

## ENERGY FACILITY EVALUATION COMMITTEE

Docket Number EFEC 89-01

Permit to allow Tennessee Gas Pipeline Company to construct 10.5 miles of natural gas pipeline through the City of Manchester, Hillsborough County, and the towns of Hooksett and Allenstown, Merrimack County; to construct new meter stations in the towns of Londonderry and Windham, Rockingham County; and to install modifications, totally within the sites of existing meter stations, in Manchester, Hillsborough County; Hooksett and Suncook (Allenstown), Merrimack County; and Laconia, Belknap County.

00..

Appearances: Peter B. Rotch, for Tennessee Gas Pipeline Company; Charles B. Holtman, Counsel for the Public.

00..

### I. Background and Procedural History

On November 8, 1988 Tennessee Gas Pipeline Company (Tennessee) submitted an application to the Energy Facility Evaluation Committee (Committee) under the provisions of RSA 162-H and its implementing administrative rules (New Hampshire Code of Administrative Rules CHAPTERS Ener 100-400).

The application requested a permit to construct 10.5 miles of 12-inch diameter natural gas pipeline lateral loop, generally parallel and adjacent to Tennessee's existing 6-inch line. It would begin at the Manchester Sales meter station near the Candia Road/I-93 interchange in Manchester, Hillsborough County. The pipeline would pass through Hooksett, Merrimack County, and end at the Suncook Sales meter station located just below the confluence of the Suncook and Merrimack Rivers in Allenstown, Merrimack County. In addition, Tennessee requested permission to construct a new meter station on a 1.07 acre site owned by Tennessee on Sanborn Road in Londonderry, Rockingham County, and to make modifications, entirely within existing sites, to existing meter stations in Manchester, Nashua, Hooksett, Suncook and Laconia.

At a duly noticed meeting held on January 18, 1989 at the Department of Environmental Services, the Committee unanimously voted to receive the application under the provisions of RSA 162-H.

Tennessee Gas Pipeline Company is a public stock company headquartered in Houston, Texas which operates approximately 20,000 miles of pipeline in the United States. It built and has operated the 38.38-mile Concord Lateral natural gas pipeline, which runs from Pelham to Concord, in 1951-52. The project proposed in the application considered here is part of a larger project called the NOREX (Northeast Expansion) Project, which was granted a

Certificate of Public Convenience and Necessity by the Federal Energy Regulatory Commission (FERC) on May 18, 1989<sup>1</sup>. The NOREX project includes construction of additional pipeline in the states of New York, Massachusetts and New Hampshire, as well as additional compressor capacity in New York and Massachusetts, and new meter stations in New Hampshire and New York. The total cost of the NOREX project is estimated by Tennessee to be \$49,845,000, of which approximately \$3,957,000 will be for the Concord Lateral portion.

FERC has approved the NOREX project based on projections by Tennessee, and the customers of the NOREX project, of increases in demand for natural gas between now and the 1996-97 heating season. The estimated growth in demand is identified by FERC as arising based on oil-to-gas conversions, new housing starts, planned small industrial parks and new shopping centers. The New Hampshire customer, EnergyNorth, Inc.<sup>2</sup>, will receive an additional 10,777 Dth maximum daily quantity in firm sales service as a result of NOREX. This is an increase of about 28 percent in available natural gas supplies for EnergyNorth, Inc.

Back in 1981, Tennessee constructed a 12-inch pipeline parallel and adjacent to their existing 8-inch line from Dracut, Massachusetts to Pelham. In 1985, the 12-inch loop line was extended from Pelham to Manchester. This project will extend the 12-inch line another 10.5 miles to Suncook. In response to a request from the Chairman, at the adversarial hearing held on March 30, 1989, regarding why a new 12-inch loop was proposed, Tennessee provided for the record an explanation of the design considerations affecting the decision. Essentially, Tennessee decided to build a loop line to provide redundancy of supply. The additional line, besides increasing delivery capacity, would provide uninterrupted customer service in the event of an accident or necessary maintenance requiring either the new 12-inch, or existing 6-inch, line to be taken out of service. With only one line any such activity results in an interruption of service. In addition, advances in pipeline maintenance technology<sup>3</sup> require long stretches of pipeline of the same diameter for efficient use. Finally, if a single larger line were built to replace the existing 6-inch line, as opposed to adding the new looped line, gas service would be interrupted for a significant length of time during construction.

This application was the subject of both an informational hearing and an

<sup>1</sup>FERC Docket Nos. CP87-358-000; CP87-358-001

<sup>2</sup>In the FERC certificate, there are separate listings for EnergyNorth and Concord Gas. Although Concord Gas has been merged into EnergyNorth, the separate volume listings remain appropriate because of the separate rates for the two entities.

<sup>3</sup>The main advance is use of so-called smart pigs, which are devices introduced into the pipeline which inspect its interior condition while maintaining service.

adversarial hearing. The informational hearing was duly noticed by prominent advertisements in the Manchester Union Leader and Concord Monitor published on January 30, 1989. The hearing was conducted in accordance with RSA 162-H:8 on the evening of February 22, 1989 at the Hooksett Memorial School. At that hearing Tennessee presented information, followed by questioning by the Committee.

