Commonwealth of Massachusetts

JOINT REPORT TO THE GOVERNOR ON SECURITY INSPECTIONS OF JURISDICTIONAL LIQUEFIED NATURAL GAS PLANTS IN THE COMMONWEALTH

September 25, 2006

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EXECUTIVE SUMMARY

This ***Joint Report to the Governor on the Security Inspections of Jurisdictional Liquefied Natural Gas Plants in the Commonwealth*** summarizes findings of the Massachusetts Department of Telecommunications and Energy ("DTE") and the Commonwealth Fusion Center Critical Infrastructure Assessment Unit ("Critical Infrastructure Unit") following safety and security inspections conducted at jurisdictional LNG facilities during the period August 25, 2006 through September 16, 2006.

Public safety is the DTE's top priority. The DTE conducts biennial, on-site inspections of LNG facilities to ensure compliance with state and federal regulations. These inspections address all aspects of the LNG facility including security, design, construction, equipment, operations, maintenance, personnel qualifications and training, and fire protection. LNG facilities are required to report security breaches and other incidents to the DTE immediately. A DTE investigation of such incidents follows.

Whenever the DTE identifies a violation at a facility or in an operations plan, the DTE orders immediate corrective action. The DTE may commence a formal enforcement proceeding. Violators may be subject to a civil penalty up to $50,000 per violation per day up to a maximum of $1,000,000 for any related series of violations.

On August 21, 2006, KeySpan Energy Delivery, New England ("KeySpan") notified the DTE of a breach of security at KeySpan's liquefied natural gas ("LNG") storage facility in Lynn, Massachusetts. Pursuant to G.L. c. 164, § 105A, which establishes the DTE's

jurisdiction over intrastate natural gas facilities and, in accordance with a directive from Governor Mitt Romney, the DTE immediately instructed the operators of each Massachusetts intrastate LNG plant to elevate security to the highest level. The DTE directed each operator to conduct a thorough inspection to verify that no other LNG plant had experienced a security breach; to test all alarms and security equipment to ensure that the equipment is operating properly; and to inform local police and fire departments of the situation.

On August 22, 2006, the DTE initiated an inspection and investigation of the Lynn LNG facility. On August 25, 2006, the DTE initiated security inspections of the remaining 19 intrastate LNG facilities under its jurisdiction. The DTE dispatched engineers from the Pipeline Engineering and Safety Division ("Pipeline Division") to inspect LNG plants for compliance with federal and state security requirements. Determining that the security experience of the Critical Infrastructure Unit could compliment the technical expertise of the DTE Pipeline Division engineers, Governor Romney instructed the two groups to work together on the review.

Pipeline Division engineers, working jointly with the Critical Infrastructure Unit, conducted inspections of the LNG plants using standardized, comprehensive checklists, based upon federal and state security regulations. The security inspections included an analysis of LNG plant security, personnel qualifications and training. The site inspections were completed on September 16, 2006. With the exception of Lynn, each facility was found to be substantially in compliance with existing federal and state security-related regulations. Some

exceed state and federal regulations in certain areas. The 19 inspections identified certain areas where minor improvements are recommended, such as tree trimming and repairs to corroded barbed wire.

KeySpan's Lynn LNG facility is the subject of an active investigation by both the DTE and the Massachusetts State Police that remains in the information-gathering stage. This investigation will likely result in an enforcement action against KeySpan that could include a penalty. Since the incident, the Lynn facility has implemented enhanced security measures to bring it into compliance with state and federal security regulations.

State regulators and public safety officials will continue their vigilant oversight, inspections and monitoring of LNG facilities. We will continue to hold operators of LNG facilities to strict security standards as well as institute severe penalties for non-compliance.

Joint Report to the Governor on Security Inspections of Jurisdictional Liquified Natural Gas Plants in the Commonwealth
(September 25, 2006)

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I. INTRODUCTION

Safety and reliability in the transportation, storage, and distribution of natural gas is one of the highest priorities of the DTE. As the DTE noted in its 2003 Annual Report to the Legislature, the security of pipeline facilities "has become a major issue since the September 11th terrorist attacks. Natural gas pipelines and their associated facilities are vital to the Massachusetts economy." LNG is an essential component of New England's natural gas supply. It comprises nearly 20 percent of the total annual gas supply in Massachusetts. In fact, on a peak winter day, LNG supplies 45 percent of NSTAR Gas Company's total gas throughput (i.e., sales) and 35 percent of KeySpan's throughput. To ensure that the essential LNG facilities and the public are protected, the DTE performs regular and aggressive inspections of the 20 LNG storage facilities within our jurisdiction.[1]

KeySpan operates one such LNG facility in Lynn, Massachusetts. On August 21, 2006, KeySpan notified the DTE that there had been a breach of the perimeter security fence at its LNG storage facility in Lynn. In response, the DTE immediately instructed all 20 jurisdictional LNG facilities to elevate security to the highest level until further notice.

The following morning, August 22, 2006, the Director of the DTE's Pipeline Division and one of the Pipeline Division's senior engineers initiated an investigation with an on-site

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[1] Keyspan operates eight of the 20 LNG plants in Massachusetts. Bay State Gas Company operates four LNG plants and NSTAR Gas Company operates two LNG plants. The remaining six LNG plants are operated by smaller gas companies and municipal gas departments.

inspection of the Lynn facility. Over the next two days, the Director and Pipeline Division engineer examined the location of the security breach, investigated and tested the plant's security alarm systems, and interviewed KeySpan personnel at the plant. Moreover, DTE engineers, in cooperation with the Critical Infrastructure Unit, conducted an additional security inspection at the plant on September 15, 2006. The DTE also spoke with KeySpan personnel in New York who are responsible for maintaining and operating the plant's computer systems.

