sendout for split year 1999/2000, provided that the Northampton compressor station and the temporary LNG facility are operational and service to UMass is curtailed (Exh. EFSB-N-2). If the inlet pressure at the Northampton Gate Station decreases to 135 psig, the system pressures would be marginal; inlet pressures of 100 psig at Northampton Gate Station will result in system failure (id.; BG-1, at 3-8 to 2-9). The modeling also indicates that the LP facility, in conjunction with operation of the compressor station and curtailment of service to UMass, will only be capable of maintaining marginal system pressure in the Greenfield Division for forecast peak-day sendout during split year 1999/2000 and will be insufficient during split year 2002/2003 (id.; Exh. BG-1, at 3-7). Furthermore, relatively low inlet pressure (175 psig or less) and failure of the compressor station would result in insufficient system pressure at current peak-day sendout levels even with the operation of the existing LNG or LP facility (Exh. BG-1, at 3-9).

In addition to the modeling results, Berkshire documented incidences of unexpected pressure drops at the Northampton Gate Station and contingencies affecting peak shaving facilities in the Greenfield Division (Exh. EFSB-N-5). Berkshire stated that, over the last five years, the inlet pressure at the Northampton Gate Station has dropped below 200 psig on twelve occasions; in addition, there have been two periods when the Northampton compressor station has been unavailable, and one period when the LP facility has been unavailable (id.).

Berkshire also submitted documentation showing the effect of unexpected reductions in inlet pressure at the Northampton Gate Station on system pressure in the Greenfield Division (Exh. BG-1, at 3-9 (att. 3-B)). For example, Berkshire stated that on February 5, 1996, the pressure on its Tennessee supply line dropped steadily and, as a result, pressures at the northern end of the Greenfield Feedline dropped to 90 psig (id.). Berkshire indicated that the pressure drop occurred despite "extraordinary efforts" to maintain pressure such as by-passing the regulator station at Northampton (id.). According to Berkshire, the temporary LNG facility was not operating and "there was no reason to anticipate the need for LNG on such a day" since the service area was not, in fact, experiencing design or near design weather (id.).

Berkshire indicated that there is limited potential for the Northampton compressor station to address reliability concerns because low inlet pressure at the Northampton Gate Station results in gas supply rates that are insufficient to meet potential sendout requirements (Exhs. EFSB-N-3; BG-TGQ-1, at 15-16). Furthermore, Berkshire emphasizes that peak-day requirements of the Greenfield Division are close to the MDQ for the Division, so the compressor may not be effective at raising system pressure without exceeding Berkshire's MDQ agreement with Tennessee (Exh. EFSB-N-24). Berkshire also pointed out that the compressor station is a mechanical means for maintaining supply and is therefore subject to mechanical failure (Exh. BG-TGQ-1, at 16).

Berkshire cited the lack of on-site storage for the temporary LNG facility as another cause for concern about system reliability (Exh. BG-1, at 3-3). Berkshire indicated that a lack of readily available LNG could result in serious contingencies when there is an unanticipated need for additional resources due to unpredicted changes in weather conditions or a sudden drop in inlet pressures at the Northampton Gate Station (Exh. EFSB-N-4). Berkshire also expressed concern that severe weather conditions may make it impossible for the tanker trucks to deliver LNG within one day (id.). Finally, Berkshire argued that the temporary LNG facility is aging, so that mechanical failures are possible and may be difficult and costly to repair (Exhs. BG-TGQ-1, at 16; BG-1, at 3-2 n. 2).

The Siting Board has consistently found that if the loss of any single major component of a supply system would cause significant loss of service to customers or the failure of other system components, then there is justification for additional energy resources to maintain system reliability. Norwood Municipal Light Department, EFSB 96-2 at 11 (1997); 1996 NEPCo Decision, EFSB 95-2 at 10; Holyoke Gas and Electric Department, 3 DOMSC 1, 7 (1978). Here, the record indicates that on a peak day during the 1999/2000 winter a variety of individual contingencies could lead to system pressures in the Greenfield Division below the 100 psig minimum standard for system reliability. Contingencies that could independently compromise system pressures include: (1) inlet pressures at the Northampton Gate Station below 135 psig, but still within the limits of Berkshire's contractual agreements with Tennessee Gas of 100 psig; (2) failure of existing peaking facilities such as the Northampton compressor station, the LP facility, or the temporary LNG facility; and (3) an inability to obtain LNG supplies within 24 hours.

In addition to these independent contingencies, the record indicates that any combination of 1) relatively low inlet pressures (175 psig), 2) the failure of any peak-shaving component, or 3) unavailable LNG supplies would also lead to system pressure below the 100 psig threshold. The reasonableness of assessing need based on the results of two or more concurrent contingencies depends in large part on the probability that such contingencies will occur. The Greenfield Division currently does not have any LNG storage capacity and must, therefore, order LNG when it is reasonably expected to be used. Consequently, LNG supplies are more frequently "unavailable" than available. In addition, inlet pressures at the Northampton Gate Station as low as 100 psig are contractually allowable. Because, both the lack of LNG on site and low inlet pressures at the Northampton gate station are within the limits of normal system operation, it is appropriate to consider multiple simultaneous "contingencies" when assessing the need for additional resources.

Based on the above, the Siting Board finds that, beginning in the 1999/2000 split year, there is a need for additional energy resources in order for the Company to satisfy its reliability criteria with respect to system pressure[(14)].

d. Demand-Side Management

Berkshire stated that it has successfully implemented conservation and load management ("C&LM") programs for a number of years and considered employing additional conservation measures to meet the need in the Greenfield Division (Exh. BG-1, at 4-2.). Berkshire concluded, however, that conservation measures would not address the resource needs of the Division, given the "magnitude and immediacy of the reliability concerns" (id.).

In its analysis of demand-side management ("DSM") potential, Berkshire estimated that a total potential savings of 42,166 Mcf for the entire distribution system may be achievable over two years (1999-2000) (Exh. EFSB-N-28). The Company indicated that these savings would be equivalent to 2.4 Mcf per hour, evenly divided throughout the two years (id.). As a conservative estimate of possible benefits, Berkshire assumed that 2 Mcf of the total 2.4 Mcf hourly DSM savings are from the northern end of the Greenfield Division (id.). Berkshire's forecasts, however, indicate that peak hour demand in the Greenfield Division will grow by approximately 15 Mcf each year (Exh. BG-1, at 4-F). Therefore, Berkshire argued that a 2 Mcf per hour savings would translate to an insignificant reduction during peak use periods (id.; Tr. 1, at 108 - 114). Berkshire acknowledged that an estimated system-wide DSM savings of 11.2 Mcf per hour might be a more accurate estimate of peak hourly savings, but stated that this level of reduction still would not be sufficient to offset load growth or meet existing resource needs[(15)] (Tr. 1, at 108 - 114). Berkshire also emphasized that this DSM program would be a one-time reduction that would not produce increasingly larger reductions to offset continued load growth (id.).

With regard to load management, Berkshire stated that substantial cost benefits have already been obtained from its load management agreement with UMass (Exh. BG-1, at 4-3). Berkshire noted, however, that even with this sendout flexibility, system reliability is marginal at current rates of peak sendout (id., at 3-6 to 3-11). Berkshire concluded that there are not enough additional load management opportunities in the Greenfield Division to address the current and future needs of the Division (id. at 4-3).

(1) Analysis

For the purpose of evaluating DSM, Berkshire assumed that a large proportion of the potential reduction in hourly sendout that may be obtained from conservation measures was concentrated in the most vulnerable portion of the Greenfield Division. The Siting Board notes that, even assuming this significantly accelerated implementation of DSM, the potential DSM savings are still not sufficient to alleviate system pressure problems during peak use periods. Therefore, the Siting Board finds that accelerated C&LM efforts would not eliminate the need for additional energy resources based on the Company's reliability criteria.

e. Consistency with Long Range Forecast

In section 1.D.1 above, it is indicated that Berkshire must demonstrate that the proposed project is consistent with its most recent Long Range Forecast, as required by G.L. c. 164, §69I.

The record indicates that Berkshire used the predicted sendout values from the most recently approved LRF to model system integrity in the Greenfield Division (Exh. EFSB-N-2). Furthermore, in the Department's decision with regard to Berkshires LRF, the Department determined that the Company has formulated an appropriate process for identifying a comprehensive set of C&LM options. Berkshire Gas Company, D.T.E. 98-99, at 42. These C&LM options and the forecast sendout from the LRF, in conjunction with observed system reliability issues, were used by Berkshire to determine the need for additional energy resources. Accordingly, the Siting Board finds that the proposed project is consistent with Berkshire's most recent LRF.

f. Conclusion on Reliability of Supply

The Siting Board has found that the Company's reliability criterion with respect to system pressures in the Greenfield Division is suitable for the purposes of this review. The Board has also found that the Company's sendout forecast is reliable for the purposes of this review and that Berkshire's System Pressure and Contingency Analysis indicates the need

for additional energy resources in split year 1999/2000. The Board has found that accelerated DSM efforts would not eliminate the need for additional resources to satisfy the system design standards. Furthermore, the Siting Board has found that the project proposed is consistent with Berkshires most recent LRF.

Based upon forecast peak sendout requirements, the Greenfield distribution system is not adequate to meet system design standards in the event of several different contingencies with a reasonable likelihood of occurring. The record also shows that system vulnerability will become more critical as sendout requirements increase and that DSM can not adequately offset forecasts increases in sendout. Accordingly, the Siting Board finds that Berkshire has demonstrated a need for additional energy resources to maintain system reliability in the Greenfield Division by the 1999/2000 split year.

1. Comparison of the Proposed Project and Alternative Approaches

1. Standard of Review

G.L. c. 164, § 69H requires the Siting Board to evaluate a proposed project in terms of its consistency with providing a reliable energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. In addition, G.L. c. 164,

§ 69J requires a petitioner to present "alternatives to planned action" which may include:

(1) other methods of generating, manufacturing, or storing; (2) other sources of electrical power or natural gas; and (3) no additional electric power or gas.[(16)]

In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its proposed project is superior to alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. NEPCo Decision, EFSB 97-3, at 20; 1997 BECo Decision, EFSB 96-1, at 37; Boston Edison Company, 13 DOMSC 63, at 67-68, 73-74 (1985) ("1985 BECo Decision"). In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative approaches. NEPCo Decision, EFSB 97-3, at 6; Commonwealth Electric Company, EFSB 96-6, at 23 (1997) ("1997 ComElectric Decision"); MassElectric Decision, 18 DOMSC 383, at 404-405.

1. Identification of Project Approaches for Analysis

The Company identified three approaches for meeting the identified need: (1) expansion of the existing LP facilities or the construction of new LP facilities ("LP alternative"); (2) construction of new pipeline and associated distribution facilities, along with securing additional upstream capacity and MDQ expansion ("pipeline alternative"); and (3) construction of a new LNG storage and vaporization facility ("proposed project") (Exh.

BG-1, at 4-1).[17] Staff asked the Company to address a fourth alternative, a combination of the pipeline alternative with a guarantee by Tennessee of a minimum pressure of 200 psig at the Northampton Gate Station ("pipeline/200 psig alternative").[18]

1. The Proposed Project

Berkshire stated that the proposed project would consist of two nominal 70,000 gallon LNG storage tanks (with three additional 70,000 gallon tanks to be added at a later date), and a vaporizer, truck unloading facilities, spill containment structures, odorization facilities, buildings, controls and associated piping and attachments (Exh. BG-1 (att. F at 1-3)). Berkshire stated that there would be a pipeline to interconnect the proposed facility with the Company's existing distribution system (id. (att. 5-H)).[19]

The Company indicated that, to ensure system reliability, it would size the LNG facility to provide sufficient storage capacity to meet sendout requirements for three peak days (Exh. BG-1 (att. 4-F)). The Company stated that the combined effective storage capacity for the two initial tanks would be 115,000 gallons,[20] equivalent to 10,032 decatherms ("Dth") (id.; Tr. 3, at 275). The Company added that 10,032 Dth of capacity would be sufficient to meet forecasted requirements for three peak days through split year 1999/2000 (Exh. BG-1 (att. 4-F)). The Company projected that additional tanks would be required in years 4, 12, and 19 (id.).

The Company asserted that the proposed project would meet the Company's identified need at the least cost and with a minimum impact on the environment (Exh. BG-1, at 1-3). The Company noted that the proposed project would be able to operate without the use of additional LP or pipeline facilities (Exhs. BG-1, at 4-14; BG-RMA-1, at 10). The Company indicated that the net present value ("NPV") of the twenty-year cost of the proposed project would be $8,661,624 (Exh. RR-24(c)).

1. Pipeline Alternative

Berkshire identified a pipeline alternative which would involve looping sections of the Greenfield Feedline and increasing its MDQ at the Northampton Gate Station (Exh. BG-1,

at 4-5).[21] Berkshire stated that the pipeline alternative would initially involve looping 11 miles of the existing Greenfield Feedline and an upgrade to the Northampton Gate Station, with a total of 3.6 miles of additional pipeline to be installed in later years (Exh. BG-1, at 4-7, 4-8 and (att. 4-E)). The 12-inch pipeline loop would travel along Route 5/10 in the existing ROW through the towns of Northampton, Hatfield, and Whately

(Exhs. BG-GAJ-1, at 7; EFSB-PA-4). Berkshire indicated that the pipeline alternative would also require an increase in its MDQ in year five (Exh. BG-1, at 4-8). Berkshire also stated that the existing LP facilities would need to remain operational under the pipeline alternative (Tr. 3, at 279). The Company indicated that the NPV of the twenty-year cost of the pipeline alternative would be $23,793,144 (Exh. RR-24(a)).

1. Pipeline/200 Psig Alternative

In response to a Siting Board request, the Company developed a project alternative that combined components of the pipeline alternative described above with a guarantee by Tennessee of a minimum pressure of 200 psig at the Northampton Gate Station (Tr. 3, at 297). Berkshire determined that under this scenario, in year one it would need to construct an approximately eight mile pipeline, upgrade the Northampton Gate Station, and increase its MDQ to ensure system reliability (Exh. HO-RR-23). The Company indicated that a total of four miles of additional pipeline would need to be installed in later years (id.). Berkshire stated that any needed upgrades to the Tennessee lateral would take approximately two and a half to three years to complete (Tr. 4, at 425-426). The Company indicated that the NPV of the twenty-year cost of the pipeline/200 psig alternative would be $21,788,820 (Exh. RR-23(S)).

1. Liquid Propane Alternative

Berkshire also developed a LP alternative involving the construction of a new liquid propane facility at the site of the proposed project (Tr. 3, at 325). The Company stated that in year one, the LP alternative would consist of two 60,000 gallon LP storage tanks, vaporization equipment, 9.5 miles of looping and an upgrade to the Northampton Gate Station (Exh. BG-1, at 4-7 and (att. 4-D)). Berkshire noted that in later years additional looping and LP storage would be required, projecting that the additions would consist of .33 mile pipeline increments in years 6, 11, and 16 and a third 60,000 gallon LP tank in year 16 (id. at (att. 4-D)). Berkshire noted that the LP alternative would also require an increase to its MDQ in year 13 (Exh. BG-1, at 4-7 (att. 4-E)). The Company stated that the size of the LP tanks and the layout of the LP facility would be very similar to the LNG tanks and the layout of the LNG facility (Tr. 3, at 351, 354).[(22)]

The Company asserted that construction of a liquid propane facility by itself would not constitute a long term solution to its pressure problems because propane must be mixed with natural gas in certain ratios (Exhs. BG-1, at 4-4; BG-TGQ-1, at 22). The Company therefore concluded that the LP alternative also would require the acquisition of additional pipeline supplies and looping of the Greenfield Feedline (Exhs. BG-1, at 4-4; BG-TGQ-1, at 22). The pipeline associated with the LP alternative would travel the same

route as the pipeline alternative; however, it would end one to one and a half miles south of the proposed site (Tr. 3, at 350). Berkshire asserted that the LP alternative would involve somewhat more substantial environmental impacts than the proposed project or the pipeline alternative because it combines the construction of a satellite facility, similar to the proposed project, with the construction of a pipeline only slightly shorter than that required for the pipeline alternative (Exh. BG-GAJ-1, at 11). The Company indicated that the NPV of the twenty-year cost of the LP alternative would be $14,164,295 (Exh. RR-24(b)).

1. Analysis

The Company has identified four project approaches which would address the identified resource need: the proposed project, the pipeline alternative, the pipeline/200 psig alternative, and the LP alternative. However, two of the four approaches are clearly inferior to the others. The LP alternative involves the construction of both a new LP facility and 9.5 miles of looping, thus combining the environmental impacts of the proposed project and the pipeline alternative without providing any significant offsetting advantage. The pipeline/200 psig approach initially appears attractive because it would require approximately three fewer miles of looping than the pipeline approach, (8 miles versus 11 miles) and would cost approximately 10 percent less. However the lead time required for Tennessee to construct the necessary gate station upgrades would be two to three years; thus, this alternative could not meet the identified need until the winter of 2002/2003. Given our finding, above, that Berkshire has demonstrated a need for additional energy resources to maintain system reliability in the Greenfield Division by the 1999/2000 heating season, the Siting Board concludes that the environmental, and cost savings are small when compared to the delay in meeting the identified need. Therefore, the Siting Board focuses on the two remaining approaches, the proposed project and the pipeline alternative.

Accordingly, the Siting Board finds that both the proposed project and the pipeline alternative would meet the identified need in the Greenfield Division of the Berkshire system. In the following sections, the Siting Board compares the proposed project and the pipeline alternative with respect to reliability, environmental impacts, and cost.

1. Reliability

In this section, the Siting Board compares the proposed project and the pipeline alternative with respect to their ability to provide a reliable supply of gas to the Greenfield Division of the Berkshire system.

Berkshire stated that the proposed project is essentially identical to the pipeline alternative in terms of the reliability of delivery (Exh. BG-1, at 4-16). However, the Company asserted that the proposed project is superior to the pipeline alternative with respect to operational flexibility (id.; Exh-EFSB-PA-9). Berkshire indicated that, as a new separate supply, the proposed project would be capable of providing complete system redundance for the Greenfield Division during most of the year; the pipeline alternative, which is not a separate supply source, does not offer the same benefit (Exhs. BG-1, at 4-16; Tr. 3, at 327). In addition, Berkshire noted that the proposed project may allow for flexibility in terms of the Company's ability to pursue release of its interstate pipeline capacity (Exh. BG-TGQ-1, at 23).

Berkshire explained that under the pipeline alternative the existing LP facility would need to be retained due to the unpredictable inlet pressure at the Northampton Gate Station (Exh. BG-TGQ-1, at 23; Tr. 3, at 279). The Company stated that the pipeline alternative may also require the simultaneous operation of the compressor station at higher sendouts, while the proposed project would not have to be run coincidentally with the compressor station at any sendout level, and in fact the proposed LNG facility and the compressor station would operate at different points in time during the season (Tr. 3, at 324-325).[(23)] The Company acknowledged however, that if the MDQ were increased in conjunction with the assurance of adequate pressures from Tennessee, the existing LP facility would not be needed under the pipeline alternative (id. at 280). In addition, the Company asserted that the inadequate delivery pressures associated with the pipeline alternative contributes to a lesser degree of operational flexibility (Tr. 3, at 329).