On March 29, 1989 Tennessee filed a Motion to Amend Final Application. This motion requested the Committee's consent to amend the final application to include a relocation of the existing Nashua meter station. In lieu of modifications to the Nashua station, Tennessee would construct a new meter station on a 6.2-acre site located on Bridle Bridge Road in Windham, Rockingham County. EnergyNorth, Inc. would ultimately assume control of this facility, if approved by the Public Utilities Commission. An adversarial hearing under the provisions of RSA 162-H:8, duly noticed by prominent advertisements in the Manchester Union Leader and Concord Monitor published on March 20, 1989, was held at the Department of Environmental Services on the afternoon of March 30, 1989. At the hearing the Committee considered Tennessee's March 29th Motion to Amend Final Application, to which no objection was presented, and voted unanimously to accept it.

During the hearing Committee members questioned Tennessee, and Counsel for the Public engaged in thorough cross examination of Tennessee, based on his own investigations and questions submitted by the public. Before closing the hearing, the Chairman announced that the record of the hearing would be held open for an additional 15 days.

By letter dated April 14, 1989 Counsel for the Public supplemented the hearing record by filing six Proposed Permit Conditions, and requested a reasonable period to submit additional proposed permit conditions regarding certain aspects of the project. Tennessee filed an Objection to Proposed Permit Conditions on April 26, 1989, which objection was modified by letter from Tennessee's Counsel dated April 28, 1989. By letter dated May 15, 1989 Counsel for the Public modified his April 14th request regarding additional proposed permit conditions to include both such proposed conditions and findings, and to limit the requested additional input to findings and conditions connected with RSA 483-A and RSA 149:8-a.

On April 27, 1989 Counsel for the Public filed a Motion to Approve Stipulation, accompanied by a proposed stipulation, signed by Counsel for Tennessee, proposing additional actions. This motion was taken under advisement by the Committee at a duly noticed meeting held at the Department of Environmental Services on April 27, 1989. At that April 27th meeting, the Committee also discussed a timetable for action on the Tennessee application, as well as engaging in preliminary discussions of findings, and Counsel for the Public's proposed permit conditions and the objections thereto.

By letter dated July 14, 1989 Counsel for the public filed additional Proposed Permit Conditions with Respect to Wetlands and Water Crossings, Terrain Alteration and Waste Management. By letter dated July 21, 1989 Counsel for Tennessee filed a Response to Counsel for the Public's July 14th proposed permit conditions.

The record considered in this matter includes the following:

1. Tennessee's Application, as amended;
2. Transcripts of the February 22 and March 30, 1989 hearings;
3. Various correspondence, related documents and motions noticed to the Service List and contained in the files of the Committee;
4. FERC's March 1989 Environmental Assessment; and
5. FERC's Certificate of Public Convenience and Necessity issued on May 18, 1989.

At a duly noticed meeting held at the Department of Environmental Services Conference Room 112, Hazen Drive, Concord, NH on August 30, 1989 the Committee made modifications to the findings and conditions as proposed by the Public Utilities Commission. It also made modifications to the Committee imposed conditions based on the recommendations presented at the meeting by Counsel for the Public, to which Tennessee agreed. Finally, the Committee voted to make the findings which follow in Section II; to make the procedural rulings contained in Section III; and to impose the conditions contained in Section IV.

## II. Findings

Under the provisions of RSA 162-H:9 the Energy Facility Evaluation Committee cannot issue a permit unless a majority of the full membership, based on the record, votes to make certain findings. The Committee has considered the entire record. It has given due consideration to the provisions of RSA 162-H:1, particularly regarding the need to consider the environmental impact of the proposed site and facility. Accordingly, the Energy Facility Evaluation Committee finds as follows:

- A. The proposed site and facility will not unduly interfere with the orderly development of the region and will not have an unreasonably adverse impact on aesthetics, historic sites, coastal and estuarine waters, air and water quality, the natural environment and the public health and safety; and
- B. The applicant has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the permit.

Under the provisions of RSA 541-A:20, such findings, when set forth in statutory language, must include a statement of the underlying facts supporting those findings. To comply with that statutory directive, what follows is a discussion of the basis for these findings.

### FINDING A

1. The proposed site and facility will not unduly interfere with the orderly development of the region.

Considerations connected with this finding involve several aspects. The major one concerns land use.

The proposed looped line parallels Tennessee's existing 6-inch line at about a 10-foot offset for most of its 10.5 mile length. Fifteen (15) feet of existing permanent easement will be utilized, and an additional 35 feet of easement will be required for construction. Twenty-five (25) feet of the additional easement will be allowed to revert to its original condition once construction is complete, resulting in 10 feet of new permanent easement.

The proposal includes one significant deviation from the existing right-of-way. This occurs between the Manchester Sales Meter Station and Route 101 in Manchester. Because Interstate 93 was built over the existing pipeline in that area, the company proposes to go north about 800 feet and cut across an abandoned railroad bed to cross under the highway. The pipeline will then follow a new right-of-way, including crossing of wetlands considered by the Wetlands Board, up to Route 101.

The area just described parallels Interstate 93 and consists mostly of property which appears unlikely to be put to other uses. The remainder of the proposal will affect landowners along the widened existing right-of-way, and require the company to compensate those landowners for any loss of use. However, because the vast majority of the pipeline will closely parallel existing right-of-way, it will have the least impact possible on land use in the area. Any alternative alignment would certainly require the taking of additional land. This would most likely result in a greater imposition on the development possibilities of the pipeline route than the proposed close paralleling of existing right-of-way.

With regard to the proposed new meter facilities, and the modifications to existing meter facilities, Tennessee is following local land use regulations. Since the company already owns the property involved, their compliance with existing municipal land use regulations and processes will insure that their facilities are compatible with local planning.