As part of the ongoing investigation, the Pipeline Division has reviewed maintenance, operating, and security records from the Lynn plant. The Pipeline Division made a formal request to KeySpan for further information ("Information Requests"). Typically, Information Requests call for documents and other records, and the responses help to form the body of evidence that the DTE relies upon in determining what, if any, violations have occurred and what penalties and remedial actions may be necessary. In light of the important security concerns at stake in this investigation, KeySpan has requested that their responses to the Information Requests be granted confidential treatment.

On August 22, 2006, in addition to elevating the security level at jurisdictional LNG facilities, the DTE directed the operators of each LNG plant to immediately: (1) conduct a thorough inspection of their respective LNG facilities to verify that no other LNG plant had experienced a breach of security; (2) test all alarms and security equipment to ensure that this equipment is operating as designed; and (3) inform local police and fire departments of the

situation.[2] The LNG operators were also directed to notify the State Police of their responses to the above actions. The DTE directed all LNG operators to report their findings as soon as they had implemented the directives, but no later than 12:00 noon on August 23, 2006. In addition, the Executive Office of Public Safety ("EOPS") contacted all local police departments that had LNG facilities within their jurisdictions and requested additional security checks around the facilities. EOPS further requested that local law enforcement officials contact the LNG operators to review additional security measures at such facilities.

All operators subsequently verified that no breaches of security had occurred and that they had elevated their security to their highest level by, among other things, adding additional security guards, increasing security inspections, and coordinating with local police departments to provide additional security and presence around the LNG plants. Operators informed the State Police of their security actions.

Further, as directed by Governor Romney, the DTE sent engineers from the Pipeline Division to inspect all jurisdictional LNG plants for compliance with federal and state security requirements. From August 25, 2006 to September 16, 2006, Pipeline Division engineers, working jointly with the Critical Infrastructure Unit, conducted security inspections of the 20 jurisdictional LNG plants in the Commonwealth.

This report provides background information on LNG and how it is used in Massachusetts. The report also discusses the DTE's jurisdiction to regulate LNG facilities, in

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[2] The DTE acted pursuant to G.L. c. 164, § 105A and 220 C.M.R. §§ 69.00 et seq.

particular, our duties with regard to security at LNG plants. Next, we discuss the results of the DTE and Critical Infrastructure Unit inspections of all the LNG facilities following the incident at Lynn.

II. WHAT IS LNG?

Natural gas cooled to minus 256 degrees Fahrenheit becomes a liquid at atmospheric pressure. In this liquid state, LNG occupies one-600th of the space of natural gas and weighs 3.5 pounds per gallon, less than 50 percent the weight of water. A metric ton of LNG is about 52 MMBtu of natural gas. LNG is colorless, odorless, non-corrosive, non-toxic and, when regasified, lighter than air. LNG is almost pure methane (90 percent or more) that can be safely stored and transported in trucks and tanker ships without pressurization. Regasified LNG is used interchangeably with pipeline natural gas in homes, factories, and power plants. Local gas distribution companies most often store and regasify LNG to supplement gas supplies on cold winter peak days. Bottled LNG is used to operate motor vehicles.

In its liquid state, LNG is neither explosive nor flammable. The tanks that contain LNG are double-walled and surrounded by a dike. If both walls of an LNG tank were punctured, the super-cooled LNG would leak into the containment dike surrounding the tank. This enclosure is designed to hold 110 percent of the liquid volume of the tank. As the super-cooled LNG warms from minus 256 degrees Fahrenheit to the ambient air temperature, the LNG will begin to vaporize. At this point, the LNG will revert to a gas and a vapor cloud

will form and rise because it is lighter than air. The vapor cloud will dilute rapidly when it mixes with air.

The vapor is flammable only if it is within a narrow range of density in the air.[3] The vapor will explode only when exposed to an ignition source within a confined space. If an LNG tank puncture were to occur, the resulting gas vapors would not be in an enclosed space, but rather in the open air within the containment dike. In effect, the design and size of the dike is intended to slow the rate at which the LNG turns into a vapor. As part of the DTE's pipeline safety regulations, LNG operators are required to conduct training at each facility in conjunction with local fire departments. Such training includes a review of the chemical properties of LNG and fire suppression techniques for natural gas vapors.

III. JURISDICTION OVER LIQUEFIED NATURAL GAS FACILITIES

A. Introduction

Jurisdiction over the regulation of the safety and security for LNG in Massachusetts lies jointly with the Federal Energy Regulatory Commission ("FERC"), the United States Department of Transportation ("DOT"), the United States Coast Guard, and the DTE.

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[3] The vapor only can explode if it is within a five to 15 percent flammable range in an enclosed space. If there is less than five percent natural gas in the air, there is not enough natural gas to burn. If there is more than 15 percent natural gas in the air, there is too much gas and not enough oxygen for it to burn.

B. Federal Jurisdiction

The Natural Gas Act, as amended, and the Pipeline Safety Act, as amended, grant jurisdiction to FERC and DOT, respectively, to regulate the operation of natural gas facilities, including LNG facilities, used in the importation of natural gas from outside of the United States or the transportation of natural gas between states. 15 U.S.C. §§ 717 et seq.; 49 U.S.C. §§ 60101 et seq. In addition, the Coast Guard exercises jurisdiction over LNG facilities with respect to the safety and security of port areas and navigable waterways.[4]

C. State Jurisdiction

1. Overview

The Pipeline Safety Act also grants DOT jurisdiction to regulate the safety of intrastate LNG facilities, except where a state has certified to DOT that its own regulation of such facilities complies with the Pipeline Safety Act. The DTE has jurisdiction under Massachusetts law to regulate natural gas facilities within the Commonwealth. G.L. c. 164, § 105A; see Pereira v. New England LNG Co., 364 Mass. 109 (1973).[5] The DTE has certified to DOT

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[4] Executive Order 10173; Magnuson Act, 50 U.S.C. § 191; Ports and Waterways Safety Act of 1972, as amended, 33 U.S.C. §§ 1221 et seq.; Maritime Transportation Security Act of 2002, 46 U.S.C. § 701. See also Interagency Agreement Among the Federal Energy Regulatory Commission, United States Coast Guard, and Research and Special Programs Administration for the Safety and Security Review of Waterfront Import/Export Liquefied Natural Gas Facilities (February 11, 2004).