Berkshire asserted that the current condition of the LNG market is strong, citing the completion of a new Distrigas facility in Trinidad (id.). The Company stated that it plans to maintain a minimum three-day supply at the proposed project which would insure flexibility in terms of traffic and/or other weather conditions (Exh. EFSB-PA-8). The Company asserted that the design of the proposed project would incorporate substantial system redundancy in order to operate in a reliable manner (Exh. EFSB-PA-9).

The record indicates that the proposed project and the pipeline alternative would provide a reliable supply. However, the proposed project possesses some operational advantages: it would provide complete system redundancy for the Greenfield Division and it could open up opportunities for increased upstream resources and capacity release. Moreover, in order for the pipeline alternative to maintain adequate reliability it would need to be backed up by the existing LP facility and the compressor station, while the LNG alternative would require no such backup.

Accordingly, the Siting Board finds that the proposed project would be preferable to the pipeline alternative with respect to reliability.

1. Environmental Impacts

In this Section, the Siting Board compares the proposed project to the pipeline alternative with respect to environmental impacts resulting from: (1) facility construction; and

(2) permanent land use.

Berkshire asserted that both the proposed project and the pipeline alternative would have limited impacts on the environment and that both projects could be constructed and operated consistent with relevant regulatory requirements (Exh. BG-1, at 4-11). Berkshire explained that in its environmental comparison of the project alternatives it assumed the most probable locations of each alternative based on Berkshire's need, the environmental characteristics of the area, and the nature of the distribution system in the Greenfield Division (Exh. BG-GAJ-1,

at 6-7).

1. Construction Impacts

Berkshire indicated that construction of the first phase of the proposed project would take approximately four months, and would be restricted to the project site (Tr. 3, at 288). The Company stated that the tanks, control building, truck unload skid, and the vaporizer skid would be prefabricated off-site and transported to the proposed site (Exhs. BG-1, at 4-13; EFSB-ET-2; EFSB-EN-1).

The Company estimated that the daily volume of vehicles during the construction period would average between 10 and 20 vehicles each way (Exh. EFSB-ET-2). Berkshire indicated that it would use traffic details during construction when necessary in order to alleviate traffic impacts (id.). In regard to the construction of the interconnect from the proposed project to the Greenfield Feedline, the Company stated that it would work with local officials to schedule construction in more heavily traveled areas to reduce traffic impacts (Exh. EFSB-ET-10). The Company indicated that the construction of the proposed project would not generate any air impacts or noticeable noise impacts (Exhs. EFSB-EA-1; EFSB-EN-1).

Berkshire indicated that the first phase of the pipeline alternative would take approximately six to seven months to complete (Tr. 3, at 288). The Company indicated that the new pipeline would be adjacent to the existing Greenfield Feedline, which runs along Route 5/10 (Exh. EFSB-PA-17). The Company stated that the exact alignment of the looping had not been determined; however Berkshire anticipated staying within its existing ROW and off the hardened road surface (id.; Tr. 3, at 288).

Berkshire asserted that construction of the pipeline alternative would have greater environmental impacts than construction of the proposed project due to the larger area affected by construction (Exh. BG-GAJ-1, at 7). The Company indicated that the installation of the pipeline alternative would necessarily involve some disruption to trees and other vegetation, as well as wetlands and other water resources along the ROW (id. at 8). Berkshire presented a study ("Huntley Study") that identified potential sensitive receptors affected by the pipeline construction such as residences; the study also identified commercial buildings, large trees, wetlands, culverts, and bridges (Exh. BG-1 (app. E)). The Company explained that since the exact alignment of the pipeline within the ROW had not yet been determined, there could be potential impacts on parking for commercial buildings, large trees along road edges, residential driveways, and wetlands located close the to shoulder of Route 5/10 (Tr. 3, at 359-361).[(24)]

The Company indicated that the traffic impacts associated with construction of the pipeline alternative would be manageable because Interstate 91, which runs parallel to Route 5/10, could be used as an alternative during the construction period (Exh. BG-1, at 4-12).[(25)] The Company stated that public transportation would not be substantially affected because all roadways would remain open during construction (id. at 4-12).

The record indicates that the pipeline alternative would involve installation of 11 miles of pipeline along Route 5/10, resulting in construction impacts in the towns of Northampton, Hatfield, and Whately. While the exact alignment of the pipeline within the ROW

has not yet been determined, a number of residences, commercial establishments, trees, wetlands and culverts would experience temporary impacts due to the construction. Further, while traffic apparently can be re-routed to Interstate 91, a measure of inconvenience to travelers would result. The construction impacts of the proposed project on the other hand, would be both localized due to the single site with a small interconnect, and minimized due to the use of pre-fabricated equipment. In addition, the construction period for the proposed project would be shorter.

Accordingly, the Siting Board finds that the proposed project would be preferable to the pipeline alternative with respect to construction impacts.

1. Permanent Impacts

The Company asserted that the proposed project would have no noise impacts during normal operation, since it is designed not to increase noise levels at the property line, and since all equipment is to be located inside a control building (Exhs. EFSB-EN-1; EFSB-EN-5;

BG-GAJ-1, at 10). Berkshire also indicated that there would be no short or long term impacts on local hydrology or on the recharge capacity of any aquifer (Exh. EFSB-EW-

1). The Company asserted that the proposed facility would require only limited truck deliveries of LNG (Exh.

BG-RMA-1, at 10).

The Company asserted that the pipeline alternative would have greater visual impacts and truck traffic impacts than the proposed project due to the continuing use of the existing LP facility (Exh. BG-1, at 4-13). Berkshire stated that presently the LP facility receives one truck load of LP every one to two weeks during the winter heating season (Tr. 3, at 264). Berkshire explained that the entire existing Greenfield LP facility would remain in place under the pipeline alternative, while under the proposed project the portion of the LP facility that is used for serving Berkshire's natural gas customers would be used on a standby basis for one to two years and then would be retired and removed (Tr. 3, at 262-263).[(26)] Berkshire noted the portion of the existing LP facility used for the retail sale of propane, which consists of propane tanks used for storage, would remain in place regardless of the project alternative chosen (Exh. EFSB-PA-11; Tr. 3, at 261).

The Company argues that the pipeline alternative would have greater permanent impacts than the proposed project based on the fact that the entire existing LP facility, rather than just the retail portion, would remain in place in Greenfield. The Siting Board notes that the actual impacts associated with maintaining the entire existing LP facility, rather than just the retail component, appear to be minimal based on the limited number of trucks presently associated with the LP facility, and that the tanks would remain in place under both alternatives. The operational environmental impacts of the 9.5 miles of underground pipeline associated with the LP alternative also appear to be minimal. While the record indicates that the proposed project also would only have minimal operational impacts, it would nonetheless contribute to an increase in traffic due to LNG deliveries, which will increase over time. Further, the proposed project could require the clearing of trees, and could have visual impacts and wetland impacts depending on the site selected.

Accordingly, the Siting Board finds that the pipeline alternative would be preferable to the proposed project with respect to permanent impacts.

1. Conclusion on Environmental Impacts

In Sections II. A. 4. a. and b. above, the Siting Board has found that: (1) the proposed project would be preferable to the pipeline alternative with respect to facility construction impacts; and (2) the pipeline alternative would be preferable to the proposed project with respect to permanent land use impacts. The Siting Board notes that while both construction impacts and permanent land use impacts contribute to the overall environmental component of a project, the construction impacts are temporary in nature. Accordingly, the Siting Board finds that the pipeline alternative would be slightly preferable to the proposed project with respect to environmental impacts.

1. Cost

The Company stated that it conducted detailed economic analyses of the construction and operational costs of the project alternatives (Exh. BG-RMA-1, at 8). Based on these analyses, Berkshire asserted that the proposed project was the least-cost alternative (id.).

The Company explained that it assumed that the proposed facility would be constructed in late 1999 and that the facility initially would consist of two 70,000 gallon LNG tanks, costing $600,000 per tank, with an additional tank being constructed in each of years 4, 12, and 19, for a total of five tanks (Exhs. BG-1, at 4-10 and (att. 4-F); EFSB-PA-14). Berkshire indicated that the total facility cost presented in year one of the analysis included the cost of the interconnect of the proposed facility to the existing distribution system, and that additional pipeline requirements of approximately one mile in year 14 and one and a half miles in year 17, also were factored into the analysis (Exhs. BG-1 (att. 4-F); HO-RR-24(c); Tr. 3, at 307). Berkshire stated that it estimated operation and maintenance costs to be approximately $175,000 per year, based on the input of its engineering staff and Northstar (Exh. BG-1, at 4-10). The Company stated that since LNG is typically more expensive than pipeline gas, it calculated a $1.00 per Dth commodity premium based on recent discussions with Tennessee (Exhs. BG-1, at 4-10; BG-TGQ-1, at 21; Tr. 3, at 292-293). Berkshire calculated the NPV of the 20 year revenue requirements for the proposed project to be $8,661,624 (Exh. RR-24(c)).[(27)]

The Company assumed that the pipeline alternative would initially consist of 11 miles of pipeline, with additional pipeline lengths of 1.2 miles for each of years 6, 11, and 16 (Exhs. BG-1, at 4-8; EFSB-PA-14). Berkshire estimated that pipeline costs would be $150 per foot, based on the Company's recent experience with pipeline construction and discussion with vendors (Exh. BG-1, at 4-7). Berkshire indicated that the total facility cost presented in year one of the analysis included the cost of upgrading the Northampton Gate Station as well as construction of the first 11 miles of pipeline (Exh. BG-1, at 4-8, and (att. 4-E)). In addition, the Company explained that the pipeline alternative costs assume a system operating pressure of 175 psig based on historical experience of low pressure on the Tennessee transmission system (Exh. BG-1 (att. 4-E)). The Company indicated that under the pipeline alternative it would upgrade the Northampton lateral in year five, which is reflected in an incremental upstream cost of $3.31 per Dth for each successive year of the 20 year period (Exh. BG-1; Tr. 3, at 303-304).[(28)] Berkshire calculated the NPV of the twenty-year revenue requirements for the pipeline alternative to be $23,793,144 (Exh. RR-24(a)).[(29)]

The record demonstrates that the overall cost of the pipeline alternative, including capital costs and operating and maintenance costs, would be higher by a factor of three than the overall cost of the proposed project. Accordingly, the Siting Board finds that the proposed project would be preferable to the pipeline alternative with respect to cost.

1. Conclusions: Weighing Need, Reliability, Environmental Impacts and Cost

In comparing the proposed project to the pipeline alternative, the Siting Board has found that both the proposed project and the pipeline alternative would meet the identified need in the Greenfield Division of the Berkshire system.

The Siting Board has also found that the proposed project would be preferable to the pipeline alternative with respect to reliability and cost, and the pipeline alternative would be slightly preferable to the proposed project with respect to environmental impacts. Given the magnitude of the cost differential, the incremental environmental impacts attributed to the proposed project are outweighed. Accordingly, the Siting Board finds that the proposed project is preferable to the pipeline alternative with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

III. ANALYSIS OF THE PROPOSED AND ALTERNATIVE FACILITIES

A. Description of the Proposed Facilities and Alternative Facilities

1. Proposed Facilities

Berkshire's preferred site is a 16.2 acre parcel located on Long Plain Road in the Town of Whately, Massachusetts ("Long Plain Road site"). The site is a level, wooded lot, bounded by the B&M railroad on the west and Long Plain Road on the east (Exh. BG-1 (atts. 5-E, 5-F)). The proposed facilities include two prefabricated 70,000 gallon LNG tanks, each twelve feet in diameter and 120 feet long which would be set on a concrete pad, separated from each other by earthen dikes, and surrounded by a gravel field (Exhs. BG-RMA-2; BG-1 (app. F, at 1-8); Tr. 2, at 209). The Company plans to install up to three additional tanks over a twenty year planning period (Exhs. BG-1 (att. 4-F); BG-RMA-2). Each tank is connected to a 46 foot square sump by a spillway (Exhs. EFSB-FR-1; EFSB-SR-6).[(30)] Each containment system can contain 150 percent of the contents of a tank (Exh. BG-TGQ-3). To the east of the tanks and gravel area would be a 20 by 60 foot one story control building, which would house the control valves, remote access facilities, vaporization and odorization controls (Exhs. BG-RMA-2; HO-RR-28 (att. a, at 2); EFSB-EN-1). The Company indicated that it would enclose the building and tanks with a ten foot high vapor fence with a ten foot gravel fire break on either side. (Exhs. BG-RMA-2; BG-1 (app. F, at 1-25)).

The Company proposes to create a curved access road off of Long Plain Road that would lead to a small parking area and loop around the tanks (Exh. BG-RMA-2). The Company also proposes to build a unloading area for truck deliveries of LNG (Exh. EFSB-EN-4). The Company proposes that all other areas inside of the vapor fence would be grassed and that outside the fence the Company would maintain a mature stand of trees (Exhs. BG-RMA-2; BG-1 (att. 5-F)).

The Company described four alternative routes for a pipeline connecting the proposed LNG facility to the Greenfield Feedline. The Company's preferred route runs north along Long Plain Road to Route 116, then turns west and runs along a bridge over the railroad and Route 91 until it meets Route 5/10 where it connects to Berkshire's Greenfield Feedline (Exhs. BG-1 (att. 5-H); EFSB-EG-2 (att. a); Tr. 2, at 138-139).

2. Alternative Facilities

The alternative site is a 17 acre parcel located on Route 5/10 in the Town of Whately, Massachusetts abutting Route 91 near Interchange 23 ("Route 5/10 site") (Exh. BG-1 (att. 5-E)). The site is currently a level open field use for agriculture and contains one tobacco barn and a large borrow pit (id.). The facilities proposed for the alternate site are similar to those proposed for the primary site; however the sumps at the alternative site would be smaller and deeper and the spillways would be shorter[31] (Exhs. EFSB-FR-1; BG-1 (app. F, fig. 1.3.8-1, 1.3.8-2); EFSB-EV-1).

The Company proposes a shorter access road at the alternative site than the primary site (Exh. BG-1 (app. F, fig. 1.3.8-2). The site abuts Berkshire's Greenfield Feedline on Route 5/10, so no interconnecting pipeline is required (Exh. BG-1 (att. 5-C)).

B. Site Selection Process

1. Standard of Review

In order to determine whether a petitioner has shown that its proposed facilities' siting plans are superior to alternatives, the Siting Board first requires the petitioner to demonstrate that it examined a reasonable range of practical siting alternatives. NEPCo Decision, EFSB 97-3, at 36; 1997 BECo Decision, EFSB 96-1, at 59; Northeast Energy Associates, 16 DOMSC 335, at 381, 409 (1987) ("NEA Decision"). In order to determine that a petitioner has considered a reasonable range of practical alternatives, the Siting Board requires the petitioner to meet a two-pronged test. First, the petitioner must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative sites in a manner which ensures that it has not overlooked or

eliminated any sites which, on balance, are clearly superior to the proposed site. NEPCo Decision, EFSB 97-3, at 36; 1997 BECo Decision, EFSB 96-1, at 59; Berkshire Gas Company (Phase II), 20 DOMSC 109, 148-149, 151-156 (1990) ("Berkshire Gas Phase II Decision"). Second, the petitioner must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. NEPCo Decision, EFSB 97-3, at 36; 1997 BECo Decision, EFSB 96-1, at 59; NEA Decision, 16 DOMSC 335, at 381-409.

2. Development and Application of Siting Criteria

Berkshire stated that it began its site selection process by defining a study area, a preliminary set of criteria, and a set of principles to guide its search for potential sites (Exhs. BG-1, at 5-1 to 5-2; EFSB-SS-2). The Company defined a study area that fell within a one-half mile corridor around the Greenfield Feedline in Greenfield, Deerfield, and Whately, assuming that sites nearer to the Greenfield Feedline were likely to have lower interconnection costs and environmental impacts (id.). The study area was bounded to the south by the Whately/Hatfield border, because the Company calculated that an LNG facility further south would be too far away from the load to provide adequate pressure to meet the need (Tr. 3, at 371-372). The Company indicated that this corridor also generally avoided flood plains, airports, and steep grades for which regulations impose stricter requirements (Exh. BG-1, at 5-2 to 5-3). The Company outlined its study area on a U.S. Geological Survey map, and used that as a guide in locating appropriate sites (Exhs. BG-1 (att. 5-B); BG-1, at 1-4).[(32)]

The Company stated that it looked for sites with at least two prime buildable acres, plus ten additional suitable acres to allow it to meet regulatory requirements related to vapor fences and exclusion zones (Exhs. BG-1, at 5-3; BG-TGQ-1, at 24; Tr. 3, at 374-376). The Company stated that it followed a number of federal and state guidelines and regulations concerning the siting of LNG tanks, including 980 CMR 10, 220 CMR 112, 49 CFR 193, National Fire Protection Association ("NFPA") 59A, and Federal Emergency Management Agency ("FEMA") flood plain regulations (Exhs. BG-1 (app. F at 1-22)). The Company stated that sections 49 CFR 193.2057 and 2059 affected the size and shape of the proposed facility, since these regulations specify the amount of area needed for exclusion zones for thermal radiation and flammable vapor gas dispersion (Exh. EFSB-SS-7 (atts. c, d); Tr. 4, at 430-432). The Company explained that sections 49 CFR 193. 2063, 2071, and 2073 affected its consideration of surrounding land uses and flooding (Exh. EFSB-SS-7 (atts. f, j, k); Tr. 4, at 433-435). The Company asserted that it was more conservative than the federal code regarding the control over exclusion zones and the use of floodplains, since it avoided dense areas and floodplains from the start (Exh. BG-1, at 5-2; Tr. 4, at 4312-433).

The Company also determined that it would seek sites where construction would be consistent with local land use policies and which were easily accessible from either

Interstate 91 or Route 5/10 (Exhs. BG-1, at 5-1, 5-4; EFSB-SS-4). The Company asserted that it considered zoning and land use issues carefully during the site selection process, but did not specifically reject any site based upon land use or zoning (Exhs. EFSB-SS-4; EFSB-SS-5).

The Company also developed a set of principals to guide its site selection process. The Company stated that it expected to evaluate a large number of sites through an iterative process, where sites would continually come in and out of consideration (Exh. BG-1 at 5-4; Tr. 3, at 378). The Company also indicated that it applied its criteria flexibly, so as to not eliminate any potentially attractive site while also developing a comprehensive list of sites (Exhs. BG-1 at 5-4, 5-5; BG-RMA-1, at 12). In addition, the Company stated that it expected to include local officials and the public in its process, and noted that public input proved to be a significant component of its site selection process (Exh. BG-RMA-1, at 11-13).