Another aspect of this finding is the potential positive impact on development. This pipeline will permit EnergyNorth, the local delivery company, to increase its daily deliverability of natural gas by around 28 percent. EnergyNorth supplies gas mostly to residential customers, but also to light commercial and industrial customers. The availability of additional natural gas pipeline capacity should result in savings for these customers as the additional supply will offset the use of more expensive (and more vulnerable to accident) liquid supplies, particularly during peak winter months.

This project will add to the diversity of attractively priced energy resources, which can improve competition in the energy industry. Increased competition can lead to greater choice and lower cost for commercial and industrial, as well as residential, customers. In a state like New Hampshire, which has traditionally high energy costs, this could add marginally to the attractiveness of the service area for desirable development.

This project also provides greater reliability in the gas delivery system by adding a second pipeline from Manchester to Allenstown. If it were necessary to shut down the existing pipeline for maintenance or repair, the new loop section could allow continued delivery of gas to the north.

Finally, the November 30, 1988 "Report of the State Electrical Energy Needs Planning Committee of the New Hampshire General Court" makes the following recommendation, on page 48:

The Committee recommends that appropriate State agencies encourage the construction of natural gas pipeline(s) into the state or region to increase the availability of gas as an energy resource where economically and environmentally feasible. Additional gas might be used either as a fuel for the generation of electricity or as a source of local energy to meet needs which might otherwise be tied to the electrical network.

Since the energy to be transported by this facility will be used solely to benefit New Hampshire citizens, any negative aspects, especially the inevitable environmental costs, must be considered in light of the desire for access to the cleanest possible forms of energy, and the potential economic advantage of an increase in available natural gas supply for New Hampshire.

Thus, the Committee concludes that the orderly development of the region will not be unduly interfered with by the proposed site and facilities.

2. The proposed site and facility...will not have an unreasonably adverse impact on aesthetics...

Webster's defines the word aesthetic to include beauty or artistic value. Generally this term is used when one is considering the visual impacts associated with the subject matter of concern, although noise can certainly be considered a matter of aesthetic, as well as public health, concern.

As has been previously stated, the vast majority of this project will be built right next to existing natural gas pipeline right-of-way. The existing permanent right-of-way will be expanded by at least 10 feet in most areas. There will be an increase of 13 acres in the amount of land permanently disturbed, while 46 acres will be cleared for construction. The committee is aware that this will have an impact on certain abutting landowners which is very significant to those landowners<sup>4</sup>. However, the permanent easement, which

<sup>4</sup>One such landowner may regrettably lose several lovely shade trees which encroach on the proposed easement, and this finding is in no way intended to diminish the concerns of this individual. Of note in this regard is the fact that the Federal Energy Regulatory Commission (FERC) has directed avoidance of such features through minor route realignments, where possible. (FERC Docket Nos. CP87-358-000 and CP87-358-001, Order Approving Settlement and Issuing Certificates, May 18, 1989, 2. Mitigating Conditions, (3), page 26)

will be mechanically maintained, will be restored to low cover with no woody growth permitted. The disturbed construction right-of-way will be permitted to return to its former state, minus the large trees removed, following construction. Since the pipeline is buried, the only thing visible, besides markers, will be low growth open space.

The overall long-term visual impact of the pipeline will be limited mainly to an additional 10 feet of maintained right-of-way.

The new meter stations to be constructed in Londonderry and Windham will be on fenced sites which will include one or two concrete prefabricated buildings, and a paved entrance driveway. The sites will be landscaped and will be subject to local land use requirements. Their visual impact will be akin to that of other small commercial or light industrial facilities.

The construction phase of the project will generate noticeable noise, as does any construction, but it will last only a couple of months. Heavy equipment use and blasting will probably result in discernible noise levels offsite. The actual operation of the pipeline results in little or no noise, other than occasional maintenance and inspection activities involving vehicles or helicopters.

On balance, the Committee finds that the pipeline and other facilities proposed will not have an unreasonably adverse impact on aesthetics.

3. The proposed site and facility...will not have an unreasonably adverse impact on...historic sites...

According to the New Hampshire Division of Historical Resources, in an April 21, 1989 letter to Thomas J. Horst of Stone and Webster Engineering Corporation, the proposed pipeline route has no discernible impact on architectural resources or historic properties.

The Division has identified several archaeological sites of significance, mainly at the north end of the pipeline route. The company has retained the consultant suggested by the Division to complete an archaeological resource study of the route, and the sites of the new meter stations. This study will determine what, if any, impact the proposal may have on such sites, and, presumably, recommend mitigation measures.

The Committee's positive finding regarding impact on historic sites is necessarily conditioned on the completion of the archaeological resource report and its acceptance by the Division of Historical Resources. Conditional upon the satisfactory completion of this process, and noting that any reasonable conditions recommended by the Division necessary to protect any such sites will be included in the permit, the Committee finds that the proposal will not have an unreasonably adverse impact on historic sites.

4. The proposed site and facility...will not have an unreasonably adverse impact on...coastal and estuarine waters...

This proposal does not involve any sites or facilities located in or in proximity to coastal or estuarine waters and will not, therefore, have any impact on such resources.