[5] The Home Rule Amendment to the Massachusetts Constitution does not confer power to municipalities to regulate natural gas facilities because the Legislature expressly delegated that authority to the DTE. New England LNG Co. v. City of Fall River,

(continued…)

that it regulates the 20 intrastate LNG storage facilities within Massachusetts. This regulatory authority does not include facilities importing LNG from outside of the United States and transporting LNG outside of Massachusetts,[6] specifically the Distrigas facility in Everett.

The applicable safety standards for LNG storage facilities are contained in the DTE's regulations at 220 C.M.R. § 112.00 et seq. In addition, the DOT's LNG safety regulations contained in 49 C.F.R. Part 193 ("Part 193") are applicable in Massachusetts because the DTE has incorporated them as minimum safety standards. In the event of a conflict between any provision of 220 C.M.R. §§ 112.00 et seq. and Part 193, the more stringent of the two prevails. 220 C.M.R. § 112.10(2).

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5 (…continued)
368 Mass. 259, 266-67 (1975). The Supreme Judicial Court has also rejected the argument that an LNG operator, having obtained DTE authority to construct an intrastate LNG facility, must subsequently obtain a license from municipal authorities to store LNG pursuant to G.L. c. 148, §§ 9 and 13, which require municipal licensing for the storage of "explosive or inflammable fluids or compounds." Perreira v. New England LNG Co., 364 Mass. 109, 120-23 (1973). Notwithstanding the provisions of G.L. c. 148, § 37, which requires persons who maintain aboveground tanks or containers of more than ten thousand gallons for the storage of any fluid other than water to obtain a permit from the state fire marshal, the DTE has jurisdiction over LNG tanks. Cf. id. at 121 citing Op. Atty. Gen. Dec. 9, 1971, at 72; Op. Atty. Gen. May 27, 1968, at 195.

6 A state authority "may not adopt or continue in force safety standards for interstate pipeline facilities or interstate pipeline transportation." 49 U.S.C. § 60104(c). For the purpose of this preemption clause, "interstate gas pipeline facility" includes a gas pipeline facility subject to the FERC's jurisdiction under the Natural Gas Act, which would, therefore, include both interstate facilities and those used in foreign commerce. 49 U.S.C. § 60101(a)(6); 15 U.S.C. §§ 717b, 717f.

2. Summary of DTE Pipeline Safety Inspection Procedures and Enforcement Actions

a. Inspection Procedures

The DTE inspects all intrastate pipeline facilities, including private distribution operators, LNG plants, liquid propane gas plants, master meter operators, liquid propane operators, municipal operators and direct sale operators in Massachusetts. The Pipeline Division inspects these operators for compliance with federal (49 C.F.R. Parts 192, 193, 198, 199, 40) and state (220 C.M.R. §§ 99.00 through 113.00) pipeline safety regulations.

DTE inspectors perform routine field inspections of gas operators and also investigate specific incidents such as the security breach at the Lynn LNG plant. The inspections measure each operator's compliance with the comprehensive state and federal pipeline safety regulations.

Each LNG plant within the DTE's jurisdiction undergoes an inspection at least once every other year.[7] This inspection consists of an on-site evaluation of compliance with applicable federal and state standards. Such inspections are not limited to security, but cover all aspects of the LNG plant, including design, construction, equipment, operations, maintenance, personnel qualifications and training, and fire protection. Each inspection may cover one or more sections of the state and federal regulations. Inspections include a thorough

[7] The Pipeline Division typically conducts its inspections in the fall to allow plants to address any operational issues prior to the start of the winter heating season when the plants are used for peak gas supply. Each LNG facility was last inspected in the fall of either 2004 or 2005.

compliance review of the operator's plans, procedures, programs, records and facilities. They also include observation of any construction and maintenance work in progress.

In conducting its inspections, the Pipeline Division uses a federal checklist distributed by the DOT's Office of Pipeline Safety ("OPS") as well as a state checklist developed by the DTE. Each inspector also enters data into the Pipeline Division's inspection database, which is used to document specific observations from the inspections.

b. Enforcement Actions

The DTE has extensive procedures to determine violation of codes pertaining to the safety of LNG plants. 220 C.M.R. § 69.00 et seq. DTE inspectors are authorized to enter, inspect, and examine the records of jurisdictional LNG plants and gas companies for the purpose of determining compliance with federal and state pipeline safety regulations. 220 C.M.R. § 69.02. Due to their highly sensitive nature, an operator is not required to file security procedures with the DTE if the operator makes these security procedures available at the facility for review and inspection by the DTE. 220 C.M.R. § 69.02.

Upon review and consideration of all evidence, if the DTE has reason to believe that a violation of state or federal regulations has occurred, the Director of the Pipeline Division has authority to issue, among other things, a notice of probable violation ("NOPV"). An NOPV is the beginning of a formal enforcement action. Any operator that violates any provision of any code pertaining to the safety of jurisdictional LNG facilities may be subject to a civil penalty not to exceed $50,000 for each violation for each day that the violation persists; provided,

however, that the maximum civil penalty shall not exceed $1,000,000 for any related series of violations. G.L. c. 164, § 105A.[8]