Having established a study area, some preliminary criteria, and some general principles, the Company proceeded to identify potential sites. The Company indicated that its site selection team used USGS and other maps, local real estate brokers, Berkshire employees, local officials and business leaders to help develop a comprehensive list of potential sites (Exhs. BG-1, at 5-5; EFSB-SS-3(2)). The Company identified, inspected, and reviewed over forty potential sites during this process (Exhs. BG-1, at 5-6; BG-1 (att. 5-B); BG-RMA-1, at 11; Tr. 3, at 377-378). The Company explained that it eliminated sites from consideration for reasons including: the size and shape of the site, slope[(33)], large or interspersed wetland areas, high property cost, close proximity to an airport, or poor transportation access for LNG deliveries (Exh. EFSB-SS-3 (att. a); Tr. 3, at 385-389). The Company stated that it did not review all the sites together; if the site passed initial inspection, then Berkshire would approach the owner to inquire about purchase (Tr. 3, at 380).

Berkshire indicated that its application of certain criteria evolved during the process, and that community input strengthened Berkshire's commitment to find a site zoned industrially, which required it to become more flexible with respect to cost (Exhs. EFSB-SS-4; BG-1, at 5-8; Tr. 3, at 383). The Company noted that it originally pursued a site in South Deerfield; however after soliciting opinions from the public, it ultimately rejected the site based in part upon community opposition (Exhs. BG-1 at 5-8; BG-1 (app. I); Tr. 4, at 445-446). As a result, the Company indicated that the public became increasingly involved in the site selection process, which led the Company to reconsider other sites, including the Long Plain Road site (Exh. EFSB-SS-5; Tr. 4, at 443-444).

Berkshire argued that the Long Plain Road site was the best site for construction of the proposed facility (Exh. BG-1, at 5-8 to 5-9). The Company indicated that the Route 5/10 site was under consideration at the same time that the South Deerfield site was being pursued, but noted that once it identified the Long Plain Road site it pursued it more actively than the Route 5/10 site (Tr. 4, at 493-494). The Company stated that it did not know of any site in the study area, other than the Long Plain Road site, that was industrially zoned, wooded, level, without substantial wetlands or agricultural

restrictions, with good transportation access, and of a suitable size to meet regulatory requirements (Tr. 3, at 393-395).

In accordance with the Siting Board's regulations at 980 CMR 10.02 (4), the Company developed a matrix which compared the Long Plain Road and Route 5/10 sites based upon ease of acquisition, climatology, geology, hydrology, transportation access, ecological sensitivity, socioeconomics, special resources, commitment, and other (Exh. BG-1 (att. 5-D)). Using this matrix, the Company calculated that the Long Plain Road site was preferable to the Route 5/10 site (id.).[(34)]

Berkshire indicated that it did not believe this matrix adequately reflected its consideration of environmental factors (Exh. GAJ-1, at 16). The Company therefore provided another site comparison which included the following fourteen criteria weighted from one to three for least to most importance (relative weight in parentheses): site size/geometry (2); proximity to the Greenfield Feedline (2); buffering potential (3); topography/geology (2); wetlands/water bodies (2); land use (3); transportation access (1); proximity to sensitive receptors (3); historic resources (2); archeological factors (2); community acceptance (3); ecological resources (3); utilities (3); and zoning (2) (Exhs. BG-1 (att. 5-C); BG-1, at 5-11 to 5-19). The Company indicated that it assigned the highest weights to criteria that were more important and had not been a significant part of the general criteria developed during the initial phase of site selection (Exh. GAJ-1, at 17-21). For example, the Company contended that although wetlands/waterways and transportation access were both very important considerations, any site that had significant wetland problems or difficult access would have been rejected during the initial site selection phase (Exhs. GAJ-1, at 17-18; EFSB-SS-3(1) (att. a)). The Company also stated that it gave a higher weight to community acceptance, land use and buffering potential criteria partly as a result of concerns raised by the community during public hearings (Exh. BG-1, at 5-12 to 5-17).

Berkshire stated that its siting team then scored the two sites for each criteria on a scale of zero to three, with zero indicating no problems associated with that category, and three indicating the most problems associated with that category (Exh. BG-GAJ-1, at 17). The Company stated that the Long Plain Road site received low or moderate (1 or 2, respectively) scores in all categories except "proximity to pipeline", and that the Route 5/10 site received high scores for site size, buffering potential, wetlands/water bodies, community acceptance, and zoning (Exh. BG-1 (att. 5-C)).[(35)] Based upon its matrix, the Company concluded that the Long Plain Road site was preferable to the Route 5/10 site for development of an LNG facility (Exhs. BG-1, at 5-19; BG-GAJ-1, at 21).[(36)]

The Company also compared the costs of the two alternative sites using the Alternative Site Evaluation Matrices set forth under 980 CMR 10.02 (4) (Exhs. BG-1, at 5-9; BG-1 (att. 5-D)). The Company detailed capital costs, including land acquisition, site preparation, structures and improvements, LNG processing equipment, LNG transportation facilities and other equipment for both sites (Exh. BG-1 (att. 5-D, 5-N)). The Company figured that the cost of utilities would be lower at the Route 5/10 site, since the site abuts the Greenfield Feedline (id.). The Company also noted that

acquisition of the Route 5/10 site would cost $200,000 less than the acquisition of the Long Plain Road site (id.). The Company stated that the cost of plant equipment would be identical at both sites. However, Berkshire asserted that the cost of installation and services at the Long Plain Road site would be substantially less than at the Route 5/10 site primarily as a result of lower civil site work, permitting and legal costs, septic systems, impoundments, and roadways (id.; Exh. EFSB-SS-13). The Company asserted that these costs were reasonable considering the wetlands, limited existing vegetation, high ground water, and community opposition associated with the Route 5/10 site (Exh. BG-1 (att. 5-N); Tr 3, at 400-406). Overall, the Company expected that the year one construction cost of the proposed project at the Long Plain Road site would be $4,513,498, and the year one construction cost of the proposed project at the Route 5/10 site would be $4,818,498 (Exh. BG-1 (att. 5-N)).

The Company indicated that it considered the Long Plain Road site to have slight reliability benefits over the Route 5/10 site, because it was farther north and closer to the load center (Exh. BG-1, at 5-20). In addition, the Company stated that the Long Plain Road site's buffer provided additional security (id.).

3. Analysis and Findings

Berkshire has developed a set of criteria for identifying and evaluating siting options that addresses environmental impacts, land use concerns, community issues, cost and reliability -- types of criteria that the Siting Board has found to be appropriate for the siting of public utility facilities. See 1997 BECo Decision, EFSB 96-1, at 68; 1997 ComElec Decision, EFSB 96-6, at 53; New England Power Company, 4 DOMSB 109, 167 (1995) ("1995 NEPCo Decision").

The Company first identified an area that would encompass all viable siting options given the limitations imposed by federal/state regulations and the ability to meet the identified needs. The Company used this study area to guide, but not restrict, its search for sites. The Company identified over forty sites inside and outside the study area through an iterative process. The Company continually evaluated and rejected sites based upon a reasonable set of criteria, including site size and slope, wetlands, transportation access, community support, and proximity to airports. The Company demonstrated it used these criteria to narrow its search by eliminating any sites where construction of the LNG facility would cause substantial environmental impacts, or which did not meet regulatory criteria for size. The Siting Board notes that the Company eventually changed its application of certain criteria, as a result of community input, and refocused on finding a site with more appropriate surrounding land-use and zoning. Although criteria thus were not applied consistently throughout the initial phases of the site selection process, the Siting Board recognizes that it can be, and in this instance was, reasonable and beneficial for an applicant to adapt its criteria as it receives community input. Finally, Berkshire

narrowed its search to the Long Plain Road and Route 5/10 sites and developed a comprehensive comparison of these two sites.

The Siting Board notes that the Company's comprehensive list of criteria, its evaluation of a large number of sites, its willingness to work with the community, and its willingness to re-evaluate sites, all contributed to a site selection process that led to the choice of a superior site. The Company has selected a site which meets almost all of its desired characteristics and which the Company has demonstrated also serves to minimize environmental and community impacts and cost. The Company has shown that it is highly unlikely that another site with such desirable attributes exists in the study area. The Company has shown that it applied a reasonable set of criteria to compare the two noticed sites, and that those criteria were applied consistently and appropriately to those two sites.

Based on the foregoing, the Siting Board finds that the Company has developed a reasonable set of criteria for identifying and evaluating facility alternatives. The Siting Board also finds that the Company has applied its site selection criteria appropriately, and in a manner which ensures that it has not overlooked or eliminated any sites which are clearly superior to the proposed project.

Accordingly, the Siting Board finds that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternatives to the proposed project in a manner which ensures that it has not overlooked or eliminated any sites which are clearly superior to the proposed project.

4. Geographic Diversity

Berkshire during its site selection process, evaluated over forty sites in five towns. Berkshire identified and noticed two distinct sites in different parts of the Town of Whately. Consequently, the Siting Board finds that the Company has identified a range of practical siting alternatives with some measure of geographic diversity.

5. Conclusions on the Site Selection Process

The Siting Board has found that the Company developed and applied a reasonable set of criteria for identifying and evaluating alternatives to the proposed project in a manner which ensures that it has not overlooked or eliminated any alternatives which are clearly superior to the proposed project. In addition, the Siting Board has found that the Company has identified a range of practical siting alternatives with some measure of

geographic diversity. Consequently, the Siting Board finds that Berkshire has demonstrated that it examined a reasonable range of practical facility siting alternatives.

C. Environmental Impacts, Cost and Reliability of the Proposed

and Alternative Facilities

1. Standard of Review

In implementing its statutory mandate to ensure a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that its proposed facilities are sited at locations that minimize costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to demonstrate that the proposed site for the facility is superior to the noticed alternatives on the basis of balancing cost, environmental impact, and reliability of supply. NEPCo Decision, EFSB 97-3, at 45; 1997 BECo Decision, EFSB 96-1, at 72; Berkshire Gas Company, 23 DOMSC 294, at 324 (1991).

An assessment of all impacts of a proposed facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns as well as among environmental impacts, cost, and reliability. NEPCo Decision, EFSB 97-3, at 45; 1997 BECo Decision, EFSB 96-1, at 72; Eastern Energy Corporation, 22 DOMSC at 188, 334, 336 (1991). A facility which achieves that appropriate balance thereby meets the Siting Board's statutory requirement to minimize environmental impacts at the lowest possible cost. NEPCo, EFSB 97-3, at 46; 1997 BECo Decision, EFSB 96-1, at 287; Eastern Energy Decision,

22 DOMSC at 334-335.

The Siting Board recognizes that an evaluation of the environmental, cost and reliability trade-offs associated with a particular proposal must be clearly described and consistently applied from one case to the next. Therefore, in order to determine if a petitioner has achieved the proper balance among environmental impacts and among environmental impacts, cost and reliability, the Siting Board must first determine if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures in order to make such a determination. NEPCo Decision, EFSB 97-3, at 46; 1997 BECo Decision, EFSB 96-1, at 73; 1997 CommElectric Decision, EFSB 96-6, at 61. The Siting Board can then determine whether environmental impacts would be minimized. Similarly, the Siting Board must find that the petitioner has provided

sufficient cost information in order to determine if the appropriate balance among environmental impacts, cost, and reliability would be achieved. NEPCo Decision, EFSB 97-3, at 46; 1997 BECo Decision, EFSB 96-1, at 73; Boston Edison Company (Phase II), 1 DOMSB 1, at 40 (1993).

Accordingly, in the sections below, the Siting Board examines the environmental impacts, cost and reliability of the Company's proposed LNG facility at the preferred and alternative sites to determine: (1) whether the environmental impacts of the proposed facility would be minimized; and (2) whether the proposed facility would achieve an appropriate balance among conflicting environmental impacts as well as among environmental impacts, cost and reliability. In this examination, the Siting Board conducts a comparison of the preferred and alternative sites to determine which is preferable with respect to providing a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

2. Environmental Impacts

a. Wetland and Water Resource Impacts

(1) Preferred Site

Based upon a wetlands survey performed by a professional wetland scientist, Berkshire stated that the preferred site does not contain any wetlands or floodplains regulated by the state or federal government (Exhs. BG-1 (atts. 5-B, 5-C); EFSB-EW-5; EFSB-EW-19). The Company acknowledged that an area in the northwest corner of the site has some wetland indicator species, but argued that this area does not have any other characteristics, such as hydric soils or standing water, that would classify it as a bordering vegetated wetland, isolated area subject to flooding, or a vernal pool (Tr. 2, at 192-197). In addition, the Company indicated that it has consulted several town boards, and that no wetland issues have been raised with regard to the preferred site (Exh. EFSB-EW-5).

The Company indicated that the proposed facility would use an estimated five to twenty gallons of water per day for sanitary purposes, supplied from Town of Whately's water system (Exh. EFSB-EW-11). In addition, the Company stated that the proposed facility would have a closed-loop glycol water system within the heat exchanger that would use demineralized water delivered from an offsite source (id.). The Company estimated that an average of five gallons and a maximum of twenty gallons of sewage would be produced per day (Exh. EFSB-EW-20). Berkshire stated that it would need to install a septic system, similar to ones used for residential purposes, and asserted that there are no constraints to using a septic system on the preferred site (Exh. EFSB-EW-10).

Berkshire provided evidence that the preferred site does not overlay any aquifer used for public drinking water or any designated Zone II[37] (Exhs. EFSB-EW-4; EFSB-EW-16).

The Company stated that it found no evidence that individual wells (residential or industrial) exist in the areas of Whately and South Deerfield near the preferred site, and noted that these areas are served by town water (Exhs. EFSB-EW-3; EFSB-EW-16; Tr. 2, at 222-223). In addition, the Company asserted that the proposed facility would have no impact on groundwater recharge, since stormwater will run off the impervious areas of the proposed facility and percolate into the ground (Exh. EFSB-EW-15).

Berkshire calculated that the construction of the proposed project at the preferred site would create 1.18 acres of impervious surface (Exh. EFSB-EW-18). The Company stated that the soil characteristics at the preferred site are sandy/loam, which easily facilitate percolation of groundwater (Exhs. BG-1 (att. 5-E); EFSB-EW-9). Berkshire indicated that water level tests show that the groundwater level is between four and a half feet and eight feet from the surface (Exh. EFSB-EW-1). The Company asserted that the site's soils, topography, and the facility layout all combine to obviate the need for stormwater systems (Exh. EFSB-EW-9; Tr. 2, at 211-212). The Company indicated that stormwater runoff would fall to the sides of the roads and percolate into the ground, while runoff from the tanks, platforms and the control building would fall into the gravel areas surrounding those structures and percolate into the ground (Tr. 2, at 208-212). The Company asserted that it has not observed storm water accumulating on the site (id.).

Berkshire noted that Department regulations require LNG facilities to pump precipitation out of the impoundments (Exh. BG-TGQ-2, at 7-1).[(38)] The Company stated that it has chosen to build wider and deeper impoundments at the preferred site than it would build at the alternative site in order to avoid the water table (Tr. 1, at 57-58). The Company has stated that it plans to install two water-level activated automatic sump pumps in each impoundment (id.; EFSB-EW-12). Berkshire submitted data indicating that the base of the remote containment sumps for the preferred site would be below ground water levels for at least part of the year[(39)] (Exhs. EFSB-FR-1; EFSB-EW-1). Berkshire also indicated that the outlet for the two sump pumps used to remove rainwater from each of the containment sumps at the preferred site will discharge near the sumps, but each pump would be at least forty feet away from another pump (Exh. HO-RR-16; Tr. 2, at 212-213). Berkshire indicated that it does not anticipate that groundwater would enter the sumps at either site for the reasonable life of the facility or that the rainwater discharged from the containment sumps would have any effect on local groundwater levels at the preferred site (Tr. 2, at 215, 217-218). Berkshire also indicated that the potential for groundwater incursion would be mitigated by employing specific construction measures for the containment sumps (id. at 218). The Company has proposed to discharge the water to a rip rapped splash pad area to prevent erosion, but the final design is not complete (Exh. HO-RR-16). Berkshire asserted that the stormwater discharge would not cause erosion since the soils readily absorb water (id.; Tr. 2, at 212-213).

The Company stated that it would not use any fertilizer, pesticides or chemicals to remove snow at the proposed facility (Exhs. EFSB-EW-2; EFSB-EW-13). Berkshire also indicated that it would employ techniques to minimize erosion during construction, including the use of many premanufactured components (Exh. BG-GAJ-1, at 24). Finally, the Company noted that it would require a U.S. Environmental Protection Agency

NPDES General Permit for Stormwater Discharges From Construction Activities (Exh. EFSB-EW-9).[(40)] The Company stated that its preferred interconnecting pipeline route to the Greenfield Feedline would not cross any wetlands (Tr. 2, at 139).

(2) Alternative Site

The Company stated that the alternative site contains three types of wetlands: a man-made borrow pit on the southern portion of the site; a wooded vegetated wetland on the eastern side of the property; and a potential wetland area abutting the wooded wetland[(41)] (Exhs. EFSB-EW-5; EFSB-EW-6; Tr. 2, at 197-198). The Company indicated that the borrow pit would probably be classified as Land Under Water and the wooded wetland areas would probably be classified as Bordering Vegetated Wetland (Exh. EFSB-EW-19). The Company proposed to keep all structures, except the vapor fence, outside wetland areas (Exh. BG-1 (app. F, fig. 1.3.8-2)). The Company asserted that a small amount of permanent fill would be needed to install the vapor fence in the cultivated wetland area, and indicated that a larger area of wetlands would be temporarily impacted during construction (Tr. 2, at 199-200). The Company provided a map showing that there are no floodplains on the alternative site (Exh. BG-1 (att. 5-B)).

The Company estimated that the construction of the proposed facility at the alternative site would result in the creation of .8 acres of impervious surface (Exh. EFSB-EW-18). The Company stated that water use and discharge would be the same at the alternative site as at the preferred site, but noted that the higher water table at the alternative site would necessitate a more costly septic system (Exh. EFSB-SS-13; Tr. 3, at 402). The Company indicated that the Town of Whately provides water to the area where the alternative site is located (Exhs. EFSB- EW-3; EFSB-EW-4). The Company submitted a map showing that the alternative site abuts, but does not overlie, the designated Zone II of a public water supply (Exh. EFSB-EW-16 (att. a)). The Company stated that it found no evidence that individual wells (residential or industrial) exist in the areas of Whately near the alternative site, and noted that these areas are served by town water (Exhs. EFSB-EW-3; EFSB-EW-16; Tr. 2, at 222-223). In addition, the Company asserted that the proposed facility would have no impact on groundwater recharge, since stormwater would run off the impervious areas of the proposed facility and percolate into the ground (Exh. EFSB-EW-15).

