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DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
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Office of the
Secretary

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Secretary's Order No. 2007-A-0011

Re: Final Regulation to Amend Regulation No. 1124 in Delaware's Regulations Governing Air Pollution Control by Adding Section 46 - Crude Oil Lightering Operations.

Date of Issuance: April 3, 2007
Effective Date: May 11, 2007

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") under *29 Del. C. §§8001 et seq.*, *29 Del. C. §§10111 et seq.* and *7 Del. C. §6010(a)*, the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-referenced rulemaking proceeding.

On January 12, 2001, the Department opened a proposed rulemaking proceeding in Start Action Notice ("SAN") 2000-23, which was to develop a proposed regulation for the purpose of regulating the air emissions of volatile organic compounds ("VOCs") released during lightering operations in Delaware's waters. The purpose of the proposed regulation was to regulate the release of harmful VOCs air emissions during crude oil lightering, which is the transfer of cargo from larger ships to smaller ships in order to allow the larger ships to deliver the cargo to shallower locations along the Delaware Bay. The VOCs released during crude oil lightering are a major source of VOCs released in Delaware. VOCs are a major source of air pollution, particularly in the formation of ozone. Ozone poses a significant risk to human health and the environmental. Delaware

also is within a federal designated ozone non-attainment area, which means that Delaware must take regulatory steps to reduce ozone in order to comply with the federal Clean Air Act and its regulations. Many of the VOCs are classified as hazardous air pollutants (“HAPs”), including the known carcinogens benzene and polycyclic organic matter.

The Department’s experts within the Division of Air and Waste Management, Air Quality Management Section (“AQMS”) drafted a proposed regulation based upon reasonably available control technology in vapor balancing during lightering. The proposed regulation was prepared with the input of interested persons, including members from the lightering industry, petroleum/refining interests, environmental organizations and public health associations. The Department published the proposed regulation in the November 1, 2006 *Delaware Register of Regulations* along with notice of the withdrawal of a prior proposed regulation, which had been published in the August 1, 2001 *Delaware Register of Regulations*. The Department held a public hearing on the November 1, 2006 proposed regulations on December 4, 2006.

The Department’s presiding hearing officer, Robert P. Haynes, prepared a Report, dated March 23, 2007, a copy of which is attached hereto and incorporated herein. The Report recommended approval of the regulation, as set forth in Appendix A of the Report, as a final regulation. The Report reviewed the public comments, and the Department’s technical response to the comments prepared by experts within AQMS.

I find that the record developed during the public hearing process, including the Department’s response, provides ample support for the Department to adopt this final regulation. The justification is that it will result in cleaner air quality, which in turn will

improve human health and the environment in Delaware. The regulation approved by this Order will result in the reduction of VOCs released during crude oil lightering because uncontrolled releases will be reduced from its current unregulated releases. Crude oil lightering is one of the major sources of the VOCs and HAPs in Delaware, with the annual release of approximately 1,900 tons of VOCs and 150 tons of HAPs. The air release of VOCs is a known cause of the formation of ozone, which also is proven to be a major risk factor to human health, particularly the elderly, children and others with an impaired ability to breathe.

The regulation will reduce the amount of lightering that is done without vapor balancing equipment, or uncontrolled lightering. The regulation will require the increased use of vapor balancing equipment over a reasonable time period that the industry has indicated is acceptable to allow the changes to be made to the vessels or to acquire newer vessels. The first regulatory deadline will be an 80% limit to uncontrolled lightering out of all crude oil lightering volumes by May 1, 2008. This level will reduce to 61% by May 1, 2010, and again be reduced to 43% by May 1, 2012. Thus, the release of VOCs will be reduced by 57% in the next five years.

The final regulation also bars uncontrolled releases during most ozone action days in order to avoid adding more air pollution on the days when human health is most adversely affected by poor air quality caused by ozone. The regulation is based upon sound scientific theory and the application of available technology that can be installed in order to reduce a major source of air pollution.

In conclusion, the following findings and conclusions are entered:

1. The Department, acting through this Order of the Secretary and 29 Del C. §10118(d), hereby approved the final regulation in Appendix A to the Report,

2. The Department shall have this Order published in the *Delaware Register of Regulations* and in newspapers in the same manner as the notice of the proposed regulation;

3. The Department shall provide notice to the persons affected by the Order, as determined by the Department, including all those who submitted comments to the Department, who otherwise participated in the public hearing, and who requested to receive notice of all actions on proposed regulations.

s/John A. Hughes

John A. Hughes,
Secretary

HEARING OFFICER'S REPORT

TO: The Honorable John A. Hughes
Secretary, Department of Natural Resources and Environmental Control

FROM: Robert P. Haynes, Esquire
Senior Hearing Officer, Office of the Secretary
Department of Natural Resources and Environmental Control

RE: Proposed Amendment to Regulation No.1124- Control of Volatile Organic Compound Emissions in Delaware's Regulations Governing Air Pollution Control by Adding Section 46-Crude Oil Lightering Operations.

DATE: March 23, 2007

I. BACKGROUND

On January 12, 2001, the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") approved Start Action Notice ("SAN") No. 2000-23, which commenced the Department's regulation development process for a proposed regulation to control the emissions of volatile organic compounds ("VOCs") from crude oil lightering¹ operations in Delaware's waters. In the Delaware Bay, lightering generally occurs in an area known as Big Stone Anchorage, which is offshore of Big Stone Beach, Sussex County. After the lightering, the larger oil tankers are able to offload oil at refineries located along Delaware River, including to the refinery in Delaware City, New Castle County.

The Department's regulatory development process entails involving interested persons who would meet and assist in the development of the proposed regulation. The workgroup met during a series of meetings, which culminated in the publication of a proposed regulation on August 1, 2001. The Department also held a public hearing on August 30, 2001, and considered numerous public comments. In response to the public comments, the Department decided that the proposed regulation should be significantly revised. Consequently, the Department resumed the work group meetings with the interested parties. These workgroup meetings were held

¹ Lightering is the transfer at anchorage of some of the contents of a larger oil tanker to a smaller, service vessel in order to allow the larger ship to navigate in shallower waters.

January 7, 2005, March 21, 2005, May 2, 2005, June 3, 2005, September 9, 2005, February 13, 2006, March 13, 2006, and August 4, 2006. These workgroup meetings culminated in a revised crude oil lightering proposed regulation.

On October 16, 2006, the Department withdrew the previous August 1, 2001 proposed regulation and its associated public hearing record pursuant to Secretary's Order No. 2006-A-0046 because of the significant changes that were made in the newly revised proposed regulation. On November 1, 2006, the Department published the revised proposed regulation, amended versions (marked up and clean version) are attached hereto as appendix A. At the same time, the Department provided notice of a December 4, 2006 public hearing. The public hearing was held to develop a new record based upon the new proposed regulation.

II. SUMMARY OF THE PUBLIC HEARING RECORD

The public hearing record contains a verbatim transcript of the public hearing, and documents, marked as Exhibits ("Ex"). The Department's Division of Air and Waste Management, Air Quality Management Section ("AQMS"), supported the newly proposed regulation. The Department's expert, Jim Snead, introduced for the record hearing exhibits identified as DNREC Ex. Nos. 1-75. The record includes public comments from the American Lung Association of Delaware, the Chamber of Shipping of America, the Delaware Nature Society, Maritrans Operating Company, Valero Refining, and Vane Bunkering, Inc. The Delaware Nature Society indicated its complete support. The American Lung Association generally supported the proposed regulation, although it would have preferred a more stringent regulation for the emissions of VOCs. Maritrans and Valero expressed their support for the finalization of the newly proposed regulation, but request the reconsideration of different aspects of the proposed requirements. Vane Line and the Chamber of Shipping did not support or

oppose the newly revised proposed regulation; both requested the Department reconsider several requirements in the proposed regulation.