An NOPV (1) lists the regulations the operator may have violated; (2) describes the evidence upon which the allegations are based; (3) notifies the operator of the available response actions; and (4) states the amount of the proposed civil penalty, if any. As an available response action, the NOPV includes an order ("Consent Order") that the operator may agree to sign to indicate agreement with the terms of the NOPV. In addition, an agreement prescribing specific remedial actions the operator agrees to take ("Compliance Agreement") may be incorporated into the Consent Order. For example, a Compliance Agreement could specify agreed-to changes in the operator's security procedures to enhance safety and comply with federal and state regulations. Within 30 days of the receipt of an NOPV, an operator must respond by either: (1) signing the Consent Order and paying the civil penalty, if any; (2) submitting an offer of compromise; (3) requesting an informal conference with the Pipeline Division; or (4) submitting a written reply disputing the violations. 220 C.M.R. § 69.04. If the operator signs the Consent Order, the enforcement

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[8] In determining the amount of the penalty, the DTE is required to consider the following: (1) the nature, circumstances and gravity of the violation, including adverse impact on the environment; (2) the degree of the operator's culpability; (3) the operator's history of prior offenses; (4) the operator's ability to pay; (5) any good faith by the operator in attempting to achieve compliance; (6) the effect on the operator's ability to continue in business; and (7) such other matters as justice may require. 49 C.F.R. Part 190, § 190.255; 220 C.M.R. § 69.09; see G.L. c. 164, § 105A.

action is resolved. A Consent Order includes an express waiver of appeal or judicial review rights that might otherwise attach to a final order of the DTE. 220 C.M.R. § 69.08.

If an operator does not agree to sign the Consent Order and, instead, requests either an informal conference with the Pipeline Division or submits a written reply disputing the violations, the Pipeline Division will issue an informal decision based on all evidence presented. An operator that does not sign the Consent Order or wishes to contest any informal decision may request a formal adjudicatory hearing at the DTE pursuant to G.L. c. 30A and conducted pursuant to the DTE's procedural regulations. 220 C.M.R. § 69.06. Following the adjudicatory hearing, the DTE issues an Order, which is subject to review by the Supreme Judicial Court.

IV. SECURITY INSPECTION PROTOCOL

In response to the Lynn incident, Pipeline Division engineers and Critical Infrastructure Unit personnel performed field security inspections of the 20 LNG storage plants in Massachusetts. These inspections were focused on LNG plant security, maintenance, personnel qualifications and training. When conducting these inspections, Pipeline Division engineers used state and federal checklists extracted from the one used for the biennial LNG plant inspections.[9] The security inspection checklists covered numerous items, including:

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[9] The federal regulations are prescribed in Part 193, Liquefied Natural Gas Facilities: Federal Safety Standards. The relevant subsections are Part 193, Subpart H- Personnel Qualifications, and Training; and Part 193, Subpart J - Security. The relevant state LNG regulations are prescribed in 220 C.M.R. §§ 112.00 et seq., Design, Operation,

(continued…)

general plant compliance with its own security procedures; record keeping; maintenance of a continuously manned control center; alarm systems; visual inspection of unmanned facilities; security training; training records; development of security procedures (including manuals); protective enclosures; security communications; security lighting; security monitoring (visual and/or electronic); alternative power sources; and warning signs. Exemplar federal and state checklists used for the security inspections are attached to this report in Appendix A. The results of these security inspections are discussed in Section V(A), below.

V. DISCUSSION OF FINDINGS AND RECOMMENDED IMPROVEMENTS

A. All LNG Facilities

1. Introduction

As discussed above, in response to the Lynn incident, Pipeline Division engineers conducted extensive security inspections at each of the 20 jurisdictional LNG plants in Massachusetts. A member of the Critical Infrastructure Unit accompanied the DTE engineers on these inspections. DTE engineers and the Critical Infrastructure Unit assessed whether the LNG plants met individual state and federal requirements for security-related equipment (including equipment monitoring and maintenance), personnel training, and documentation of procedures. The results of the inspections of all LNG plants (other than KeySpan's Lynn

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[9] (…continued)
Maintenance and Safety of Liquefied Natural Gas Plants and Facilities.

facility) in each of these three areas are summarized below.[10] With the exception of Lynn, each facility was found to be substantially in compliance with existing federal and state security-related regulations. As discussed below, the inspections identified certain areas where minor improvements are recommended and will be directed by the DTE.

2. Overview of Security Inspections

a. Equipment

LNG plants are required to have a means of monitoring the perimeter of the plant for intrusions. In addition, an operator of an LNG plant that can store more than 250,000 barrels of LNG is required to monitor the protective enclosure and areas within. Six out of 19 LNG plants inspected are subject to this requirement. Monitoring can consist of security patrols or electronic intrusion detection systems such as microwave or infrared detectors. Electronic systems must emit a visual or sound alarm at a control center that is manned continuously. Some plants also employ closed circuit television ("CCTV") systems to supplement their security monitoring.

The Pipeline Division engineers tested the monitoring systems, including security alarms and detectors at the 19 plants. All security alarms were in working order. The DTE inspectors also reviewed maintenance records for the alarms and detectors. Other security equipment, such as CCTV systems, was also tested. All of these systems were working.

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[10] The ongoing security inspection and incident investigation at KeySpan's Lynn facility is addressed separately in Section V(B), below.

DTE inspectors reviewed security patrol records to determine if the patrols were being conducted according to plant procedure. Inspectors also accompanied plant operators on security patrols at each plant to ensure that the patrols were adequate. All security patrols were found to be in compliance with state and federal regulations.

Each plant must have means of internal and external communications. All 19 plants met this requirement. The communications systems were tested and found to be in working order. In addition, plants are required to have lighting if they rely on patrols for security monitoring. All such plants had adequate lighting.

State and federal regulations require plants to have a backup power source for all security monitoring and lighting systems. All plants had backup power sources which were operating properly and providing adequate amounts of electricity.

LNG plants are required to post "No Trespassing" signs or their equivalent around their perimeter. Eighteen plants complied with the signage requirement. At one plant, inspectors determined that the signs were not large enough.