Berkshire indicated that the sumps at the alternative site would be predominantly below groundwater levels (Exhs. EFSB-FR-1; EFSB-EW-1).[(42)] Berkshire noted that it would build smaller but deeper impoundments at the alternative site than at the primary site in order to avoid permanent impacts to wetlands (Exh. HO-RR-29). The Company indicated that the sump pumps at the alternative site likely would discharge into a wetland area, and thus would require a section 401 Water Quality permit from the Massachusetts Department of Environmental Protection ("MDEP") and a U.S. Army Corps of Engineers Section 404 permit (Exh. EFSB-EW-6; Tr. 2, at 219-221). The Company stated that it

would need to meet with the Whately Conservation Commission to discuss construction of the proposed project at the alternative site; however it was unsure whether the Conservation Commission would require a Notice of Intent (Exh. EFSB-EW-5; Tr. 2, at 219-221). The Company stated that wetland and water table issues at the alternative site would increase the cost of the proposed facility at that site relative to the preferred site (Exhs. BG-1 (att. 5-N); HO-RR-29).

The Company asserted that the proposed facility at the alternative site would not have any stormwater problems, although it acknowledged that stormwater would be more of an issue at the alternative site than at the preferred site, and that the Company would need a stormwater management plan for the alternative site (Exhs. EFSB-EW-9; EFSB-EW-15; Tr. 2, at 218-220). Finally, the record indicates that about half the alternative site contains poorly drained soils (Exhs. EFSB-EW-1; BG-1 (att. 5-E)).

(3) Analysis

The record shows that the preferred site is free of wetlands. The record also demonstrates that the Company would minimize its use of impervious surfaces for the proposed facility at the preferred site, and that stormwater can be contained and absorbed within the site without the use of specific stormwater controls. Consequently, the Siting Board finds that the environmental impacts of the proposed facility at the preferred site would be minimized with respect to wetlands.

In contrast, the record identifies Land Under Water, bordering vegetated wetland and one other large potential wetland area at the alternative site, and indicates that the vapor fence would affect two of these areas. Although the Company has shown that the wetland impacts of its proposed project probably could be minimized at the alternative site, the record is clear that no wetland impacts would occur at the preferred site. In addition, the presence of wetlands increases the cost of construction of the proposed facility at the alternative site. The record also indicates that if the facility were built at the alternative site, there would be stormwater discharges to the wetland areas. Accordingly, the Siting Board finds that the preferred site is preferable to the alternative site with respect to wetland impacts.

With respect the water resource impacts, the record demonstrates that the Company would use little potable water and would produce only small quantities of sewage. The record also indicates that the proposed facility is not near any public water supply wells or well

protection areas, and that few, if any, individual wells exist near the preferred site. In addition, the Company would employ techniques to protect the site from stormwater damage during construction and operation.[(43)] Consequently, the Siting Board finds that the environmental impact of its proposed facility at the preferred site would be minimized with respect to surface water, groundwater, and water supply.

The record shows that the source and quantity of water that would be used at either site is equal and, consequently, that there is no difference between the preferred and alternative site in terms of water use impacts. The record also indicates that the presence of a Zone II near the alternative site is a concern, whereas the proposed facility would not affect any known public water supply aquifers or wells at the preferred site. The record indicates that although the amount of sewage produced at each site is equal and minimal, the preferred site is better suited for a conventional septic system, since it has a lower water table. Lastly, the record indicates that stormwater may be discharged to surface waters at the alternative site, whereas stormwater would be absorbed into the ground at the preferred site. Therefore, the Siting Board finds that the preferred site is slightly preferable to the alternative site with respect to impacts to surface water, groundwater, and water supply.

b. Land Use, Visual, and Land Resource Impacts

(1) Preferred Site

The Company provided a copy of the Town of Whately Zoning Bylaw ("Bylaw"), which shows that the preferred site is industrially zoned (Exhs. BG-1 (app. J); EFSB-EL-6 (att. a)). The Bylaw also shows that the area immediately surrounding the site is zoned industrial or commercial/industrial, while neighboring areas are zoned agricultural/residential (id). The Company stated that Whately has targeted the area where the preferred site is located for industrial development (Exhs. EFSB-EL-6 (att. a); EFSB-EL-4 (att. a)). The Company indicated that the nearest areas to the preferred site in South Deerfield are zoned planned industrial, commercial, industrial, or central village residential (Exh. EFSB-EL-2 (att. a)).

The Company stated that the current site is vacant wooded land that was used for agricultural purposes until the late 1950's, but is not subject to G. L. c. 61 restrictions (Exhs. EFSB-EL-5; BG-1 (att. 5-E)).[(44)]

The Company indicated that a graveyard lies directly to the north of the site, a railroad to the west, a cattle auction to the south, and the Whately Industrial Park to the east across Long Plain Road (Exh. BG-1 (att. 5-E)). The Company indicated that within a half mile of the preferred site, the existing land uses are 25 percent agricultural, 20 percent industrial, 12 percent Agricultural Protection Restriction ("APR"),[(45)]

10 percent commercial, 5 percent industrial/commercial, and 28 percent other land use uses (open space, wetlands) (Exh. EFSB-EL-1). Berkshire stated that the elevated B&M railbed separates the preferred site from the Tri Town Beach (Exh. EFSB-EV-2). The Company indicated that the only other sensitive receptors within one mile of the preferred site are a daycare facility, a school, a Town park, and Mount Sugarloaf State Park (Exhs. EFSB-EL-1 (att. a); EFSB-EL-3).

The Company stated that the proposed facility would be compatible with existing land-use plans for the area, including the Town of Whately Master Plan (August 1994), the Franklin Regional Council of Governments Regional Policy Plan (December 1998), and the Greater Franklin County Overall Economic Development Program (June 1995) (Exh. EFSB-EL-4 (atts. a, b, c)). In the Master Plan, the Town identified suitable areas for industrial and commercial development; the preferred site is located in an area identified as the first priority for industrial development (id. (att. a)).[(46)] The Regional Policy Plan indicates that Franklin County overall should encourage small and medium scale environmentally sound industrial development that is located in designated growth areas and that includes a minimum of 40 percent open space (id. (att. b at 15, 22, 28)).

The Town of Whately stated that it considers the preferred site to be a suitable site for development of an LNG facility (Exh. BG-RMA-3, at 2). The Town also indicated that the proposed facility, if built at the Long Plain Road site, would be consistent with the Town's long range planning efforts (id.).

Berkshire asserted that it does not expect significant change over the next twenty years in the area surrounding the preferred site (Exh. EFSB-EL-7). The Company elaborated that it does not expect any changes in land use to the north and west of the facility, based on current uses (a graveyard and a recreational area, respectively) (id.). Berkshire indicated that in the area to the south and east of the preferred site, the Company expects industrial/commercial growth, since this area is targeted for industrial development in local and regional plans (id.; Tr. 2, at 164-167). Berkshire maintained that its proposed use of the site would not conflict with industrial or commercial growth in the area since the area is industrially zoned and the Company has designed the proposed site to meet federal requirements concerning the separation of LNG facilities from different land uses (Tr. 2, at 169-170).

The Company indicated that the proposed facility would consist of a one story control building, twelve-foot high LNG tanks, a ten-foot high vapor fence and associated roads and utilities (Exhs. BG-1 (app. F at 1-8); HO-RR-28(att. a); BG-RMA-2). The Company stated that the preferred site contains mixed deciduous and evergreen trees between thirty and forty feet high (Exh. EFSB EV-6; Tr. 2, at 179). The Company indicated that the construction of the proposed facility would require the clearing of approximately five acres of trees, and that it would be surrounded by a wooded buffer of approximately 10 to 50 feet to the north, 75 feet to the west, 100 feet to the south, and 400 feet to the east (Exhs. EFSB-EV-7; BG-RMA-2; Tr. 2, at 180). Berkshire presented defoliate views of the preferred site from the nearest residence, the Tri Town Beach (west), the opposite side of Long Plain Road (east), and at points north and south of the site along Long Plain Road. All of these views indicate that a large buffer of thick trees would block views of the proposed facility (Exh. EFSB-EV-3). The Company has indicated that it would incorporate a curved access road in order to minimize the view of the proposed facility from Long Plain Road (Exhs. BG-RMA-2; EFSB-EV-2).

The Company asserted that the proposed site is listed in the Massachusetts Department of Environmental Management's "Massachusetts Landscape Inventory" (Exh. EFSB-EV-5).

Berkshire showed that the proposed site is visible from the Mount Sugarloaf State Park, but that the view from the Park would not be negatively affected because the proposed facility would be surrounded by other larger industrial complexes (Exh. EFSB-EV-8).

The Company indicated that it is considering subdividing the preferred site and offering a portion of it for sale (Tr. 2, at 181-182). Berkshire stated that it would retain ownership of all safety exclusion zones, and that it would consider use of a restrictive covenant to ensure that the vegetative buffer was retained on any subdivided parcel (Exhs. HO-RR-13 (supp.); HO-RR-14). The Company stated it will comply with eight conditions imposed by the Town of Whately and set forth in a letter from the Board of Selectmen to the Company ("the Town of Whately conditions"), including requirements that all site lighting be directed downward, that the site be well screened in terms of its visibility from the road, and that the Planning Board be permitted to require additional screening throughout the life of the facility as the current vegetative cover matures and changes (Exhs. BG-RMA-1, at 14; BG-RMA-3, at 2). The Board of Selectmen requested that compliance with the Town of Whately conditions be included as a condition in the Siting Board's final decision in this proceeding (Exh. BG-RMA-3, at 2). The Company stated that a condition in the Siting Board's decision requiring compliance with the Town of Whately conditions would not negatively affect the Company's proposed project (Exh. HO-RR-34; Tr. 2, 251-254.)[(47)]

The Company stated that it conducted an archeological impact assessment of the preferred site. The assessment report concluded that no significant artifacts or other archeological signs were found, and that there are no properties on the Massachusetts list of historical places near the preferred site (Exh. EFSB-EL-3 (att. a)).[(48)]

In addition, the Company contacted the U.S. Fish and Wildlife Service ("US F&WS") and NHESP for documentation of rare, threatened, or endangered species (Exhs. HO-RR-9 (att. a); HO-RR-10 (att. a)). Although the preferred site abuts a mapped NHESP rare species habitat, the Company's exhibits show that neither the USF&WS nor the NHESP found any impact of the Company's proposal on rare or endangered species (Exhs. HO-RR-9 (supp.); HO-RR-10 (supp.)).[(49)] The Company indicated that it expects only minimal ecological impact from the construction and operation of the proposed facility at the preferred site, because a field reconnaissance did not reveal any ecologically significant issues (Exhs. BG-GAJ-1, at 18; BG-1 (att. 5-C)). In addition, the Company indicated that it would limit the construction area by using premanufactured structures, which would limit ecological disturbance (Exh. BG- GAJ-1, at 24).

The Company stated that the proposed facility would produce minimal solid waste, primarily compost, which would either be left on site or removed to an appropriate composting place (Exhs. EFSB EG-7; BG-GAJ-1, at 21; Tr. 2, at 148-149). The Company stated that other than LNG, no hazardous chemicals would be stored on site during operation or construction, and that only small quantities of oil and grease would be stored during operation (Exh. EFSB EG-8). The Company stated that its tests for hazardous waste on the site were negative, and that there is no indication from past uses that hazardous waste would be found at the preferred site (Tr. 2, at 206-207).

Berkshire stated that it has reviewed a number of pipeline alternatives to connect the LNG to the Greenfield Feedline, and that its chosen alternative would have the least impact, since it is the shortest route (Exhs. EFSB-EG-2; BG-1 (att. 5-H)). The Company indicated that the preferred interconnecting pipeline route would pass only six to ten homes (Tr. 2, at 146).

(2) Alternative Site

The Company stated that the alternative site is an open field currently used for agriculture, which also contains a wetland and a borrow pit on the southern and eastern portions of the site (Exh. BG-1 (att. 5-E). The Company stated that the alternative site is zoned commercial and that the areas surrounding the alternative site are primarily zoned residential/agricultural, with some commercial/industrial areas nearby (Exh. EFSB-EL-6 (att. a)). The Company indicated that barns lie to the north of the alternative site with Route 91 to the east, a general store to the west across Route 5/10, and a residence to the south (Exhs. BG-1 (att. 5-E)). The Company showed that the area within a mile of the site consists primarily of agricultural, wetland, and residential land uses (Exh. EFSB-EL-1). The Company identified only one sensitive receptor, a playground, within one mile of the site (id. (att. b)).

Berkshire asserted that the construction of proposed facility at the alternative site would be consistent with the existing land uses, because the site is commercially zoned and the Town of Whately Master Plan has designated that area as a third priority commercial/industrial development area (Exhs. EFSB EL-4 (att. a)). The Town of Whately stated that it does not consider the proposed LNG facility an appropriate use at the alternative site, because it would be visually unappealing and incompatible with the rural and agricultural scenery in the area, while also destroying state significant farmland (Exh. BG-RMA-3). The Town indicated that the alternative site could not be rezoned to industrial use until the Whately Industrial Park is 75 percent occupied (Exh. EFSB-SS-12 (att. a)).

The Company proposed facility structures at the alternative site that would be of the same height and otherwise similar to those at the preferred site (Exhs. EFSB-EV-1; BG-1 (att. 5-G, app. F, fig. 1.3.8-2)). The Company proposed a shorter driveway at the alternative site than at the preferred site, with the control structures located closer to Rt. 5 & 10 and the impoundments located near the wetlands on the eastern portion of the site (Exh. BG-1 (app. F, fig. 1.3.8-2)). Berkshire stated that the existing tobacco drying barn on the site likely would be removed in order to accommodate the construction of the vapor fence (Tr. 2, at 176). The Company submitted photos of the site showing defoliate views from the nearest residence, from Route 5/10 across the street from the proposed facility, and from points north and south of the site along Route 5/10 (Exh. EFSB-EV-4). These

photos show some deciduous tree buffer on the northern portion of the site, while across the street, the predominant view is of the barn and the adjacent field (id.). To the south the site is entirely visible, with no trees or structures obstructing the view (id.). The Company indicated that a larger stand of trees grows on the eastern portion of the property, with a much smaller stand growing on the northwestern edge (Exhs. BG-1 (app. F, fig. 1.3-8-2); EFSB-EV-2). The Company indicated that the proposed facility at the alternative site would be visible from the back of properties in Whately Center (Exh. EFSB-EV-2). The Company proposed to landscape the alternative site to buffer the view of the proposed facility, but did not provide evidence that the plantings could substantially buffer the facility (id.; Exh. EFSB-EV-4). Berkshire stated that the proposed project at the alternative site would not affect any landscapes identified in the Massachusetts Landscape Inventory (Exh. EFSB-EV-5).

The Company provided consultant reports stating that the alternative site is of no historic or archeological importance (Exh. EFSB-EL-3 (att. a)). The Company did not make formal inquiry as to whether there are historic structures in the vicinity of the Route 5/10 site; however, the Town of Whately identified its Town Center, which overlooks the site and is less than one mile away, as a potential area for listing under the National Register of Historic Places (Exhs. EFSB- EL-4 (att. a, app. A); EFSB-EV-2).

Although the alternative site contains a significant amount of wetlands, Berkshire argued that the alternative site has little ecological value, because the wetlands are significantly disturbed or man-made (Exh. EFSB-EG-11).[(50)] The Company stated that the alternative site is near a NHESP estimated habitat of rare and endangered species; however, NHESP indicated that no impact to endangered or rare species or habitats would be expected from construction of the proposed project (Exh. EFSB-EG-14). Further, the Company noted that the mapped habitat is across the road and at some distance from the alternative site (Tr. 4, at 440). Berkshire stated that the USF&WS found that the proposed facility at the alternative site would have not any impact on federally listed species (Exhs. EFSB-EG-6; EFSB-EG-9 (supp)).

The Company did not submit hazardous soil tests for the alternative site (Exh. EFSB-EW-8). As with the preferred site, the Company stated that it would produce minimal solid waste and that no hazardous waste would be stored on the site other than LNG and small amounts of lubricants (Exhs. EFSB-EG-7; EFSB-EG-8). The record does not indicate that Berkshire would need to clear trees at the alternative site in order to construct the LNG facility (Exh. BG-1 (app. F (fig. 1.3.8-2))).

(3) Analysis

The record demonstrates that the proposed facility at the preferred site is consistent and supportive of local and regional land use plans. The Company has shown that it has minimized the impact of the facility on land use by choosing an industrially zoned site that is surrounded by other industrial uses, and that is targeted for industrial development in Whately under the Town's master plan. In addition, the Company has also

demonstrated that the area is likely to grow slowly, that the growth will be largely industrial, and that the proposed facility is not likely to conflict with future growth.

The preferred site has an existing wooded visual buffer, and the site is near a limited number of sensitive receptors or parks. The Company has shown that its site design maximizes use of the existing visual buffer and retains sufficient vegetation to block views of the proposed facility. In addition, the Company has made a commitment to comply with the Town of Whately's conditions concerning maintenance of a vegetative buffer. However, the Siting Board notes that the Company has not committed in any permit to maintaining the currently proposed vegetive buffer over the life of the proposed project. This is of particular concern given the Company's potential subdivision of the site and, therefore, its potential transfer of control over parts of the buffer. Consequently, to ensure that the visual impacts of the proposed project are minimized, the Siting Board requires the Company to maintain the current wooded buffer, as shown on Exhibit BG-RMA-2, to the north, west, and south of the proposed facility's vapor fence, and to maintain a 100-foot wooded buffer to the east of the proposed facility (measured from the edge of the most easterly facility structure) regardless of whether the site is subdivided. Berkshire may accomplish this through retaining control of the area, restrictive covenants, conservation easements, or any other appropriate means.[(51)]

Berkshire has also demonstrated that it would minimize the use of hazardous waste, and that the facility would have little effect on the amount of solid waste produced. The record indicates that the facility would have little to no impact on historical and ecological resources. Therefore, subject to the above condition regarding the maintenance of a visual buffer, the Siting Board finds that the environmental impacts at the preferred site would be minimized with respect to land use, visual impacts, and other land resource impacts.

In contrast, while the alternative site is zoned commercial/industrial, the Town does not consider the LNG facility an appropriate use for that area. The record demonstrates that the alternative site is largely surrounded by farmland and one small commercial establishment, whereas the preferred site has existing manufacturing and other industrial uses surrounding it. The alternative site has little existing visual buffer, except for a barn, which needs to be removed in order to secure the appropriate exclusion zones. Although the Company has proposed to buffer the alterative site, plantings would likely take many years to adequately screen the facility. The Company has demonstrated that the proposed facility at both sites would have little impact on wildlife, although the alternative site contains wetlands, and thus the facility could have more impact on wildlife at the alternative site. Although the impacts from the connecting pipeline are contained on-site at the alternative site, the Company has demonstrated that the proposed pipeline route would have minimal impact. The preferred site and alternative site are nearly equivalent in terms of impacts from or to solid and hazardous waste and historical resources, except that the alternative site could be seen from an area of historical importance.