5. The proposed site and facility...will not have an unreasonably adverse impact on...air and water quality...

It must be noted at the outset of this particular discussion that there are few, if any human endeavors which can be undertaken without some impact to the environment. Recognizing this, the General Court sensibly charged the Committee to "maintain a balance between the environment and the possible need for new energy facilities in New Hampshire." (RSA 162-H:1)

The statute requires this inquiry to determine whether the impact is "unreasonably adverse". This phraseology assumes that there will be an impact, and calls for an assessment of that impact. State and federal statutes and regulations provide the framework for this assessment. They establish constraints or prohibitions against certain environmental impacts. If the proposed project complies with those constraints or prohibitions, it is logical to assume that the impacts created can be considered reasonable.

#### a. Air Quality

Operation of the pipeline will not cause any degradation in air quality along the pipeline route. There are no compressor stations involved in the proposed project, and the pipeline is a sealed structure which emits no pollutants during normal operations.

Construction of the pipeline will cause temporary, localized minor impacts on air quality. Vehicles and equipment used for construction will emit some amount of pollutants. However, most, if not all, of the equipment will be subject to the provisions of New Hampshire Code of Administrative Rules Part Air 1100, "Diesel Engines and Motor Vehicles", compliance with which will render these impacts on air quality insignificant.

Finally, depending upon the level of construction activity, and soil composition and dryness, some amount of fugitive dust (defined at NH Code of Administrative Rules Air 101.41) will most likely be generated during construction. Compliance with PART Air 1002, "Air Contaminants from a Source Other Than a Stack (Fugitive Dust)", should guarantee that the potential nuisance to nearby residents is minimized.

The Committee concludes that the impacts of the project on air quality will not be unreasonably adverse.

#### b. Water Quality

The proposed pipeline will cross a number of streams and wetlands. According to the route maps there will be 36 wetlands crossings totalling 7037 feet. There will also be 20 stream crossings (most of which flow through wetlands at the crossing sites) involving streams which total 134 feet in width. In addition, the route passes through the watershed of Massabesic Lake, the public water supply for the City of Manchester.



The operation of the pipeline itself will have no impact on water quality. However, the construction of the pipeline, the hydrostatic testing performed prior to introducing natural gas into the pipeline, and subsequent maintenance tasks all involve activities which can impact on water quality.

Increased silt loads and turbidity as a result of clearing, grading, trenching and backfilling will temporarily degrade water quality in adjacent waters. Likewise, stream and other wetlands crossings will temporarily degrade water quality in those bodies. Tennessee's "Sediment and Erosion Control Plan" and "Wetlands and Water Crossing Plan" should significantly reduce the impact on the affected streams and wetlands. Tennessee has also stated that dredged material will not be discharged into wetlands. While Tennessee apparently intends to operate without mats on some wetlands crossings of less than 200 feet, the use of mats for all wetlands crossings would assure minimization of impacts.

The testimony of Stone and Webster Engineering Corporation Senior Biologist Elaine Bazarian noted that she had surveyed the wetlands involved in this project and had come away surprised at the healthy, viable wetlands along the existing right-of-way. She opined that this was evidence that the construction and maintenance techniques used by Tennessee minimized impact on the wetlands crossed.

Under the provisions of RSA 483-A and 149:8-a, and their implementing administrative rules, the Wetlands Board and the Water Supply and Pollution Control Division, respectively, consider the impact of such proposed construction on water quality. Those agencies have determined that the impacts from pipeline construction are short term, and that the techniques proposed by Tennessee are adequate to minimize the impact on the wetlands and other waters affected. Under standard New Hampshire Water Supply and Pollution Control Division practice, a separate State Water Quality Certificate under Section 401 of the Clean Water Act is unnecessary. By correspondence dated June 26, 1989 the United States Army Corps of Engineers (Corps) determined that the project falls within the thresholds established for Nationwide Permits<sup>5</sup>. Due to this determination, the state's 401 water quality certification review process will not be triggered for this project.

The proposed hydrostatic testing will require a one time withdrawal of 286,278 gallons of water from the Merrimack River. This water is pumped through the pipeline to determine whether any leaks are present, and then discharged back to the Merrimack River. Traces of iron from the new pipeline will be introduced to the river as the water is discharged against a splash plate and filtered through vegetation or hay bales. Both the United States Environmental Protection Agency and the Water Supply and Pollution Control Division have determined that no industrial National Pollutant Discharge

---

<sup>5</sup>A copy of the Corps approval (Regulatory Branch, CENED-00-R-25-89-1027) was furnished to the N.H. Wetlands Board.

Elimination System (NPDES) permit will be required, because the discharge will not contain a significant amount of pollutants<sup>6</sup>.

Finally, Manchester Water Works officials have indicated that no problem with siltation is expected as a result of the construction through the Massabesic Lake watershed. In addition to the sediment control and water crossing measures proposed by Tennessee, the two watershed stream crossings occur more than two miles upstream from where the streams empty into the lake, and the public water intakes on the lake are a mile from where the streams merge with the lake.

Given the assurance that the mitigation measures outlined by Tennessee will be scrupulously followed, the Committee finds that no unreasonable adverse impact on water quality will occur.

6. The proposed site and facility...will not have an unreasonably adverse impact on...the natural environment...

As with air and water quality, the inquiry connected with this finding must determine whether the impact on the natural environment is "unreasonably adverse". The considerations described in the introductory material under Section 5. above apply to this finding as well. Additionally, as a general rule, environmental impacts are less severe when a project like Tennessee's follows an existing right-of-way. Construction immediately adjacent to an existing right-of-way has less environmental impact because the land is already disturbed, there is less frequent clearing of trees, and no completely new route is required to be established. Alternatives would have to present clear environmental advantages to be considered superior to following existing right-of-way. Given the character of the area proposed for this project, no evidence has been presented indicating any environmental advantage to another route.