Finally, each LNG plant is required to have a protective enclosure around its perimeter. This enclosure or fence must be strong enough to restrict access to the plant. All plants use chain link fencing topped with barbed wire or razor-ribbon wire. The area near the fence must be kept clear of trees, poles, or buildings that might be used to gain access to the plant. Ten of the 19 plants had no problems with fences. Tree branches that needed trimming were found at

four plants. The fences at the five remaining plants required minor repairs to the barbed wire to repair rust caused by corrosion.

b. Training

Proper personnel training is a vital part of LNG plant security. Plant personnel must be trained to (1) recognize breaches of security, (2) carry out security procedures that relate to their assigned duties, (3) be familiar with basic plant operations and emergency procedures as necessary to effectively perform their assigned duties, and (4) recognize conditions under which security assistance is needed. In addition, each LNG plant must maintain a training manual.

Regulations require that each person working at an LNG plant receive security training when initially hired. This training must be repeated once every two years. Plant operators are required to keep records showing that each employee has successfully completed all required training programs. Part 193, §§ 193.2715, 193.2719; 220 C.M.R. § 112.12.

All 19 LNG plants had adequate training programs for emergency procedures and security duties. All 19 plants also had training manuals, but five plants were found to require minor revisions to their manuals. For example, two plants had revised their security procedures but had not yet included the revised procedures in their training manual. Another plant did not properly note the last revision date of its manual. One LNG plant did not properly document the requirement that security training must be repeated every two years in its manual (although this operator did adequately retrain all employees at the required two-year

intervals). A fifth plant included a shortened version of its security procedures in its manual instead of the plants' full list of security procedures. Eighteen LNG plants maintained proper documentation of training records. One LNG plant was unable to locate its training records for 2005.

All 19 LNG plants properly trained employees upon hire. With respect to the required frequency of retraining, 17 of 19 plants met the required schedule. The two remaining plants had one employee each who was overdue for the required security retraining.

c. Procedures

Each LNG plant is required to prepare, adhere to, and maintain, written plant procedures. Such procedures must be made available, on request, for review and inspection by the DTE. If there have been any changes to the procedures, the operator must reduce these changes to writing and make them available at the plant within 20 days.[11] 220 C.M.R. § 112.11.

The DTE security inspections reviewed written procedures manuals, including (1) security procedures, (2) protective enclosure construction procedures, (3) security communications procedures; (4) security lighting procedures, (5) security monitoring procedures, (5) alternative power source procedures, and (7) warning sign procedures. Part 193, §§ 193.2903, 193.2907, 193.2909, 193.2911, 193.2913, 193.2915, 193.2917.

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[11] While LNG plant operators routinely make updated procedures available in writing at their plants within the required 20 days, seven of 19 operators failed include language in their written procedures manuals documenting this requirement.

Security procedures must address items such as a description of the actions to be taken in the event of a breach of security at the plant, a description of the duties of security personnel, a description of the nature and frequency of security patrols, and a method of determining which persons are allowed access to the plant. In addition, regulations require the plant to work with local law enforcement officials to keep them informed of plant security procedures.

Upon inspection, all 19 LNG plants were found to have comprehensive written security procedures, including detailed instructions to be followed in the event of a breach or attempted breach of security. At some of the plants, the written security procedures required certain revisions or updating. One plant's procedures did not contain a list of security positions or a description of security duties. Another plant required a more detailed description of its security patrols in its procedures manual. One plant did not specify the frequency of security patrols in its procedures manual. One plant needed to update certain emergency contact information contained in its manual. Although they had adequate procedures in place to check photo identifications when allowing access to the facilities, two plants did not adequately describe such procedures in their written procedures manuals. All but one plant adequately documented its efforts to keep local law enforcement officials informed about current security procedures.

Each plant had adequate protective enclosure construction procedures. Although their security communications systems were adequate, three of the 19 LNG plants did not

appropriately describe these systems in their written procedures manuals. All but one plant had adequate security lighting procedures. While the remaining plant had proper security lighting on site, it did not describe its lighting specifications in its procedures.

All 19 plants had proper security monitoring procedures. While all plants provided a proper source of backup power for security lighting and security monitoring, three plants failed to include alternative power source procedures in their procedures manuals. Although each plant had proper warning signs along protective enclosures, two plants failed to include specifications for such signs as part of their procedures.

3. Conclusion

Many of the LNG facilities in Massachusetts already voluntarily exceed some federal and state security requirements. Upon initial review, it appears that each of the 19 LNG facilities is in substantial compliance with state and federal regulations. As discussed above, a number of minor issues were identified as a result of the security review and remediation will be ordered, such as tree trimming around the perimeters of facilities, repairing rust on fences and maintaining proper documentation of written procedures. The DTE will conduct follow-up inspections to ensure the remedial measures are implemented.

B. Lynn Facility

1. Description of Facility

KeySpan's Lynn LNG plant, built in 1972, is located next to Lynn Harbor. It has a one storage tank which can hold up to 290,000 barrels of LNG. The storage tank, which is

double-walled, is surrounded by an earthen dike designed to contain all of the LNG in the tank in the event of a spill. LNG is delivered to the plant by tanker truck. The LNG is transferred from the trucks to the storage tank. There are two unloading stations. The plant also has vaporizers to regasify the LNG before it is odorized and sent into KeySpan's distribution system.

2. Factual Background

On the evening of August 16, 2006, intruders cut through the outer and inner perimeter fences and through a locked gate on a stairway at the Lynn LNG storage tank and gained access to the top of the tank. The plant has an audible alarm system, but it appears that it may not have functioned properly that evening. The plant's microwave intrusion system did detect both intrusions, which were documented on the computer monitoring system. It appears that KeySpan personnel were unaware of either intrusion. KeySpan has reported that, at the time of the intrusions, plant personnel may have been responding to a separate alarm which required the on-site employee to exit the control room and start a piece of equipment within the plant. KeySpan also has outside video surveillance of the perimeter, including the area of fence that was cut, but the initial indication is that the video was not reviewed until after the intrusion was detected. KeySpan personnel may have conducted visual inspections of the fence on at least eight occasions after the breach occurred.