Consequently, the Siting Board finds that the preferred site is preferable to the alternative

site with respect to land use, visual impacts, and other land resource impacts.

c. Air and Noise Impacts

(1) The Preferred Site

Berkshire asserted that the design of the proposed control building and LNG facility is based upon the design for a similar Northstar facility which received an award for minimizing noise and air emissions and overall impact on land use (Exh. EFSB-EN-1). The Company indicated that the facility design would place the boiler inside the control building, and would use dry instrument air instead of odorized natural gas, so that odor emissions would be minimized and contained within the building (id.; Tr. 4, at 470-471, 474-475). Berkshire stated that the vaporizer would be powered by a "super-clean efficient, super-charged turbo 747 natural gas-fired heater," with air emissions similar to those of a residential gas heater (Exhs. EFSB-EA-2; BG-BAJ-1, at 22). Berkshire noted that the only other air impacts of the proposed facility would be the emissions of small quantities of natural gas, but that natural gas is primarily composed of methane, which is not regulated as a pollutant by federal or state agencies (Exhs. BG-TGQ-2, at 5-2; EFSB-EA-6).

Berkshire indicated that during normal operation the only sources of noise outside of the control building would be the impoundment sump pumps and the LNG delivery trucks (Exh. EFSB-EN-1). The Company noted that trucks would be required to turn off their engines during the transfer of LNG, and that most deliveries would take place during normal business hours (Exhs. BG-GAJ-1, at 22; EFSB-EN-4; BG-TGQ-2, at 2-23). Berkshire stated that the sump pumps would be electric (Exh. EFSB-EA-5). The Company indicated that there are no federal or state standards governing the noise impacts of LNG facilities, but stated that it would comply with the Whately Zoning code which prohibits noise that disturbs abutters (Exh. EFSB-EN-2).

Berkshire stated that noise and air emissions would be minimized during construction by the use of pre-manufactured components, which would limit the time of construction (Exhs. EFSB-EN-1; EFSB-EA-1).

(2) The Alternative Site

The Company indicated that the air and noise impacts at the alternative site would be similar to those at the preferred site, since facility components and operation would be

the same (Exhs. EFSB-EN-3; EFSB-EA-2). The Company asserted that there would be no significant difference between the preferred or alternative site with respect to the absorption of noise (Exh. EFSB-EN-3); however, the Company noted that the alternative site has a higher level of existing background noise, suggesting that additional noise would be less significant at that site than at the preferred site (Tr. 2, at 227-228).

(3) Analysis

The record indicates that at either the preferred or alternative site the proposed facility would not generate any significant noise or air emissions or produce significant noise increases during normal operation. The Company has taken additional measures to minimize noise and air emissions from the proposed facility by enclosing any sources of emissions, securing a large buffer, choosing low emission equipment, and limiting its construction time on-site. Therefore, the Siting Board finds that the environmental impacts of the proposed facility at the preferred site would be minimized with respect to noise and air impacts.

Although the record does not demonstrate that there is any real difference between the two sites with respect to noise and air impacts, it does show that the land uses around the preferred site are more compatible with industrial facilities than land uses around the alternative site, and that neighboring properties around the preferred site are more likely to have compatible industrial growth than are the alternative site's abutting properties. Thus, the Board finds that the preferred site is slightly preferable to the alternative site with respect to noise emissions, and comparable to the alternative site with respect to air emissions.

d. Traffic Impacts

(1) Preferred Site

Berkshire indicated that the primary traffic route to the preferred site both for LNG deliveries and for construction traffic would be along Interstate 91[(52)] to interchange 24, then east along Route 116 and south on Pine Street, which becomes Long Plain Road at the Whately-Deerfield town line (Exh. BG-1 (fig. 5-H-1)). The proposed entrance to the preferred site is approximately 2000 feet south of Pine Street on the west side of Long Plain Road (id.). Berkshire has identified various secondary routes to the preferred site that use interchange 23 off of Interstate 91 and/or avoid the use of Pine Street (id.). Berkshire has stated that if a road is constructed connecting the adjacent Deerfield and Whately industrial parks, it would consider using this new road as the primary route between Long Plain Road and Route 116 (Exh. BG-REN-1, at 6). Berkshire indicated

that traffic along the primary route to the site would pass one small neighborhood (Exh. EFSB-ET-6). Berkshire submitted a map which shows that this neighborhood is along Pine Street and therefore, would be avoided if the primary route passed through the industrial parks (Exh. BG-1 (fig. 5-H-1)).

Berkshire indicated that traffic associated with the construction and operation of the proposed project would have minimal impacts on the primary routes to the preferred site (Exh. EFSB-ET-2). Berkshire submitted supporting documentation including a traffic study of the Pine Street section of the primary route, a discussion of traffic volumes associated with the project, and a discussion of the advantages and disadvantages of the site (Exhs. BG-1 (att. 5-I); EFSB-ET-2; EFSB-ET-15). Berkshire's traffic study indicated an average weekday traffic volume of 1105 vehicles (18 percent trucks) traveling on Pine Street between Long Plain Road and Route 116 (id.). Berkshire maintained that the maximum volumes of project-related traffic would occur during the four-month period of facility construction and would average ten to twenty vehicles entering and leaving the site each day[(53)]

(Exh. EFSB-ET-2). Berkshire indicated that when the facility is fully operational project-related traffic will consist of LNG deliveries and daily inspections (Exh. BG-RMA-1, at 10). Berkshire predicted that, during the 1999/2000 heating season, a total of 33 LNG tanker truck deliveries[(54)]

would be necessary, and that during a design ten-day cold snap an average of one tanker delivery per day would be required (Exh. EFSB-ET-15). A design 1999/2000 winter would require as many as 55 LNG tanker deliveries over the winter season (id.). For the 2017/2018 heating season, Berkshire predicted that a normal winter would require ten LNG tanker deliveries a week and that a design winter would require an average of fifteen deliveries per week (id.). The maximum rate of tanker truck deliveries forecast by Berkshire in the 2017/2018 split year would be an average of three per day during a design ten-day cold snap and two per day during an average winter ten-day cold snap[(55)] (id.).

Construction of the interconnecting pipeline between the preferred site and the Greenfield Feedline would, at a minimum, affect traffic along Long Plain Road and a short stretch of Route 116 (Exh. BG-1, (att. 5-J)). Berkshire indicated that the pipeline construction activities would last two to three weeks and would result in only limited restrictions and partial lane closures along Long Plain Road and Route 116 (Exh. EFSB-EG-4; Tr. 4, at 480-481). To mitigate possible impacts, Berkshire indicated that it would provide for a police detail when necessary and would work with officials from the towns of Whately and Deerfield to develop a construction plan (Exhs. EFSB-ET-2; EFSB-ET-10).

(2) Alternative Site

Berkshire indicated that the alternative site is directly accessible from Route 5/10 (Exh. BG-1, (fig. 5-H-2)). Berkshire outlined primary traffic routes to the site that run along Interstate 91 to Route 5/10 at interchanges 22 (from the south) and 23 (from the north) (id.). Berkshire identified a secondary route to the alternative site that runs along Interstate 91 to interchange 24 and then south along Route 5/10 (id.). A map, submitted by Berkshire, shows that the primary route to the site from the south passes through the Town of North Hatfield and a small developed area along Route 5/10 just north of Interchange 23 (id.). Berkshire's map also indicates that the route from the north passes through the developed area along Route 5/10 just north of interchange 23 (id.). Berkshire indicated that the higher traffic speed and volume along Route 5/10 would be a disadvantage for the alternative site (Exh. EFSB-ET-6).

Berkshire indicated that traffic impacts for the alternative and preferred sites would result from construction and operation activities and would be the same for both locations (Exh. EFSB-ET-2). Although Berkshire did not submit traffic data for Route 5/10, the Company did note that Route 5/10 is a major thoroughfare (Exh. EFSB-ET-6). Berkshire also indicated that construction of the pipeline interconnect for the alternative site would have an insignificant impact on traffic because the site abuts the Greenfield Feedline (Exh. EFSB-EG-4).

(3) Analysis

Based on Berkshire's estimates, the four-month facility construction phase at the preferred site would result in a maximum increase in daily traffic along Long Plain Road and Pine Street of 3.6 percent (counting twenty vehicles going to and leaving the facility site). During facility operation, the maximum projected rate of tanker truck deliveries over a ten-day period -- an average of three tanker trucks per day during a design cold snap -- would result in a 3.0 percent increase in daily truck traffic over currently observed traffic volumes and a 1.3 percent increase in total traffic.[(56)]

The record demonstrates that pipeline construction between the preferred site and the Greenfield Feedline would have minimal effects on traffic due to the short duration of the proposed construction activities and the limited extent of the impacts during construction. However, the record also shows that the alternative site affords direct access to the Greenfield Feedline and to Route 5/10 resulting in very limited potential traffic impacts due to construction and operation of the proposed facility.

The record indicates that if a road is constructed between the adjacent industrial parks in Whately and Deerfield, this road would provide a traffic route to the preferred site that would avoid a small neighborhood on Pine Street. The record also indicates that Berkshire would consider using a road through the industrial parks as the primary route to the preferred site. Therefore, the Siting Board directs that, for deliveries of LNG, the Company use the traffic route through the Whately/Deerfield industrial parks if a

connecting roadway is constructed. Accordingly, with implementation of the above condition, the Siting Board finds that the environmental impacts of the proposed project at the preferred site would be minimized with respect to traffic impacts.

At the alternative site, which would be accessed from a major thoroughfare (Route 5/10), the relative increase in traffic associated with the proposed project at the alternative site would likely be considerably less than that estimated at the preferred site. Delivery routes to the alternative site, however, would pass considerably more homes and businesses than the route to the preferred site and would require turning on to and off of a busier road with faster moving traffic.

Due to the location of the necessary pipeline interconnection for the preferred site, the Siting Board notes that short term traffic impacts from construction of the proposed project at the preferred site would be greater than those at the alternative site. Conversely, the alternative site would have long term disadvantages with regard to traffic safety resulting from access routes through more developed areas than the preferred site and from the higher speeds and traffic volumes associated with Route 5/10. It appears that increases in traffic volumes resulting from the proposed project would have minimal impacts at either site. Accordingly, the Siting Board finds that the preferred site is comparable to the alternative site with respect to traffic impacts.

e. Conclusions on Environmental Impacts

In Section III. C. 2., above, the Siting Board has reviewed the information provided by Berkshire regarding the environmental impacts of the proposed facilities at the preferred site on Long Plain Road in Whately. The Siting Board finds that the Company has provided sufficient information regarding environmental impacts of the proposed facilities at the preferred site and potential mitigation measures for the Siting Board to determine whether environmental impacts would be minimized and whether the appropriate balance among environmental impacts would be achieved.

In Section III. C. 2., above, the Siting Board has found that: (1) the environmental impacts of the proposed facilities at the preferred site would be minimized with respect to wetlands and water resources; (2) with the Town of Whately conditions agreed to by the Company, and with the condition of the maintenance of a vegetative buffer, the environmental impacts of the proposed facilities at the preferred site would be minimized with respect to land use, visual, and land resource impacts; (3) the environmental impacts of the proposed facilities at the preferred site would be minimized with respect to noise and air impacts; (4) with the condition that, for deliveries of LNG, the Company use the traffic route through the Whately/Deerfield industrial parks if a connecting roadway is constructed, the environmental impacts of the proposed facility at the preferred site would be minimized with respect to traffic impacts.

Accordingly, the Siting Board finds that with the implementation of proposed mitigation, compliance with applicable state and local requirements set forth above, and with the

conditions described above, the environmental impacts of the proposed facilities at the preferred site would be minimized.

In Section III. C. 2., above, the Siting Board found that the preferred site was slightly preferable to the alternative site with respect to noise and water resource impacts, preferable to the alternative site with respect to wetland impacts and land-use, visual, and other land resource impacts, and equivalent to the alternative site with respect to traffic and air impacts. Accordingly, the Siting Board finds that the preferred site is preferable to the alternative site with respect to environmental impacts. Since the preferred site is preferable or comparable to the alternative with respect to all environmental impacts, the Siting Board finds that an appropriate balance among environmental impacts has been achieved. In Section III. C. 3. and 4., below, the Siting Board addresses whether an appropriate balance among environmental impacts, cost, and reliability would be achieved.

3. Cost

The Company also compared the costs of the two alternative sites using the Alternative Site Evaluation Matrices set forth under 980 CMR 10.02 (4) (Exhs. BG-1, at 5-9; BG-1 (att. 5-D, 5-N)). The Company detailed capital costs, including land acquisition, site preparation, structures and improvements, LNG processing equipment, LNG transportation facilities and other equipment for both sites (Exh. BG-1(atts. 5-D, 5-N)). The Company calculated that the cost of utilities would be lower at the Route 5/10 site, since the site abuts the Greenfield Feedline (id.). The Company also noted that acquisition of the Route 5/10 site would cost $200,000 less than the acquisition of the Long Plain Road site (id.). The Company assumed that the cost of plant equipment would be identical at both sites (id.). However, Berkshire asserted that the cost of installation and services at the Long Plain Road site would be substantially less than at the Route 5/10 site primarily as a result of lower civil site work, permitting and legal costs, septic systems, impoundments, and roadways (id.; Exh. EFSB-SS-13). The Company asserted that these costs were reasonable considering the wetlands, limited existing vegetation, high ground water, and community opposition associated with the Route 5/10 site (Exh. BG-1(att. 5-N); Tr 3, at 400-406). Overall, the Company expected that the total cost of the proposed project at the Long Plain Road site would be $4,513,498, and the total cost of the proposed project at the Route 5/10 site would be $4,818,498 (Exh. BG-1 (app. N)).

The Siting Board finds that the Company has provided sufficient information to compare the costs of the proposed facility at the preferred and alternative sites, and to determine whether an appropriate balance would be achieved among environmental impacts, cost, and reliability. In addition, the Siting Board finds that the preferred site is preferable to the alternative site with respect to cost.

4. Reliability

Overall, the Company indicates that the preferred and alternative sites would have little difference with respect to reliability, based upon its systems analysis for need and project alternatives (Exh. BG-1, at 5-20; see Sections II. A. and II. B., above). The Company indicated that it considered the Long Plain Road site to have slight reliability benefits over the Route 5/10 site, because it was farther north and closer to the load center (Exh. BG-1, at 5-20). In addition, the Company stated that the Long Plain Road site's buffer provided additional security (id.).

The Siting Board finds that the Company has provided sufficient information to compare the reliability of the proposed facility at the preferred and alternative site, and to determine whether an appropriate balance would be achieved among environmental impacts, cost, and reliability. The Siting Board finds that the preferred site would be slightly preferable to the alternative site with respect to reliability.

5. Conclusions on Environmental Impacts, Cost, and Reliability

In Section III. C. 2. e., above, the Siting Board found that the proposed facilities at the preferred site would be preferable to the alternative site with respect to environmental impacts. In Section III. C. 3. the Siting Board found the proposed facilities at the preferred site would be preferable to the proposed facilities at the alternative site with respect to cost. In Section III. C. 4., above, the Siting Board found that the preferred site would be slightly preferable to the alternative site with respect to reliability. Accordingly, the Siting Board finds that the proposed facilities at the preferred site would be preferable to the proposed facility at the alternative site with respect to providing for a necessary and reliable energy supply for the Commonwealth with a minimum impact of the environment at the lowest possible cost. In addition, because the Siting Board has not identified any tradeoffs among environmental impacts, cost, and, reliability, the Siting Boards finds that an appropriate balance has been achieved among environmental, cost, and reliability concerns.

D. Safety

In this section the Siting Board addresses safety requirements set forth in 980 CMR 10.00, "which implements the Siting [Board's] statutory mandate under G.L. c. 164 . . .

and sets forth regulatory standards for the siting of intrastate LNG facilities proposed for construction." 980 CMR 10.01(1).

- Standard of Review

The Siting Board requires a petitioner to demonstrate that its proposed facility will comply with the Board's regulations governing the siting of LNG facilities, as set forth at 980 CMR 10.00.

2. Compliance with Applicable State and Federal Regulations

The Siting Board's regulations do not address the design, construction, operation, and maintenance of an LNG facility. In the case of a facility operated by a gas distribution company such as Berkshire, the Board's regulations specifically state that the Department has the authority "to assure safe and prudent design, construction, operation, and maintenance of LNG facilities . . . ." 980 CMR 10.01. The Department enforces its own regulations, as well as the federal pipeline safety regulations for LNG facilities. Both sets of regulations include requirements for the siting, design, construction, operation, and maintenance of LNG facilities. 220 CMR 112.00; 49 CFR 193.[(57)]

Berkshire stated that it intends to comply with the applicable state and federal regulations (Exh. BG-1, at 1-3;Tr. 1, at 53). The Company indicated that the design of the facility would be similar to that of the Greenville LNG plant constructed by Northstar, which is "compliant with the Federal Department of Transportation Regulations for LNG storage and vaporization (Exh. BG-TGQ-1, at 26).

Berkshire testified that it intends to adhere to regulations in 49 CFR Part 193 and NFPA 59A [National Fire Protection Association 59A: Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)] which gives guidance to facility designers (Tr. 1, at 30). Berkshire also stated that it intends to comply with Massachusetts regulations. In particular, the Company stated that its design will comply with the standards of the Department's regulations for the siting, design, operation, maintenance, and safety of LNG facilities (Exh. BG-TGQ-1, at 26).

In its regulations, the Siting Board has recognized the legal authority and responsibility of the Department to enforce the federal and state LNG safety regulations. The Siting Board finds that Berkshire has indicated its intent to comply with all applicable federal and state regulations enforceable by the Department.

3. LNG Spill Control

The Siting Board's regulations require that each storage tank at an LNG facility be surrounded by a dike. 980 CMR 10.04(1). The dike must be able to contain at least 150 percent of the volume of the tank. It must also be large enough so that a jet of LNG from any location on the tank will not land outside the dike. "An excavation, a natural geological formation, manufactured diking or any combination thereof " may be used as a dike. 980 CMR 10.04(1)(b).

Berkshire stated that it proposes to construct a three-foot high dike around the sides and back of each tank at the proposed facility (Exh. EFSB FR-1). The Company indicated that the dikes would be made of earth, geotechnical fabric, and crushed stone (Tr. 1, at 25-27). Berkshire explained that on the fourth side, it would construct a concrete apron and a trench, where the trench would extend from the dike area to an impoundment sump (Exhs. BG-TGQ-2, at 5-11; EFSB FR-1). The Company reported that the floor of the dike area, the apron, and the trench would slope towards the sump, and that each sump would be sized to hold at least 150 percent of the contents of a single tank (Exhs. BG-TGQ-3; EFSB-FR-2). The Company explained that the sumps at the primary site would be 46 feet long x 46 feet wide by 6 feet deep; whereas the sumps at the alternative site would be 36 feet long x 36 feet wide x 10 feet deep. (Exhs. EFSB-FR-1; BG-TGQ-3). The Company stated that the preferred site would have shallower sumps to reduce the potential for inflow of groundwater (Tr. 1, at 57, 26).

The Siting Board finds that the proposed project as designed for both the primary site and the alternate site satisfies the requirements for spill control set forth in 980 CMR 10.04(1) .

4. Vapor Dispersion Protection

The Siting Board's regulations require that an LNG facility be designed "to prevent flammable vapor from a design spill . . . from crossing the property line" of the facility site. 980 CMR 10.03(2)(a).[(58)]

To comply with this requirement, each LNG storage tank on the facility site must be surrounded by an area owned or controlled by the facility operator and capable of containing the vapor from a design spill ("vapor dispersion exclusion zone"). 980 CMR 10.01(2)(a). The vapor dispersion exclusion zone must be of sufficient size so that "no flammable vapor having an average gas-to-air concentration of more than two percent will travel beyond the zone's outer boundary" 980 CMR 10.01(2)(a).[(59)]

The Company stated that it proposes to surround the facility's storage tanks, vaporizer, and truck unloading station with a vapor fence: a chain link fence with slats woven into it (Exh. EFSB-SR-2). The Company stated that the area to be enclosed by the vapor fence

would be sufficiently large to contain all of the vapor from a design spill, and to prevent vapor with a gas-to-air concentration of greater than two percent from leaving the facility site (id.; Exhs. BG-1 (app. F, at 1-4); EFSB-SR-2).[(60)] The Company further stated that it would own all land within the vapor dispersion exclusion zone for the proposed facility, at both the preferred and alternative sites (Tr. 4, at 447-449).

The Siting Board finds that Berkshire has satisfied the requirements for vapor dispersion protection of 980 CMR 10.03(2).

5. Thermal Radiation Protection

The Siting Board's regulations require that an LNG facility be surrounded by an area owned or controlled by the facility operator and of sufficient size "that in the event of a fire resulting from a spill, thermal flux levels at the outer boundary" of the site will not exceed levels specified in the regulations ("thermal protection zone"). 980 CMR 10.01(2).

The size of the thermal protection zone required by the Siting Board's regulations depends upon the zoning classification of the land surrounding the facility site. (980 CMR 10.03(1)(e). Less area is required if the area surrounding the facility is zoned for industrial use, than if zoned for other uses. 980 CMR 10.03(d).

The record indicates that both the preferred and alternative sites are of sufficient size to allow for thermal protection zones that meet the requirements of 980 CMR 10. 03(1) (Exh. BG-1, (figs. 1.3.8.4-1 and 1.3.8.4-4)).

The Siting Board finds that Berkshire has satisfied the requirements for thermal radiation protection of 980 CMR 10.03(1).

6. Separation of Components

The Siting Board's regulations require that LNG storage tanks be designed and constructed in accordance with Department requirements to allow for "the predictable movement of personnel, maintenance equipment, and emergency equipment within and around the facility." 980 CMR 10.04 (2). Berkshire stated that it intends to comply with the Department's regulations relative to separation of components on the facility site (Exh. BG-TGQ-1, at 1-26).

7. Inspection of Insulating Material

The Siting Board's regulations require annual inspection and certification of LNG storage tank insulation and sealant. 980 CMR 10.04(3).

Berkshire stated that it would use shop-fabricated double wall cryogenic tanks with evacuated perlite as insulation in the storage tanks (Exh. BG-1(app. F, sec. 1.3.4.3, at 1-9)). The Company proposed a two-part plan for inspecting the tanks' insulating material where the first part would consist of annual monitoring of the vacuum in the tanks and the second part would consist of daily monitoring of the boil-off rate (Exhs. BG-1(app. F, sec. 1.3.4.2, at 1-80); EFSB-FR-3). Berkshire stated that it would have a registered professional engineer certify inspection records annually, and that the records would be kept on file and would be available to the Department (Exh. EFSB-FR-3).

The Siting Board finds that the Company's plan for inspection and certification of storage tank insulation satisfies the requirements set forth in 980 CMR 10.04(3).

8. Plan for Removal of Precipitation

The Siting Board's regulations require an applicant to develop a plan for the removal of rain, snow, and ice from the diked area surrounding a facility's storage tanks. 980 CMR 10.04(4).

With respect to rain, Berkshire stated that each LNG tank at the proposed facility would have a separate impoundment system (Exh. EFSB-FR-2). As previously discussed, the impoundment system would consist of a low dike and a sump and the floor of the dike area would be sloped towards a trench that would connect to the sump (id.). The Company further indicated that each sump would have two pumps to remove rain water. In order to comply with federal regulations, one of the pumps would have a flow capacity equal to that of the predicted ten-year storm with a one hour duration (Exh. BG-TGQ-2, sec. 7.2). The size of the second pump has not yet been determined (id.).

With respect to snow, the Siting Board's regulations require that snow removal be completed within 48 hours after the snowfall starts. 980 CMR 10.04(4). Berkshire stated that it would use snow plows for the roads, and snow blowers for the impoundments and the accessible parts of the process areas to meet this requirement (Exh. BG-TGQ-2, sec. 7.3). Hand shovels would be used in other parts of the process areas and the sumps (id.). The Company's precipitation removal plan addresses the possibility that snow plows and snow blowers could ignite LNG vapor (id.). The plan states that the entire area within the vapor fence would be checked for combustible gas concentrations before snow removal begins and that the area would be monitored for as long as the work continues (id.). Berkshire's precipitation removal plan does not address ice removal.

The Siting Board finds that Berkshire has not met the requirements of 980 CMR 10.04(4), because the Company's precipitation removal plan does not address the removal of ice from the diked area surrounding the storage tanks. Accordingly, the Siting Board

requires Berkshire to develop and file with the Siting Board a revised precipitation removal plan, prior to commencing commercial operation of the proposed facility. The plan shall include appropriate methods and materials to be used for removal of ice from the diked areas surrounding the facility's LNG storage tanks.

9. Safety Plan

The Siting Board's regulations require an applicant to develop a comprehensive safety plan for a proposed LNG facility. 980 CMR 10.04(5). The plan must include procedures to be followed by facility personnel and public safety officials in case of an emergency. Id. The safety plan also must provide for "yearly safety consultations with each property owner within the affected portion of the industrial zone." Id.

Berkshire submitted portions of the Company's draft operating, maintenance, and emergency procedures with the its initial petition (Exhs. BG-1(app. F); BG-TGQ-2). The Company stated that the remainder of these plans and procedures is incomplete, and is still under review by Berkshire and by local officials (Exhs. BG-TGQ-1, at 27-28; EFSB FR-5).

The Siting Board finds that Berkshire has not met the requirements of 980 CMR 10.04(5), because the Company has not yet submitted to the Board a completed comprehensive safety plan. Accordingly, the Siting Board requires Berkshire to file with the Board a completed comprehensive safety plan acceptable to the Department's Pipeline Engineering and Safety Division, prior to commencing commercial operation of the proposed facility.

10. Alarm System

Pursuant to the Siting Board's regulations, an LNG facility must have an alarm system to alert certain specified neighbors in the event of an accident, and the alarm must sound "simultaneously with the alerting of the fire department of an accident." 980 CMR 10.04(6). The alarm must be loud enough to warn persons in the most distant of the facility's vapor dispersion or thermal radiation protection zones that an accident has occurred (id.). In addition, the facility operator must notify the Siting Board "that persons within that zone have been acquainted with the system." Id.

Berkshire stated that the facility's alarm system "will satisfy this requirement by means of an alarm signal sent to the Whately Fire Department Dispatcher as well as an audible and visible alarm at the site" (Exh. EFSB-FR-6). The Company further stated, however, that not all types of alarms would be sent to the Whately Fire Department; rather, only "smoke, heat, or fire detection would trigger an actual alarm to the fire department" (Tr. 1, at 42).

As discussed above, the record shows that the vapor dispersion zone at both the preferred and alternative sites is confined within the facility boundaries. However, the record shows that the most distant thermal radiation zone, the one that corresponds to a thermal radiation level of 460 British Thermal Units per square foot ("BTU/ft.^{2} "), extends beyond the site boundaries at each site (Exh. BG-1(app. F, fig. 1.3.8.4-2)).

With respect to the preferred site, the record shows that the 460 BTU/ft.^{2} zone extends approximately 115 feet beyond each of the southern and western boundaries (id.). The record indicates that the area to the west of the site is owned by the B & M Corporation; the record shows both the B & M Corporation and the Northampton Co-operative Association as the abutting landowners to the south of the site (Exh. BG-1(app. F, fig. 1.3.8.4-2)). With respect to the alternative site, the record shows that the 460 BTU/ft.^{2} zone extends approximately 77 feet beyond the northern boundary (Exh. BG-1(app. F, fig. 1.3.8.4-5)). However, the record does not identify the owner of the area to the north of the site (id.).

The Siting Board notes that there is no evidence in the record that persons within the most distant thermal radiation protection zone have been acquainted with the Company's alarm plan. Further, the record indicates that only facility personnel and the Whately Fire Department would be alerted in the event of an accident. Therefore, the Siting Board finds that Berkshire's current alarm system plan does not meet the requirements of 980 CMR 10.04(5). Accordingly, the Siting Board requires Berkshire to: (1) install a facility alarm that is audible to persons off the facility site but within the facility's most distant thermal radiation protection zone; and (2) to notify the Siting Board in writing that the alarm is operational and that landowners within the thermal radiation protection zone have been acquainted with the alarm system, prior to commencing commercial operation of the proposed facility.

11. Remote Operation of the Facility

Berkshire stated that the Company intends to operate the proposed facility locally, i.e., with personnel physically located on the facility site, during its first year of operation (Tr. 1, at 45-49). The Company stated that, after the first year or two of operation, start-up and monitoring of the facility may be done by Company dispatchers located in Pittsfield (id. at 46). Berkshire said that the Company's operating plans and procedures would be revised to reflect remote operation of the facility (id. at 48). The Company said that it would consider changes in equipment, such as closed circuit television and remotely operated fire protection equipment, before converting to remote operation (id. at 47-48; Tr. 4, at 466-467).

The Siting Board's LNG regulations do not expressly authorize or otherwise address the remote operation of an LNG facility.[(61)] However, based on the Siting Board's examination of the Company in this proceeding, it is clear that remote operation raises a

number of public safety issues that require further inquiry. The Siting Board recognizes that Berkshire does not intend to commence remote operation immediately after construction of the proposed facility. We therefore will not require the submission of additional information on remote operation as a condition of approval of the Company's petition to construct. However, the Siting Board requires Berkshire, prior to commencing remote operation of the proposed facility, to file a Remote Operation Plan for the Board's review and approval in consultation with the Department's Pipeline Engineering and Safety Division. The Plan shall include, at a minimum, the following:

(1) a comprehensive set of proposed standard operating procedures ("SOP's") for remote operation of the facility;

(2) a specific SOP for use by the dispatchers at the Pittsfield facility, setting forth the criteria to be used in determining when additional personnel are necessary or appropriate to operate the facility remotely;

(3) a summary of changes to the facility's emergency response system as a result of remote operation, including any changes requested by the Whately and Deerfield Fire Departments and the Company's response to such requests; and

(4) a proposal to install on the facility site a CCTV system suitable for operational, emergency, and security uses by the dispatchers in Pittsfield; and

(5) a detailed plan, developed with the assistance of a qualified fire protection engineer familiar with LNG plants, for protection of the facility with a remotely operated firefighting system, including identification of the specific areas to be protected and the type(s) of equipment best suited for use in each area; and

(6) a false alarm study, including: (1) a record of false alarms at the facility; (2) a list of the detectors most likely to produce false alarms; (3) a proposal for minimizing false alarms; and (4) an analysis of the extent to which components of the remotely operated firefighting system could be connected to the alarm system.

Berkshire shall not commence remote operation of the facility until the Siting Board has approved the Remote Operation Plan.

12. Conclusions on Safety

The Siting Board finds that Berkshire has met the requirements of 980 CMR 10.00 relative to LNG spill control, vapor dispersion protection, thermal radiation protection, and inspection of insulating material.

The Siting Board finds, upon submission to the Board of a revised precipitation removal plan that contains appropriate methods and procedures for the removal of ice from the tank impoundment areas, the Company will meet the requirements of 980 CMR 10.04(4).

The Siting Board finds that upon submission to the Siting Board of a final and comprehensive safety plan, as described above, the Company will meet the requirements of 980 CMR 10.04(5).

The Siting Board finds that upon submission to the Board of a revised alarm system which, (1) identifies all property owners within the most distant thermal zone, (2) indicates that the alarm system is sufficiently loud to alert all such persons in the event of an accident, and (3) indicates that all such persons have been acquainted with the alarm system, the Company will meet the requirements of 980 CMR 10.04(6).

The Siting Board finds that upon submission to and approval by the Siting Board of a Remote Operation Plan, as described in Section III.D.11., above, the Company may operate the facility from the Pittsfield Dispatch Center. Until this is completed, only local operation of the facility shall be allowed.

E. Scope of Approval

In its petition, Berkshire seeks approval to construct a new LNG storage and vaporization facility as part of a twenty-year plan to address system pressure issues. As presented in the petition, the twenty-year plan includes construction of two LNG tanks at the preferred site in year 1 of the project; construction of three additional tanks in years 4, 12, and 19; and looping of a 1 mile and a 1.42 mile section of the Greenfield feedline in years 14 and 17, respectively (Exh.

BP-1 (att. 4-F)). In this section, the Siting Board considers the sufficiency of the record to support an approval of each of the five proposed storage tanks.[(62)]

1. Status of the Record on Need

a. Tanks One and Two

Berkshire seeks immediate approval to construct an LNG storage and vaporization facility, including two initial LNG tanks, at the preferred site. The Company seeks to maintain sufficient on-site LNG storage capacity to meet supplementary sendout requirements for three consecutive peak days (Exhs. BG-1, at 4-F; EFSB-N-7). The Company explained that a three day on-site supply would allow it flexibility in meeting

peak shaving needs and would provide adequate peaking supplies if weather-related contingencies prevented delivery of LNG for a short period (Exh. BG-TGQ-,1 at 23; Tr. 3, at 265-267). The Siting Board finds that Berkshire's proposal to maintain a three peak day supply of LNG on site is appropriate given the Company's anticipated use of the LNG facility for pressure maintenance and peak shaving.

In Section II.A, above, the Siting Board found that there was a need for additional energy resources to meet the Company's reliability standards with respect to system pressure beginning in the 1999/2000 split year. The Company's analysis indicates that two LNG tanks are required to store sufficient LNG to meet supplementary sendout requirements for three consecutive peak days in split year 1999/2000 (Exh. BP-1 (att. 4-F)). Consequently, the Siting Board finds that there is a need for Tanks One and Two beginning in the 1999/2000 split year.

b. Tank Three

In its petition, Berkshire projects that Tank Three will be constructed in year 4 of the project (Exh. BP-1 (att. 4-F)). However, based on the sendout levels set forth in the LRF, the Siting Board concludes that Berkshire may need to install Tank Three as early as split year 2000/2001, or year 2 of the project, in order to maintain a three peak day supply of LNG on-site (Exh. BG-1 (att. 4-F); Tr. 4, at 498-499). The planning horizon for the LRF extends through the 2002/2003 split year. Consequently, the Siting Board finds that there will be a need for Tank Three within the planning horizon of the current approved LRF.

c. Tanks Four and Five

Berkshire projects the need to construct Tanks Four and Five in years 12 and 19 of the proposed project, respectively. This projection of need falls well outside the five-year planning horizon of the current approved LRF. Consequently, the Siting Board makes no finding regarding the need for Tanks Four and Five.

2. Status of the Record on Environmental Impacts

In Section III.C.2, above, the Siting Board reviewed the environmental impacts of the proposed LNG facility and determined that, with the implementation of conditions relating to visual buffers and truck traffic, the environmental impacts of the facility would be minimized. Given the Company's long term plans, the Siting Board reviewed the

ability of the site to support five LNG tanks, and analyzed the environmental impacts of the LNG facility based on the assumption that it would eventually include all five LNG tanks. The record on environmental impacts therefore is sufficient to support the approval of the proposed facility with up to five LNG tanks at the current time.

Berkshire, however, does not intend to construct tanks Four and Five for over a decade. In this period of time, there is clearly potential for significant changes, including changes in environmental laws and regulations applicable to the facility and changes in land uses in the surrounding area, that might affect our analysis of the environmental impacts of the project and the conditions necessary to minimize those impacts. In addition, Berkshire has indicated that its use of the proposed facility may be affected over time by changes in the availability and economics of upstream gas supply resources (Exh. EFSB-N-7c). To the extent that Berkshire relies increasingly on its LNG storage to replace other supplies (particularly outside the traditional winter peaking season), the traffic impacts of the proposed project could be significantly greater than anticipated in this proceeding, and could require additional mitigation.

In previous cases, the Siting Board has recognized that the assumptions underlying its analysis of a project could change over time, and has required that construction commence within three years of the date of the approval decision. See Berkshire Power Decision, 4 DOMSB 221, 449 (1996); Dighton Power Decision, EFSB 96-3, at 69 (1997); U.S. Generating Company, EFSB 96-4, at 191 (1997). If construction did not begin within three years, the approval was no longer valid; if the applicant still wished to construct the project, it would have to file a new petition with the Siting Board. Here, the Siting Board recognizes that major portions of the proposed facility, including two storage tanks, vaporization facilities, and an interconnection line, are likely to be constructed almost immediately upon receipt of this approval. Consequently, we see no reason to require Berkshire to relitigate issues related to project alternatives and site selection when it seeks to construct additional storage tanks at the proposed facility. However, for any tank to be constructed more than three years after the date of this decision, the Siting Board directs Berkshire to file for the Siting Board's approval of updated plans for minimizing the environmental impacts of the proposed project, given any changes in environmental laws and regulations applicable to the project, any changes in the site or in surrounding land uses, and any changes in the expected timing and frequency of use of the facilities.

3. Scope of Further Review

The Siting Board has found that there is a need for Tanks One and Two beginning in the 1999/2000 split year, and that there will be a need for Tank Three within the planning horizon of the current approved LRF, which extends through the 2002/2003 split year. The Siting Board also has indicated that additional environmental review will be required only for construction which commences more than three years after the date of this

approval. Consequently, the Siting Board approves the construction of Tanks One and Two, subject to the conditions set forth in Section V, below. The Siting Board also approves the construction of Tank Three subject to those conditions, provided that construction commences within three years of the date of this approval.

The Siting Board has made no finding regarding the need for Tanks Four and Five. In addition, the Siting Board has required Berkshire to file updated environmental information if it commences construction of any project component more than four years after the date of this approval. Consequently, before beginning construction of Tanks Four and Five, Berkshire must file for the Siting Board's review and approval information regarding both the need for the additional storage tanks and an updated assessment of environmental impacts. The Siting Board recommends that this filing be made well in advance of the proposed commencement of tank construction to allow the Board sufficient time to review the filing.