Maritrans and Vane Line conduct the lightering operations and Valero receives crude oil at its Delaware City, New Castle County oil refinery from vessels that have used the lightering services in order to access the refinery's port facilities.

AQMS provided technical response to the public comments, which is attached hereto as Appendix B. This response provides an excellent and detailed analysis of the public comments and the Department's technical response. I will not repeat the comments and response here. Instead, the discussion and reasons will focus on certain questions raised by the comments and explain the rationale for the proposed regulation.

III. DISCUSSION AND REASONS

The Department's experts in AQMS are implementing the regulatory steps necessary for Delaware to comply with the federal Clean Air Act ("CAA"), and to improve the air quality in Delaware under Delaware's laws for the benefit of the environment and public health in Delaware. As part of the broad regulatory responsibility, AQMS undertook considerable investigation, research and studies in developing a variety of regulatory measures to improve Delaware's air quality, particularly to satisfy the CAA regulatory deadlines for compliance. This proposed regulation is an important step towards meeting the CAA's deadline for improving air quality.

AQMS' efforts to improve air quality were assisted in the regulatory development process with considerable input from the public. AQMS considered numerous public comments during the working group meetings, from the circulation of drafts, and the exchange of information. In addition, the Department has considered the comments received during the

formal hearing process and made some minor changes to the proposed regulatory language to clarify the regulation in response to public comments and Department review.

Based upon my review of the record, which provides considerable support for the proposed regulation, I find and recommend that the revised proposed regulation in appendix A be adopted as reasonable, well-supported and consistent with the Department's purposes.

The proposed regulation's purpose is to reduce the emissions of hazardous air pollutants ("HAPs"), which are released into the environment during the transfer of crude oil during lightering operations. It is known that crude oil lightering causes the release of HAPs, including benzene, ethylbenzene, toluene, xylene, and polycyclic organic matter, which are recognized to directly harm human health. These HAPs and other VOCs emitted during crude oil lightering operations are also precursors to the formation of ozone, which is particularly harmful to the public as a cause of human illness and disease, especially for children, the elderly, and those with breathing problems. The United States Environmental Protection Agency ("EPA") regulates federal air quality under the federal Clean Air Act. EPA has issued health-based regulations known as the National Ambient Air Quality Standards ("NAAQS") that the states must meet in order to protect the public health. Under NAAQS, each state must attain certain air quality criteria, including for ozone, a particularly harmful form of air pollution. EPA oversees the states' programs to comply with NAAQS, and if a state does not meet the NAAQS, then the state must take regulatory action to reduce emissions and attain cleaner air. EPA has designated Delaware as an ozone non-attainment area, which means that Delaware, through the Department, must periodically report to EPA on Delaware's actions to further reduce the emissions of ozone precursors in order to attain acceptable levels of air quality.

The Department's experts reviewed the causes for the formation of ozone in Delaware's air, and determined that the uncontrolled emission during crude oil lightering operations was a

major source of VOCs, an ozone precursor. For example, the uncontrolled emissions during crude oil lightering represent one of the state's largest sources of VOCs from non-mobile sources, with 1,918 tons released in 2003, 1,925 tons in 2004, 1,939 in 2005 and 1,656 in 2006. The experts determined that these levels could be significantly reduced through the installation and operation of vapor balancing systems.² Moreover, that this sound and proven method of pollution control was available to control VOC emissions during lightering. Consequently, the experts proposed requirements based upon the installation and operation of vapor balancing systems and these requirements are reflected in the proposed regulation's limits. The proposed limits and method of regulation is not novel or unique. Instead, it is based upon long, available technology similar to the vapor balancing systems installed at gas stations. The regulation of emissions during crude oil lightering operations has occurred in other jurisdictions; for example, emissions limitations have been in place in several California air quality management districts since the early 1990s. The maritime application of vapor balancing of VOCs has been used to control the release of VOCs during oil lightering in the waters of these districts. In the 1990s, the U. S. Coast Guard adopted regulations to ensure that vapor balanced lightering operations would be conducted in a safe, non-polluting manner.

Virtually all the crude oil lightering on the east coast is conducted in the Big Stone Anchorage of the Delaware Bay. Limited lightering operations are also conducted near the New York and Boston harbors and in Long Island Sound, but, if combined, these operations constitute less than 5-10% of the volume lightered in the Big Stone Anchorage.

The major issues raised were the federal and international laws that also regulate lightering. The international treaties, if ratified by the United States Senate, become binding on the member countries as the minimum level to follow. The states are able to exercise regulatory

² Proper use of vapor balancing equipment during lightering can eliminate approximately 99.4% of VOCs' air emissions.

authority to protect the environment and public health in excess of the federal minimum, so long as the exercise does not unduly interfere with interstate commerce and sufficient lead time is provided to the international maritime communities. The installation of the vapor balancing systems required to meet the proposed regulation's limits does not impose any undue economic hardship that would interfere with the interstate and foreign commerce. This control technology currently exists and is used to control emissions today, and has been used to control emissions in Delaware in the past several years as the vessels have installed the pollution control equipment needed to vapor balance. Counsel for the Department of Justice also provided an opinion on the possible federal preemption issue, and its opinion also is that there is no federal preemption that bars the adoption of the proposed regulation. Thus, there is no overreaching regulation that would prevent interstate commerce from being curtailed, but instead a reasonable exercise of valid state regulatory authority that is designed to improve the environment and public health.

The other issue raised in the public comments was the use of the Department's ozone action day declaration in Section 46.4.2 as a method to control releases of VOCs from uncontrolled lightering operations. The reliance on the Department's designation of an ozone action day is a reasonable way to prohibit the release of more ozone forming VOCs during a time when the public health and the environment are already subject to excessive ozone levels. The Department acknowledges that prohibiting uncontrolled lightering during ozone action days may interfere with business operations, but that the interference is reasonable when weighed against the health impacts caused by exposure to elevated ozone levels..

As noted in the technical response, the Department could treat lightering operations like other sources of air pollution subject to Regulation 24 and require year round emission reductions during all operations. Instead, the Department allowed some uncontrolled lightering to continue based upon certain emission limits being met, but did restrict those uncontrolled

emissions when the air quality was expected to be so poor as to trigger an ozone action day alert, which is readily available, well-known and well-publicized. To the extent that a person conducts uncontrolled lightering on an ozone action day, then the issue of notice may be raised as a defense to an enforcement action. There is nothing unreasonable in relying on an ozone action day alert, which is similar to other governmental action taken to curtail air pollution when air quality is particularly unhealthy to humans and harmful to the environment.

The regulation, if approved, will require the increased use of vapor balancing equipment over a reasonable time period that the industry has indicated is acceptable to allow the changes to be made to the vessels or to acquire newer vessels. The first regulatory deadline will be an 80% limit to uncontrolled lightering out of all crude oil lightering volumes by May 1, 2008. This level will reduce to 61% by May 1, 2010, and again be reduced to 43% by May 1, 2012. Thus, there will be 57% less VOCs released if this regulation is adopted after five years. The Department's experts determined the phased limits and time periods were reasonable and achievable for the lightering industry and the industry accepted the time periods.

I find that the Department's proposed regulations have sound scientific support for regulating the release of VOCs and HAPs during crude oil lightering operations. The Department properly relied on considerable scientific evidence, which demonstrates the reasons why the proposed regulation is appropriate and necessary to improve the air quality in Delaware. The Department's experts provided extensive documentation of the underlying studies, which show that the proposed regulation will improve the air quality as one of many regulatory steps taken to meet the federal NAAQS. The proposed regulations are the proper exercise of this Department's power to issue regulations to protect the environment and public health. The proposed regulation will produce significant positive results in cleaner air, less ozone and improve the health of Delaware's citizens and visitors, but particularly the most vulnerable to

poor air quality, namely, the elderly and children. The exercise of the regulatory authority is based upon the reasoned expert judgment and is amply supported by science and facts. Consequently, I recommend the adoption of the proposed regulation, as amended by minor, nonsubstantive changes³, as a final regulation.