Despite the cuts in the fences and the gate, it appears that KeySpan personnel did not detect the security breach until the morning of August 21, 2006, five days after it occurred.

The breach was discovered during routine maintenance on the gate at the side of the LNG tank. KeySpan states that tools were missing from the top of the tank, but that no damage was done to the tank itself. KeySpan did not notify the Pipeline Division of the incident until 8:30 p.m. on August 21, 2006, over twelve hours after the security breach had been detected, and over five days after the breach had occurred.

The following morning, August 22, 2006, the Director of the DTE's Pipeline Division and one of its senior engineers initiated an investigation with a site visit to the Lynn facility. Over the next two days, the Director and Pipeline Division engineer examined the location of the security breach, investigated and tested the plant's security alarm systems, and interviewed KeySpan personnel at the plant. A Pipeline Division engineer returned to the facility on September 15, 2006 to conduct a further security inspection in conjunction with the Critical Infrastructure Unit. The DTE also spoke with KeySpan personnel in New York who are responsible for operating the plant's computer systems. As part of the ongoing investigation, the Pipeline Division has reviewed maintenance, operating and security records from the Lynn plant. In addition, KeySpan is responding to Information Requests issued by the DTE.

3. Status of Investigation

The DTE, the State Police and the Lynn Police Department are conducting active investigations at this time. The EOPS has been briefed and the State Police Anti-Terrorism Unit continues to aggressively pursue those responsible. The DTE's investigation is still in the

discovery stage. To date, KeySpan has submitted responses[12] to DTE Information Requests, including extensive documentation on personnel, security training manuals and procedures, security system training and procedures, internal review, logbooks, and computer printouts related to the incident. The DTE is reviewing the documentation to determine whether it is complete and responsive, and whether clarification or supplemental responses may be necessary. In addition, the Pipeline Division may determine that additional testing of equipment is necessary.

Once the evidence-gathering process is complete, the DTE will initiate an enforcement action. The DTE will likely issue an NOPV containing a penalty. In addition, any NOPV would identify remedial steps to be undertaken by KeySpan based upon the lessons learned from this investigation. Such steps would likely include review and revision of its security procedures manual and training, correction of any identified hardware and software deficiencies that may have contributed to the incident, and other security enhancement actions. Once the Lynn investigation is complete, the DTE will consider applying some of these measures to other LNG facilities as warranted.

In the interim, the DTE has directed KeySpan to correct all of the deficiencies identified in the course of the investigation thus far. The site of the entry was promptly

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[12] Concurrent with filing its responses, KeySpan filed a request for the DTE to grant protection from public disclosure certain confidential and proprietary information the DTE has requested of KeySpan. KeySpan argues that this information relates directly to the security and safety of the LNG plant, the disclosure of which is likely to jeopardize public safety.

repaired. The Lynn facility is operating at the highest level of security per DTE directive. The Lynn Police Department is on a paid 24-hour detail at the facility. KeySpan has established a threat advisory group investigation team. KeySpan contracted with a security consultant to advise it on security and to perform an independent investigation and assessment of security procedures. KeySpan reports that it has initiated a new security protocol that includes, among other things, alarms at the local control center and at its central monitoring facility. Personnel access to the plant is limited and under the control of senior officers. Disciplinary action has been taken with the workers involved in the incident at Lynn facility. KeySpan has indicated that it is committed to implementing whatever recommendations federal, state and its internal experts conclude are necessary.

VI. CONCLUSION

Each of the jurisdictional LNG facilities in Massachusetts has undergone a rigorous security inspection by the DTE and the Critical Infrastructure Unit. It is our conclusion that, with the exception of KeySpan's Lynn facility, the LNG facilities in Massachusetts substantially comply with all existing federal and state security regulations.

The inspections at the 19 plants other than Lynn identified certain areas where minor improvements were warranted in areas such as tree trimming and fence corrosion repair. For these 19 plants, the DTE will continue to monitor the operators as they implement these improvements.

KeySpan's Lynn LNG facility is the subject of an active investigation by both the DTE and the State Police that remains in the information-gathering stage. This investigation will likely result in an enforcement action against KeySpan that could include a penalty. Upon completion of the Lynn investigation, the DTE will consider applying the same measures found necessary in Lynn to the other LNG facilities as warranted. Since the incident, the Lynn facility has implemented enhanced security measures.

State regulators and public safety officials will continue their vigilant oversight, inspections and monitoring of LNG facilities in Massachusetts. We will continue to hold operators of such facilities to strict security standards as well as institute severe penalties for non-compliance.

VII. APPENDIX

COMMONWEALTH OF MASSACHUSETTS
SECURITY INSPECTION REPORT OF AN LNG FACILITY

A completed **Standard Inspection Report** is to be submitted to the Director within 60 days from completion of the inspection. A **Post Inspection Memorandum (PIM)** is to be completed and submitted to the Director within 30 days from the completion of the inspection, or series of inspections, and is to be filed as part of the **Security Inspection Report.**

Inspection Report	Post Inspection Memorandum
Inspector/Submit Date:	**Inspector/Submit Date:** _____ **Peer Review/Date:** _____ **Director Approval/Date:** _____

POST INSPECTION MEMORANDUM (PIM)		
Name of Operator:		**OPID #:**
Name of Unit(s):		**Unit # (s):**
Records Location:		
Unit Type & Commodity:		
Inspection Type:	**Inspection Date(s):**	
DTE Representative(s):		**AFO Days:**

Summary:

Findings:

COMMONWEALTH OF MASSACHUSETTS
SECURITY INSPECTION REPORT OF AN LNG FACILITY

Name of Operator:	
OP ID No.	**Unit ID No.**
H.Q. Address:	**System/Unit Name and Address**

Co. Official:	**Activity Record ID#:**
Phone No.:	**Phone No.:**
Fax No.:	**Fax No.:**
Emergency Phone No.:	**Emergency Phone No.:**

Persons Interviewed	Titles	Phone No.