The natural environment includes all of the physical phenomena occurring in nature. This proposal would affect the flora and fauna associated with the right-of-way. Trees and other vegetation, animals, wetlands and surface waters would bear the effect of this project.

The pipeline route is not, for the most part, heavily forested. However, there would be a permanent loss of some forest species in the 10 feet of expanded permanent right-of-way. In addition, mature trees would be lost in the additional 25 feet of right-of-way cleared for construction. These latter species might be reestablished over a decade long period of time if the proper conditions exist.

The Department of Resources and Economic Development's (DRED's) Natural Heritage Inventory Program has conducted both document and field search work at the request of Tennessee. Following initial identification of rare plant species located near the right-of-way, DRED personnel conducted field surveys which determined that no rare species were located within either the permanent or temporary easement.

<sup>6</sup>It should be noted that this one time withdrawal does not fall within the parameters of the Division of Water Resources' Water Withdrawal Program, according to Kenneth Stern of that division.

With the exception of mature trees, vegetation in the areas cleared for construction can be expected to revert to its preconstruction condition within a couple of growing seasons. Those areas maintained as permanent easement will be covered by low growth vegetation, including that native to the area, as well as grasses planted by Tennessee. In wetlands areas there could be loss of characteristic wetlands vegetation unless topsoils removed for construction, which contain seeds, root stock and rhizomes of plants uniquely adapted to the wetlands environment, are segregated.

Woodland animal species would be temporarily affected by loss of habitat caused by the clearing of right-of-way. Following revegetation, early successional stage habitat would benefit many wildlife species by increasing structural diversity present in the area, while the limited width of the right-of-way would not present a major obstacle to movement of interior wildlife species. A positive impact would result from the creation of valuable "edge" habitat. This "edge" habitat provides a transitional zone between grass and mature hardwoods in forested areas used by both forest interior and early successional stage wildlife species for feeding, nesting and cover. The right-of-way might also serve as a "travel lane" for both herbivores and carnivores which could facilitate their movement between different habitat types in the project area.

The U.S. Fish and Wildlife Service has noted that a section of the Merrimack River between Suncook and Hooksett is frequented by the federally listed endangered or threatened bald eagle during the winter months. If construction were to occur between November and April, further coordination with the Department of Fish and Game would be necessary.

None of the major streams to be crossed have been stocked with trout in recent years. As previously discussed, increased turbidity and sedimentation during construction will cause short term degradation in water quality. Filling of the interstitial spaces in streambed gravel by suspension and subsequent deposition of clay and silt particles would result in the death of benthic organisms and fish eggs, and degrade spawning and rearing areas in the immediate vicinity of the stream crossings. These effects will be temporary, however, and should not result in lasting damage to fish species present.

Wetlands and stream impacts have been discussed in Section 5.b. above. Stream flow will not be interrupted since porous work mats, flumes or portable bridges will be used as necessary for water crossings. Non-forested portions of wetlands should not suffer long-term adverse impacts, since the typical grassy vegetation which ultimately reestablishes itself in each wetland will be similar to species existing prior to construction. While some trees in the wetlands, particularly red maples, will be destroyed by the clearing for construction, and subsequent maintenance activities in the permanent right-of-way, Tennessee proposes to leave red maple stumps at surface level in the temporary construction easement. Red maples are classic wetlands species and aggressive sprouters. Leaving the stumps will ensure as quick a return as possible, though it will obviously be decades before the larger trees will return to their full growth.

In streams and wetlands Tennessee will return the bottom to preconstruction contours once the pipeline is installed. Preconstruction contours will also be restored by grading in the upland areas of the right-of-way. This will cause minimal long-term alteration in the contour of the terrain affected by the pipeline installation.

As long as Tennessee follows the techniques described in its application and testimony, and abides by the conditions imposed by the Committee and the various permitting agencies, the impact of the project on the natural environment will not be unreasonably adverse.

7. The proposed site and facility...will not have an unreasonably adverse impact on...the public health and safety

As with many other activities associated with a technologically advanced society, there is a degree of risk involved in the transportation of natural gas by pipeline should an accident result in the release of gas. Fire or explosion following a major pipeline rupture poses the greatest hazard.

The primary component of natural gas, methane, is colorless, tasteless and odorless. It is not toxic, but is classified as an asphyxiator, possessing a slight inhalation hazard. If breathed in high concentrations, oxygen deficiency can result in serious injury or death.

Methane has an ignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations of between 5.0 percent and 15.0 percent in air. Since it is lighter than air, methane rises at atmospheric temperatures. Unconfined mixtures of methane in air are not explosive. Only where flammable concentrations occur in an enclosed space in the presence of an ignition source can an explosion occur.

#### a. Public Health

As noted above, pipeline leaks have the potential to affect human health if the gas is breathed in high concentrations. Leaks will be further discussed in the following section on public safety, but the risk of inhalation is very minimal because the pipeline is buried at least three feet deep, and the public should not generally be near enough to exposed pipeline to be able to breathe in any harmful concentration.

The blasting connected with construction is also discussed in the next section, but its potential to harm the public's health will be minimal as long as proper procedures are followed and properly trained personnel are used to perform the blasting.