IV. RECOMMENDED FINDINGS AND CONCLUSIONS

Based on the record developed, I find and conclude that the record supports approval of the proposed regulation, as set forth in Appendix A hereto, as a final regulation. In conclusion, I recommend the Secretary adopt the following findings and conclusions:

- 1.) The Department has jurisdiction under its statutory authority to make a determination in this proceeding;
- 2.) The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations;
- 3.) The Department held a public hearing in a manner required by the law and regulations;
- 4.) The Department considered all timely and relevant public comments in making its determination;
- 5.) The Department's proposed regulations establishing air emission regulations to regulate and reduce the release of VOCs and HAPs during crude oil lightering operations, as set forth in Appendix A hereto, is adequately supported in the record, establishes reasonable standards and limits that will reduce pollution and improve public health, and is consistent with the applicable laws and regulations. Consequently, the proposed regulation should be approved as a final regulation, and be allowed to go into effect ten days after publication in the next available issue of the *Delaware Register of Regulations*; and that

³ I find that the changes either clarify the original intent or are mere style changes.

6.) The Department shall submit the proposed regulation as final regulation to the *Delaware Register of Regulations* for publication in its next available issue, and shall provide written notice to the persons affected by this Order, as determined by the Department, but which will include service on participants in the Department's regulatory development and public hearing process.

s/Robert P. Haynes

Robert P. Haynes, Esquire
Senior Hearing Officer

Appendix A (marked up recommended final regulation)

Section 46—[RESERVED]

46.0 Crude Oil Lightering Operations.

[4][11/11/07]

46.1 Applicability.

46.1.1 The requirements in ~~[46.1 through 46.9]~~[Section 46.0] of this regulation, with the exception of 46.3.7 of this regulation, apply to the owner or operator of a lightering service that carries out crude oil lightering operations in the waters of the State. The requirement in 46.3.7 of this regulation applies to the owner of the crude oil being lightered in the waters of the State.

46.1.2 While carrying out emergency lightering operations, the owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~[Section 46.0] of this regulation is subject only to the requirements of 46.8 of this regulation.

46.1.3 The owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~[Section 46.0] of this regulation may be required to obtain, revise, or amend permits issued by the Department pursuant to Regulations 1102, 1125, and 1130 of 7 DE Admin Code, where applicable.

46.1.4 The requirements of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation are in addition to all other applicable State and Federal rules and regulations.

46.1.5 Nothing in ~~[46.1 through 46.9]~~[Section 46.0] of this regulation shall be construed to require any act or omission that would be in violation of any rules or regulations of the United States Coast Guard or to prevent any act that is necessary to secure the safety of personnel, property, or the environment.

46.2 Definitions.

As used in ~~[46.1 through 46.9]~~[Section 46.0] of this regulation, all terms not defined herein shall have the meaning given them in Regulation 1101 or in ~~[2.2]~~[Section 2] of this regulation.

“Baseline volume” means the average annual volume, in barrels per year, of crude oil lightered in the waters of the State during calendar years 2004 and 2005. If an existing lightering service did not carry out lightering operations throughout 2004 and 2005, the baseline volume for that existing lightering service shall be the average annual volume of crude oil lightered in the waters of State during the 24 month period beginning with its first lightering operation after December 31, 2003.

[“Controlled lightering operation” means a lightering operation in which the VOC emissions are being controlled by the use of a vapor balancing system.]

“Depressurization venting” means the release of vapors to the atmosphere from the ship to be lightered, the service vessel or the vapor balancing system during controlled lightering operations.

“Emergency lightering operations” means the transfer of crude oil cargo to mitigate or prevent a cargo spill, to stabilize a vessel whose integrity has been compromised, or to comply with the requirements of a Coast Guard Captain of the Port Order issued under the authority of the Ports and Waterways Safety Act, 33 USC 1221, as implemented by 33 CFR 160.111.

“Existing lightering service” means any lightering service that carried out a lightering operation in the waters of the State with an operating permit prior to the effective date of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation.

“Existing service vessel” means a service vessel that has been used in a lightering operation in the waters of the State prior to the effective date of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation.

“Lightering operation” means the transfer of crude oil from the cargo tank of a ship to be lightered to the cargo tank of a service vessel. Transfers of crude oil from the cargo tanks of a lightering service’s marine tank vessel to the cargo tanks of another marine tank vessel or reverse lightering is exempt from the requirements of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation.

“Lightering service” means any owner or operator that, under contract, carries out a lightering operation.

“Marine tank vessel” means any marine vessel, which is specifically constructed or converted to carry liquid bulk cargo in cargo tanks.

“New lightering service” means any lightering service that is not an existing lightering service.

“New service vessel” means a service vessel that is not an existing service vessel.

“Ozone Action Day” means a day that is predicted, based on forecasted weather conditions, to reach unhealthy ozone concentrations. Frequently called a Code Red

Day, an Ozone Action Day is declared prior to 1430 hours (local time) for the following day.

“Service vessel” means the marine tank vessel receiving crude oil during a lightering operation.

“Ship to be lightered” means the marine tank vessel delivering crude oil during a lightering operation.

“Uncontrolled lightering[~~operations~~]” means the period or periods when VOC emissions are vented from the service vessel to the atmosphere during a lightering operation.

[“Uncontrolled lightering operation” means a lightering operation conducted without vapor balancing.]

“Vapor balancing” means the collection and transfer of vapors displaced by the incoming crude oil from the cargo tank of a service vessel into a cargo tank of the ship to be lightered.

“Vapor control system” means an arrangement of piping and equipment used to control vapor emissions collected from a marine tank vessel. For the purposes of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation, vapor control system, also, includes vapor balancing.

“Vapor leak” means a gaseous leak that is detectable by sight, sound, or smell.

~~“Vapor tight service vessel” means a marine tank vessel has successfully demonstrated vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565 within the preceding twelve months.~~

“Waters of the State” means those waters within the boundaries of the State, including the 12 mile circle described from New Castle and extended to the low water mark on the eastern side of the Delaware River and extending below the 12 mile circle with the middle of the shipping channel through the Delaware River and Bay and extending to the Atlantic Ocean and including those waters of the territorial sea which are in direct contact with the coast of Delaware, extending from the line of ordinary low water seaward for a distance of 3 geographical miles. This definition shall include any waters beyond the 3-mile mark as authorized by Federal Law.

46.3 Standards.

46.3.1 When carrying out a lightering operation, the owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~[Section 46.0] of this regulation shall collect and transfer the VOC emissions from the service vessel to the ship to be lightered by vapor balancing.

~~46.3.2~~ ~~When vapor balancing, the owner or operator of a lightering service~~
~~subject to [46.1 through 46.9][Section 46.0] of this regulation shall only~~
~~use vapor tight service vessels.~~

~~46.3.[3.2][3]~~ Prior to vapor balancing, the owner or operator of a lightering service
subject to [46.1 through 46.9][Section 46.0] of this regulation shall verify
that all valves in the vapor balancing system of the service vessel are
correctly positioned to allow the collection and control of VOC emissions.

~~46.3.4~~ During vapor balancing, the owner or operator of a lightering service
subject to [46.1 through 46.9][Section 46.0] of this regulation shall verify
that there are no vapor leaks in the vapor balancing system of the service
vessel. Whenever a vapor leak is detected:

~~46.3.4.1~~ A first attempt at repair shall be made prior to the completion
of the lightering operation.

~~46.3.4.2~~ If a vapor leak in the vapor balancing system of the service
vessel can not be repaired prior to the completion of the
lightering operation, the leak shall be tagged and recorded.