DTE Representative(s):	**Date(s):**

Company System Maps (copies for Region Files):

Type of facility: **Base Load** ☐ **Satellite** ☐ **Peak Shaving** ☐ **Mobile/Temporary** ☐

Year Facility Was Placed In Operation:

Liquefaction Rate, MMCFD:

Type Of Liquefaction Cycle:

Number of Vaporizers & Capacities:

Storage Tank Statistics - Fabricator, Volumes, Materials, etc:

Comments:

COMMONWEALTH OF MASSACHUSETTS
SECURITY INSPECTION REPORT OF AN LNG FACILITY

Inspector:	Date:
Operator/Plant:	

OPERATOR'S PERSONNEL PRESENT

NAME	TITLE

Site	Location	Start Time:	Arrival Time	Arrival Mileage
1				
2				
		Finish		

CFR/CMR Section(s) and Title(s)

Attach Inspection Checklists.

Comments:

Probable Violation(s)

COMMONWEALTH OF MASSACHUSETTS
SECURITY INSPECTION REPORT OF AN LNG FACILITY

Exit Interview with Operator Personnel

Name:		**Date**

Follow up Letter Sent to Operator

Name:	**Title:**	**Date:**

Reviewed By Division Manager

Signature:	**Date:**

COMMONWEALTH OF MASSACHUSETTS
SECURITY INSPECTION REPORT OF AN LNG FACILITY

		220 CMR 112 SECURITY	S	U	N/A	N/C
220 CMR 112.11	112.11	**Procedures**				
		At each LNG plant, the operator shall prepare, adhere to, and maintain the plans and procedures required by 220 CMR 112 and 49 CFR 193 for that plant.				
	112.11	Are the security procedures made available on request by the Department for review and inspection?				
	112.11	If there have been any changes to the security procedures, are they available at the LNG plant for review and inspection within 20 days after the changes were made?				
220 CMR 112.12	112.12	**Records**				
		Is the operator keeping records adequate to substantiate compliance with 49 C.F.R. Part 193 and the regulations here in CMR 112.12?				
	112.12	Does the Department have access to records for inspection and copying?				
220 CMR 112.20	112.20	**Control Center**				
		Does the LNG plant have a control center from which operations and warning devices are continuously monitored?				
	112.20	Does the control center have a means of communicating a warning of hazardous conditions to all locations in the plant frequented by personnel?				
	112.20	If more than one control center is located at the LNG Plant, are there at least two means of communication between all such control centers?				
220 CMR 112.21	112.21	**Alarm Systems at Plants**				
		If the LNG plant is not continuously attended, is there an alarm system to transmit an alarm to a continuously attended facility of the operator? *****				
	112.21	Is the alarm system capable of indicating security breach, or other abnormal conditions?				
220 CMR 112.22	112.22	**Inspection of Plants**				
		Is each plant that is not continuously attended visually inspected at least once a day by a qualified representative of the operator to ensure that it is in a safe condition?				

Comments:

SECURITY INSPECTION REPORT OF AN LNG FACILITY

A completed **Standard Inspection Report** is to be submitted to the Director within 60 days from completion of the inspection. A **Post Inspection Memorandum (PIM)** is to be completed and submitted to the Director within 30 days from the completion of the inspection, or series of inspections, and is to be filed as part of the **Standard Inspection Report.**

Inspection Report	Post Inspection Memorandum
Inspector/Submit Date: _____	**Inspector/Submit Date:** _____ **Peer Review/Date:** _____ **Director Approval/Date:** _____

POST INSPECTION MEMORANDUM (PIM)		
Name of Operator:		**OPID #:**
Name of Unit(s):		**Unit # (s):**
Records Location:		
Unit Type & Commodity:		
Inspection Type:	**Inspection Date(s):**	
DTE Representative(s):		**AFO Days:**

Summary:

Findings:

SECURITY INSPECTION REPORT OF AN LNG FACILITY

Name of Operator:	
OP ID No. [1]	**Unit ID No.** [1]
H.Q. Address:	**System/Unit Name and Address** [1]

Co. Official: **Phone No.:** **Fax No.:** **Emergency Phone No.:**	**Activity Record ID#:** **Phone No.:** **Fax No.:** **Emergency Phone No.:**

Persons Interviewed	Titles	Phone No.

DTE Representative(s): [1]	**Date(s):**[1]

Company System Maps (copies for Region Files):

Type of facility: **Base Load** ☐ **Satellite** ☐ **Peak Shaving** ☐ **Mobile/Temporary** ☐

Note: Some mobile and temporary LNG facilities must meet the requirements of Section 2.3.4 of NFPA 59A (2001 edition) in lieu of the requirements of Part 193 per 193.2019.

Year Facility Was Placed In Operation:

Liquefaction Rate, MMCFD:

Type Of Liquefaction Cycle:

Number of Vaporizers & Capacities:

Storage Tank Statistics - Fabricator, Volumes, Materials, etc:

Comments:

[1] Information not required if included on page 1.

SECURITY INSPECTION REPORT OF AN LNG FACILITY

		§193.2715 TRAINING; SECURITY	S	U	N/A	N/C
.2017	.2715(a)	Personnel responsible for security at an LNG plant must receive initial training in the following subjects. The training must be based on a written plan.				
	.2715(a)(1)	How to recognize breaches of security.				
	.2715(a)(2)	How to carry out security procedures that relate to their assigned duties (see §193.2903).				
	.2715(a)(3)	Whatever plant operations and emergency procedures they need to know to effectively perform their assigned duties.				
	.2715(a)(4)	How to recognize conditions that call for security assistance.				
	.2715(b)	At intervals not to exceed two years, all personnel must receive refresher training in the subjects in which they received initial training. Refresher training must be based on a written plan.				