IV. ZONING EXEMPTION

As noted in Section I.B, above, Berkshire has filed two petitions in connection with its proposal to construct and operate the proposed facility. In a petition filed with the Siting Board pursuant to G.L. c. 164, § 69J, and discussed in Sections II and III above, the Company seeks Siting Board approval to construct the facility. In a second petition, filed with the Department and subsequently referred to the Siting Board, the Company seeks an exemption, pursuant to G.L. c. 40A, § 3, from certain provisions of the Town of Whately Zoning Bylaw, asserting that such an exemption is necessary to allow construction and operation of the facility at the Company's preferred site ("zoning exemption petition"). The Siting Board discusses the Company's zoning exemption petition below.

A. Standard of Review

G.L. c. 40A, § 3 provides, in relevant part, that

Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or bylaw if, upon petition of the corporation, the [Department of Telecommunications and Energy] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public . . . .

Thus, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must first qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975) ("Save the Bay"). The petitioner then must establish that it requires a zoning exemption, and that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. New England Power Company, EFSB 97-3 (1998) ("1998 NEPCo Decision"), at 73.

In determining whether a petitioner qualifies as a "public service corporation" for the purposes of G.L. c. 40A, § 3, the Supreme Judicial Court has stated:

among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. 667, 680. See also, Berkshire Power Development, Inc. D.P.U. 96-104 (1997) ("Berkshire Decision"), at 26-36.

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Siting Board must balance the interests of the general public against the local interest. Save the Bay, 366 Mass. 667, at 680; Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974); 1998 NEPCo Decision, EFSB 97-3, at 73; Berkshire Decision, D.P.U. 96-104, at 18. Specifically, the Siting Board is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, at 592 (1964); 1998 NEPCo Decision, EFSB 97-3, at 73. When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Siting Board is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the petitioner. Save the Bay, 366 Mass. 667, at 685; New York Central Railroad, 347 Mass. 586, at 592; 1998 NEPCo Decision, EFSB 97-3, at 74.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require a demonstration that the petitioner's preferred site is the best possible alternative, nor does the statute require the Siting Board to consider and reject every possible alternative site presented. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, at 591; 1998 NEPCo Decision, EFSB 97-1, at 74. Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely

upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Siting Board examines: (1) the present or proposed use and any alternatives or alternative sites identified. See 1998 NEPCo Decision, EFSB 97-3, at 74; Massachusetts Electric Company, D.P.U.

93-29/30 (1995) ("1995 MECo Decision"), at 10-14, 22-23; New England Power Company, D.P.U. 92-278/279/280 (1994) ("1994 NEPCo Decision"), at 10-14, 22-23; Tennessee Gas Pipeline Company, D.P.U. 85-207 (1986) ("1986 Tennessee Decision"), at 18-20; (2) the need for, or public benefits of, the present or proposed use, See 1998 NEPCo Decision, EFSB 97-3, at 74; 1995 MECo Decision, D.P.U. 93-29/30, at 10-14; 1994 NEPCo Decision, D.P.U. 92-278/279/280, at 20-23; 1986 Tennessee Decision, D.P.U. 85-207, at 20-25); and (3) the environmental impacts or any other impacts of the present or proposed use. See 1998 NEPCo Decision, EFSB 97-3, at 74; 1995 MECo Decision, D.P.U. 93-29/30, at 14-21; 1986 Tennessee Decision, D.P.U. 85-207, at 20-25. The Siting Board then balances the interests of the general public against the local interest, and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public.[(63)]

B. Analysis and Findings

1. Public Service Corporation Status

Berkshire is a "gas company" as defined by G.L. c. 164, § 2 (Exh. EFSB-2, at 1). Accordingly, Berkshire qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3.

2. Need for the Requested Exemption

Berkshire stated in its zoning exemption petition that the preferred site for the proposed facility currently is zoned for commercial and/or industrial use (Exh. EFSB-2, at 3). The Company subsequently clarified that the preferred site is industrially zoned (Exh. EFSB-EL-6 (att. a)).

In its petition, Berkshire requested exemption from eight sections of the Whately Zoning Bylaw (Exh. EFSB-2, at 3-4). The Company stated that, without the requested exemption, construction of the proposed facility on the preferred site "could require" rezoning of the site or amendment of the Bylaw (id. at 3). Berkshire requested exemption from: Section

171-7, which limits the number of structures per lot, and requires general compliance with the Bylaw; Section 171-8, the Table of Use Regulations, which prescribes the permitted and prohibited uses in commercial, industrial and agricultural/residential districts; Section 171-15, Environmental Performance Standards; Section 171-17(3), (4) and (5), which sets forth the procedures, submittal requirements and criteria for site plan review; Section 171-28.1, the regulations governing Planned Industrial Districts; Section 171-31, the regulations governing special permits; Section 171-18, earth removal and restoration requirements; and Chapter 171, Part 2, the Zoning Board of Appeals Rules and Regulations (id. at 3-4; Exh. BG-1 (app. J)).[(64)]

Additionally, Berkshire stated that if the Siting Board were to grant the Company's request for a zoning exemption as set forth in its zoning exemption petition, it would be the Company's expectation that "the Company also would be exempt from the requirements of obtaining a building permit" (Exh. HO-RR-21).

With respect to the necessity for exemption from the specific provisions identified in its petition, Berkshire stated that the Company requires an exemption from Section 171-8, the Table of Use Regulations, because the Table does not expressly authorize the type of use associated with the proposed project (Exh. EFSB-EG-1, at 1).[(65)]

The Company stated that it therefore requires an exemption from Section 171-7, because Section 171-17 prohibits uses not authorized under the Bylaw (id.). Similarly, with respect to Section 171-15, the Bylaw's environmental performance standards, the Company stated in its petition that it requires an exemption because the Standards apply to "any use allowed by right or special permit," and the proposed facility is not allowed as of right or by special permit under the Bylaw (Exh. BG-1 (app. J at 17120.2); Exh. EFSB-EG-1, at 1).[(66)]

The Company also stated, however, that it "does not foresee any inability" to meet the substantive requirements of Section 171-15, and that it expects to meet all nine of the environmental performance standards set forth in that Section (Exhs. EFSB-EG-12; EFSB-EG-1, at 1).

With respect to the provisions of the Bylaw governing site plan submittal and review, the Company stated that it seeks exemption from Section 171-17(3), (4), and (5) "primarily to prevent unnecessary delays" in construction of the proposed facility, "and in recognition of the Department's primary jurisdiction" in reviewing such facilities (Exh. EFSB-BG-1, at 2; Tr. 2, at 243). During hearings, the Company added that it "believes" it would require exemption from certain substantive provisions of Section 171-17 as well, including the provisions of Section 171-17A(5)(a) through (i) (Exh. HO-RR-20). Berkshire stated that the Company "is concerned" that it may not be able to meet the design criterion in subsection (5)(b), which requires architectural "compatibility" between new and existing structures, or the design criterion in subsection (5)(c), which requires that proposed buildings "relate harmoniously to each other" (Exhs. HO-RR-20; BG-1 (app. J at 17126.1)). Additionally, the Company stated that it requires exemption from Section 171-17A(4)(b)(9), because this provision "appear[s] to require the indoor storage

of . . . hazardous materials [and] that may conflict with the design, safety and operational benefits" of the proposed facility (Exh. HO-RR-19).[(67)]

The Company cited prevention of delay as the primary basis for requesting exemption from three additional sections of the Bylaw: the requirements of Section 171-31, pertaining to special permits; the requirements of Section 171-18, subsection C, pertaining to earth removal and restoration; and the requirements of Part 2 of the Bylaw, the Zoning Board of Appeals Rules and Regulations (Exhs. EFSB-2, at 3-4; HO-RR-17). Additionally, with respect to the earth removal requirements of Section 171-18, Berkshire stated that it requires exemption because the Company expects to excavate more than ten cubic yards of soil within the project site (Tr. 2, at 245-246).[(68)]

The Company cited two reasons for its requested exemption from the Planned Industrial District regulations in Section 171-28.1 of the Bylaw. First, the Company stated that it requires an exemption "to the extent that" the proposed facility would not qualify as a use permitted in a Planned Industrial District (Exhs. EFSB-BG-1, at 2, (app. J at 17150-17150.2)). The Company also requested a specific exemption from Section 171-28.1, subsection F, which prohibits the "bulk storage and/or sale of petroleum products" in a Planned Industrial District (Exhs. EFSB-EG-1, at 2; BG-1 (app. J at 17150.2-7150.3)). In response to questioning during hearings, however, the Company confirmed that although the Whately Bylaw provides for a Planned Industrial District, no such District currently exists and "[t]hus, the regulations at § 171-28.1 do not apply to any area in the Town of Whately" (Exh. HO-RR-18 (att.)).

The Siting Board finds that Berkshire has not established the need for exemption from the requirements of Section 171-28.1, because the record demonstrates that the Town of Whately does not contain a Planned Industrial District, and that the requirements of that Section pertain exclusively to such Districts.

It cannot be conclusively determined from the record in this proceeding whether Sections 171-7, 171-8, 171-15, 171-17, 171-31 or Articles IX and XI of the Zoning Board of Appeals Rules and Regulations would apply to construction and operation of the Company's proposed facility. The Siting Board acknowledges, however, that resolving the question of their applicability could result in project delay, which is of somewhat heightened concern in this case in light of the Board's finding that Berkshire has demonstrated the need for additional energy resources by the 1999/2000 heating season.[(69)] Accordingly, the Siting Board finds that Berkshire has demonstrated a need for exemption from these sections of the Zoning Bylaw.

The record shows that Section 171-18, subsection C, would require the Company to obtain a special permit for excavation of the project site. The Siting Board acknowledges that such a result could result in project delay. Consequently, the Siting Board finds that Berkshire has established the need for exemption from Section 171-18, subsection C.

With respect to the issue of a building permit for the proposed facility, the Siting Board notes that Berkshire's zoning exemption petition did not request such an exemption, and

that the Company has not articulated a rationale to support a finding that this particular is needed. The Siting Board notes further that the requirements of the Zoning Bylaw pertaining to building permits, which are set forth in Article VIII, appear to apply exclusively to dwellings (Exh. BG-1 (app. J at 17159-17162, Article VIII)). Nevertheless, the Siting Board acknowledges that resolving any possible ambiguity in this regard would be consistent with the Company's stated purpose in seeking a zoning exemption: the prevention of undue delay in construction and operation of the facility. Accordingly, the Siting Board finds that Berkshire has established that it requires exemption from Article VIII of the Zoning Bylaw.

3. Public Convenience or Welfare

a. General Public Interest

In Section II.A, above, the Siting Board found that Berkshire has demonstrated a need for additional energy resources by the 1999/2000 heating season, to maintain system reliability in the Company's Greenfield Division. In its most recent review of the Company's Long Range Forecast and Supply Plan, the Department found that "with the inclusion of the proposed LNG facility in the second year of forecast," Berkshire would be able to meet its firm sendout requirements during a prolonged cold snap. Berkshire Gas Company, D.T.E. 98-99, at 37. Accordingly, the Siting Board finds that the public interest would be served by approving the proposed project, particularly if the project can be constructed and placed into operation for the 1999/2000 heating season.

In Section III.B, above, the Siting Board reviewed the Company's site selection process, including its selection of the Long Plain Road site as its preferred site for the proposed project. The Siting Board finds that the public interest would be served by the siting of the proposed project on the preferred site, because the record shows that the Company examined a reasonable range of practical siting alternatives, and that its preferred site is superior to the alternative Route 5/10 site in terms of minimizing environmental impacts and costs while ensuring a reliable energy supply.

b. Local Interest

The Town of Whately stated during the course of the proceeding that it supports Berkshire's proposed project, with the condition that it is built on the preferred, rather than the alternative, site (Exh. BG-RMA-3, at 2). The Town also stated that it supports the granting of a zoning exemption to the Company (id.).[(70)]

Based on the Town's expressions of support, the Siting Board finds that the local interest will be served by approving construction of the proposed project on the preferred site, and by granting the Company an exemption from the Zoning Bylaw, to the extent that an exemption is necessary for project construction or operation.[(71)]

4. Conclusion

Berkshire has established that it is a public service corporation. Berkshire also has established that it requires exemption from certain provisions of the Whately Bylaw, including the provisions relative to a special permit for the proposed facility. The record shows that both the general public interest and the local interest would be served by construction of the proposed project on the preferred site, and by granting the Company an exemption from the Whately Zoning Bylaw, to the extent that an exemption is necessary for construction or operation of the project without undue delay. Accordingly, the Siting Board finds that the Company's proposed facility on the preferred site is reasonably necessary for the convenience or welfare of the public.

V. DECISION

A. Petition to Construct

In Section II.A, above, the Siting Board has found that additional energy resources are needed by the 1999/2000 split year to maintain system reliability in the Company's Greenfield Division. The Siting Board also has found that the proposed project is consistent with the Company's most recently approved long-range forecast.

In Section II.B, above, the Siting Board has found that both the proposed project and the pipeline alternative would meet the identified need. The Siting Board also has found that the proposed project is preferable to the pipeline alternative.

In Section III.B, above, the Siting Board has found that the Company has considered a reasonable range of practical siting alternatives.

In Section III.C, above, the Siting Board further has found that, with implementation of proposed mitigation, compliance with all applicable local, state, and federal requirements, and compliance with the condition described in Section III.C and listed below, the environmental impacts of the proposed project at the preferred site would be minimized.

In Section III.D, above, the Siting Board further has found that, upon compliance with the conditions described in Section III.D and listed below, the proposed project would comply with the safety requirements of 980 CMR 10.00.

In Section III.C, above, the Siting Board further has found the proposed project at the preferred site would achieve an appropriate balance among conflicting environmental concerns as well as between environmental impacts and cost.

Finally, in Section III.C, above, the Siting Board has found that the proposed project at the preferred site would be preferable to the proposed project at the alternative site with respect to providing a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Accordingly, the Siting Board APPROVES the Company's petition to construct an LNG storage and vaporization facility at the Company's preferred site on Long Plain Road in Whately, Massachusetts, subject to the following CONDITIONS:

1. To ensure that the visual impacts of the proposed project are minimized, the Siting Board requires the Company to maintain the wooded buffer, as shown on Exhibit BG-RMA-2, to the north, west, and south of the proposed facility's vapor fence, and to maintain a 100-foot wooded buffer to the east of the proposed facility (measured from the edge of the most easterly facility structure), regardless of whether the site is subdivided. The Company may accomplish this through retaining control of the property, restrictive covenants, conservation easements, or any other appropriate means. Where there is presently less than 100 feet of wooded buffer, the Company shall maintain the existing buffer depth.

2. To ensure that traffic impacts are minimized, the Siting Board directs that, for deliveries of LNG, the Company use the traffic route through the Whately/Deerfield industrial parks if a connecting roadway is constructed.

3. Prior to commencement of commercial operation of the proposed facility:

a. Berkshire shall develop and file with the Siting Board a revised plan for removal of precipitation, as required by 980 CMR 10. 04(4). The plan shall include a description of appropriate methods and materials to be used for ice removal.

b. Berkshire shall file with the Siting Board a completed "comprehensive safety plan," acceptable to the Department's Pipeline Engineering and Safety Division, in accordance with 980 CMR 10.04(5).

c. As required by 980 CMR 10.04(6), Berkshire shall install a facility alarm that is audible to persons off the facility site but within the facility's thermal radiation protection zone. Berkshire shall notify the Siting Board in writing that the alarm is operational, and that landowners within the thermal radiation protection zone have been acquainted with the alarm system.

4. Prior to commencement of remote operation of the proposed facility:

a. Berkshire shall file with the Siting Board for review and approval in consultation with the Department's Pipeline Engineering and Safety Division a Remote Operation Plan. The Remote Operation Plan shall include, at a minimum, the following: (1) a comprehensive set of proposed standard operating procedures ("SOP's") for remote operation of the facility; (2) a proposed SOP for use by dispatchers at the Company's

Pittsfield facility in determining the circumstances in which additional personnel are needed to operate the facility remotely; (3) a summary of changes to the facility's emergency response system as a result of remote operation, including a summary of all changes requested by the Whately or Deerfield Fire Departments and the Company's response to such requests; (4) a proposal to install on the facility site a CCTV system suitable for operational, emergency and security uses; a detailed plan for protection of the facility with a remotely operated firefighting system. The plan should identify which area(s) of the facility could be protected with remotely operated firefighting equipment, and the type of equipment that would be best suited to that area. The plan should be developed with the assistance of a qualified fire protection engineer familiar with LNG facilities; and (5) a plan regarding use of the facility's existing alarm system under remote operation. The plan should include the results of a false alarm study performed during the first year(s) of local operation of the facility. The plan should indicate which detectors were most likely to give false alarms; how the Company proposes to minimize false alarms; and to what extent components of the remotely operated firefighting system could be connected to the alarm system.

B. Zoning Exemption Petition

The Siting Board has found that construction and operation of the Company's proposed facility at the preferred site is reasonably necessary for the public convenience or welfare.

Accordingly, the Siting Board GRANTS the Company's petition for an exemption from certain provisions of the Town of Whately Zoning Bylaw. Specifically, the Company shall be exempt from those sections of the Zoning Bylaw enumerated in Section IV, above, with the exception of Section 171-28.1. The Company also shall be exempt from Article VIII of the Zoning Bylaw.

The Siting Board notes that the findings in this decision are based on the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires the Company to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Company is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.

M. Kathryn Sedor

Hearing Officer

Dated this 13th day of September, 1999

Model Run	**Inlet Pressure (psig)**	**Northampton Compressor (on/off)**	**UMass Service (on/off)**	**Temporary LNG Facility (Mcfh/off)**	**Liquid Propane Facility (Mcfh/off)**	**Forecast Peak Sendout (split year)**	Result
3-A-1	200	on	off	175	off	1998/1999	Pass
N-2d	200	on	off	175	off	1999/2000	Pass
N-2a	175	on	off	175	off	1998/1999	Pass
N-2b	175	on	off	175	off	1999/2000	Pass
3-A-7	175	OFF	off	175	off	1998/1999	**Fail**
N-2f	135(72)	on	off	175	off	1998/1999	Marginal
3-A-6	100	on	off	175	off	1998/1999	**Fail**
3-A-2	200	on	off	off	55	1998/1999	Marginal
N-2c	200	on	off	off	55	1999/2000	Marginal
3-A-3	200	on	off	off	55	2002/2003	**Fail**
3-A-4	200	OFF (failure)	off	off	55	1998/1999	**Fail**
3-A-5	200	on	off	off	0 (failure)	1998/1999	**Fail**
N-2e	175	on	off	off	55	1999/2000	**Fail**

Table1. Summary of reliability modeling for the Greenfield Division distribution system (Exhs. BG-1, at 3-6 - 3-9, (att. 3-A), EFSB-N-2). "Pass ", "Marginal", and "Fail" mean that modeled node pressures are greater than 105 psig., at 100±5 psig, or below 95 psig, respectively. Underlined variables are the inputs that appear to be responsible for system failure in a model run.

1. Berkshire has contracted with Tennessee for a 100 psig minimum gas pressure at the Northampton gate station (Exh. BG-1 (att. 2-D)) but the gas pressure at the Northampton gate station is usually greater than 200 psig (Exh. EFSB-N-5). Berkshire indicates that when the pressure drops below 200 psig at the Northampton gate station it is difficult to

maintain system pressure in the northern portion of the Greenfield Division even under non-peak demand conditions (Exh. BG-1, at 3-1 to 3-9, (att. 3-B)).

2. Berkshire indicates that it intends eventually to operate the facility remotely but would operate the facility from onsite for an initial period of at least one year (Tr. 1, at 48 - 49).

3. In this discussion, the term "additional energy resources" is used generically to encompass both supply and capacity additions, including, but not limited to, new or expanded gas pipelines, new or expanded gas storage facilities, new gas supply or transportation contracts, and savings associated with conservation and load management ("C&LM").

4. In contrast to the Company's proposed LNG facility, which is reviewable pursuant to G.L. c. 164, § 69J, proposed electric generating facilities are reviewable pursuant to G.L. c. 164, §69J¼. In accordance with its statutory mandate under G.L. c. 164, § 69J¼, the Siting Board does not review the need for, or the cost of, proposed generating facilities.

5. The compressor station is referred to as the "Northampton" or "Laurel" compressor station in the Petition (Exh. BG-1, at 2-2). Berkshire indicated that Northampton compressor station has two compressors, but did not specify the capacity of the compressors (id. at 3-3, n. 3).

6. Berkshire stated that the compressors at Northampton station are used to maintain system pressure in the Greenfield Feedline at 200 psig but are rarely operated (1000 hours each, since 1986) (Exhs. BG-1, at 2-2; 3-3, n. 3; EFSB-N-11). Berkshire indicated that the LP facility can provide 55 Mcf per hour while the temporary LNG facility can provide up to 175 Mcf per hour but lacks onsite storage capacity (Exh. BG-1, at 2-2).

7. Berkshire indicated that the LP system needs a line pressure of 60 psig or greater to operate and the temporary LNG facility needs line pressures of less than 50 psig to vaporize the LNG (Exh. BG-1, at 3-3). Consequently, it is not possible to operate the two systems simultaneously (id.).

8. Berkshire's maximum daily quantity ("MDQ") of pipeline gas for the Greenfield Division is 12,380 Mcf (Exh. BG-1, at 2-1). Berkshire indicates that 1,800 Mcf of temporary LNG supplies or 2,100 Mcf of LP-air supplies are also available for the Greenfield Division (Exh. EFSB-N-9c).

9. Berkshire's tariff agreement with UMass stipulates that with twenty four hours notice, Berkshire can curtail or suspend delivery of gas for up to fifteen days a year (Exh. BG-1, at 3-2; 3-6 n. 8; 4-3). Berkshire indicated that curtailment of service to UMass could be initiated on days when the temperature is 0-19 degrees (Fahrenheit) and service could be terminated for days temperature is below 0 degrees (Exh. EFSB-N-15a).

10. A heating degree day ("DD") is calculated by subtracting a measured or predicted average daily temperature from a standard reference temperature (for instance, 60 degrees

Fahrenheit). Therefore, the lower the measured or predicted temperature the larger the calculated DD value. A sum of DD's is used for purposes of describing periods longer than one day.

11. The Greenfield regulator is an inlet point for the intermediate distribution system within the town of Greenfield (Exhs. BG-1, at 2-2; EFSB-N-1). Berkshire indicated that the projected peak hourly flow rate for this regulator station during split year 1998/1999 was 205 Mcf per hour (Exh. EFSB-N-1).

12. The Department specifically determined that although the sendout forecast is reviewable and reliable, it is not appropriate because Berkshire's sales forecasting techniques did not use econometric modeling or time-series analysis. Berkshire Gas Company, D.T.E.

98-99, at 20-21. The Department determined that Berkshire's results are consistent with previous filings but that it would be suitable for a company of Berkshire's size to employ more sophisticated and theoretically well-founded forecasting techniques (id.).

13. Berkshire indicated that it used billing records to determine the load at each model node and that forecast increases in sendout were distributed to each node based on a historical average (Exhs. BG-1 at 3-4 n. 5; EFSB-N-2).

14. Although the Siting Board found a need for additional energy resources to meet the Company's reliability criteria with respect to system pressure, we note that Berkshire's reliability concerns can not be entirely divorced from supply issues. For example, Berkshire acknowledged that difficulties in maintaining system pressure in the Greenfield Division are due, in part, to insufficient gas volumes and increased system demands during peak or near peak use periods (Exh. BG-1, at 1-1, 3-3 n. 4). Berkshire also stated that its MDQ agreement with Tennessee may be exceeded if the compressors at the Northampton compressor station were used more aggressively to maintain system pressures during peak use periods (Exh. EFSB-N-24). Furthermore, Berkshire has stated that the proposed project will not only address pressure problems but will also defer the need for additional upstream gas resources (Tr. 3, at 332-339). The Siting Board, therefore, emphasizes that its analysis in this decision should not be construed as an endorsement of any particular type of rate making treatment for the subject facilities.

15. Berkshire indicated that, traditionally, 1 percent of total annual customers usage is attributable to peak day usage and that peak hour usage is 5.3 percent of the peak day quantity (Tr. 1, at 108-109). If DSM savings were proportional to usage, then 21,083 Mcf of annual savings would result in approximately 11.2 Mcf of peak hour savings (id.).

16. G.L. c. 164, § 69J also requires a petitioner to provide a description of "other site locations." The Siting Board reviews Berkshire's proposed and alternative sites, as well as other potential site locations, in Section II.B, below.

17. Berkshire also analyzed additional conservation and additional load management options and determined that these options would not meet the identified need. These options are discussed in Section II.A.3.d, above.

18. In response to staff questioning, the Company also indicated that it considered and discarded the alternative of installing a second compressor on the Greenfield Feedline, downstream of the Northampton compressor station (Tr. 1, at 121-122). Berkshire asserted that there are numerous operational problems which would make adding a second compressor station impractical, including lack of adequate upstream pressure, and the difficulty of coordinating two compressors to operate in tandem (id. at 122). The Company also explained that the existing system is small, and that multiple compressor stations are usually located on larger, cross-state-type pipelines (id.). Therefore, due to the operational drawbacks of adding another compressor station, the Siting Board did not elevate this option as an identified project alternative requiring further analysis.

19. The primary route proposed for the interconnecting pipeline for the preferred facility site runs north along Long Plain Road to Route 116, where it turns west, crosses a railroad overpass, and connects with the Greenfield Feedline at Route 5/10 (Exh. BG-1 (att.

5-H)). Various routes for the pipeline have been proposed that follow other roads leading to Route 5/10 or go under the railroad tracks rather than across the overpass (Exhs. BG-1 (att. 5-H); EFSB-EG-2). The various routes would range from approximately 3,500 feet to 6,250 feet in length (Exh. BG-1 (att. 5-H)). The Siting Board notes that if the selected interconnection route is to be over one mile in length, the Company would be required to come before the Board to request approval to construct the interconnect.

20. Berkshire explained that each tank is capable of containing 64,000 gallons of LNG, 90 percent of which is considered the effective storage capacity (Tr. 3, at 269).

21. The Company indicated that Tennessee's Northampton Lateral is currently operating at full capacity and that requests for additional capacity or an increase to Berkshire's MDQ would require larger diameter pipe or looping between the Tennessee mainline and the Northampton Gate Station (Exh. BG-1, at 2-1).

22. Berkshire stated that, over the planning period, the LP facility would require two fewer tanks than the proposed project and would not require any impoundment areas (Tr. 3, at 351).

23. Berkshire stated that it expected to operate the compressor in the swing months -- late winter and early spring -- when the need for supplemental resources would be lower (Tr. 3, at 90-91).

24. The Huntley Study identifying general receptors provided the following information on potential numbers for targeted construction impacts: residences (188); commercial

buildings (56); wetlands (23); culverts (7); bridges (5); and large trees (58) (Exh. BG-1 (app. E)).

25. Berkshire noted that presently the traffic volumes on Interstate 91 are under capacity (Exh. BG-1, at 4-12).

26. The Company stated that it was not aware of whether there would be any regulatory steps that it would need to take in order to retire the existing LP facility (Tr. 3, at 263).

27. The calculated NPV includes a 2.5 percent inflation factor (Exh. RR-24). The initial financial analysis presented in the filing by Berkshire did not include an inflation factor over the 20-year period for either capital costs or operation and maintenance costs (Exh. BG-1 (atts. 4-D, 4-E, 4-F)). The Company stated that for purposes of conservatism it had not adjusted the costs for inflation (Exhs. BG-1, at 4-7; EFSB-PA-7). The NPV over a 20 year period of the proposed project without an inflation factor is $7,625,153 (id. (att. 4-F)).

28. The Company provided information concerning the derivation of the pipeline capacity cost of $3.31 per Dth, which is comprised of Tennessee's transportation costs from the Gulf and from the Northampton Lateral based on an upgrade of 2,000 Dth/d (Exh. BG-1 (att. 4-H)). In the event that the upgrade is based on 10,000 Dth/d, the cost would decrease to $3.00 per Dth (id.).

29. The calculated NPV includes a 2.5 percent inflation factor (Exh. RR-24) (see n. 27 for a discussion of the inflation factor). The NPV over a 20 year period of the proposed project without an inflation factor is $17,085,153 (Exh. BG-1 (att. 4-E)).

30. Exhibit EFSB-FR-1 describes the sumps as a 56 foot square. In calculations and in all other exhibits the Company has proposed 46 foot square sumps that are six feet deep (Exhs. BG-TGQ-3; EFSB-SR-6). The spillways are 153 feet long (Exh. EFSB-FR-1).

31. The Company has proposed 36 foot square impoundments that are ten feet deep, and 127 foot long spillways at the alternative site (Exh. EFSB-FR-1).

32. The Company noted that its study area was used as a guideline and that it evaluated at least thirteen sites outside the study area boundaries (Exhs. BG-1 (att. 5-B); BG-GAJ-1, at 13; Tr. 3, at 370-371).

33. The Company asserted that steeply sloped sites would require a higher vapor fence on the downslope, thus significantly affecting cost and environmental impacts (Exh. EFSB-SS-10).

34. In this matrix, sites were assigned a score of one or two for each criteria, with one being less desirable and two being more desirable. No relative weighting of criteria was made. The total scores were seventeen for the Long Plain Road site and thirteen for the

Route 5/10 site. The site with the higher total score is considered preferable (Exhs. BG-1 (att. 5-D); GAJ-1, at 15-16).

35. The Company maintained that a low score for ecological resources is valid for both sites, although both are near or abut Natural Heritage and Endangered Species Program ("NHESP") identified habitat (id., at 439-441). The Company indicated that, in retrospect, it might have assigned a lower score for archeological resources at the Long Plain Road site since no archaeological resources were found on the site (Tr. 4, at 437-438).

36. The Company based this conclusion upon the total scores for each site, which were 40 for the Long Plain Road site and 58 for the Route 5/10 site. A lower ranking demonstrates that a site has lower overall impact (Exh. BG-1 (att. 5-C)).

37. DEP defines the Zone II as "that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone II shall extend upgradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary)." 310 CMR 22.02.

38. See also 980 CMR 10.04.

39. Berkshire indicated that ground water at the preferred site was measured at depths between four and eight feet below ground level during April of 1998 (Exh. EFSB-EW-1). The remote containment sumps proposed for the site will be a minimum of six feet deep (Exh. EFSB-FR-1).

40. This permit is needed for construction activities that disturb over five acres (Exh. EFSB-EG-3).

41. The Company indicated that this area has hydric soils and a high water table, but has been cultivated for many years, so it may not qualify as a regulated wetland (Exh. EFSB-EW-5; Tr. 2, at 198).

42. Berkshire indicated that groundwater at the alternative site is within one foot of the ground surface (Exh. EFSB-EW-1). The remote containment sumps proposed for the site would be ten feet deep (Exh. EFSB-FR-1). Berkshire indicated that the relatively higher costs of building the containment sumps at the alternative site would be a direct result of the shallow groundwater depths (Tr. 4, at 458).

43. Berkshire stated that it did not anticipate groundwater intrusion into the containment sumps for the reasonable future of the facility (Tr. 2, at 217-218). Given the depth of the

base containment sumps relative to the depth of groundwater at both the preferred and alternative site, the Siting Board considers that groundwater intrusion into the sumps would be reasonably likely over the lifetime of the facility. The Siting Board notes, however, that the proposed project would be capable of expelling groundwater from the sumps. Therefore, groundwater intrusions would not impair the ability of the containment sumps to perform their intended function.

44. Chapter 61 restrictions refer to agricultural, open space, or forestry use restrictions that are incorporated into the deed of a property, and are approved by the Commonwealth of Massachusetts. See, G.L. c. 61, 61A, 61B.

45. See n. 44.

46. The priority industrial development areas were delineated to avoid wetlands, prime or state significant agricultural land, and the Mill River aquifer (Exh. EFSB-EL-4 (att. a)).

47. As noted below in this Section, the Siting Board's analysis and findings relative to land use, visual and land resource impacts relies, in part, on Berkshire's commitment to comply with the Town of Whately conditions. The Siting Board expects that Berkshire will comply with these conditions, particularly to the extent that they pertain to on-site lighting and the maintenance of a permanent visual buffer around the facility site.

48. [48] The Company stated that it contracted with the University of Massachusetts' Archeological Services to conduct consultation with the Massachusetts Historical Commission and historical and archaeological surveys of the preferred and alternative sites (Exh. HO-RR-12).

49. In a subsequent discussion with Berkshire concerning the species protected in the areas shown on NHESP maps near the preferred site, NHESP stated that primarily tree species are protected in that area, and that if applicable, it would contact the Company with the relevant species to be protected (Exh. HO-RR-9 (2^{nd} supp.)).

50. In the matrix developed under 980 CMR 10.02 (04), the Company gave the alternative site a higher score for ecological impact than the preferred site, indicating that more ecological impact would be expected from the construction of the proposed facilities at the alternative site (Exh. BG-1 (att. 5-D)).

51. Where there is presently less than one hundred feet of wooded buffer, the Company shall maintain the existing buffer depth.

52. Figure 5-H-1 of Exhibit BG-1 incorrectly identifies Interstate 91 as Interstate 92.

53. Berkshire indicated that construction traffic will occur during normal working hours of 7:00 AM to 5:00 PM (Exh. EFSB-ET-2).

54. Berkshire indicated that due to the projected construction schedule for the proposed facility, the LNG tanks would be empty until January 1, 2000. Therefore, 33 LNG tanker deliveries may be required over the 1999/2000 winter (Exh. EFSB-ET-2). However, once the facility is operational, the LNG tanks normally would be full at the beginning of the heating season, resulting in thirteen fewer deliveries per winter (based on two tanks) (id.).

55. Berkshire assumed an average winter cold snap to be a total of between 450 to 500 DD over ten consecutive days, and added that it would expect seven to eight cold snaps meeting or exceeding that DD level in a ten-year period (Tr. 3, at 317-320)

56. Percentages include delivery and return trips as well as separate trips for Berkshire personnel to supervise delivery and to perform daily inspections (Exh. EFSB-S-2).

57. The Siting Board expects that applicants will comply with all applicable State and federal regulations. Thus, the Siting Board expects that Berkshire will comply with applicable State and federal pipeline safety regulations. However, consistent with the Siting Board's authority under G.L. c. 164, the Siting Board in this proceeding determines Berkshire's compliance with the requirements of 980 CMR 10.00 only.

58. A design spill is a "sudden total spill of the maximum contents of the largest component served " 980 CMR 10.03(2)(b)(2).

59. The lower flammable limit ("LFL") of natural gas is five percent gas in air (Exh. BG-1, (app. F, at 1-2)). By establishing an allowable concentration of less than half of the LFL, the regulations allow for LNG vapor to cross the boundary line, but only in concentrations that are not flammable.

60. While it is colder than -160ºF, the vapor is heavier than air and will remain within the fence. As the gas warms and rises, it will mix with the surrounding air, thus keeping the vapor concentration below two percent (Exh. BG-TGQ-2, at 5-11).

61. Remote operation of LNG facilities is permitted, subject to certain restrictions, under both federal and Department regulations. The federal regulations require that each "LNG plant must have a control center from which operations and warning devices are monitored." 49 CFR §193.2441. The section also specifies that "all remotely actuated control system and each automatic shutdown control system required by this part [49 CFR Part 193] must be operable from the control center." 49 CFR 193.2441(b). Department regulations require that a remote control center must have controls that are "linked to an alarm audible throughout the plant." 220 CMR 112.20(2). Both federal and State regulations require that a control center be continuously manned while the plant is in operation. 49 CFR 193.2441(c); 220 CMR 112.20(2).

62. The Siting Board notes that construction of the looping projects will require Siting Board approval, since each project is a mile or more in length and the Greenfield Feedline operates at over 100 psig. Berkshire has not requested approval of the looping

projects as part of this proceeding, and this decision does not address the need for, alternatives to, or impacts of these projects.

63. In addition, the Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact"("Section 61 findings"). G.L. c. 30, § 61. Pursuant to 301 CMR 11.01(3), Section 61 findings are necessary when an Environmental Impact Report ("EIR") is submitted to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, Section 61 findings are not necessary. 301 CMR 11.01(3). Berkshire informed the Siting Board that it had determined that no EIR was required for the proposed project (see Company Reply Brief at 78). Accordingly, Section 61 findings are not necessary in this case.

64. The Company subsequently narrowed the scope of its request for exemption from the Zoning Board of Appeals Rules and Regulations as a whole, to a request for exemption from Articles IX and XI only (Exh. HO-RR-17).

65. The Siting Board notes that, on its face, the Table of Use Regulations could be interpreted as permitting such a use, if a Special Permit is obtained. See, Section 171-8, Table B (public utility facilities and nonresidential uses involving hazardous materials each are allowed in an industrial district, by Special Permit).

66. See n. 65, above.

67. The Town stated that it supports a "waiver" of the Bylaw "pertaining to the prohibition of the storage of fuels" (Exh. BG-RMA-3).

68. Removal of more than ten cubic yards of material from any lot within one year requires a special permit (BG-1 (app. J at 17129)).

69. If found to apply, special permit or site plan review requirements could be expected to result in additional delay.

70. The zoning exemption requested by Berkshire in its zoning exemption petition is broader in scope than that which the Town expressed direct support for during the proceeding (Exh. BG-2; BG-RMA-3, at 2). However, there is no evidence in the record of any opposition by the Town to the Company's petition.

71. The Siting Board also notes that the local interest is served by the letter agreement between the Town and the Company which addresses several matters that might otherwise have been addressed through the zoning process (Exh. RMA-3(att.). The Company has agreed, for example, to maintain a permanent visual screen between the facility and the road, and to notify the Town when additional tanks are to be constructed, so that Town officials may review the site before and after construction (id.).

72. The text describing this model run indicates a model outlet pressure at the Northampton gate station of 150 psig (Exh. EFSB-N-2). The model schematic, model printouts, and direct testimony indicate a 135 psig outlet pressure (id., Exh. BG-TGQ-1 at 13).