~~46.3.4.3~~ The vapor leak shall be repaired prior to the date that the
service vessel is used in a lightering operation.

~~46.3.4.4~~ Following completion of the repair, the service vessel shall be
leak tested using the method in either paragraph (c)(1) or (c)(2)
of 40 CFR 63.565.

~~46.3.5~~ During lightering operations, the owner or operator of a lightering service
subject to [46.1 through 46.9][Section 46.0] of this regulation shall only
use service vessels equipped with submerged fill pipes.

~~46.3.6~~ When vapor balancing, the owner or operator of a lightering service
subject to [46.1 through 46.9][Section 46.0] of this regulation shall
request information from the operator of the ship to be lightered on the
total number of depressurization ventings by the ship to be lightered
during each lightering operation. The owner or operator of the lightering
service is [neither][not] responsible for enforcing [that the operator of
the ship to be lightered provide the depressurization venting
information][the information requirements of 46.3.7 of this
regulation] nor liable for any inaccuracies [of such][in the] information
[provided by the operator of the ship to be lightered].

~~46.3.7~~ When vapor balancing, the owner of the crude oil shall require the owner
or operator of the ship to be lightered to provide the owner or operator of

the lightering service the total number of depressurization ventings by the ship to be lightered at the conclusion of each lightering operation. [The owner of the crude oil is not responsible for enforcing that the operator of the ship to be lightered provide the depressurization venting information nor liable for any inaccuracies in the information provided by the operator of the ship to be lightered.]

46.4 Compliance schedule.

46.4.1 The owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~[Section 46.0] of this regulation shall comply with the following requirements.

46.4.1.1 The owner or operator of an existing lightering service shall provide the following information to the Department not later than 90 days after the effective date of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation.

46.4.1.1.1 The name or identification of existing service vessels that are expected to be used in lightering operations in the waters of the State after 2006.

46.4.1.1.2 The expected date that the vapor balancing system will be installed on each existing service vessel or the date the vapor balancing system was first used, if the existing service vessel is equipped with a vapor balancing system.

46.4.1.2 The owner or operator of a lightering service shall provide the following information to the Department upon the initial use of a new service vessel in the waters of the State.

46.4.1.2.1 The name or identification of the new service vessel.

46.4.1.2.2 The date that the new service vessel commenced lightering operations in the waters of the State.

46.4.1.2.3 A statement of whether the new service vessel is equipped with a vapor balancing system. If not equipped with a vapor balancing system, a statement on the expected date that the vapor balancing system will be installed on the new service vessel or the reason that a vapor balancing system will not be installed on that new service vessel.

46.4.1.3 Compliance with standards.

46.4.1.3.1 The owner or operator of a new lightering service shall comply with the requirements of 46.3 of this regulation upon initial lightering operation or the effective date of this regulation, whichever is later.

46.4.1.3.2 The owner or operator of an existing lightering service shall comply with the requirements of 46.3.1 of this regulation to the greatest extent practicable and shall comply with the requirements of 46.3.2 through 46.3.6 of this regulation when vapor balancing.

46.4.1.4 Maximum allowable uncontrolled lightering volume.

46.4.1.4.1 Beginning 12 months after the initial lightering operation or the effective date of this regulation, whichever is later, a new lightering service's 12-month rolling total volume of uncontrolled lightering shall not exceed 5 percent of the new lightering service's total volume lightered for that same 12-month period.

46.4.1.4.2 Beginning May 1, 2008, the 12-month rolling total volume of uncontrolled lightering shall not exceed an existing lightering service's baseline volume multiplied by the percentages listed in Table 46-1 of this regulation.

Section 1.01		<u>Table 46-1</u>	
		Section 1.02	<u>Maximum allowable</u>
<u>Beginning on</u>		<u>uncontrolled lightering volume</u>	
<u>May 1, 2008</u>			80 %
<u>May 1, 2010</u>			61 %
<u>May 1, 2012</u>			43%

46.4.1.5 The total volume of uncontrolled lightering for any given lightering operation shall be calculated using the following equation.

$$TUV = \sum_{i=1}^m (V)_i + \sum_{j=1}^n (EV)_j \quad \text{Eq. I}$$

]46-1

Where,

TUV = the total uncontrolled volume for each given lightering operation. This total volume is used in the determination of 12-month rolling total volume of uncontrolled lightering in 46.4.1.4 of this regulation.

V = the volume of crude oil transferred to the service vessel when displaced vapors are emitted directly to the atmosphere rather than collected and controlled by vapor balancing.

EV = the equivalent volume of crude oil transferred corresponding to the collected and controlled vapors emitted from the service vessel to the atmosphere as a result of depressurization venting. The equivalent volume of crude oil shall be calculated using paragraph (d)[(2)](i)(D)(10) of 40 CFR 63.1257 or a method approved by the Department.

i = the individual uncontrolled venting when transferring crude oil.

j = the individual depressurization venting.

m = the total number of uncontrolled ventings of displaced vapors when transferring crude oil for each given lightering operation.

n = the total number of depressurization ventings for each given lightering operation.

46.4.1.6 VOC emissions reduction and audits.

Beginning in February 2010, the Department shall conduct an annual audit of lightering service records to identify the frequency and duration of VOC ventings from the ships to be lightered. If the Department finds that ventings from the ships to be lightered reduce the VOC emission reductions achieved by the lightering services to a level below the maximum allowable uncontrolled lightering volume required in Table 46-1 of this regulation, the Department shall implement solutions, which could include amending ~~[46.1 through 46.9]~~[Section 46.0] of this regulation.

46.4.2 Ozone Action Day limitations.

Beginning May 1, 2007, uncontrolled lightering operations shall be curtailed as follows on any day that the Department declares an Ozone Action Day.

46.4.2.1 Uncontrolled lightering operations shall not be carried out from 0230 hours until 1630 hours (local time) of the declared Ozone Action Day. However, if uncontrolled lightering operations have begun prior to the declaration of the Ozone Action Day, those lightering operations may continue until 0230 hours (local time) or until the service vessel is fully loaded, whichever is later.

46.4.2.2 If the Department declares consecutive Ozone Action Days, the owner or operator of a lightering service shall, to the greatest extent practicable, minimize uncontrolled lightering operations on the second and subsequent consecutively declared Ozone Action Days as follows:

46.4.2.2.1 Carrying out controlled lightering operations, if vapor balancing compatible service vessels and ships to be lightered are available.

46.4.2.2.2 Rescheduling the uncontrolled lightering operations to the periods of 1630 hours to 0230 hours (local time) of the second and subsequent consecutively declared Ozone Action Days.

Section 1.03 46.4.3 No later than January 1, 2014 and every 5 years thereafter, the Department, owners or operators of existing lightering services subject to [46.1 through 46.9][Section 46.0] of this regulation, and owners of crude oil subject to 46.3.7 of this regulation shall determine the feasibility of achieving a 5 per cent maximum allowable uncontrolled lightering volume. If a 5 per cent maximum allowable uncontrolled lightering volume is determined to be feasible, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish a maximum allowable uncontrolled lightering volume of 5 per cent.

Section 1.04 46.4.4 If the feasible maximum allowable uncontrolled lightering volume determined in 46.4.3 of this regulation is greater than 5 per cent, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish the feasible maximum allowable uncontrolled lightering volume determined in 46.4.3 of this regulation.

46.4.5 Any changes to the requirements of Table 46-1 of this regulation shall be made in accordance with the requirements of 7 Del.C. Ch 60.

46.5.1 Within 120 days after the effective date of ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation or upon initial startup of each vapor balancing system, whichever is later, the owner or operator of a lightering service shall develop and implement a compliance plan that describes how initial and ongoing compliance will be demonstrated. The owner or operator of a lightering service shall make the compliance plan for each vapor balancing system available for inspection, upon request, by the Department.

46.5.2 Initial Compliance.

To demonstrate initial compliance, the owner or operator of a lightering service shall provide the Department with the information specified in 46.5.2.1 and 46.5.2.2 of this regulation.

46.5.2.1 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.5.2.2 A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.5.3 Ongoing Compliance.

The ongoing compliance demonstration plan shall include, at a minimum, the information specified in 46.5.3.1 through 46.5.3.5 of this regulation.

46.5.3.1 The recommended instrumentation for the continuous measurement and recording of the operating pressure of the service vessel.

46.5.3.2 The recommended operating and maintenance procedures for the vapor balancing system.

46.5.3.3 The recommended startup, shutdown, and malfunction plan for the vapor balancing system, which shall include the approved calculation methodology to determine the total uncontrolled volume in 46.4.1.5 of this regulation.

46.5.3.4 The recommended operating procedures to prevent inadvertent uncontrolled VOC emissions to demonstrate compliance with 46.3.3 of this regulation.

46.5.3.5 The recommended leak testing procedures to demonstrate compliance with 46.3.4 of this regulation.

46.5.4 To the extent practical, the lightering service's standard operating and maintenance manuals and standard log sheets may be used to satisfy the

requirements of the compliance plan, provided these manuals and log sheets contain all of the data necessary to meet the individual requirements of 46.5.3 of this regulation.

46.6 Equivalent methods of control.

46.6.1 Non-vapor balancing control technologies can be installed to control VOC emissions during lightering operations. New and existing lightering services may apply for the approval of an alternative control technology by submitting a complete request in accordance with the requirements of 46.6.2 and 46.6.3 of this regulation.

46.6.2 Upon receipt of a written request, the Department may approve the use of an alternative control technology to satisfy the requirements of 46.3.1 of this regulation.

46.6.3 The written request must contain a complete description of the alternative control technology, proposed compliance demonstration plan, proposed testing procedures, proposed recordkeeping requirements, and the expected startup date.

46.7 Recordkeeping.

The owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall keep the records specified in this paragraph in a readily accessible location for at least five years. These records shall be made immediately available to the Department on verbal or written request. For the purposes of 46.7 of this regulation, the terms “readily accessible location” and “immediately available” may apply to records located on a service vessel.

46.7.1 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall keep calculations, including documentation of data, required to determine the baseline volume of the lightering service.

46.7.2 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall keep calculations, including documentation of data, required to determine the 12-month rolling total volume of uncontrolled lightering of their lightering service in accordance with 46.4.1.4 of this regulation.

46.7.3 Beginning on the effective date of ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation or upon initial lightering operation in the waters of Delaware, whichever is later, the owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall keep the following information for each lightering operation.

46.7.3.1 The dates and times that the lightering operation began and ended.

46.7.3.2 The lightering location.

46.7.3.3 The name or identification of the service vessel or vessels involved.

46.7.3.4 The name or identification of the ship to be lightered.

46.7.3.5 The name or identification of the owner of the crude oil to be transferred.

46.7.3.6 The total volume of crude oil transferred during the lightering operation.

46.7.3.7 The total uncontrolled volume of crude oil transferred during the lightering operation, including documentation of the data required to calculate the total uncontrolled volume in accordance with 46.4.1.5 of this regulation.

46.7.4 Beginning on the effective date of ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation or upon the initial startup of a service vessel's vapor balancing system, whichever is later, the owner or operator of a lightering service shall keep the following information.

46.7.4.1 Vapor tightness documentation for the service vessel in accordance with 46.3.2 of this regulation. The documentation shall include, at a minimum, the information specified in 46.7.4.1.1 through 46.7.4.1.6 of this regulation.

46.7.4.1.1 The service vessel name or identification.

46.7.4.1.2 The name and address of the owner or operator of the service vessel.

46.7.4.1.3 The date and location of vapor tightness test.

46.7.4.1.4 The vapor tightness test method used.

46.7.4.1.5 The test results.

46.7.4.1.6 The tester's name and signature.

46.7.4.2 Records of the total number of depressurization ventings by the ship to be lightered in accordance with 46.3.6 of this regulation, when vapor balancing.

46.7.4.3 Operating logs and the pressure monitoring results for the vapor balancing system of the service vessel, when vapor balancing.

46.7.4.4 Records of the occurrence and duration of a malfunction of the vapor balancing system of the service vessel, when vapor balancing.

46.7.4.5 Records of any corrective action taken, as a result of a malfunction, that was inconsistent with the startup, shutdown, and malfunction plan, when vapor balancing.

46.7.4.6 Records or logs of inspections conducted to prevent inadvertent uncontrolled VOC emissions in accordance with 46.3.3 of this regulation, when vapor balancing.

46.7.4.7 Records or logs of leak test inspections conducted in accordance with 46.3.4 of this regulation, when vapor balancing.

46.7.4.8 Maintenance logs and records of any repairs made in accordance with 46.3.4 of this regulation.

46.7.4.9 Records identifying whether vapor balancing was or was not conducted.

46.7.4.10 If vapor balancing was not conducted, records identifying the reason that vapor balancing was not attempted.

46.7.4.11 If vapor balancing was conducted and there was an uncontrolled volume of crude oil transferred during the

lightering operation, records identifying the reasons the lightering operation was not fully controlled.

46.8 Emergency lightering operation exemption.

The owner or operator of a lightering service shall be exempted from the requirements of ~~[46.1 through 46.9]~~[Section 46.0] of this regulation while carrying out emergency lightering operations, except for the requirements of 46.8.1 and 46.8.2 of this regulation.

46.8.1 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written notification to the Department within 24 hours of the completion of the emergency lightering operations. The notification shall include, at minimum, the following information.

46.8.1.1 A brief description of the emergency, which may be limited to the following:

46.8.1.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation,

46.8.1.1.2 The name and location of ship to be lightered, and

46.8.1.1.3 The circumstances of concern.

46.8.1.2 The name, organization, and telephone number of the individual submitting the written notification.

46.8.1.3 The written notification may be submitted to the Department by fax or electronic mail.

46.8.2 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written report to the Department within 30 days following the completion of the emergency lightering operations. The report shall include, at minimum, the following information.

46.8.2.1 A brief description of the emergency, which may be limited to the following:

46.8.2.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation,

46.8.2.1.2 The name and location of ship to be lightered, and

46.8.2.1.3 The circumstances of concern.

46.8.2.2 The names or identifications of the service vessels involved in the emergency lightering operations.

46.8.2.3 The dates and times that the emergency lightering operations started and ended.

46.8.2.4 The total volume of crude oil transferred during the emergency lightering operations.

46.8.2.5 A certification by a responsible official as to the truth, accuracy, and completeness of the written report.

46.8.2.6 The name and signature of the responsible official certifying the written report.

46.9 Reporting requirements.

46.9.1 The owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall submit to the Department an initial compliance certification not later than 90 days after the effective date of ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation or upon initial startup of vapor balancing system for each service vessel, whichever is later. The initial compliance notification shall provide, at a minimum, the following information.

46.9.1.1 The name, address, and telephone number of the owner or operator of the service vessel.

46.9.1.2 The name or identification of the service vessel.

46.9.1.3 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.9.1.4 A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.9.2 Reports of excess emissions.

The owner or operator of a lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall, for each occurrence of an excess emission, submit a report to the Department within 30 calendar days of becoming aware of such occurrence. Excess emissions can ~~include[s]~~, but are not limited to, failing to operate the vapor balancing system when practicable, inadvertently or knowingly venting VOCs from

the vapor balancing system to the atmosphere during controlled lightering operations, conducting uncontrolled lightering operations on an Ozone Action Day during prohibited times, exceeding the maximum allowable uncontrolled lightering volume percentages in Table 46-1 of this regulation, etc. The report shall contain the following information, in addition to complying with any other reporting requirements required by the Department.

46.9.2.1 The name of the owner or operator of the lightering service.

46.9.2.2 The name or identification of the service vessel.

46.9.2.3 The date and time of first observation of the excess emission.

46.9.2.4 The cause and duration of the excess emission.

46.9.2.5 The corrective actions taken or the schedule to correct the conditions that caused the excess emission.

46.9.2.6 The estimated quantity of excess emission (pounds per lightering operation) and the operating data and calculations used in determining the magnitude of the excess emission.

46.9.3 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall submit its baseline volume to the Department before May 1, 2007.

46.9.4 Beginning on February 1, 2008 and annually thereafter, the owner or operator of an existing lightering service subject to ~~[46.1 through 46.9]~~**[Section 46.0]** of this regulation shall submit a report to the Department identifying the total volume of crude oil transferred for both controlled and uncontrolled lightering operations for each month of the previous calendar year.

Appendix B (Clean copy recommended final regulation)

46.0 Crude Oil Lightering Operations.

46.1 Applicability.

46.1.1 The requirements in Section 46.0 of this regulation, with the exception of 46.3.7 of this regulation, apply to the owner or operator of a lightering service that carries out crude oil lightering operations in the waters of the State. The requirement in 46.3.7 of this regulation applies to the owner of the crude oil being lightered in the waters of the State.

46.1.2 While carrying out emergency lightering operations, the owner or operator of a lightering service subject to Section 46.0 of this regulation is subject only to the requirements of 46.8 of this regulation.

46.1.3 The owner or operator of a lightering service subject to Section 46.0 of this regulation may be required to obtain, revise, or amend permits issued by the Department pursuant to Regulations 1102, 1125, and 1130 of 7 DE Admin Code, where applicable.

46.1.4 The requirements of Section 46.0 of this regulation are in addition to all other applicable State and Federal rules and regulations.

46.1.5 Nothing in Section 46.0 of this regulation shall be construed to require any act or omission that would be in violation of any rules or regulations of the United States Coast Guard or to prevent any act that is necessary to secure the safety of personnel, property, or the environment.

46.2 Definitions.

As used in Section 46.0 of this regulation, all terms not defined herein shall have the meaning given them in Regulation 1101 or in Section 2 of this regulation.

“Baseline volume” means the average annual volume, in barrels per year, of crude oil lightered in the waters of the State during calendar years 2004 and 2005. If an existing lightering service did not carry out lightering operations throughout 2004 and 2005, the baseline volume for that existing lightering service shall be the average annual volume of crude oil lightered in the waters of State during the 24 month period beginning with its first lightering operation after December 31, 2003.

“Controlled lightering operation” means a lightering operation in which the VOC emissions are being controlled by the use of a vapor balancing system.

“Depressurization venting” means the release of vapors to the atmosphere from the ship to be lightered, the service vessel or the vapor balancing system during controlled lightering operations.

“Emergency lightering operations” means the transfer of crude oil cargo to mitigate or prevent a cargo spill, to stabilize a vessel whose integrity has been compromised, or to comply with the requirements of a Coast Guard Captain of the Port Order issued under the authority of the Ports and Waterways Safety Act, 33 USC 1221, as implemented by 33 CFR 160.111.

“Existing lightering service” means any lightering service that carried out a lightering operation in the waters of the State with an operating permit prior to the effective date of Section 46.0 of this regulation.

“Existing service vessel” means a service vessel that has been used in a lightering operation in the waters of the State prior to the effective date of Section 46.0 of this regulation.

“Lightering operation” means the transfer of crude oil from the cargo tank of a ship to be lightered to the cargo tank of a service vessel. Transfers of crude oil from the cargo tanks of a lightering service’s marine tank vessel to the cargo tanks of another marine tank vessel or reverse lightering is exempt from the requirements of Section 46.0 of this regulation.

“Lightering service” means any owner or operator that, under contract, carries out a lightering operation.

“Marine tank vessel” means any marine vessel, which is specifically constructed or converted to carry liquid bulk cargo in cargo tanks.

“New lightering service” means any lightering service that is not an existing lightering service.

“New service vessel” means a service vessel that is not an existing service vessel.

“Ozone Action Day” means a day that is predicted, based on forecasted weather conditions, to reach unhealthy ozone concentrations. Frequently called a Code Red Day, an Ozone Action Day is declared prior to 1430 hours (local time) for the following day.

“Service vessel” means the marine tank vessel receiving crude oil during a lightering operation.

“Ship to be lightered” means the marine tank vessel delivering crude oil during a lightering operation.

“Uncontrolled lightering” means the period or periods when VOC emissions are vented from the service vessel to the atmosphere during a lightering operation.

“Uncontrolled lightering operation” means a lightering operation conducted without vapor balancing.

“Vapor balancing” means the collection and transfer of vapors displaced by the incoming crude oil from the cargo tank of a service vessel into a cargo tank of the ship to be lightered.

“Vapor control system” means an arrangement of piping and equipment used to control vapor emissions collected from a marine tank vessel. For the purposes of Section 46.0 of this regulation, vapor control system, also, includes vapor balancing.

“Vapor leak” means a gaseous leak that is detectable by sight, sound, or smell.

~~“Vapor tight service vessel” means a marine tank vessel has successfully demonstrated vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565 within the preceding twelve months.~~

“Waters of the State” means those waters within the boundaries of the State, including the 12 mile circle described from New Castle and extended to the low water mark on the eastern side of the Delaware River and extending below the 12 mile circle with the middle of the shipping channel through the Delaware River and Bay and extending to the Atlantic Ocean and including those waters of the territorial sea which are in direct contact with the coast of Delaware, extending from the line of ordinary low water seaward for a distance of 3 geographical miles. This definition shall include any waters beyond the 3-mile mark as authorized by Federal Law.

46.3 Standards.

46.3.1 When carrying out a lightering operation, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall collect and transfer the VOC emissions from the service vessel to the ship to be lightered by vapor balancing.

~~46.3.2 When vapor balancing, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall only use vapor tight service vessels.~~

46.3.3 Prior to vapor balancing, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall verify that all valves in the

vapor balancing system of the service vessel are correctly positioned to allow the collection and control of VOC emissions.

- 46.3.4 During vapor balancing, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall verify that there are no vapor leaks in the vapor balancing system of the service vessel. Whenever a vapor leak is detected:
 - 46.3.4.1 A first attempt at repair shall be made prior to the completion of the lightering operation.
 - 46.3.4.2 If a vapor leak in the vapor balancing system of the service vessel can not be repaired prior to the completion of the lightering operation, the leak shall be tagged and recorded.
 - 46.3.4.3 The vapor leak shall be repaired prior to the date that the service vessel is used in a lightering operation.
 - 46.3.4.4 Following completion of the repair, the service vessel shall be leak tested using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.
- 46.3.5 During lightering operations, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall only use service vessels equipped with submerged fill pipes.
- 46.3.6 When vapor balancing, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall request information from the operator of the ship to be lightered on the total number of depressurization ventings by the ship to be lightered during each lightering operation. The owner or operator of the lightering service is not responsible for enforcing that the operator of the ship to be lightered provide the depressurization venting information nor liable for any inaccuracies in the information provided by the operator of the ship to be lightered.
- 46.3.7 When vapor balancing, the owner of the crude oil shall require the owner or operator of the ship to be lightered to provide the owner or operator of the lightering service the total number of depressurization ventings by the ship to be lightered at the conclusion of each lightering operation. The owner of the crude oil is not responsible for enforcing that the operator of the ship to be lightered provide the depressurization venting information nor liable for any inaccuracies in the information provided by the operator of the ship to be lightered.
- 46.4 Compliance schedule.
 - 46.4.1 The owner or operator of a lightering service subject to Section 46.0 of this regulation shall comply with the following requirements.

- 46.4.1.1 The owner or operator of an existing lightering service shall provide the following information to the Department not later than 90 days after the effective date of Section 46.0 of this regulation.
 - 46.4.1.1.1 The name or identification of existing service vessels that are expected to be used in lightering operations in the waters of the State after 2006.
 - 46.4.1.1.2 The expected date that the vapor balancing system will be installed on each existing service vessel or the date the vapor balancing system was first used, if the existing service vessel is equipped with a vapor balancing system.
- 46.4.1.2 The owner or operator of a lightering service shall provide the following information to the Department upon the initial use of a new service vessel in the waters of the State.
 - 46.4.1.2.1 The name or identification of the new service vessel.
 - 46.4.1.2.2 The date that the new service vessel commenced lightering operations in the waters of the State.
 - 46.4.1.2.3 A statement of whether the new service vessel is equipped with a vapor balancing system. If not equipped with a vapor balancing system, a statement on the expected date that the vapor balancing system will be installed on the new service vessel or the reason that a vapor balancing system will not be installed on that new service vessel.
- 46.4.1.3 Compliance with standards.
 - 46.4.1.3.1 The owner or operator of a new lightering service shall comply with the requirements of 46.3 of this regulation upon initial lightering operation or the effective date of this regulation, whichever is later.
 - 46.4.1.3.2 The owner or operator of an existing lightering service shall comply with the requirements of 46.3.1 of this regulation to the greatest extent practicable and shall comply with the requirements of 46.3.2 through 46.3.6 of this regulation when vapor balancing.
- 46.4.1.4 Maximum allowable uncontrolled lightering volume.

46.4.1.4.1 Beginning 12 months after the initial lightering operation or the effective date of this regulation, whichever is later, a new lightering service's 12-month rolling total volume of uncontrolled lightering shall not exceed 5 percent of the new lightering service's total volume lightered for that same 12-month period.

46.4.1.4.2 Beginning May 1, 2008, the 12-month rolling total volume of uncontrolled lightering shall not exceed an existing lightering service's baseline volume multiplied by the percentages listed in Table 46-1 of this regulation.

Section 1.05 Table 46-1	
Beginning on	Section 1.06 Maximum allowable
	uncontrolled lightering volume
May 1, 2008	80 %
May 1, 2010	61 %
May 1, 2012	43%

46.4.1.5 The total volume of uncontrolled lightering for any given lightering operation shall be calculated using the following equation.

$$TUV = \sum_{i=1}^m (V)_i + \sum_{j=1}^n (EV)_j \quad \text{Eq. 46-1}$$

1

Where,

TUV = the total uncontrolled volume for each given lightering operation. This total volume is used in the determination of 12-month rolling total volume of uncontrolled lightering in 46.4.1.4 of this regulation.

V = the volume of crude oil transferred to the service vessel when displaced vapors are emitted directly to the atmosphere rather than collected and controlled by vapor balancing.

EV = the equivalent volume of crude oil transferred corresponding to the collected and controlled vapors emitted from the service vessel to the atmosphere as a result of depressurization venting. The equivalent volume of crude oil shall be calculated using

paragraph (d)(2)(i)(D)(10) of 40 CFR 63.1257 or a method approved by the Department.

i = the individual uncontrolled venting when transferring crude oil.

j = the individual depressurization venting.

m = the total number of uncontrolled ventings of displaced vapors when transferring crude oil for each given lightering operation.

n = the total number of depressurization ventings for each given lightering operation.

46.4.1.6 VOC emissions reduction and audits.

Beginning in February 2010, the Department shall conduct an annual audit of lightering service records to identify the frequency and duration of VOC ventings from the ships to be lightered. If the Department finds that ventings from the ships to be lightered reduce the VOC emission reductions achieved by the lightering services to a level below the maximum allowable uncontrolled lightering volume required in Table 46-1 of this regulation, the Department shall implement solutions, which could include amending Section 46.0 of this regulation.

46.4.2 Ozone Action Day limitations.

Beginning May 1, 2007, uncontrolled lightering operations shall be curtailed as follows on any day that the Department declares an Ozone Action Day.

46.4.2.1 Uncontrolled lightering operations shall not be carried out from 0230 hours until 1630 hours (local time) of the declared Ozone Action Day. However, if uncontrolled lightering operations have begun prior to the declaration of the Ozone Action Day, those lightering operations may continue until 0230 hours (local time) or until the service vessel is fully loaded, whichever is later.

46.4.2.2 If the Department declares consecutive Ozone Action Days, the owner or operator of a lightering service shall, to the greatest extent practicable, minimize uncontrolled lightering operations on the second and subsequent consecutively declared Ozone Action Days as follows:

46.4.2.2.1 Carrying out controlled lightering operations, if vapor balancing compatible service vessels and ships to be lightered are available.

46.4.2.2.2 Rescheduling the uncontrolled lightering operations to the periods of 1630 hours to 0230 hours (local

time) of the second and subsequent consecutively declared Ozone Action Days.

Section 1.07 46.4.3 *No later than January 1, 2014 and every 5 years thereafter, the Department, owners or operators of existing lightering services subject to Section 46.0 of this regulation, and owners of crude oil subject to 46.3.7 of this regulation shall determine the feasibility of achieving a 5 per cent maximum allowable uncontrolled lightering volume. If a 5 per cent maximum allowable uncontrolled lightering volume is determined to be feasible, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish a maximum allowable uncontrolled lightering volume of 5 per cent.*

Section 1.08 46.4.4 *If the feasible maximum allowable uncontrolled lightering volume determined in 46.4.3 of this regulation is greater than 5 per cent, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish the feasible maximum allowable uncontrolled lightering volume determined in 46.4.3 of this regulation.*

46.4.5 Any changes to the requirements of Table 46-1 of this regulation shall be made in accordance with the requirements of 7 Del.C. Ch 60.

46.5 Compliance Plan.

46.5.1 Within 120 days after the effective date of Section 46.0 of this regulation or upon initial startup of each vapor balancing system, whichever is later, the owner or operator of a lightering service shall develop and implement a compliance plan that describes how initial and ongoing compliance will be demonstrated. The owner or operator of a lightering service shall make the compliance plan for each vapor balancing system available for inspection, upon request, by the Department.

46.5.2 Initial Compliance.

To demonstrate initial compliance, the owner or operator of a lightering service shall provide the Department with the information specified in 46.5.2.1 and 46.5.2.2 of this regulation.

46.5.2.1 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.5.2.2 A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.5.3 Ongoing Compliance.

The ongoing compliance demonstration plan shall include, at a minimum, the information specified in 46.5.3.1 through 46.5.3.5 of this regulation.

46.5.3.1 The recommended instrumentation for the continuous measurement and recording of the operating pressure of the service vessel.

46.5.3.2 The recommended operating and maintenance procedures for the vapor balancing system.

46.5.3.3 The recommended startup, shutdown, and malfunction plan for the vapor balancing system, which shall include the approved calculation methodology to determine the total uncontrolled volume in 46.4.1.5 of this regulation.

46.5.3.4 The recommended operating procedures to prevent inadvertent uncontrolled VOC emissions to demonstrate compliance with 46.3.3 of this regulation.

46.5.3.5 The recommended leak testing procedures to demonstrate compliance with 46.3.4 of this regulation.

46.5.4 To the extent practical, the lightering service's standard operating and maintenance manuals and standard log sheets may be used to satisfy the requirements of the compliance plan, provided these manuals and log sheets contain all of the data necessary to meet the individual requirements of 46.5.3 of this regulation.

46.6 Equivalent methods of control.

46.6.1 Non-vapor balancing control technologies can be installed to control VOC emissions during lightering operations. New and existing lightering services may apply for the approval of an alternative control technology

by submitting a complete request in accordance with the requirements of 46.6.2 and 46.6.3 of this regulation.

46.6.2 Upon receipt of a written request, the Department may approve the use of an alternative control technology to satisfy the requirements of 46.3.1 of this regulation.

46.6.3 The written request must contain a complete description of the alternative control technology, proposed compliance demonstration plan, proposed testing procedures, proposed recordkeeping requirements, and the expected startup date.

46.7 Recordkeeping.

The owner or operator of a lightering service subject to Section 46.0 of this regulation shall keep the records specified in this paragraph in a readily accessible location for at least five years. These records shall be made immediately available to the Department on verbal or written request. For the purposes of 46.7 of this regulation, the terms “readily accessible location” and “immediately available” may apply to records located on a service vessel.

46.7.1 The owner or operator of an existing lightering service subject to Section 46.0 of this regulation shall keep calculations, including documentation of data, required to determine the baseline volume of the lightering service.

46.7.2 The owner or operator of an existing lightering service subject to Section 46.0 of this regulation shall keep calculations, including documentation of data, required to determine the 12-month rolling total volume of uncontrolled lightering of their lightering service in accordance with 46.4.1.4 of this regulation.

46.7.3 Beginning on the effective date of Section 46.0 of this regulation or upon initial lightering operation in the waters of Delaware, whichever is later, the owner or operator of a lightering service subject to Section 46.0 of this regulation shall keep the following information for each lightering operation.

- 46.7.3.1 The dates and times that the lightering operation began and ended.
 - 46.7.3.2 The lightering location.
 - 46.7.3.3 The name or identification of the service vessel or vessels involved.
 - 46.7.3.4 The name or identification of the ship to be lightered.
 - 46.7.3.5 The name or identification of the owner of the crude oil to be transferred.
 - 46.7.3.6 The total volume of crude oil transferred during the lightering operation.
 - 46.7.3.7 The total uncontrolled volume of crude oil transferred during the lightering operation, including documentation of the data required to calculate the total uncontrolled volume in accordance with 46.4.1.5 of this regulation.
- 46.7.4 Beginning on the effective date of Section 46.0 of this regulation or upon the initial startup of a service vessel's vapor balancing system, whichever is later, the owner or operator of a lightering service shall keep the following information.
- 46.7.4.1 Vapor tightness documentation for the service vessel in accordance with 46.3.2 of this regulation. The documentation shall include, at a minimum, the information specified in 46.7.4.1.1 through 46.7.4.1.6 of this regulation.
 - 46.7.4.1.1 The service vessel name or identification.
 - 46.7.4.1.2 The name and address of the owner or operator of the service vessel.
 - 46.7.4.1.3 The date and location of vapor tightness test.
 - 46.7.4.1.4 The vapor tightness test method used.
 - 46.7.4.1.5 The test results.
 - 46.7.4.1.6 The tester's name and signature.
 - 46.7.4.2 Records of the total number of depressurization ventings by the ship to be lightered in accordance with 46.3.6 of this regulation, when vapor balancing.

- 46.7.4.3 Operating logs and the pressure monitoring results for the vapor balancing system of the service vessel, when vapor balancing.
- 46.7.4.4 Records of the occurrence and duration of a malfunction of the vapor balancing system of the service vessel, when vapor balancing.
- 46.7.4.5 Records of any corrective action taken, as a result of a malfunction, that was inconsistent with the startup, shutdown, and malfunction plan, when vapor balancing.
- 46.7.4.6 Records or logs of inspections conducted to prevent inadvertent uncontrolled VOC emissions in accordance with 46.3.3 of this regulation, when vapor balancing.
- 46.7.4.7 Records or logs of leak test inspections conducted in accordance with 46.3.4 of this regulation, when vapor balancing.
- 46.7.4.8 Maintenance logs and records of any repairs made in accordance with 46.3.4 of this regulation.
- 46.7.4.9 Records identifying whether vapor balancing was or was not conducted.
- 46.7.4.10 If vapor balancing was not conducted, records identifying the reason that vapor balancing was not attempted.
- 46.7.4.11 If vapor balancing was conducted and there was an uncontrolled volume of crude oil transferred during the lightering operation, records identifying the reasons the lightering operation was not fully controlled.

46.8 Emergency lightering operation exemption.

The owner or operator of a lightering service shall be exempted from the requirements of Section 46.0 of this regulation while carrying out emergency lightering operations, except for the requirements of 46.8.1 and 46.8.2 of this regulation.

- 46.8.1 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written notification to the Department

within 24 hours of the completion of the emergency lightering operations. The notification shall include, at minimum, the following information.

46.8.1.1 A brief description of the emergency, which may be limited to the following:

46.8.1.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation,

46.8.1.1.2 The name and location of ship to be lightered, and

46.8.1.1.3 The circumstances of concern.

46.8.1.2 The name, organization, and telephone number of the individual submitting the written notification.

46.8.1.3 The written notification may be submitted to the Department by fax or electronic mail.

46.8.2 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written report to the Department within 30 days following the completion of the emergency lightering operations. The report shall include, at minimum, the following information.

46.8.2.1 A brief description of the emergency, which may be limited to the following:

46.8.2.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation,

46.8.2.1.2 The name and location of ship to be lightered, and

46.8.2.1.3 The circumstances of concern.

46.8.2.2 The names or identifications of the service vessels involved in the emergency lightering operations.

46.8.2.3 The dates and times that the emergency lightering operations started and ended.

46.8.2.4 The total volume of crude oil transferred during the emergency lightering operations.

46.8.2.5 A certification by a responsible official as to the truth, accuracy, and completeness of the written report.

46.8.2.6 The name and signature of the responsible official certifying the written report.

46.9 Reporting requirements.

46.9.1 The owner or operator of a lightering service subject to Section 46.0 of this regulation shall submit to the Department an initial compliance certification not later than 90 days after the effective date of Section 46.0 of this regulation or upon initial startup of vapor balancing system for each service vessel, whichever is later. The initial compliance notification shall provide, at a minimum, the following information.

46.9.1.1 The name, address, and telephone number of the owner or operator of the service vessel.

46.9.1.2 The name or identification of the service vessel.

46.9.1.3 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.9.1.4 A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.9.2 Reports of excess emissions.

The owner or operator of a lightering service subject to Section 46.0 of this regulation shall, for each occurrence of an excess emission, submit a report to the Department within 30 calendar days of becoming aware of such occurrence. Excess emissions can include, but are not limited to, failing to operate the vapor balancing system when practicable, inadvertently or knowingly venting VOCs from the vapor balancing system to the atmosphere during controlled lightering operations, conducting uncontrolled lightering operations on an Ozone Action Day during prohibited times, exceeding the maximum allowable uncontrolled lightering volume percentages in Table 46-1 of this regulation, etc. The report shall contain the following information, in addition to complying with any other reporting requirements required by the Department.

46.9.2.1 The name of the owner or operator of the lightering service.

46.9.2.2 The name or identification of the service vessel.

46.9.2.3 The date and time of first observation of the excess emission.

46.9.2.4 The cause and duration of the excess emission.

46.9.2.5 The corrective actions taken or the schedule to correct the conditions that caused the excess emission.

46.9.2.6 The estimated quantity of excess emission (pounds per lightering operation) and the operating data and calculations used in determining the magnitude of the excess emission.

46.9.3 The owner or operator of an existing lightering service subject to Section 46.0 of this regulation shall submit its baseline volume to the Department before May 1, 2007.

46.9.4 Beginning on February 1, 2008 and annually thereafter, the owner or operator of an existing lightering service subject to Section 46.0 of this regulation shall submit a report to the Department identifying the total volume of crude oil transferred for both controlled and uncontrolled lightering operations for each month of the previous calendar year.