With regard to the use of radioactive materials or X-ray machines to test pipeline welds, the Division of Public Health Services must license/register all industrial radiography activities using radioactive material and/or X-ray machines in the state. Tennessee will be required to comply with the provisions of RSA 125-F and New Hampshire Rules for the Control of Radiation. This regulatory program is designed to protect the public health.

Finally, an ongoing health concern exists for utility rights-of-way which use herbicides in their right-of-way maintenance. Wallace Arcese, Right-of-Way Supervisor for Tennessee, testified that the company uses only mechanical means to maintain its rights-of-way, thereby alleviating the concern regarding the effect of herbicides on nearby residents and water bodies.

Based on the foregoing, the Committee finds that the project poses no unreasonably adverse impact on the public health.

#### b. Public Safety

A number of issues relating to public safety arose during these proceedings. They can be divided into two categories, those connected with construction, mainly the effects of blasting, and those associated with operation of the pipeline.

At the March 30, 1989 adversarial hearing, Counsel for the Public expressed concerns about the potential effects on nearby residents of blasting necessary to dig the trench for the pipeline. Subsequent to the hearing, in a letter dated April 5, 1989, Stone and Webster responded to a request of the Chairman by providing a listing of five locations where blasting might be required.

Mr. Arcese testified that any blasting done would be accomplished by licensed blasters, and that Tennessee employs its own blasting inspectors, who will also be licensed, to oversee the contractor. The use, purchase and transportation of explosives is regulated by the Director of State Police under the provisions of RSA 158:9-a through 158:9-g. Those statutes, and their implementing administrative rules, require users of explosives to be licensed and to follow certain procedures designed to protect the public safety.

In addition, Mr. Arcese testified that Tennessee will be contacting landowners in close proximity to any part of the route where blasting will be done, both to inform them of the blasting and to request permission to perform a pre-blast inspection of their property. During blasting, which will include the use of blast-absorbing mats, seismographic readings will be taken to determine any shifts in the earth's surface due to blasting. Finally, post-blast inspections will be performed on the properties inspected prior to blasting. Mr. Arcese acknowledged Tennessee's liability for any damage to people or property caused by the blasting associated with the construction. Given Tennessee's pledge to accomplish the blasting in a safe manner according to state law, the risk to the public should be minimized to the greatest extent possible.

Turning to operation of the pipeline, The United States Department of Transportation Office of Pipeline Safety regulates both intrastate and interstate gas pipelines under the provisions of the federal Natural Gas Pipeline Safety Act. These pipelines must be designed, constructed, operated and maintained in compliance with the Minimum Federal Safety Standards

contained at 49 CFR Part 192. Federal law allows enforcement of the federal regulations to be delegated to the states, but New Hampshire does not yet possess such delegated authority. However, the Public Utilities Commission's (PUC's) gas safety program is in close touch with federal regulators. The federal agency relies on the PUC to serve as its eyes and ears in the state. If the PUC becomes aware of any safety issues related to an interstate line like Tennessee's, it immediately provides that information to the Office of Pipeline safety for action.

The federal regulations specify material selection and qualification, minimum design requirements, and protection from internal, external and atmospheric corrosion. They also require a written plan governing the operation and maintenance of the pipeline in compliance with the standards. Section 192.615 of 49 CFR requires each pipeline operator to establish an emergency plan containing written procedures to minimize the hazards from a gas pipeline emergency. Key elements of the plan include procedures for:

1. Receiving, identifying and classifying emergency events--gas leakage, fires, explosions, and natural disasters;
2. Establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
3. Making personnel, equipment, tools and materials available at the scene of an emergency;
4. Protecting people first and then property, and making pipelines safe from actual or potential hazards; and
5. Emergency shutdown of system and safely restoring service.

Each operator must establish and maintain liaison with appropriate fire, police and public officials to learn the resources and responsibilities of each organization that may respond to a gas pipeline emergency, and coordinate mutual assistance in responding to emergencies. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation to recognize a gas pipeline emergency and report it to appropriate public officials.

Tennessee regularly inspects its pipeline, both from the air and the ground. Its regular helicopter flights are mainly for the purpose of identifying potential encroachments on its right-of-way and for leak surveys of the pipeline. A major cause of pipeline accidents is accidental engagement of the pipeline by excavators working on other utilities or construction. Although the pipeline is clearly marked at other utility crossings, roads, railroads and other key points, accidents can occur. Regular inspection is designed to head off any potentially dangerous encroachments on the line. Underground utility damage protection laws (RSA 374:48-56) require excavators to notify each potentially affected utility company before work begins on any public way or utility right-of-way, so that the location of underground facilities may be marked. Tennessee participates in the New England wide "Dig Safe" program which coordinates the required notifications.

Tennessee has operated its pipeline in New Hampshire since 1951. There has been no evidence presented of any unresolved safety concerns regarding that existing pipeline.

Mindful of the extensive federal safety regulations in place, and Tennessee's assurances of safe construction and operation practices contained in the record, the Committee finds that there is no unreasonably adverse impact on the public safety associated with the proposed project.

#### FINDING B

The applicant has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the permit.

Tennessee Gas Pipeline Company has been in business continuously since 1943. It currently operates approximately 20,000 miles of gas pipeline in the United States. The company has operated in New Hampshire since 1951 when the 6-inch line which the proposed looped line will parallel was originally constructed.

Tennessee currently operates two pipelines in New Hampshire. The longest is the Concord Lateral which stretches 38.38 miles from Pelham to Concord. The other line is the Nashua line which is 3.57 miles long. The current proposal calls for a 10.5-mile 12-inch loop which will begin in Manchester and end in Suncook. The project cost is estimated by Tennessee to be \$3,957,000.

In August 1985 the Energy Facility Evaluation Committee granted Tennessee Gas Pipeline Company a permit to construct 12.2 miles of 12-inch pipeline parallel to its existing line from Londonderry to Manchester. This project has been completed and there have been no unresolved reports of any violations of that permit.

Tennessee has operated successfully in New Hampshire for nearly 40 years. It has already been granted a Certificate of Public Convenience and Necessity by FERC for construction of the NOREX project, of which the Concord Lateral loop is one portion. It has a proven track record in managing a pipeline in New Hampshire. Therefore, the Committee finds that Tennessee Gas Pipeline Company has adequate financial, technical and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of the permit.

#### III. Procedural Matters

During the consideration of Tennessee's application a number of procedural matters have arisen. By vote of the Committee they are disposed of as follows:

1. The Proposed Permit Conditions submitted by Counsel for the Public on April 14, 1989 and July 14, 1989 are partially adopted, as reflected in the Permit Conditions contained in Section IV. Those proposed conditions which do not appear in Section IV are not adopted by the Committee.

2. Counsel for the Public's April 27, 1989 Motion to Approve Stipulation is denied. The Committee notes that both it and the relevant agencies have considered the contents of the proposed stipulation and have determined that the agencies have properly discharged their responsibilities with regard to this application.

3. On its own motion, the Committee expressly adopts as part of the record in this matter the following documents:

a. The Federal Energy Regulatory Commission's Environmental Assessment of the NOREX Pipeline Project dated March 1989.

b. The Federal Energy Regulatory Commission's Certificate of Public Convenience and Necessity regarding the NOREX Pipeline Project, FERC Docket Nos. CP87-358-000 and CP87-358-001, issued May 18, 1989.

#### IV. Conditions

##### A. Committee Imposed

The Energy Facility Evaluation Committee hereby imposes the following conditions upon Tennessee Gas Pipeline Company in connection with its application received on January 18, 1989:

1. Tennessee shall adopt the routing, unless modified by conditions imposed by the New Hampshire Department of Transportation with regard to highway crossings, all the construction procedures and plans, and the mitigation measures described in its application to the Committee. The routing referred to in this condition, and elsewhere in this permit, shall be that identified on the preliminary alignment sheets labeled TE-E14-273C-100-25 through TE-E14-273-100-35, which were included as part of the application.

2. Concerning wetlands, the following shall be adhered to:

a. Stumps in wooded wetlands shall only be removed over and within five (5) feet of the ditchline;

b. Staging areas required for the crossing of wetlands shall be located at least 50 feet outside of the wetlands boundaries;

c. Tennessee shall segregate topsoil in all wetlands crossed by the proposed project;

d. Wetlands maintenance shall only be accomplished when the ground and standing water in wetlands is frozen;

e. All sedimentation barriers and erosion prevention measures in or bordering on wetlands or waterbodies shall be checked at least daily and maintained to insure their proper function; and



f. Tennessee shall make all reasonable efforts to avoid the clearing of woody growth through wetland areas near Messer Brook, Dalton Brook and the loop terminus in Allenstown.

3. No construction shall occur between November 30 and April 1 along the one-half mile stretch of NOREX section 9 near MPs 270B-105+10 to 270B-105+10.5 that parallels the Merrimack River at distances of 500 to 1000 feet, which is a bald eagle wintering area.

4. Tennessee shall pay particular attention to New Hampshire Code of Administrative Rules PART Air 1002 regarding precautions against fugitive dust.

5. Tennessee shall conduct a field survey of the proposed pipeline route to confirm that no structures not identified on the preliminary alignment maps lie on or near the proposed route such that realignment is necessary, and submit the results of the survey to the Committee prior to commencing construction;

6. Tennessee shall provide the Committee with written information specifying where the final alignment of the pipeline route differs from the preliminary alignment plans prior to commencing construction;

7. Before any blasting within 250 feet of any residence, other permanent structure or drinking water well, Tennessee shall, with the owner's consent or upon the owner's request, perform inspections to establish the pre-blasting condition of the structure or well, and provide a copy of the inspection report to the owner. The applicant shall individually notify each landowner of his or her right to the inspection. Site inspections shall be performed by an independent contractor.

8. Tennessee shall complete the archaeological resource study requested by the Division of Historical Resources in its April 21, 1989 letter from Director R. Stuart Wallace to Dr. Thomas Horst of Stone and Webster. Any mitigation measures recommended in such study, and approved by the State Historic Preservation Officer, shall be considered conditions imposed by the Committee. Construction shall not commence prior to such approval, in writing, by the State Historic Preservation Officer, with a copy to the Chairman of the Committee and the Service List. If such approval is partial, or limited geographically, construction may commence in accordance with such approval from the State Historic Preservation Officer.

9. The suggested permit condition wording regarding stumps contained in the next to the last paragraph of the memorandum from Pamela H. Sprague to Commissioner Varney dated July 10, 1989 included in Appendix C to this permit is explicitly adopted by the Committee.

10. Prior to beginning construction, Tennessee shall submit to the Committee, in writing, the name(s), addresses and telephone numbers of the individual(s) who will be present during construction and responsible for environmental supervision. This notice shall include resume(s) or description(s) of the qualifications of the individual(s).

11. No stumps, brush, rock or other material shall be stored, stockpiled, disposed of or otherwise placed in any wetland area as defined in RSA Chapter 483-A. This condition shall not apply to spoil from excavations for ditches in wetlands which will be replaced within the ditch following laying of the pipe.

12. Reasonably soon after construction is completed, and at such time as all soils are stabilized and vegetation reestablished, Tennessee shall schedule, provide and pay for a helicopter overflight of the route for a representative of the Wetlands Board and a representative of the Water Supply and Pollution Control Division (WSPCD). Following such inspection, the Wetlands Board and/or the WSPCD may order Tennessee to undertake reasonable additional measures, with which Tennessee shall comply.

13. The Monitoring Plan contained at Appendix F to this application is specifically incorporated into this permit and Tennessee shall cooperate fully with the various agencies assigned monitoring responsibilities under that plan. Tennessee shall supply a construction schedule to each of the agencies named in the Monitoring Plan.

14. All new and existing facilities for delivery of gas to EnergyNorth, Inc. which are located in Windham, N.H. must remain under the ownership and control of Tennessee Gas Pipeline until and unless transfer is approved by the Public Utilities Commission. There shall be no delivery of gas to customers in Windham until and unless the Public Utilities Commission approval is granted for service in that town.

15. Stumps, brush and rock from construction and from any subsequent maintenance shall be disposed of on-site only in accordance with landowner approval. Upon landowner request, berms composed of rock dislodged during construction or subsequent maintenance may be constructed, provided that openings shall be left at least every one hundred (100) yards to allow access for emergency vehicles as otherwise authorized by law.

16. Pursuant to Tennessee's voluntary agreement no herbicides shall be used in the maintenance of the right-of-way without a modification of the permit approved by the Committee.

17. Tennessee will assume legal responsibility for all pipeline design, construction, operation and maintenance activities.

18. Tennessee shall provide landowners with a copy of the permit by certified mail.

#### B. State Agency Imposed

The Energy Facility Evaluation Committee hereby incorporates into this document the following actions determined necessary by the agencies of jurisdiction in accordance with RSA 162-H:4:

1. Those of the Water Supply and Pollution Control Division contained in Appendix A.
2. Those of the Wetlands Board contained in Appendix B.

3. Those of the Waste Management Division contained in Appendix C.
4. Those of the Public Utilities Commission contained in Appendix D.
5. Those of the Department of Transportation contained in Appendix E.

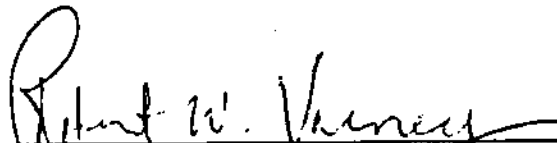
ORDER


Upon consideration of the foregoing report, which is made a part hereof, it is

ORDERED, that a permit to allow Tennessee Gas Pipeline Company to construct 10.5 miles of natural gas pipeline through the City of Manchester, and the towns of Hooksett and Allenstown; to construct new meter stations in the towns of Londonderry and Windham; and to install modifications, totally within the sites of existing meter stations, in Manchester, Hooksett, Suncook (Allenstown), and Laconia; be and hereby is granted; and it is

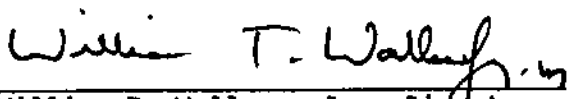
FURTHER ORDERED, that all of the conditions contained in the foregoing report be included within the permit so issued.


By order of the Energy Facility Evaluation Committee this 30th day of August, 1989.

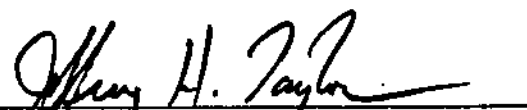
  
Robert W. Varney, Commissioner  
Dept. of Environmental Services

  
John C. Collins, Acting Director  
Water Supply & Pollution Control Div.

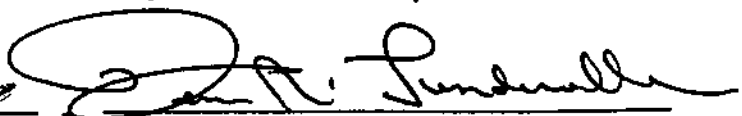
  
Stephen K. Rice, Commissioner  
Dept. of Resources & Economic

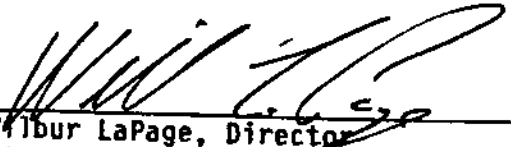
  
William T. Wallace, Jr., Director  
Div. Public Health Services

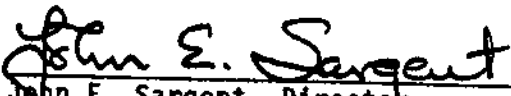
  
Donald A. Normandeau, Director  
Fish & Game Dept.

  
Jeffrey Taylor, Director  
Office of State Planning


  
Delbert F. Downing, Director  
Water Resources Div.

  
Dennis R. Lunderville, Director  
Air Resources Div.

  
\_\_\_\_\_  
Wilbur LaPage, Director  
Div. of Parks & Recreation

  
\_\_\_\_\_  
John E. Sargent, Director  
Div. of Forests and Lands

  
\_\_\_\_\_  
Wallace E. Stickney, Commissioner  
Dept. of Transportation

  
\_\_\_\_\_  
Edward Schmidt, Chief Engineer  
Public Utilities Commission