Comments:

		§193.2719 TRAINING; RECORDS (FOR SECURITY TRAINING)	S	U	N/A	N/C
.2719	.2719(a)	Each Operator shall maintain a system of records which:				
	.2719(a)(1)	Provide evidence that the training programs required by 49 CFR Part 193, § 193.2715 have been implemented				
	.2719(a)(2)	Provide evidence that personnel have undergone and satisfactorily completed the required training programs				
	.2719(b)	Records must be maintained for one year after personnel are no longer assigned duties at the LNG plant				

Comments:

SECURITY INSPECTION REPORT OF AN LNG FACILITY

		§193.2903 SECURITY PROCEDURES	S	U	N/A	N/C
.2017	.2903	Written security procedures must be available at the plant. The procedures must discuss topics (a) through (g).				
	.2903(a)	Description and schedule of security inspections and patrols.				
	.2903(b)	A list of security personnel positions **or** responsibilities.				
	.2903(c)	Brief description of the security duties of **security** personnel.				
	.2903(d)	Description of actions to be taken when there is an indication of an actual or attempted breach of security.				
	.2903(e)	Method(s) for determining which persons are allowed access to the LNG plant.				
	.2903(f)	Positive identification of all persons who enter the plant or are in the plant area, using a method at least as effective as picture badges.				
	.2903(g)	Liaison with local law enforcement officials to keep them informed about current security procedures.				

Comments:

		§193.2905 PROTECTIVE ENCLOSURES	S	U	N/A	N/C
.2017	.2905(a)	(a) The following facilities must be surrounded by a protective enclosure: (1) Storage tanks; (2) Impounding systems; (3) Vapor barriers; (4) Cargo transfer systems; (5) Process, liquefaction, and vaporization equipment; (6) Control rooms and stations; (7) Control systems; (8) Fire control equipment; (9) Security communications systems; and, (10) Alternative power sources. The protective enclosure may be one or more separate enclosures surrounding a single facility or multiple facilities.				
	.2905(b)	Ground elevations outside a protective enclosure must be graded in a manner that does not impair the effectiveness of the enclosure.				
	.2905(c)	Protective enclosures may not be located near features outside of the facility, such as trees, poles, or buildings, which could be used to breach the security.				
	.2905(d)	At least two accesses must be provided in each protective enclosure and be located to minimize the escape distance in the event of emergency.				
	.2905(e)	Each access must be locked unless it is continuously guarded. During normal operations, an access may be unlocked only by persons designated in writing by the operator. During an emergency, a means must be readily available to all facility personnel within the protective enclosure to open each access.				

SECURITY INSPECTION REPORT OF AN LNG FACILITY

	§193.2905 PROTECTIVE ENCLOSURES	S	U	N/A	N/C
Comments:					

		§193.2907 PROTECTIVE ENCLOSURE CONSTRUCTION PROCEDURES	S	U	N/A	N/C
.2017	.2907(a)	Each protective enclosure must have a combination of strength and configuration that is sufficient to obstruct unauthorized access to the enclosed facilities.				
	.2907(b)	Openings in or under the enclosure must be secured by grates, doors, or covers that provide at least the same level of protection as the enclosure.				

Comments:

		§193.2909 SECURITY COMMUNICATIONS PROCEDURES	S	U	N/A	N/C
.2017	.2909(a)	There must be a means for prompt communications between personnel with supervisory security duties and law enforcement personnel.				
	.2909(b)	There must be a means for communications between all on-duty personnel who have security duties and all control rooms/control stations.				

Comments:

		§193.2911 SECURITY LIGHTING PROCEDURES	S	U	N/A	N/C
.2017	.2911	If security warning systems are not provided for security monitoring, security lighting must be provided for protective enclosures and the areas they enclose (minimum of 2.2 lux from sunset to sunrise).				

Comments:

	§193.2913 SECURITY MONITORING PROCEDURES	S	U	N/A	N/C

SECURITY INSPECTION REPORT OF AN LNG FACILITY

		§193.2913 SECURITY MONITORING PROCEDURES	S	U	N/A	N/C
.2017	.2913	If 250,000 bbls or more of storage capacity: ▪ each protective enclosure and the area around each facility listed in §193.2905(a) must be monitored for the presence of unauthorized persons. ▪ monitoring must be by visual observation in accordance with the schedule in the security procedures under §193.2903(a) or by security warning systems that continuously transmit data to an attended location. If less than 250,000 bbls of storage capacity: ▪ only the protective enclosures need to be monitored.				

Comments:

		§193.2915 ALTERNATIVE POWER SOURCE PROCEDURES	S	U	N/A	N/C
.2017	.2915	An alternative source of power that meets §193.2445 must be provided for security lighting and for security monitoring and warning systems.				

Comments:

		§193.2917 WARNING SIGN PROCEDURES	S	U	N/A	N/C
.2017	.2917(a)	Warning signs, readable at night from a distance of 100 ft, must be placed conspicuously along each protective enclosure.				
	.2917(b)	The signs must be marked with the words "NO TRESPASSING," or words of comparable meaning, on a background of sharply contrasting color.				

	§193.2713 / .2715 / .2717 INITIAL and FOLLOW-UP TRAINING (retain for duration of employment, plus one year)	S	U	N/A	N/C
.2715(a)	Initial training - security.				
	▪ Recognize breaches of security.				
	▪ Carry out security procedures related to assigned function.				
	▪ Recognize conditions where security assistance is needed.				
.2715(b)	Follow-up security training (every 2 years).				

SECURITY INSPECTION REPORT OF AN LNG FACILITY

Comments: