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ENVIRONMENTAL PROTECTION

AIR, ENERGY, AND MATERIALS SUSTAINABILITY

BUREAU OF RELEASE PREVENTION

Underground Storage Caverns

Adopted New Rules: N.J.A.C. 7:1F

Proposed: May 16, 2022, at 54 N.J.R. 819(a).

Adopted: April 6, 2023, by Sean D. Moriarty, Deputy Commissioner, Department of Environmental Protection.

Filed: April 6, 2023, as R.2023 d.063, **with non-substantial changes** not requiring additional public notice and comment (see N.J.A.C. 1:30-6.3).

Authority: N.J.S.A. 13:1B-3, 13:1D-1 et seq., 13:1K-19 et seq., 26:2C-1 et seq., 58:10-35.1 through 35.4, and 58:10A-1 et seq.

DEP Docket Number: 03-22-03.

Effective Date: May 1, 2023.

Expiration Date: May 1, 2030.

The Department of Environmental Protection (Department) is adopting new rules at N.J.A.C. 7:1F. The new rules implement N.J.S.A. 58:10-35.1 through 35.4 (the Act), which requires any person to obtain a permit from the Department before constructing or operating an underground storage cavern. The new rules govern the construction, operation, modification, and decommissioning of underground storage cavern systems used for the underground storage of any natural or artificial gas, or any petroleum product or derivative of any petroleum product,

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excluding liquefied natural gas. The rules will ensure the sound construction, management, operation, maintenance, and decommissioning of any underground storage cavern system, thereby preventing the pollution, contamination, diversion, or depletion of subsurface and percolating waters, air, and other environmental media, and protecting public health and safety.

The rules set forth construction requirements for new or major modification of an existing cavern and cavern system, including a feasibility study, design specifications and operating plans, process hazard analysis, an environmental and health impact statement (EHIS), and a third-party evaluation. The rules also set forth operating requirements, including as-built specifications and mechanical integrity tests, operation and maintenance plans, ground water and soil vapor monitoring, an emergency response plan, and provisions for release reporting and suspected release investigation. The rules provide permit application and fee requirements, as well as applicable public notice and comment provisions and grounds for denial, suspension, or revocation of a permit.

The rules additionally include requirements for permit renewal, recordkeeping, minor and major modifications, dormancy plans, decommissioning, including financial responsibility, permit transfer, confidentiality claims, hearing request procedures, and enforcement provisions for violations of the Act or this new chapter.

Summary of Hearing Officer's Recommendation and Agency's Response:

The Department held a virtual public hearing on this rulemaking on June 9, 2022, at 10:00 A.M., through the Department's video conferencing software, Microsoft Teams. Paul Komosinsky, Chief, Bureau of Release Prevention, served as hearing officer. Five people provided oral comments at the public hearing. After reviewing the written comments received

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during the public comment period and considering both those and the oral comments received during the public hearing, the hearing officer recommended that the Department adopt the proposed rulemaking with the modifications described below in the responses to comments and in the Summary of Agency-Initiated Changes. The Department accepts the hearing officer's recommendations.

A record of the public hearing is available for inspection, in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs

401 East State Street, 7th Floor

Mail Code 401-04L

PO Box 402

Trenton, New Jersey 08625-0402

This notice of adoption document can also be viewed or downloaded from the Department's website at <http://www.nj.gov/dep/rules/adoptions.html>.

Summary of Public Comments and Agency Responses:

The Department accepted comments on the notice of proposal through July 15, 2022.

The following individuals provided written and/or oral comments:

1. Rudy Avizius
2. Joseph Basralian
3. Linda Baum

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4. Litsa Binder
5. Eileen Bird
6. Roberta Blitz
7. Tracy Carluccio, Delaware Riverkeeper Network
8. Tracy Carluccio, Deputy Director, and Maya van Rossum, on behalf of the Delaware Riverkeeper Network
9. Regina Carola
10. Nancy Ciampa
11. Suzanne Curry
12. David Dolnick, Phillips 66 Company
13. Ken Dolsky
14. Raymond Dorell
15. John Fowler
16. Alice Freund
17. Noa Gordon-Guterman
18. Gary Hinesley
19. Nicholas Homyak
20. Rev. Karen G. Johnston
21. Eddie Konczal
22. Martin Levin
23. Diane Madsen
24. Sally Malanga
25. Fred Mendez

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26. David Miller, Giordano, Halleran & Cielsa, P.C., on behalf of Delaware River Partners LLC

27. Robert Moss

28. Edward Norkus

29. Shoshana Osofsky

30. Lisa J. Plevin, Executive Director, Highlands Water Protection and Planning Council

31. Jean Publee

32. Marilyn Quinn

33. Andrea Rizzuto

34. Paula Rogovin

35. Debbie Simpkins

36. Julia Smith

37. Matt Smith, on behalf of Food & Water Watch

38. Jeff Tittel

39. Rosemary Topar

40. Mary Tulloss

41. Jeanne Van Orman

42. Sandy Van sant

43. Mark Waltzer

44. Claire Whitcomb

45. Margaret Wood

46. Caitlyn Wright

47. Ruth Zowader

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48. The following submitted the same form comment:

Ibn-Umar Abbasparker

Mary Ann Aktay

Catherine Albair

Arlene Aughey

Brian Barry

Judy Barry

Maureen Berman

Carole Beyer

Linda Blatnik

Diane Bonanno

George Bourlotos

Afina Broekman

Diana Brooks

Annette Caamano

Robert Calafiore

Lauren Carlton

Paul Carluccio

Jessica Caron

Ann Caswell

Thomas Cierech

Susan Clark

Leslie Cohen

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Claire Cooney

Holly Cox

Julia Cranmer

Eileen Curran

Marie D'Anna

Linda Delany

Ron De Stefano

Karen Diehl

Jo Ann Doran

Gary Dunn

Susan Eckstein

Joann Eckstut

Leona and George Fluck

Robert Focht

Tracy Foster

Gregory Frick

Kirk Frost

Sandra Garcia

Ciara Garrity the Lakota

Anne Gelman

Steven Gillick

Dr. Dani Gioseffi

Matthew Glassman

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Lascinda Goetschius

Jeanne Golden

Steve Golin

Peter Gotlieb

Jeanne Goyette

Jane Guyette

Clara Haignere

Susan Hansbury

Ronald Harkov

Kathy Hart

Chris Hazynski

Paul Heller

Diane Heyer

Heather Heyer

Robert Heyer

Sean Hickey

Kathryn Hjelle

Martin Horwitz

Jennifer Hsu

Rebecca Hughes

Erica Johanson

Freda Karpf

Tracey Katsouros

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Paul Kaufman

Ann Kelly

Margaret Kling

Patrick Kortjohn

Jo-Ann Krietzberg

Ann LaGreca

Liana Lang

Leslie Lanphear

Sara Lazarus

Zoe E. Leach

Christine Liaukus

Doris Lin

Kathi Lombardi

Colleen Loughran

Denise Lytle

Kathleen Maher

Majid Maleki

Ann Malyon

Melissa Marks

Karen McGuinness

Jenna McGuire

Keely McLeod

Lynn Merle

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Susan Mikaitis

Alice Miller

Barbara Miller

Steven Mitchell

Patrick Mulligan

Nikki Nafziger

Elizabeth Ndoye

Barbara Nehmad

Kim Noel

Caroline O'Brien

Mariluz Ocasio

Laura Occhipinti

Doug O'Malley

Keith O'Rourke

Patricia Palermo

Sharon Paltin

Rajen Parekh

Jessica Peguero

Myrisha Peguero

Brooke Perry

Maureen Porcelli

Rita Raftery

Brendan Rains

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Steve Ramshur

Bettie Reina

Ann Richards

Mary Richards

Charles Rinear

Kathryn Riss

Gloria Rodriguez

Pat Rolston

Linda Rossin

Sharon Rothe

Linda Rubiano

Brian Russo

Pauline Saade

Manijeh Saba

Jonathan Salazar

Matt Santaiti

Paul Sauers

Corey Schade

Helen Schafer

Rebecca Scheer

John Schreiber

Daniel J. Shields

James Shinnars

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Vikram Sikand

Jaszmene Smith

David Snope

Morgan Spicer

David Steinberg

A.L. Steiner

Ronald Sverdlove

Victor Sytzko

Kurt Thraen

Dolores Varga

Christopher F. Vota

John Weber

Barbara Wellnitz

Elizabeth Whitehead

Keith Wilkins

Ann Wolf

G.Y.

Margaret Yelenik

Glen Zeeck

Dawn Zelinski

Ralph Zelman

The comments received and the Department's responses are summarized below. The number(s) in parentheses after each comment identify the respective commenter(s) listed above.

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General Support

1. COMMENT: I am a nearby resident of the Repauno Port and support the use of caverns for fossil fuel storage. The most important thing the country needs is jobs that pay well, as well as reliable energy. (14)

2. COMMENT: The rules are the culmination of a considerable and concerted effort by Department staff and those in the regulated community to craft a protective and workable regulatory framework. There is a decades-long history of safe operation of underground storage caverns in New Jersey at Repauno and at a third-party facility in Linden. Given current market trends and international energy needs, underground storage caverns present a unique opportunity to serve as a driver of local and regional economic growth. The commenter asserts that it is uniquely situated to comment on the rules given its experience with managing and operating an underground storage cavern and its participation in the stakeholder process used to develop the rules over the past several years. (26)

3. COMMENT: The commenter is the owner and operator of the Bayway Refinery located at 1400 Park Avenue in Linden, New Jersey.

Bayway Refinery constructed five liquefied petroleum gas (LPG) caverns in 1957 and received operational permits for these caverns in 1959. The overall objectives of this rulemaking are supported and the Department's efforts commended. (12)

RESPONSE TO COMMENTS 1, 2, AND 3: The Department acknowledges the commenters' support.

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General Opposition

4. COMMENT: The Department should prohibit the cavern storage of petroleum gasses and their byproducts, which would impact the State and particularly impact disadvantaged communities. (3, 17, and 41)

5. COMMENT: The Department should prohibit the storage of petroleum products and liquified natural gas (LNG). There is too much risk involved with no public benefit. (3, 6, 15, 18, 32, and 37)

6. COMMENT: The Department should prohibit the storage of liquefied petroleum gas (LPG), LNG, and other products that could contaminate the State's drinking water. (9, 11, and 33)

7. COMMENT: The rulemaking should prohibit underground cavern storage of all liquefied petroleum gases and their derivatives. Liquefied petroleum gasses are highly flammable, can cause explosion or fire, release air pollution, and cavern storage poses serious environmental impacts. (6, 36, and 37)

8. COMMENT: Underground caverns are created by nature and not meant to be used as storage facilities or underground warehouses to be used by any State agency or private party. (23)

9. COMMENT: The Department should prohibit the storage of liquified petroleum gas in underground caverns. New Jersey is the most densely populated state in the nation, it has the highest number of superfund sites in the nation; it has a legacy and continuing problem of environmental contamination, including water, air and ecosystems, and a plethora of overburdened communities that would be placed in harm's way from these storage activities and operations. The rules would jeopardize the State, its water supplies, air quality, and the health of communities. (2, 5, 7, 8, 11, 13, 16, 18, 19, 20, 21, 23, 24, 25, 27, 28, 29, 35, 37, 38, 39, 40, 42, 45, 46, 47, and 48)

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10. COMMENT: The Department should prohibit the storage of all petroleum products and/or derivatives in underground caverns because the risks are too great for New Jersey's communities and our environment. Petroleum gases and their derivatives are hazardous, highly flammable, and can cause explosion or fire. Many are extremely toxic. They release dangerous air pollution that impacts human health and the climate, and pose serious environmental impacts. The caverns will be within the same underground environment as groundwater and aquifers that supply drinking water. Additionally, groundwater can express to surface water, and, if contaminated, can adversely impact water supplies from surface water sources and the water quality of our streams, lakes, and rivers. The release of these substances to the air contributes hazardous pollution and threatens public health, especially for communities that are already disproportionately enduring the brunt of air and water pollution, imposing additional environmental injustice. While the proposed rulemaking attempts to address some of these issues, the proposed rules are fatally flawed due to serious oversights, omissions, and internal vision perspective to cavern impacts.

The dangers posed to communities in the region where these underground storage caverns are located are enormous. The rules allow storage of substances that when released to the air, can form gaseous clouds. When ignited, the gaseous clouds can interact with trees and other vegetation, walls, tunnels, buildings, and embankments to create turbulent conditions. These conditions can lead to detonations that can be deadly to humans and highly destructive to building materials including metals and reinforced concrete.

Releases from underground storage caverns have caused disastrous fires and explosions, including a butane leak across the river in Marcus Hook, Pennsylvania, and in Texas. In the Brenham Texas incident, a storage cavern holding a mixture of gasses defined as LPG was

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overfilled, causing death and \$9 million in damages. Equipment failure and human error led to the release, which caused a catastrophic unconfined vapor cloud explosion.

There are an estimated 70 mined hard rock caverns in the United States. These caverns rely on the pressure exerted by groundwater and the overhead geologic formation to keep the pressure sufficient to prevent leakage through the unlined walls of the cavern, as discussed in this proposed rulemaking. However, leaks can and do occur. Outlined in a scientific review of risks assessed for various means of underground gas and oil storage, the causes of leaks include failures of the cap rock, cracks, faults or fissures in the sides or bottom of the cavern, and equipment failure, such as valves, vents, emergency shut-offs, and seal-bypass mechanisms. The fact is that leaks and resulting effects, ranging from less severe to disastrous, will impact communities and the environment where these caverns are located. (7 and 8)

11. COMMENT: The areas proposed for the caverns in New Jersey have thousands of residents and businesses. A small spark on trains delivering the petroleum product, or a spark from the mechanism sending the fire down into the caverns, could mean a human catastrophe.

Additionally, the petroleum products leach through the soil and the rock into the surrounding areas and even into the nearby waters. This would harm wildlife and possibly even people. In 2018, the New York State Department of Environmental Conservation denied a permit application for the use of caverns in Seneca Lake to store liquefied petroleum gas, a project that was opposed due to threats to public safety and the growing local ecotourism. The Department should similarly reject the use of caverns to store petroleum products. (34)

12. COMMENT: The Department should completely prohibit the storage of liquified petroleum gas or any fossil fuels in underground caverns in the State. As a state, New Jersey should be in the forefront of weaning our nation of fossil fuel dependence. Anything that makes it easier to

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use, transport, dispose of, or store fossil fuels, including natural gas and other carbon-based products, is stalling the conversion to 100 percent renewables. Climate change must be addressed as an impact. (3, 16, 19, 24, 32, 38, 45, and 47)

13. COMMENT: The State needs to move away from fossil fuels, not encourage future development or expanded use of fossil fuels. (17, 22, 25, 34, and 38)

14. COMMENT: The storage of all petroleum products should be prohibited to address the climate crisis. (20, 29, 37, 40, and 44)

15. COMMENT: The rulemaking to allow the underground storage of petroleum products is opposed. The State should focus its efforts to clean up the contaminated sites in the State, not add more chemical deposits or storage. (10)

16. COMMENT: The emissions from the caverns and their related activities, cradle to grave, will add more climate-killing greenhouse gasses to our atmosphere, worsening the climate crisis when scientists urge, and the State has pledged, that we must drastically reduce greenhouse gas emissions by the end of this decade. (2, 5, 11, 13, 16, 18, 19, 21, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

17. COMMENT: Expansion of storage of fossil fuels in underground caverns is a violation of both the Global Warming Response Act and Executive Order No. 274 (2021), which state that the State's policy is to reduce greenhouse gas emissions significantly. Adding more fossil fuel infrastructure, especially this type of storage that is highly prone to leakage, is inconsistent with the State's policy to mitigate climate change. In addition, the Governor ordered all State departments to include the effects of climate change in their policies and actions. The rulemaking is also inconsistent with the Environmental Justice Law since so many overburdened communities will be affected by this rulemaking. (13)

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18. COMMENT: Rather than controlling or addressing the safety issues associated with transporting gas or petroleum products, the rules will expand the problem. (38)

RESPONSE TO COMMENTS 4 THROUGH 18: The adopted rules do not encourage development of fossil fuels, but require safe construction, operation, modification, and decommissioning of underground storage caverns. The Department agrees that release of a regulated substance from the storage cavern, either to the air or groundwater, could be a significant threat to human health and the environment. For that reason, the rules impose strict requirements on an owner and operator seeking approval to construct a new cavern system. The rules also require an owner and operator of an existing cavern system to obtain a permit pursuant to the rules. As specified at N.J.A.C. 7:1F-1.4(e), the storage of LNG is prohibited.

For new construction, as part of its application, an owner/operator must submit comprehensive information about the feasibility of the proposed system, design specifications, and construction plans to ensure the cavern's safe design, construction, and operation. The requirements include: 1) a feasibility study, which is a study conducted to assess the suitability of a site for the construction and operation of an underground storage cavern system based upon the site's geology, hydrogeology, above- and below-ground formations or structures, and the regulated substance to be stored at the system; 2) design and construction data and specifications; 3) process hazard analysis; 4) an EHS that must include an environmental inventory, environmental assessment, and health impacts statement; and 5) a climate change impact assessment. In addition to Department review of the application materials, a third-party qualified and experienced in underground storage cavern design must also submit an evaluation report of the feasibility study, design and construction submittals, and process hazard analysis.

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Before the new cavern goes into operation, the owner/operator must submit additional documentation for the cavern's safe operation and maintenance, including air, groundwater, and soil vapor monitoring procedures and an emergency response plan. The operation and maintenance requirements include operating procedures to ensure that the system is operated within safe operating conditions and that the owner/operator understands what actions must be taken if any abnormal or emergency conditions occur to prevent a release. The maintenance procedures ensure that the mechanical integrity of cavern is maintained; this is accomplished by conducting periodic inspections and tests so that cavern or equipment deficiencies can be identified and repaired before a release occurs. The owner and operator must install an atmospheric detection system for accidental releases. With early detection of small release, the owner/operator can take action to prevent a larger catastrophic event. The groundwater and soil vapor monitoring systems act as another protection layer in case a release does occur and will act to provide early detection of a release so that it can be mitigated before it becomes a catastrophic event. As a final protection, the emergency response plan provisions require the owner/operator to fully specify what actions must be taken to address a release if it occurs.

The owner/operator of an existing cavern must similarly submit a permit application that includes a map and diagrams, plans for operation and maintenance, an emergency response plan, a decommissioning plan and financial responsibility, climate change impact assessment, and an integrity test of the system. These requirements for new and existing caverns will minimize the risk of an accidental release from the cavern to the public and the environment.

The Department understands the concerns raised. However, the tragic incidents noted involved different structures and situations outside the scope of this rulemaking. As noted, the Department is adopting the new rules to require existing cavern systems and proposed new

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cavern systems to meet strict standards to protect public health, safety, the State's waters, and environmental resources. The adopted rules will ensure that sufficient safeguards are in place to make sure that the mechanical integrity of the storage cavern and all associated infrastructure is properly maintained.

Please see the Response to Comments 21 through 27, regarding environmental justice, and 75, 76, 77, and 78, regarding climate change impact assessment.

19. COMMENT: These caverns require venting and/or flaring, which release hazardous air pollution. For instance, the air permit for Delaware River Partners' Gibbstown Logistic Center includes the butane underground storage cavern. The permit covers surface activities, as well as the cavern, and includes emissions from butane and propane. Continuous emissions of pollutants include methane, volatile organic compounds (VOC), Nitrogen Oxides (NO_x), Carbon Monoxide, Carbon Dioxide, Total Suspended Particulate Matter, Particulate Matter 2.5, Particulate Matter 10, and Sulphur Dioxide. Flares are used to burn vented gas; these emit carbon pollution and additional toxic co-pollutants. Due to the ill-defined mixture of components of LPG in the rulemaking, toxic and extremely toxic substances can be emitted, depending on what is actually in the mix.

Other pollutants from the substances covered by the rulemaking can include radon and sulfur dioxide. The U.S. Environmental Protection Agency (EPA) has identified radon as the second leading cause of lung cancer in the United States. These pollutants will be in the air breathed by the people who live, work, travel through, go to school and/or day care, and recreate in the region around the caverns. The emissions will contribute NO and VOC to the regional airsheds where the current caverns are located in Union County and Gloucester County, both

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nonattainment areas for ozone, potentially worsening smog conditions and the associated human health harms. Additionally, the greenhouse emissions will impact climate through carbon and methane emissions to the atmosphere. (8)

20. COMMENT: This rulemaking will attract more underground caverns to be built here, posing intolerable risk to our communities and environment, including human health harms from hazardous air pollution and toxics. The emissions from the caverns and their related activities, cradle to grave, will add more climate-killing greenhouse gas to our atmosphere, worsening the climate crisis when scientists urge, and the State has pledged, that we must drastically reduce greenhouse emissions by the end of this decade. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 45, 46, 47, and 48)

RESPONSE TO COMMENTS 19 AND 20: An underground storage cavern facility with venting and/or flaring operations is likely to need an air permit pursuant to the Department's Air Pollution Control rules at N.J.A.C. 7:27 (N.J.A.C. 7:27-8 for minor facilities or N.J.A.C. 7:27-22 for major facilities). As part of applying for an air pollution control permit, the facility will be required to meet all applicable State and Federal requirements. Among these requirements is an assessment of health risks through air quality modeling pursuant to N.J.A.C. 7:27-8.5 for minor facilities and N.J.A.C. 7:27-22.8 for major facilities. The Department's Technical Manual 1003 (Risk Assessment for Air Contaminant Emissions) (see <https://dep.nj.gov/wp-content/uploads/boss/technical-manuals/1003.pdf>) further defines the process by which facilities are to implement the risk program. Additionally, the rules at N.J.A.C. 7:27 limit air emissions of specific pollutants, such as particulates, sulfur and compounds, NO_x, and VOC. A major source located or proposed to be located in overburdened communities is also subject to the

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requirements of the Environmental Justice Law, N.J.S.A. 13:1D-157, and implementing rules at N.J.A.C. 7:1C.

Environmental Justice

21. COMMENT: Historically, most fossil fuel infrastructure projects in New Jersey are in environmental justice communities and communities through which the trains carrying the petroleum products are mostly environmental justice communities. Pursuant to New Jersey's new Environmental Justice Law and in the spirit of that law, the rules must not happen. Even the exceptions to the Environmental Justice Law would not allow for these dangerous caverns.

There is nothing in the public interest that would necessitate these caverns. (34)

22. COMMENT: The rules do not go far enough to regulate the use or the construction of these facilities. There's no prohibition for being built in environmental justice areas. As we know, most of the petroleum and hydrocarbon production in the State are in environmental justice communities or areas that should be designated as environmental justice communities. (38)

23. COMMENT: The rulemaking shows a complete disregard for environmental justice impacts. Governor Murphy's Executive Order of 2020, the Department's own Administrative Order 2021-25 (AO 2021-25), and New Jersey's much heralded Environmental Justice Law all go unaddressed. This rulemaking allows more pollution in communities that are already bearing intolerable environmental burdens and exposing overburdened communities to the impacts from caverns and the air emissions associated with their construction and operation. The existing caverns are in close proximity and adjacent to low-income, minority, or limited English census blocks. The rules must address the mandate to consider environmental justice. (7)

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24. COMMENT: Environmental justice community impacts are not addressed, perhaps implying that other regulations may apply these policies and regulations. This is a wrong-headed assumption, as illustrated by the example of the existing caverns that are located adjacent to or in proximity to census blocks that are considered environmental justice communities without any clear mandate to avoid air pollution or other environmental impacts that will impose harm on public health at these locations from the caverns and/or expansion of these cavern systems. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 45, 46, 47, and 48)

25. COMMENT: The rules are flawed because they avoid considering environmental justice community impacts. (6, 36, 37, 43, and 44)

26. COMMENT: Environmental justice concerns are not acknowledged or included in the EHIS/health impact assessment. (8)

27. COMMENT: The rules fail to consider how cavern systems will impact environmental justice communities, despite the New Jersey Environmental Justice Law and Executive Order No. 23 (2018), which direct that the future placement and expansion of polluting facilities in overburdened communities is not allowed. Although the rules require an environmental and health impact statement (EHIS), which includes a health impacts assessment and analysis of toxicity exposure, the rules allow mitigation of any potential health impacts, instead of eliminating the risk of exposure to pollution. This loophole would allow a cavern to be placed, to continue, or to expand in a location that will adversely impact environmental justice communities. The rules also do not factor in the existing pollution load that is already affecting the health of overburdened communities. Any new emissions or releases will be layered on top of the pollution that is affecting the overburdened community, making conditions worse for those same populations. This inequity will not be addressed by the Department's proposed

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environmental justice rules because the permits and location that trigger an environmental justice review might not apply to caverns.

Existing caverns undergo a lesser level of permit review, as reflected in the Department's Economic Impact statement, which explains the difference in cost for existing and new caverns. However, existing caverns storing petroleum gas are located in, or adjacent to, identified environmental justice communities. The less stringent review for existing caverns, which are already imposing adverse environmental impacts on adjacent communities, is unjust. Existing caverns must undergo the same level of review and must meet the same permitting requirements as new caverns. Otherwise, this loophole will disproportionately cause harm.

The Bayway Refinery is in Linden, Union County, within a half mile of and adjacent to census blocks identified in the Department's Environmental Justice Map as low-income, minority, or limited English census blocks. The Gibbstown Logistics Center in Gibbstown, Gloucester County, is approximately two miles from low-income, minority census blocks. Pursuant to this rulemaking, these communities would be sacrificed to worsening environmental burdens and the resulting health impacts by allowing these existing caverns to continue to operate. The actions that have been taken by Governor Murphy, his administration, and the New Jersey Legislature declare that this injustice cannot be allowed. (8)

RESPONSE TO COMMENTS 21 THROUGH 27: The Department acknowledges and shares the commenters' concerns regarding impact of pollution on overburdened communities. The adopted rules will help protect all communities by ensuring that an owner and operator of any proposed new cavern and any existing cavern meets the applicable requirements and standards. The rules include requirements for the renewal of any permit previously issued to an owner and operator of an underground storage cavern system, including those located in an overburdened

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community. See N.J.A.C. 7:1F-4.1(c). The applicable permit renewal requirements include submission of a map to scale of the system location and as-built diagrams, operation and maintenance plans, an emergency response plan, a decommissioning plan and financial responsibility, an integrity test, and a climate change impact assessment. See N.J.A.C. 7:1F-4.1(b). The Department will review the application materials to determine if the materials contain sufficient technical information and the system conforms with the protections and requirements of N.J.A.C. 7:1F and the Act, and approve or deny the permit accordingly. See N.J.A.C. 7:1F-4.1(c) and 4.2(i) and (j).

The Department also notes that separately, it has adopted rules pursuant to the New Jersey Environmental Justice Law, N.J.S.A. 13:1D-157 et seq. See 54 N.J.R. 971(a); 55 N.J.R. 661(b). Those rules require the Department to evaluate environmental and public health impacts of certain facilities on overburdened communities when the Department reviews specific types of permit applications. Depending on the types of Department approvals required and the location of the cavern system, an underground storage cavern system may be subject to these additional reviews and evaluations either pursuant to the new rules or AO 2021-25.

Scope of Rules

General

28. COMMENT: The rules apply only to the cavern and its equipment. This scope prevents the Department from considering the full impacts of caverns and thwarts effective management and safety considerations. The Act, at N.J.S.A. 58:10-35.3, requires the Department to consider a cavern's impact on water quality and quantity, as well as impacts to public health, safety, and

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welfare, which the rules cannot accomplish because of their narrow scope. (2, 5, 8, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

29. COMMENT: The rules are very narrow in what they consider and what impacts are assessed.

This increases the dangers and the adverse impacts for surrounding communities and the region impacted by the cavern systems and their infrastructure. The related infrastructure includes infrastructure required to operate and use the caverns. This includes transportation by trucks, rail and/or barge and marine vessels, of the petroleum cargo to and from the cavern, the construction and use of pipelines, the transloading and transfer operations associated with cavern operations, and other needed infrastructure. Caverns are not islands and their presence brings impacts that would not occur otherwise. They exist to store products that are moved to and from markets and they require extensive infrastructure to make that happen. In terms of pollution pathways resulting from cavern use, emissions occur at every stage of transport, transloading, and transferring, as do leaks, accidents, and the opportunity for terroristic incidents. (7 and 8)

30. COMMENT: The rules may lead to construction where there are compressor stations for natural gas pipelines and in flood hazard areas or locations that flood or are subject to sea level rise. These caverns can get flooded, as well as add more to fossil fuel usage by storing natural gas or petroleum products. (38)

RESPONSE TO COMMENTS 28, 29, AND 30: The purpose of the adopted rules is to establish requirements for the safe construction, operation, modification, and decommissioning of underground storage caverns and cavern systems. The definition of “underground storage cavern” or “cavern” refers to the pocket or other underground area or place where a regulated substance will be stored. The definition of “underground storage cavern system” or “system” refers to the cavern and associated ancillary equipment that are used to operate the system,

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including the first emergency shutdown valve. See N.J.A.C. 7:1F-1.6. Rather than being narrowly tailored, the Department believes the rules appropriately focus on the cavern itself along with associated ancillary equipment used for operation, consistent with N.J.S.A. 58:10-35.1 et seq.

The rules' applicability and requirements will allow the Department to evaluate the potential impact of a proposed new cavern and cavern system, and impose necessary conditions in any draft permit, as determined to be necessary and appropriate to protect public health, safety, and welfare. Among the requirements for the construction of a new cavern system is a detailed EHIS. The EHIS must include an evaluation of the impacts of the facility, where facility is defined as one or more underground storage cavern system(s) owned or operated by one person on a single property site or on contiguous property sites. The EHIS must also include an evaluation of how the system or facility will conform or conflict with all applicable land use and environmental requirements, including those affecting the floodway and flood fringe areas of flood hazard areas and wetlands, tidelands, and coastal zone areas. See N.J.A.C. 7:1F-2.4(b)7.

The rules at N.J.A.C. 7:1F-2.4(f) also require a cavern owner and operator that applies for a permit, or for the renewal of a permit, to evaluate and identify potential impacts from climate change. This assessment must include various scenarios, such as whether the system (which includes any above-ground ancillary equipment) is located within a flood hazard area, as defined by the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13. The Department is modifying N.J.A.C. 7:1F-2.4(f)2i upon adoption to refer to a flood hazard area as "defined" rather than "delineated" by the Flood Hazard Area Control Act Rules, which is more accurate. A system not located in a flood hazard area shall identify the distance from the cavern system to the closest flood hazard area and the minimum value or depth flood waters would have to rise to potentially

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reach the cavern system, using data available at the time the assessment is being prepared for the Department. See N.J.A.C. 7:1F-2.4(f)2. The climate change impact assessment must also consider the 100-year storm events and facility flooding expected, the facility's proximity to sea level rise projections at approximate intervals that correspond to the high end of projections for the years 2030, 2050, 2070, and 2100, as outlined in the 2020 New Jersey Scientific Report on Climate Change, and extreme weather events. The owner and operator must use these data and projections to develop a written summary that evaluates the potential of a release or impacts to the system, analyzes the risk to the system from flood or potential inundation, and evaluates the potential for health-related impacts. See N.J.A.C. 7:1F-2.4(f)3 and 4. The final component of the assessment requires the owner and operator to list measures to prevent releases and mitigate climate change impacts. The measures are to include those already present at the facility or included in design specifications. For resiliency measures to be implemented, the owner and operator must include an anticipated schedule for completion. Based on this information, as well as other required application materials, including a feasibility study, process hazard analysis, and third-party evaluation report, the Department will be able to make a decision on an application for new construction.

While these rules cover requirements for the safe construction, operation, modification, and decommissioning of underground storage caverns and systems, each permittee is still required to apply for all other applicable permits, which could include air pollution control, water pollution control, and land use. Such permits would include their own requirements and conditions necessary for the project to comply with all applicable laws and rules and protect public health and welfare. Additionally, as explained in the Response to Comments 21 through 27, if applicable, the requirements of the Environmental Justice Law and implementing rules at

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Toxic Catastrophe Prevention Act (TCPA) Requirements

31. COMMENT: The definition of “underground storage cavern system” or “system” at N.J.A.C. 7:1F-1.6 appropriately reflects the distinction between the scope and applicability of the cavern rules and the TCPA’s requirements. As defined, an underground storage cavern system is limited to the underground portions of an underground storage cavern system up to the first emergency shut-off valve. The definition generally results in underground equipment being regulated by the rules at N.J.A.C. 7:1F, while equipment at the surface is regulated by the TCPA and implementing regulations. This is consistent with N.J.S.A. 58:10-35.2, which does not contemplate regulating top-side equipment. The cavern itself (that is, everything below the first emergency shut-off valve) is unique and a specific regulatory program is justifiable. By contrast, the top-side equipment is not dissimilar to other product transfer systems and, thus, approval pursuant to the TCPA regulatory framework, as with any other non-cavern system, is proper. The clear distinction between these rules and the TCPA requirements is appropriate as a substantive matter and will avoid regulatory overlap and procedural complications. (26)

RESPONSE: Although the adopted rules at N.J.A.C. 7:1F and the Toxic Catastrophe Prevention Act Program rules at N.J.A.C. 7:31 are separate regulatory programs, there are situations where the two programs could overlap. As stated above, N.J.A.C. 7:1F applies to the construction, operation, modification, and decommissioning of any underground storage cavern system, which, as defined at N.J.A.C. 7:1F-1.6, includes associated ancillary equipment that could be above ground. The TCPA Program rules at N.J.A.C. 7:31 apply to the covered processes defined

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at N.J.A.C. 7:31-1.5. If the regulated substance to be stored in the cavern is an “extraordinarily hazardous substance” as defined at N.J.A.C. 7:31-1.5, then the TCPA Program rules would also apply. For example, if the regulated substance to be stored in the system is an extraordinarily hazardous substance, the TCPA Program rules will apply to the process hazard analysis. See N.J.A.C. 7:1F-2.3(a).

32. COMMENT: The rules on process hazard analysis at N.J.A.C. 7:1F-2.3(b) are different from the requirements set forth in the TCPA Program rules at N.J.A.C. 7:31. The rules should be revised so that the rules across the two programs are consistent. If the Department does not revise the rules, the Department should explain how an owner/operator would be able to comply with both sets of requirements. (12)

RESPONSE: As explained in the Response to Comment 62 regarding the required process hazard analysis and in the Response to Comment 31 regarding the TPCA Program rules, if an owner and operator of an underground storage cavern system stores a regulated substance that is an extraordinarily hazardous substance as defined pursuant to the rules at N.J.A.C. 7:31-1.5, the requirements of the TCPA Program rules apply to the process hazard analyses (PHA) for that system. See N.J.A.C. 7:1F-2.3(a). Otherwise, the PHA requirements at N.J.A.C. 7:1F-2.3(b) apply to a system that stores a substance that is not extraordinarily hazardous pursuant to N.J.A.C. 7:31. Thus, the Department has determined that there is no conflict between the rules.

Expansion

33. COMMENT: The rules do not limit cavern expansion, which is a dangerous and irresponsible oversight. As such, the rules will lead to segmentation of project review, which will

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pose a threat to the environment and communities and conflicts with established regulatory controls. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

34. COMMENT: The rules are fatally flawed because they do not limit cavern expansion, which will lead to segmentation of project review. (36, 37, and 43)

35. COMMENT: The modification provisions do not include a cap limit for expanding capacity and the rules do not limit cavern expansion to prevent segmentation, which occurs when an applicant submits a limited portion of a proposed project for regulatory approval, then shortly thereafter requests additional approvals or modifications at the same facility, resulting in a large cohesive project. The effect of segmentation is to minimize the appearance of a project's environmental impacts. Had the applicant submitted the overall larger cohesive project in a single application, the regulatory authority would have a more accurate understanding of the facility's impacts. It is known that some industrial and commercial projects begin with certain specifications, only to be expanded in the future. For example, one existing cavern plans to substantially expand its infrastructure and operations without disclosing the full build-out planned, which can lead to faulty decision-making that harms the public and the environment. As proposed, N.J.A.C. 7:1F-5.1 and 5.2 govern modifications to systems, but do not limit expansion or prohibit project segmentation. The Department should add language to prohibit segmentation of underground cavern systems and ensure that the cumulative impacts of the facility are analyzed. (8)

RESPONSE TO COMMENTS 33, 34, AND 35: By referring to "cavern expansion," the Department understands the commenters to express concern about the expansion of a facility by constructing additional caverns at the site, rather than the physical expansion of an existing cavern, such as by excavating additional material to expand the cavern space, which the

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Department believes is unlikely. The latter situation would constitute a major modification, requiring the owner and operator to meet the requirements at N.J.A.C. 7:1F-5.2.

For facility expansion, the rules require an owner and operator to submit an application prior to constructing any underground storage cavern system. In addition to the information required at N.J.A.C. 7:1F-2.1 and 2.2 to demonstrate the safe design of the cavern system, an EHS is required “to ensure the integrated assessment of technical, economic, environmental, and social parameters potentially affected by the construction and operation of an underground storage cavern system.” See N.J.A.C. 7:1F-2.4(a). The owner and operator must evaluate the impact of the cavern system on the surrounding community and public for a multitude of environmental, health, and safety concerns. If this cavern is approved, constructed, and installed, and at a later date, the owner and operator apply to construct additional caverns at the facility, the owner and operator would also be required to submit a new EHS. This EHS would evaluate the overall cavern operations for both the original cavern and the additional new cavern(s) to address the impacts of the facility on the public for the environmental, health, and safety concerns specified in the rules. For example, the original cavern may result in increased traffic of transportation containers in and out of the facility. The subsequent, additional caverns would likely increase traffic. The EHS for the application for approval of the additional caverns must account for the total traffic of transportation containers for all caverns at the facility. These requirements ensure that the full environmental, health, and other impacts of a cavern or cavern system are evaluated and protect against an applicant segmenting a project into multiple phases to evade environmental review or understate the potential impacts of a project.

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Excavated Materials

36. COMMENT: Generally, the construction of a cavern system involves mining and may result in management of radioactive materials. The rules do not specify how mined material is to be handled, except to say that a designated stockpile area is required. Stockpiles in New Jersey at mining locations have become sources of air and water pollution not only for communities that are proximate, but in some cases, also for communities distant from the stockpile. Erosion of the stockpile can result in polluted stormwater runoff. There is no discussion of how the stockpile is to be monitored for constituents in the soil and rocks, how it is to be managed, secured, and how it is to be disposed. In some cases, stockpiled tailings have sat for years without being properly assessed for contaminated materials or permanently disposed of in a manner that fits the stockpiled material's properties. (8)

RESPONSE: As part of the environmental assessment required at N.J.A.C. 7:1F-2.4, an owner and operator seeking to construct an underground storage cavern system must evaluate the changes to environmental conditions at and around a particular site that may result from the proposed construction. The EHIS must include an assessment of the impact of the system on the environment and natural resources and a description of steps to be taken to minimize adverse environmental impacts during construction and operation of the system, both at the project site and in the surrounding region. Therefore, as part of the environmental assessment and EHIS, an applicant must evaluate the potential for radiological impacts during construction and as a result of construction and operation, including the handling, disposal, and/or storage on site of excavated material if the material contains naturally occurring radioactive material.

"Technologically enhanced naturally occurring radioactive materials" or "TENORM" means any naturally occurring radioactive materials whose radionuclide concentrations or potential for

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human exposure have been increased by any human activities. N.J.A.C. 7:28-1.4. If any excavated material could be or is determined to be technologically enhanced, naturally occurring radioactive materials pursuant to the Radiation Protection Programs rules, N.J.A.C. 7:28, the owner and operator must explain how they intend to properly handle, remediate, and dispose of such material.

Additionally, as part of its permit application to construct, an owner and operator must include in its environmental inventory the planned destination for excavated materials and any environmental concerns, which would include concerns about any potential radiological impacts. See N.J.A.C. 7:1F-2.4(b)2ii. As part of the EHIS, the owner and operator must also explain how the system or facility will conform or conflict with applicable laws and requirements, including those affecting the re-use or disposal of excavated rock or materials. See N.J.A.C. 7:1F-2.4(b)7xv. To make clear that the EHIS must include an assessment of excavated material to ensure that construction does not result in piles with technologically enhanced naturally occurring radioactive materials, the Department is modifying N.J.A.C. 7:1F-2.4(b)7xv upon adoption to cross-reference N.J.A.C. 7:28, the Radiation Protection Programs rules. The Department is also removing the reference to the Mine Safety Act, as that reference could be misunderstood to, contrary to the Department's intent as expressed in the lead-in language at N.J.A.C. 7:1F-2.4(b)7, limit the assessment of the re-use and disposal of excavated rock or materials to only the requirements applicable pursuant to that act.

The feasibility study required must also include an assessment of all applicable local, State, and Federal laws applicable to the project, which includes the Radiation Protection Act and implementing rules. See N.J.A.C. 7:1F-2.1(a)8. Similarly, N.J.A.C. 7:1F-2.2(c) requires construction and storage of materials related to construction, including any excavated materials,

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to be completed in accordance with all applicable local, State, and Federal laws, which the Department believes will protect against contaminated runoff or other adverse environmental impacts. The Department is modifying N.J.A.C. 7:1F-2.2(c) upon adoption, to clarify that construction and storage must be completed in accordance with all applicable laws and rules, which include the Radiation Protection Act and implementing rules. These requirements will ensure the proper handling, storage, and disposal of excavated material.

Earthquakes

37. COMMENT: The notice of proposal Summary did not include any discussion of the potential for earthquakes to compromise cavern stability, cause loss of pressure, disruption of equipment operations, or a release of gas. The State’s Geologic Survey has indicated that, while the State does not get many earthquakes, some do occur and a few both in and out of State “have produced enough damage to warrant the concern of planners and emergency managers.” See

<https://www.state.nj.us/dep/njgs/enviroed/eqrisk.htm>. A 2016 report prepared for the U.S.

Department of Energy states that earthquakes or other disasters could disable multiple underground storage facilities in an affected area, or they could take out combinations of underground storage facilities and other important gas supply infrastructure. A storage well at the Aliso Canyon underground facility was crushed during the 1994 Northridge Earthquake in Los Angeles, California. How caverns will impact water wells, existing pollution plumes, utilities, and other infrastructure must be fully addressed through in-field investigations and assessment.

(8)

RESPONSE: The geology of New Jersey is relatively stable, with earthquakes rarely occurring. There is no record of an earthquake originating in New Jersey of a magnitude comparable to the

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1994 Northridge earthquake referenced by the commenter. The Department will evaluate the mechanical integrity of a cavern system when reviewing a permit application. Pursuant to the adopted rules, an owner and operator of a proposed new underground storage cavern system or a system subject to a major modification must include as part of its feasibility study an assessment of the geographical, topographical, and physical data for the proposed site, including the regional and site-specific geologic and hydrogeologic settings of the system. See N.J.A.C. 7:1F-2.1(a) and 5.2(a)1. The owner and operator must also install and calibrate instrumentation to measure the pressure, level, flow rate, and temperature of any regulated substance that is injected or withdrawn from the cavern. See N.J.A.C. 7:1F-2.2(c)6. For any newly constructed or existing cavern, the owner and operator must have a procedure in place to operate the system at all times within the allowed pressures and temperatures. See N.J.A.C. 7:1F-3.2(a)3. These requirements enable the Department to respond quickly if an earthquake were to degrade the mechanical integrity of a system and cause a release of a regulated substance. Further, the adopted rules also include emergency response requirements at N.J.A.C. 7:1F-3.4, which would also apply in the event of an earthquake and subsequent release of a regulated substance.

Regulated Substances

General

38. COMMENT: The rules should clearly define what can be stored in addition to the substances named. The rules imply that liquid gas is allowed, but it is unclear if gaseous state gas is allowed. Regarding the types of liquid gas listed in the rules, the rules do not provide for the disclosure of what will be in the gas mixes and whether this information will be publicly available. Leaving these issues unaddressed is confusing, keeps people from fully understanding what can occur,

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and can misdirect the public who will ultimately be bearing the burdens of the construction and operation of these caverns. (8)

RESPONSE: The adopted rules define “regulated substance” at N.J.A.C. 7:1F-1.6 as a gas or a petroleum product and its derivative injected, withdrawn, stored, or proposed to be injected, withdrawn, or stored at an underground storage cavern system, with the exclusion of LNG. The rules do not include limitations on the physical state (liquid or gas) in which the regulated substance is stored. The pressure and temperature of a stored regulated substance determine the physical state in which it will exist. For example, propane has a vapor pressure of approximately 110 pounds per square inch gauge (psig) at 70 degrees Fahrenheit. Thus, at this temperature and pressure, propane exists in equilibrium as a gas and liquid. If the temperature is maintained constant at 70 degrees Fahrenheit and the pressure is raised above 110 psig, propane will condense into a liquid, and if the pressure is decreased below 110 psig, propane will vaporize as a gas. Likewise, if the pressure is maintained constant at 110 psig and the temperature is raised above 70 degrees Fahrenheit, propane will vaporize as a gas, and if the temperature is decreased below 70 degrees Fahrenheit, propane will condense into a liquid. For the construction of a cavern system, the owner and operator must demonstrate to the Department, as part of its permit application, that the pressure and temperature of any substance to be stored in the cavern are within the design conditions so that the integrity of the cavern is maintained to prevent releases. Please see the Response to Comments 43 through 46 regarding the proposed storage of LPG mixtures and/or grades.

N.J.A.C. 7:1F-4.3 provides that all completed permit application forms and documented information pertaining to the permit are public records, including the regulated substance proposed to be stored. If the regulated substance is LPG, the application materials will include all

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required information regarding the mixtures and/or grades proposed to be stored. The rules include procedures for an owner and operator to make a confidentiality claim. See the Response to Comments 108 through 110.

39. COMMENT: Circumstances may arise that could require the addition of water into the caverns to ensure safe operations and maintenance activities. Furthermore, the design of existing caverns may allow the use of nitrogen and potentially natural gas to balance and maintain cavern pressure. The Department should clarify that the use of water for the purpose of safe operation or maintenance of the system, as well as nitrogen and natural gas for the purposes of designed operation of caverns, is an acceptable practice pursuant to the rules and not a violation of the regulated substance storage requirements. (12)

RESPONSE: N.J.A.C. 7:1F-1.4(d) provides that a permit issued by the Department pursuant to N.J.A.C. 7:1F-4 shall only apply to a single regulated substance, as specified in the permit application. N.J.A.C. 7:1F-4 sets forth the general permitting requirements for new and existing underground storage cavern systems. An underground storage cavern system is defined to include both the underground storage cavern and associated ancillary equipment. An underground storage cavern means a pocket or other underground area or place in an underground stratum excavated and used to store a regulated substance, or a natural geologic trap used to store a regulated substance. Pursuant to this framework, the addition or use of substances for operation would not require its own permit, as they are not being stored underground. However, the owner and operator must include the proposed use of substances for operation in the permit application, as set forth in the design and construction requirements at N.J.A.C. 7:1F-2.2, and the operation and maintenance plan requirements at N.J.A.C. 7:1F-3.2. This requirement

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includes substances that may be a regulated substance but is being used for containment purposes.

For example, water is utilized to maintain containment of stored substances in hard rock caverns; hydraulic containment occurs when the hydrostatic pressure of the groundwater in the host rock exceeds the vapor pressure of the stored product in the cavern. The water, which is at a greater pressure than the product in the cavern, acts to seal pores and fissures in the cavern's host rock. N.J.A.C. 7:1F-2.1(a)3 requires the owner and operator to conduct an assessment of hydrogeology to ensure that hydraulic containment design is adequate, and N.J.A.C. 7:1F-3.3(d) requires the owner and operator to conduct ongoing monitoring of the groundwater level to ensure that the hydraulic containment is maintained. The owner and operator must implement its operation and maintenance plan in accordance with N.J.A.C. 7:1F-3.2(a), (b), and (c) to ensure the ongoing integrity of the cavern system. These design, construction, and operating conditions are subject to Department review and approval.

Liquefied Natural Gas (LNG)

40. COMMENT: The Department's proposal to prohibit the storage of LNG in underground caverns is strongly supported. As the Department explained, this "extraordinarily hazardous substance," as defined in the TCPA Program rules, would not be approved pursuant to N.J.A.C. 7:31. Moreover, as found by the New Jersey Geological and Water Survey, there is a "lack of safe and feasible underground storage method" for LNG. Based on the evidence presented in the rule, the risk of catastrophe is too great to allow the underground storage, under any circumstances, of LNG. (8)

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41. COMMENT: The Department's proposal to ban the cavern storage of LNG is the correct decision. (3, 4, and 36)

42. COMMENT: There is no safe way to store LNG. If there ever is an accident, and inevitably an accident will occur, the results will be disastrous. LNG should not be stored in New Jersey, which is the most densely populated state in the nation, regardless of where it is stored. (1)

RESPONSE TO COMMENTS 40, 41, AND 42: The Department acknowledges the commenters' support for the prohibition of the storage of LNG in underground storage caverns.

Liquefied Petroleum Gas (LPG)

43. COMMENT: The rules at N.J.A.C. 7:1F-1.6 include a broad definition of "liquefied petroleum gas" or "LPG." As the definition is broad, owners/operators of caverns may change the substance stored without obtaining a permit modification. Importantly, these mixed gasses are regulated as a single regulated substance in accordance with N.J.A.C. 7:1F-1.4(d). It is unclear if the mixture contents will be made publicly available so that community residents will be fully informed. The definition reads as if other components outside of those listed can be added ("composed primarily of") and it is unclear whether the components of the mixture will be monitored by and reported to the Department in real time.

This can have dangerous consequences that the public should be aware of and of which the Department should require full disclosure, monitoring, and reporting. Mixing different types of gas could result in unanticipated corrosion, which, in turn, could lead to a leak and deadly explosion. (8)

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44. COMMENT: The definition of liquefied petroleum gas (LPG) is so overly broad that it is impossible to understand or know exactly what is being stored or handled at a cavern facility. (2, 5, 11, 13, 16, 18, 19, 20, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

45. COMMENT: The proposed rulemaking is fatally flawed because of its overly broad definition of liquefied petroleum gas and its overly narrow consideration of what is regulated. (36, 37, and 43)

46. COMMENT: The rulemaking is flawed as it is overly narrow in its consideration of what is regulated. (6)

RESPONSE TO COMMENTS 43, 44, 45, AND 46: The Department used the American Petroleum Institute (API) Standard 2510 definition of “liquefied petroleum gas” or “LPG” for consistency and clarity as to what constitutes LPG. See Design and Construction of LPG Installations, API STANDARD 2510 NINTH EDITION, AUGUST 2020, Section 3 Terms and Definitions. The definition of “regulated substance” or “substance” is intended to be broad to ensure that any “gas or a petroleum product and its derivative injected, withdrawn, stored, or proposed to be injected, withdrawn, or stored at an underground storage cavern system,” except for LNG, is covered by the rules and subjected to the review and safeguards applicable pursuant to the rules.

As explained in the notice of proposal Summary, at N.J.A.C. 7:1F-1.4, LPG is considered a single regulated substance. However, the rules require a cavern to be designed to ensure that the cavern will safely maintain its integrity for all of the components of any LPG product to be stored in the cavern. Compatibility of all components within LPGs and associated operating conditions must be confirmed for not only the cavern but for all parts of the system. See N.J.A.C. 7:1F-2.1(a)5. Therefore, an applicant may seek a permit to store different mixtures and grades of

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LPG, but must identify the distinct mixtures or grades and all associated components and concentrations, and demonstrate that the underground cavern system design and construction are safe for any LPG grades and mixtures that may be stored. See 54 N.J.R. at 821. In the permit application for the cavern system, the owner and operator must specify all various LPG mixtures, including a listing of the component compositions and the corresponding physical parameters, such as temperature and pressure, for each LPG mixture that will be permitted to be stored. In addition, the owner and operator must submit all accompanying documentation required pursuant to this chapter. The owner and operator must evaluate the worst-case operating conditions for any grade of LPG. See 54 N.J.R. at 821. As also explained in the notice of proposal Summary, LPG components have similar physical properties, such as flammability and corrosivity. However, the substances' boiling points and vapor pressures differ. See 54 N.J.R. at 821. Therefore, various LPG grades will have different minimum and maximum operating temperatures and pressures, which the owner and operator must ensure are within the minimum and maximum design temperatures and the minimum design pressure and maximum allowable operating pressure for the cavern system. The owner and operator must provide the required plans, specifications, analyses, studies, and testing for all LPG grades or component mixtures to be handled. Only those LPG grades or mixtures (and their corresponding operating parameters) that have been specified in the permit application and accompanying documentation submission will be permitted to be stored in accordance with the adopted rules. Any change to the LPG grades or mixtures to be stored would be a proposed change to the regulated substance and require a permit for a major modification. See N.J.A.C. 7:1F-1.6 and 5.2. To clarify the rule requirements consistent with the Department's intent, as explained in the notice of proposal Summary (see 54 N.J.R. at 821), the Department is modifying N.J.A.C. 7:1F-2.1(a)4 upon

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adoption to specify that the feasibility study must identify the regulated substance to be stored including, if applicable, all mixtures and/or grades of LPG to be stored. As modified, N.J.A.C.

7:1F-2.1(a)4 also specifies that the owner and operator must identify the concentration of any component of the regulated substance, including all LPG mixtures and/or grades to be stored.

The Department is also modifying N.J.A.C. 7:1F-2.1(a)5, upon adoption, to clearly state that that the compatibility assessment must include all proposed mixtures and grades of LPG included in the application.

47. COMMENT: The Department's approach to consider LPG as a single regulated substance is appropriate, based on practical considerations and sound scientific principles. The chemical composition and physical characteristics of LPG products do not materially differ from one to another. LPG products, such as propane, butane, and propylene are flammable, hydrocarbon compounds. On a molecular level, LPG products are substantially similar. The primary difference between propane and propylene, for example, is that propane is an alkane having only single bonds, whereas propylene is an alkene with a double bond (C₃H₈). As a result, if geologic conditions are found to be suitable for one LPG product, that determination can be safely applied to all LPG products, provided the cavern is designed to accommodate the maximum operating pressure for any LPG product. (26)

RESPONSE: The Department does not agree that if geologic conditions are found to be suitable for one LPG product, that determination can be safely applied to all LPG products if the cavern is designed to accommodate the maximum operating pressure for any LPG product. As explained in Response to Comments 43, 44, 45, and 46, application materials submitted by an owner and operator of an underground storage cavern system must demonstrate the compatibility of all

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components within LPGs and associated operating conditions for not only the cavern but for the entire system. An owner and operator must identify the distinct mixtures or grades and all associated components and concentrations. In its feasibility study, the owner and operator must demonstrate that the operating conditions and chemical composition for each LPG and the individual components within the LPG mixtures intended to be stored are safe and compatible with the cavern design.

48. COMMENT: The definitions of “LNG” and “petroleum product and its derivative” recognize that the product could include small amounts of impurities. LNG is defined as “methane with small amounts of hydrocarbons, water, carbon dioxide, nitrogen, oxygen, and some sulfur compounds ...” “Petroleum product and its derivative” is defined as “any substance that is a complex mixture ... of different hydrocarbons with small amounts of other substances, such as compounds of oxygen, sulfur, or nitrogen, or metallic compounds ...” In contrast, LPG is defined as “any material in liquid form that is composed predominantly of any of the following hydrocarbons or a mixture thereof: propane, propylene, butanes (normal butane and isobutane), and butylenes” with no recognition of impurities or similar hydrocarbon that may exist like LNG and other petroleum hydrocarbons. Refining processes do not produce pure products and LPG may contain small amounts of hydrocarbons, water, carbon dioxide, nitrogen, oxygen, and some sulfur compounds. Therefore, the definition of LPG should be revised to specifically include impurities that might be present.

The normal operation of caverns holding refinery butane can include "refinery grade" butane that will include other hydrocarbons that have a vapor pressure sufficiently low to permit compression and storage in a liquid state at moderate pressures and normal temperature. Normal operations of refinery caverns can also include LPG treatment chemicals used to ensure product

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specifications are met. The definition of LPG should specifically include “refinery grade” butane and other compounds and LPG treatment chemicals associated with the refining LPG processes are allowed to be present in the storage caverns regulated. (12)

RESPONSE: As explained in the Response to Comments 43, 44, 45, and 46, the Department relies on the API Standard 2510 definition of LPG to define the term at N.J.A.C. 7:1F-1.6. Use of the API standard definition will provide consistency to the regulated community. Though the Department’s definition does not specifically state that LPG may contain small amounts of impurities, it allows for the presence of impurities by stating that the material is “composed predominantly of” the identified hydrocarbons or a mixture thereof. Similarly, the Department’s definition is sufficiently broad to include refinery grade butane and the presence of LPG treatment chemicals.

Carbon Sequestration

49. COMMENT: It is unclear if the rules allow the storage in underground caverns of carbon as an attempt at carbon sequestration. There are many questions surrounding the efficiency and sustainability of the storage of carbon or other greenhouse gases for the purposes of capturing the emissions to prevent their release to the atmosphere. Additionally, carbon storage has environmental impacts, consumes energy, and requires the use of chemicals. If carbon storage results in fugitive emissions, leakage, or other environmental impacts that outweigh the value of capturing the carbon, rationalizing activities that produce carbon by trying to capture it after-the-fact will end up increasing emissions and worsening global warming. It is far better to prevent the initial release of carbon by eliminating the development of fossil fuels, for instance, than allowing the extraction and use of fossil fuels and other sources of greenhouse gases to continue.

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Additionally, carbon release from a storage site also has public safety hazards and storage in underground caverns is not well studied. Building carbon capture and storage would likely require regulatory policy development even if technologically feasible. Although storage sites for CO₂ and natural gas are characterized in similar fashion and utilize similar geologic formation types, the two activities are regulated differently and by different agencies; for example, the EPA's UIC program regulates CO₂ storage. (8)

50. COMMENT: As the definition of LPG is overly broad, it is unclear if carbon sequestration falls under these rules. (2, 5, 11, 13, 16, 18, 19, 20, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

RESPONSE TO COMMENTS 49 AND 50: The adopted rules at N.J.A.C. 7:1F-1.6 define "regulated substance" to mean a gas or petroleum product and its derivative injected, withdrawn, stored, or proposed to be injected, withdrawn, or stored at an underground storage cavern system. Gas is defined to mean any naturally occurring or synthetic substance that exists in a gaseous state at standard temperature and pressure, or 32 degrees Fahrenheit and atmospheric pressure. As stated above, this definition excludes LNG. Carbon dioxide would meet the definition of regulated substance if proposed to be injected, withdrawn, or stored at an underground storage cavern system. All requirements to ensure the safe construction and operation of a cavern system would apply, as well as any other applicable Federal or State requirements. However, the Department is unaware of any proposal to construct a cavern system to store carbon dioxide.

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Construction Requirements at N.J.A.C. 7:1F-2

General

51. COMMENT: N.J.A.C. 7:1F-1.4(b) states that the owner and operator of an underground storage cavern system "shall ensure that any underground storage system is constructed, operated, modified, and decommissioned in accordance with the requirements of this chapter."

The wording used in the section, specifically for the "construction" of the cavern, does not appear to be applicable to existing facilities. The Department should clarify that construction requirements are not applicable to facilities in operation as of the effective date of the rules. (12)

RESPONSE: The requirements for a renewal permit application of an existing cavern system in operation as of the effective date of the rules are set forth at N.J.A.C. 7:1F-4.1(b). The only provision at N.J.A.C. 7:1F-2 that applies to these renewal permit applications is the climate change impact assessment required at N.J.A.C. 7:1F-2.4(f). N.J.A.C. 7:1F-4.1(b) requires the owner and operator of an existing cavern in operation as of the effective date of the chapter to submit a permit renewal application by five years of the effective date. The Department will review the application and materials required for a permit renewal, including plans for operation and maintenance, map, and diagrams, emergency response plan, a decommissioning plan and financial responsibility, climate change impact assessment, and an integrity test, and approve an updated permit or deny. Based on its review of these materials, the Department will either grant or deny the renewal application based on its determinations as to whether operations at the existing facility, and the components of the existing system itself, continue to meet the safety and environmental protection standards required pursuant to this chapter.

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52. COMMENT: The Department should confirm that N.J.A.C. 7:1F-2 only applies to new or expanded underground storage cavern systems and that existing underground storage caverns are exempt from all the requirements of this subchapter. N.J.A.C. 7:1F-2.1(a), 2.2(a), and 2.4(a) are ambiguous because of the reference to “any application for a permit,” which could include a renewal application. Existing caverns may not be able to comply with many of the requirements of this subchapter because construction was completed many years ago. For example, N.J.A.C. 7:1F-2.2(c) requires construction in accordance with other statutes that may not have been applicable at the time of construction, such as the Mine Safety Act or Explosives Act. Therefore, it would not be possible for existing caverns to have been constructed in accordance with such standards. Existing caverns were designed, constructed, and operated to ensure safe operations and to prevent environmental releases, they should not be subject to requirements that can only be reasonably implemented for new construction or expansion. (12)

RESPONSE: As explained in the Response to Comment 51, the requirements for a renewal permit application of an existing cavern system in operation as of the effective date of the rules are set forth at N.J.A.C. 7:1F-4.1(b). The feasibility study requirements at N.J.A.C. 7:1F-2.1 and the design and construction requirements at N.J.A.C. 7:1F-2.2 apply to the proposed construction of an underground storage cavern. See 54 N.J.R. at 822-23, N.J.A.C. 7:1F-2.1(a) and 2.2(a). An updated feasibility study is required for a major modification. See 54 N.J.R. at 829 and N.J.A.C. 7:1F-5.2(a). The EHIS requirements at N.J.A.C. 7:1F-2.4 apply to the proposed construction of an underground storage cavern. As explained in the Response to Comment 51, the only provision at N.J.A.C. 7:1F-2 that applies to a renewal permit application is the climate change impact assessment required at N.J.A.C. 7:1F-2.4(f). The Department is

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modifying N.J.A.C. 7:1F-2.1(a), 2.2(a), and 2.4(a) upon adoption to clarify that the requirements pertain to an application for an approval to construct, in accordance with the Department's intent.

53. COMMENT: The Department should clarify, consistent with the Department's prior guidance, that commencement of an approved activity pursuant to N.J.A.C. 7:1F-4.5(b) means initiation of construction on the main production shaft element of an underground storage cavern system. (26)

RESPONSE: N.J.A.C. 7:1F-4.5(b) provides that any permit or approval issued pursuant to the rules shall expire if the approved activity is not commenced within 12 months after the effective date of the permit or approval. Construction is defined at N.J.A.C. 7:1F-1.6 as "the drilling, boring, driving, digging, or otherwise conducting of any operation for the purpose of obtaining access to a pocket or other underground area to establish a new underground storage cavern as part of an underground storage cavern system, in addition to, installing the infrastructure needed to operate the system." If construction on the main production shaft element is the first activity that would occur under a construction permit, then commencement of that construction would constitute commencement of the approved activity. However, if other work, such as land preparation, digging, monitoring wells for water levels during construction, or other operation takes place before construction of the main production shaft element and that activity is included in the construction permit, then that activity would constitute commencement of the approved activity.

If the permit or approval is for operation, then the regulated activity would be operation, meaning the ongoing injection, withdrawal, or storage at an underground storage cavern system.

See N.J.A.C. 7:1F-1.6.

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54. COMMENT: The rules require an applicant for a cavern permit to obtain approvals from the Department of Labor and Workforce Development, if applicable, which is presumed to be a reference to the requirements of the Mine Safety Act, N.J.S.A. 34:6-98.1 et seq., and implementing rules. This provision is not necessary and should be removed from the final rules. The Mine Safety Act authorizes the Commissioner of the Department of Labor and Workforce Development to require the registration of every mine, pit, or quarry, and a certificate of registration be obtained before the mine, pit, or quarry is opened. See N.J.S.A. 34:98.4.h. The Mine Safety Act does not authorize the Department of Labor and Workforce Development to approve the construction of a mine, pit, or quarry. Moreover, the Mine Safety Act and the implementing rules at N.J.A.C. 12:185 do not apply to underground storage caverns, because excavation in connection with an underground storage cavern is conducted only for a limited phase for the purpose of creating the cavern and not on an ongoing basis for the creation of a saleable product. Therefore, proposed N.J.A.C. 7:1F-4.1(a)3 should not be included in the final rules. (26)

RESPONSE: N.J.A.C. 7:1F-4.1(a)3 states that, if applicable, an owner and operator of an underground storage cavern system must obtain approvals from the Department of Labor and Workforce Development. There may be approvals required, for example, if explosives will be stored and used, if any mining activities as defined at N.J.A.C. 12:185 will occur, and if any of the excavated material is used for the economic benefit of the owner and operator. If such an approval is required, then the facility will count as a “mine” and will fall under appropriate rules. Therefore, the Department is adopting this provision as proposed.

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Siting and Buffers

55. COMMENT: The rules rely primarily on current environmental regulatory programs to set standards for permits and practices related to the caverns. As a result, the rules establish few specific limitations on crucial aspects such as where a cavern can be placed, how much of a buffer must be provided from environmental features, residential areas, structures, and infrastructure. The rules are not clear about what can be placed on top of a cavern. For example, it is not clear whether roads, railways, structures, storage facilities, and other uses can be located on the ground surface with a cavern beneath or if any buffer is required between a cavern and a stream or river. The Department should explain why the rules do not include a mandatory exclusion zone around the cavern to provide public safety and environmental protection. The separation distance between an existing cavern and a new one is left to qualitative judgment. The rules state, “[t]he separation between any individual underground storage caverns within a new or expanded facility shall be a distance sufficient to ensure that the caverns are able to maintain mechanical integrity and can be safely operated, and that the migration of the regulated substance(s) between caverns is prevented.” N.J.A.C. 7:1F-2.2(c). The construction requirements also state, “[t]he owner shall maintain, and control, all of the surface and mineral rights of all privately owned land within 300 feet of the surface footprint of the cavern.” N.J.A.C. 7:1F-2.2(d). However, the rules do not prescribe what can or cannot be done on the surface above those 300 feet of controlled mineral rights. The feasibility study will evaluate some of these issues, but decisions will be made by a “third party evaluator,” not the Department. This aspect of the rules supplies no “bright lines” and keeps the public in the dark. It is understood that the TCPA will apply but this does not guarantee specific, consistent, and publicly available

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protocols regarding these issues. There are more defined buffers, mandatory separation distances, and restrictions for a septic system for a private home pursuant to State rules than for a cavern storing hazardous and flammable petroleum gasses. (8)

56. COMMENT: The Department proposes no exclusion zones or buffers around caverns even though other states have imposed these protections for adjacent populations. There are no clear requirements about restrictions on what can be built on the surface above a cavern or next to a cavern. This omission endangers everyone. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 45, 46, 47, and 48)

57. COMMENT: The proposed rules are fatally flawed because there are no exclusion zones, restrictions, or buffer areas for what can be built on the surface above a cavern. (36, 37, and 43)

58. COMMENT: The rulemaking is seriously flawed because it lacks exclusion zones or buffers. (6)

RESPONSE TO COMMENTS 55, 56, 57, AND 58: The adopted rules do not impose a specific minimum buffer because the proper placement, construction, and operation of an underground storage cavern requires a case-by-case analysis. The rules require an applicant to provide detailed information regarding the proposed site and construction, including proximity of water bodies and surface structures as part of the feasibility study and an environmental and health impact statement. See N.J.A.C. 7:1F-2.1 and 2.4. An applicant proposing to construct a new underground storage cavern system must also submit design specifications and construction plans, N.J.A.C. 7:1F-2.2, and follow the construction requirements at N.J.A.C. 7:1F-2.2(c), which include a requirement at N.J.A.C. 7:1F-2.2(c)4 that any individual caverns shall be at a distance sufficient to ensure that the caverns are able to maintain mechanical integrity, can be safely operated, and prevent the migration of regulated substance(s) between caverns. An

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applicant proposing a major modification must submit updated materials, including an updated feasibility study, updated design specifications, updated operation and maintenance plans, and updated emergency response plans. See N.J.A.C. 7:1F-5.2(a). Any construction would also be subject to all applicable State and Federal laws that may require buffers separate from the requirements at N.J.A.C. 7:1F.

N.J.A.C. 7:1F-2.2(d) also requires an owner to maintain and control all surface and mineral rights of all privately owned land within 300 feet of the surface footprint of the cavern. This requirement effectively imposes a 300-foot buffer around each cavern and any third-party-owned property. The Department did not expressly prohibit surface development over the cavern footprint or within this 300-foot area because what might be permissible when evaluating risk to public health, safety, and welfare is case-specific.

In addition to the construction requirements, the rules require operation and maintenance plans and procedures, as well as monitoring requirements so that if, for example, there is any significant change in ground water level, or if a release is detected or suspected, the owner and operator must immediately notify the Department and the Department must immediately respond.

Please see the Response to Comment 64 and the Response to Comment 65 regarding the third-party evaluation report requirement.

59. COMMENT: The State Legislature, in its adoption of the Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1 et seq.) (Highlands Act), recognized that the Highlands Region is an essential source of drinking water, providing clean and plentiful drinking water for one-half of the State's population, including communities beyond the New Jersey Highlands; and that a

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comprehensive approach to the protection of the water and other natural resources of the New Jersey Highlands should consist of the identification of a preservation area of the New Jersey Highlands that would be subjected to stringent water and natural resource protection standards. Due to the intent of the Highlands Act to protect the water resources of the region for the benefit of the State's population, the Highlands Council recommends that the rule prohibits any underground storage caverns within the preservation area of the Highlands. (30)

RESPONSE: The Department agrees and understands the importance of the Highlands Region. As part of the environmental inventory required pursuant to adopted N.J.A.C. 7:1F, an applicant seeking approval to construct and operate an underground storage cavern system must describe how the project would conform or conflict with the objectives of any applicable Federal, State, or local land use and environmental requirement, including the Highlands Act. See N.J.A.C. 7:1F-2.4(b)7v. Moreover, the applicant would need to obtain all other necessary approvals and permits, including those required pursuant to the Highlands Act.

The Highlands Act creates two areas within the Highlands region: a preservation area, in which further development is strictly regulated, and a planning area. The Highlands Act established the Highlands Council, which is required to adopt a regional master plan for the Highlands region consistent with the goals set forth in the Highlands Act. See N.J.S.A. 13:20-4, 6, 8, and 10. The Highlands Act also directs the Department to adopt "rules and regulations establishing the environmental standards for the preservation area" which form the basis for the regional master plan and permitting review program. See N.J.S.A. 13:20-32. The Department's rules at N.J.A.C. 7:38 prohibit any person from commencing work on a major Highlands development in the preservation area without first receiving a Highlands Applicability Determination and/or a Highlands Preservation Area Approval. N.J.A.C. 7:38-2.2. The

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Department will issue a Highlands Preservation Area Approval only if the proposed development or activity satisfies all of the requirements at N.J.A.C. 7:38-3 and 6.2. See N.J.A.C. 7:38-3.1.

Additionally, the Department “shall not issue a Highlands Preservation Area Approval for any regulated activity in an area identified in the Regional Master Plan pursuant to N.J.S.A. 13:20-6n as a special area within which development shall not occur in order to protect water resources and environmentally sensitive lands.” N.J.A.C. 7:38-6.1(d). The Department believes these requirements sufficiently protect the resources of the preservation area.

60. COMMENT: The EHIS rules require the environmental and climate analyses to include a look at the location of the cavern relative to the Flood Hazard Area, as well as other storm and sea level rise information. However, how this information will affect the permitting of the cavern and its location is decided pursuant to the flood regulations. It makes the most logical sense to prohibit the placement of a cavern in a flood hazard area and/or a floodplain. However, the rules instead call for “resiliency” planning, with no requirement to implement any resiliency measures since this exercise is only for information purposes.

Location is crucial in planning to prevent catastrophe. It is also important to avoid the cavern contributing to flooding and downstream flows because fill has been placed in the floodplain. The most effective way to achieve resilience is to keep such systems well away from floodplains and frequently flooded areas and to provide wide riparian buffers to protect in the long term. The unintended negative consequences of adaptation are known as “maladaptation.” It is important to recognize that often maladaptation projects just shift harm elsewhere, too often on communities already overburdened by environmental harms. (8)

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RESPONSE: An owner and operator seeking to construct and operate a new cavern must obtain a permit pursuant to N.J.A.C. 7:1F-4-2. N.J.A.C. 7:1F-2.1(a)8 requires an applicant proposing to construct an underground storage cavern system to submit a feasibility study that includes an assessment of all applicable local, State, and Federal laws. The required EHIS must include an environmental inventory that includes information about how the system or facility will conform or conflict with the objectives of any applicable Federal, State, or local land use and environmental requirements, including the floodway and flood fringe areas of identified flood hazard areas, as well as a climate change assessment with information about 100-year storm events, expected flooding, proximity to sea level rise projects, and extreme weather events. See N.J.A.C. 7:1F-2.4(b)7i and (f)2. Ultimately, the Department will evaluate the information and findings of the EHIS to determine if the proposed system conforms with the protections and requirements set forth at N.J.A.C. 7:1F, and whether conditions are required to ensure that the system meets the statutory and regulatory requirements. See N.J.A.C. 7:1F-4.2(d)3 and (j)2. The Department must find that the proposed system conforms with the protections and requirements of the Act and N.J.A.C. 7:1F to propose a draft approval to construct for public comment. Although the rules do not exclude particular areas, the rule requirements will ensure that any proposed new construction is properly located.

In the notice of proposal Summary, the Department explained that, although the climate change impact assessment provisions do not require an owner or operator to implement the measures described in the assessment, the assessment process is a valuable long-range planning tool if resiliency improvements are required over time. See 54 N.J.R. at 824. While the rules governing underground storage cavern systems do not require implementation of resiliency measures, the requirements of N.J.A.C. 7:1F do not in any way relieve the applicant from the

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obligation to obtain all other necessary permits to comply with all other applicable Federal, State, and local rules and regulations. The Department anticipates that applicable land resource protection rules, including flood hazard area control, will ensure that any proposed construction and operation complies with requirements necessary for resiliency. The Department is modifying the rules upon adoption to add N.J.A.C. 7:1F-1.3(b) to make clear that an applicant must obtain all other necessary permits.

Feasibility Study

61. COMMENT: N.J.A.C. 7:1F-2.1(a)6 requires demonstration that any well, including any abandoned well, at the proposed site has been constructed in accordance with all applicable laws. It is not appropriate to require demonstration that an abandoned well has been constructed in accordance with all rules, especially if the well was unrelated to the cavern system. Sites may have abandoned wells for which no documentation exists. Additionally, the Department should clarify that this requirement is limited to the proposed site of an underground storage cavern, not the entire site at which a cavern will be located and applies only to caverns constructed or expanded after the rules are effective. (12)

RESPONSE: The owner and operator of an underground storage cavern system must submit a feasibility study as part of an application for approval to construct and for major modification. The feasibility study must include an assessment of all available sources of information to demonstrate the proper construction and decommissioning of any well and abandoned well, as applicable, at the site. This information is important to ensure that an abandoned well does not present a threat to the mechanical integrity of a cavern system.

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“Site,” as defined at N.J.A.C. 7:1F-1.6, is not limited to the proposed site of a cavern and includes the contiguous piece of property at which a facility is located. “Facility” is also defined at N.J.A.C. 7:1F-1.6 as one or more underground storage cavern system(s) owned or operated by one person on a single property site or on contiguous property sites. To meet this requirement, an owner or operator that is seeking to construct a new cavern or is seeking approval for a major modification to an existing cavern must evaluate all available sources of information on the wells at the site. If the owner or operator knows there is an abandoned well at the site, the well must be properly sealed in accordance with the Well Construction and Maintenance rules at N.J.A.C. 7:9D.

Process Hazard Analysis

62. COMMENT: The rules appear to focus on mechanical integrity. However, there are concerns about chemical integrity as well, which the rules do not appear to address. Although N.J.A.C. 7:1F-2.3 requires a process hazard analysis, the rules do not appear to require an analysis of the chemical changes that could occur in the cavern from the stored substances. For example, the cavern system could potentially affect the chemical composition of the geologic formation and groundwater, or vice versa. This analysis should be required. If it is required, the process hazard analysis only applies to extraordinarily hazardous substances as defined by the TCPA rules at N.J.A.C. 7:31-1.5. Therefore, these issues would not be addressed for all substances that the rules could allow to be stored. The rules should require an analysis of any chemical and physical issues, not just mechanical and engineering issues, to protect the public and the environment. (8)

RESPONSE: The process hazard analysis (PHA) is an accepted methodology to analyze how failures may occur in a system for various industries and types of processes, including

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underground storage cavern systems. Pursuant to N.J.A.C. 7:1F-2.3, the requirements of the TCPA will apply to a process hazard analysis if the owner and operator of a system stores a regulated substance that is an extraordinarily hazardous substance as defined in the TCPA rules at N.J.A.C. 7:31-1.5. If the regulated substance is not an extraordinarily hazardous substance, then the cavern rules set forth the process hazard analysis requirements. See N.J.A.C. 7:1F-2.3(b). Therefore, all regulated substances are subject to a process hazard analysis, either pursuant to the TCPA rules or the Underground Storage Caverns rules.

The rules at N.J.A.C. 7:1F-2.1 require a feasibility study, as part of which the owner or operator is required to assess the compatibility of the regulated substance with all parts of the system and demonstrate that the mechanical integrity of the system will not be impaired. See N.J.A.C. 7:1F-2.1(a)5. The “underground storage cavern system” or “system,” as defined at N.J.A.C. 7:1F-1.6, includes the underground storage cavern and associated ancillary equipment including, but not limited to, wells, wellheads, pipes, lines, tubes, and instrumentation that are used for operation of the system up to and including the first emergency shutdown valve, any associated, adjacent maintenance valves, and the pressure relief valve(s) installed to protect the cavern from over pressurization. Therefore, the owner or operator must ensure that there are no adverse reactions between substance(s) to be stored and the geologic composition of the system that could undermine the integrity of the cavern and lead to a release of the regulated substance. As part of its review, the Department will consider the geology and potential interaction between the regulated substance and geological components in the cavern.

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Extraordinarily Hazardous Substances and Risk Assessment

63. COMMENT: In the notice of proposal Summary, the Department stated that an owner or operator that stores an EHS as defined by the TCPA rules would be required to conduct a risk assessment pursuant to N.J.A.C. 7:31-4.2. See 54 N.J.R. at 823. “A risk assessment quantifies the likelihood of a release and its consequences for the purpose of risk reduction.” According to the Department, “[i]f the release likelihood is greater or equal to 10 to the power of 6 per year, the owner and operator must perform an evaluation of risk reduction measures that would reduce the likelihood or consequence of a release.” This approach is problematic for two reasons. First, the risk-based assessment implicitly accepts that adverse impacts will occur and judges the acceptable amount, which has a built-in bias that disproportionately harms overburdened communities unless existing conditions are factored in. Second, to provide the needed protection for the environment and communities, the goal must be to prevent and avoid harms, not only mitigate the damage they are expected to inflict. (8)

RESPONSE: In the notice of proposal Summary, the Department explained that if the release likelihood is greater or equal to 10^{-6} (10 to the -6, not 6, as the commenter states), the owner and operator must evaluate risk reduction measures that would reduce the likelihood or consequence of a release. 54 N.J.R. at 823. In the notice of proposal Summary, the Department explained that a risk assessment is required pursuant to the TCPA rules at N.J.A.C. 7:31-4.2 if an owner and operator stores an EHS, as defined by the TCPA rules. 54 N.J.R. at 823. The Department gave a brief summary of the risk assessment required pursuant to the TCPA rules since 1988. The TCPA rules do not establish a standard of acceptable risk or specific criteria for the consequences and likelihood that define whether a process is allowed or prohibited. Instead, the TCPA rules require an owner and operator to implement enumerated risk reduction measures.

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The adopted rules require an owner and operator that seeks to construct a new cavern to submit a feasibility study, a process hazard analysis, an EHIS, and a third-party evaluation addressing the potential impacts of the project. The rules also establish requirements for an owner and operator seeking to operate a cavern, including a mechanical integrity test at the selected test pressure of the cavern system in its entirety and each individual penetration into the cavern, procedures for air monitoring, procedures for ground water and soil vapor monitoring, procedures to operate the system at all times within the maximum and minimum operating pressures and temperatures, additional operating procedures, a maintenance plan, and an emergency response plan. These provisions, together, will ensure that a cavern is constructed, operated, maintained, modified, and decommissioned in a manner to protect public health and safety and the environment.

Third-Party Evaluation

64. COMMENT: N.J.A.C. 7:1F-2.5(b)4, 5, and 6 do not allow third-party evaluations to be completed by any business or consulting service to the owner or operator that provides any advice or assistance to implement the findings or recommendations of the third-party's evaluation for a period of at least two years following the submission of the evaluation. The pool of qualified business or consulting services in the cavern industry is very limited. Based on the rules, finding a third-party business or consulting service could be very difficult, if not impossible. The Department should apply the limitation of third-party evaluations to business or consulting service companies that have provided advice or assistance to implement findings for the owner or operator's cavern operations located in the State of New Jersey. (12)

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RESPONSE: The third-party evaluation requirements apply to the feasibility study, design, and construction, and process hazard analysis requirements for proposed new construction and major modifications. See N.J.A.C. 7:1F-2.5(a), 4.2(d), and 5.2(c). The conflict-of-interest provisions for the third-party evaluator are intended to ensure that the third-party expert is independent and provides an objective evaluation of the feasibility study, design specifications, and construction plans, and process hazard analysis. These are critical elements of an application to construct a new system or modify an existing system to change the regulated substance or make a change to the system that affects the maximum and/or minimum operating temperatures and/or pressures. The Department is adopting the third-party requirements, as proposed.

65. COMMENT: The third-party evaluation process is problematic because it is not neutral, as the evaluator is engaged by, and reports to, the owner/operator. The proposed waiting period of two years between business or consulting services to the owner or operator and performing a third-party evaluation should be extended to five years or never to reasonably eliminate bias.

Additionally, third-party work products may not be available to the public through the Open Public Records Act (OPRA), as seen by the difficulty in accessing records for programs that use agents outside of the Department, such as licensed site remediation professionals. This may inhibit public access to information about a cavern system. The Department should be properly funded to employ staff that can carry out these professional duties without a “middle man.” This will provide more objectivity and public access to relevant records. (8)

RESPONSE: The third-party evaluation requirements at N.J.A.C. 7:1F-2.5 are intended to provide independent review by an objective party with technical expertise of the construction and design elements of a proposed system. As explained in the Response to Comment 64, the

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conflict-of-interest provisions for the third-party evaluator are intended to ensure that the third-party expert is independent and provides an objective evaluation of the feasibility study, design specifications and construction plans, and process hazard analysis. At the same time, the Department recognizes that the number of qualified parties working in this field is limited and, therefore, balanced the need to protect against a conflict of interest with the need to ensure that an applicant is able to hire a qualified third-party consultant. Therefore, the Department does not believe it is reasonable to extend the two-year time period to further minimize the potential for a conflict of interest and bias.

As to public access to records, the Department will review all application materials, including the third-party evaluation report. All application materials are subject to OPRA. N.J.A.C. 7:1F-4.3 specifically provides that all completed permit application forms and documented information pertaining to the permit shall be considered public records, except as provided at N.J.A.C. 7:1D-3, Non-Public Records. If an applicant claims any portion of the application is confidential in accordance with N.J.A.C. 7:1F-8, and the Department agrees, the determination may be challenged pursuant to OPRA if an OPRA request is made and denied.

Environmental and Health Impact Statement (EHIS)

66. COMMENT: The rules are narrow in what they address regarding a cavern system. The feasibility study and EHIS must include a comprehensive environmental assessment of these activities and their impacts that will be spurred by the building of caverns (“build it and they will come”). Considerations must include the overall footprint of the cavern system and its related infrastructure within a community and how traffic and potential pathways of pollution from transportation impact the health, safety, and quality of life in the host community and the region.

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The impacts can be substantial, especially in circumstances where there is more than one cavern or a large cavern system. (8)

67. COMMENT: It is unclear how environmental factors are to be measured and how the information will be used regarding decisions on permits for a facility. The rules describe the EHIS in detail and what the EHIS and environmental inventory must include. However, how the impacts to the various environmental features are to be measured is not firmly established and the rules, though appearing to be comprehensive, actually include only general statements for what is to be assessed, without thresholds or standards. For example, the rules require the environmental assessment to identify and describe the modeling techniques used to predict impacts, but also allow best professional judgment to be used where an accepted modeling technique is not available. N.J.A.C. 7:1F-2.4(c)2. The environmental assessment must also assess the impact the proposed facility will have on local transportation patterns. This general statement leaves open questions, such as whether traffic analysis of cargo transport to and from the cavern is required, and whether all modes of transportation must be evaluated. The requirements are open-ended, which allows the applicant and permit reviewer to make subjective decisions. The rules do not state the parameters that must be sampled to get ambient air quality values, or the threshold for an impact that is deemed substantial.

Similarly, it is not clear how all the gathered information will be used regarding decisions on permits for a facility. The only hint is the applicant must provide a description of mitigation measures to address any potential environmental impact. This implies that impacts will be able to be addressed by mitigation, which is not acceptable, particularly for overburdened communities that are in proximity, and extremely vulnerable assets such as protected natural areas or waters, public parks, endangered or threatened species and habitats, and wetlands. (8)

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68. COMMENT: The Department narrows its environmental considerations in the review and issuance of permits by ignoring related project infrastructure, such as transport in and out of a cavern system, operation and maintenance impacts, pipelines, air emissions, and full life cycle analysis of petroleum products, leading to piecemeal or lack of review or assessment of ancillary environmental impacts. This goes against the intent and letter of rules that seek to fully evaluate project and infrastructure that have the potential to pollute. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

69. COMMENT: The rulemaking is fatally flawed because upstream/downstream environmental considerations are excluded. The rules also ignore related project infrastructure, such as transport in and out of cavern system, operation and maintenance impacts, pipelines, air emissions, full life cycle analysis of petroleum products, leading to piecemeal or lack of review or assessment of ancillary environmental impacts. (36, 37, and 43)

RESPONSE TO COMMENTS 66, 67, 68, AND 69: As explained in the Response to Comments 28, 29, and 30, the purpose of the rules is to establish requirements for the safe construction, operation, modification, and decommissioning of underground storage caverns and cavern systems. The Department accordingly defined “underground storage cavern” or “cavern” and “underground storage cavern system” or “system” to focus on the cavern system.

The rules’ applicability and requirements will allow the Department to evaluate the potential impact of a proposed new cavern and cavern system and impose necessary conditions in any draft permit, as determined to be necessary and appropriate to protect public health, safety, and welfare. As stated in the Response to Comment 60, an owner and operator seeking to construct and operate a new cavern must obtain a permit pursuant to N.J.A.C. 7:1F-4-2. An owner and operator must submit a comprehensive EHIS that includes an environmental inventory,

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environmental assessment, and health assessment. See N.J.A.C. 7:1F-2.4(a), (b), (c), and (d). An owner and operator must analyze and describe the potential impacts of the proposed underground storage cavern system and facility and how the system or facility will conform or conflict with the objectives of all applicable Federal, State, and local land use and environmental requirements. See N.J.A.C. 7:1F-2.4(b) and (c). The EHIS must include a health impact assessment and a summary discussion of any potential adverse impacts that cannot be avoided, as well as any mitigation measures. The owner and operator must also submit a climate change impact assessment that evaluates the impact of various scenarios, such as sea level rise, 100-year storm events, and extreme weather events, on the facility. The Department will evaluate the information and findings of the EHIS and climate change impact assessment to determine if the proposed system conforms with the protections and requirements set forth at N.J.A.C. 7:1F, and whether conditions are required to ensure that the system meets the statutory and regulatory requirements. See N.J.A.C. 7:1F-4.2(d)3 and (j)2. As explained in the Response to Comment 60, an applicant must obtain all other necessary permits and approvals that, along with any approval pursuant to N.J.A.C. 7:1F, the Department anticipates will ensure that all impacts are appropriately considered and addressed.

Environmental Inventory

70. COMMENT: The definition of “environmental inventory” at proposed N.J.A.C. 7:1F-1.6 focuses on the current status of the environment at the site and does not match the contents of the environmental inventory at N.J.A.C. 7:1F-2.4(b) which focuses on information about the project itself. This discrepancy needs correction. (8)

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RESPONSE: The Department acknowledges there could be ambiguity, given the proposed definition of environmental inventory and the requirements at N.J.A.C. 7:1F-2.4(b). Therefore, the Department is clarifying the definition of “environmental inventory” at N.J.A.C. 7:1F-1.6 to include a cross-reference to the requirements at N.J.A.C. 7:1F-2.4(b).

71. COMMENT: The required environmental inventory should include Special Protection Waters designated by the Delaware River Basin Commission (DRBC), as well as Category 1 designated waters pursuant to New Jersey’s Surface Water Quality Standards. (8)

RESPONSE: As stated in the Response to Comment 60, an owner or operator seeking to construct and operate a new cavern must obtain a permit pursuant to N.J.A.C. 7:1F-4-2. The environmental inventory that is required prior to construction and as part of an application for a permit to construct must include a description of how the system or facility will conform or conflict with the objectives of any applicable Federal, State, or local land use and environmental requirements. N.J.A.C. 7:1F-2.4(b)7. The rules provide a list of environmental requirements to be included; however, the adopted rules expressly state that the list is not all-inclusive as it is not possible to list all environmental requirements that could apply to any particular project. If the project would impact Special Protection Waters and/or Category 1 waters, then those must be included in the environmental inventory.

72. COMMENT: The EHIS could be an important step forward in assessing the potential impacts of a cavern. However, there is a glaring lack of specificity of “environmental inventory” items beyond the broad categories listed at 54 N.J.R. 823. For instance, it is not clear what is meant by an “environmental receptor” and how far the inventory of these “receptors” extends

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from the cavern or its related operations. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

73. COMMENT: There is a lack of specificity for the environmental inventory items and what an EHIS considers beyond the broad categories listed. 54 N.J.R. at 823. It is also unclear what an environmental receptor is and how far the inventory of receptor(s) extends. 54 N.J.R. at 824. (20, 36, 37, and 43)

RESPONSE TO COMMENTS 72 AND 73: In the notice of proposal Summary, the Department explained that an environmental assessment must be included in an EHIS. See 54 N.J.R. at 824. In its summary, the Department used the term “environmental receptor” to explain that the assessment should quantify the identified impacts, whenever possible, or explain why an impact cannot be quantified. See 54 N.J.R. at 824.

N.J.A.C. 7:1F-2.4 sets forth a detailed list of information that must be included in the EHIS, including in the environmental inventory, the environmental assessment, the health impact assessment, and climate change impact assessment. See N.J.A.C. 7:1F-2.4(b), (c), (d), and (f). As required at N.J.A.C. 7:1F-2.4(c), an owner and operator must evaluate a facility’s potential impacts on the environment, including all parameters identified in the environmental inventory, as part of the environmental assessment. At a minimum, the environmental inventory must include detailed site information, impacts on local transportation patterns, drainage and soil characteristics, surface and ground water quality, endangered or threatened wildlife and vegetation, storm water and wastewater collection and/or treatment capability, water supply capability, ambient acoustical conditions, and air quality. If the cavern system and facility could have other impacts, those potential impacts must also be included in the EHIS. The inventory must also explain how the system or facility will conform or conflict with all applicable Federal,

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State, or local land use and environmental requirements, including, but not limited to, those identified at N.J.A.C. 7:1F-2.4(b)7i through xviii. The environmental assessment must provide a detailed evaluation of the potential impacts of the facility on the environment, including all parameters identified in the environmental inventory. The health impact assessment must provide a detailed evaluation of the potential impacts on human health of a release of a regulated substance from the proposed system. A climate change assessment must also be prepared that meets the requirements at N.J.A.C. 7:1F-2.4(f). As it is not possible to list all environmental laws and rules, the rules are intended to be broad so that the owner and operator evaluates all potential impacts of the system and facility on the environment and human health.

Health Impact Assessment

74. COMMENT: The rules must require the health impact assessment to evaluate health impacts from construction and operation of a proposed system, not just in the event of a release. (8)

RESPONSE: Pursuant to the adopted rules at N.J.A.C. 7:1F-2.4(d), the EHIS must include a health impact assessment. This assessment must include a detailed evaluation of the potential impacts on human health of a release of a regulated substance from the proposed system. In addition to the health impact assessment, the EHIS must include an environmental inventory and environmental assessment for the construction and operation of a system. The adopted rules include detailed requirements, and the Department may request additional information, if necessary, to ensure that the construction and operation, as applicable, conforms with the protections and requirements of the Act and N.J.A.C. 7:1F. See N.J.A.C. 7:1F-2.4(g).

Additionally, as explained in the Response to Comment 71, the rules for a permit to construct require an assessment of all applicable laws. Therefore, although the health impact assessment

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does not specify an assessment of the health impacts due to the construction and operation of the system, the adopted rules are intended to ensure that the construction and operation of a proposed underground storage cavern system will not adversely impact public health.

Climate Change Assessment

75. COMMENT: The Department failed to consider climate change impacts as part of this rulemaking, as required by State laws and the Governor’s Executive Orders and policies. By not requiring any mandatory action to address increased greenhouse gas emissions from the caverns, the Department is giving a free ride to industries that would own and operate these caverns. This is totally unacceptable and a grave error that will undermine efforts to reduce greenhouse gas emissions. (2, 5, 11, 13, 16, 18, 19, 20, 23, 24, 25, 27, 28, 29, 35, 36, 37, 39, 40, 42, 43, 44, 45, 46, 47, and 48)

76. COMMENT: The rulemaking does not require the reduction of greenhouse gas emissions, as required by Executive Order No. 100 (2020). The rules will increase greenhouse gas emissions by allowing caverns to be built, inviting in the gas and oil industry, when Executive Order No. 274 (2021) requires State agencies to reduce greenhouse gas emissions 50 percent by 2030. Additionally, contrary to the Governor’s Executive Orders, the rules do not require an owner/operator to address resiliency, but simply allows resiliency measures to be voluntarily addressed and would allow caverns to be built in flood hazard areas and areas subject to sea level rise. (7)

77. COMMENT: The climate change impact assessment required at proposed N.J.A.C. 7:1F-2.4(f) focuses only on the effects of climate change on the cavern system—rather than analyzing

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the cavern system's contribution to climate change. It also does not require the owner/operator to implement any resiliency measures and/or address greenhouse gas emissions. (8)

78. COMMENT: There is an urgent need to reduce fossil fuel infrastructure and greenhouse emissions for the State to address climate change. The rules do not include the consideration of climate change impacts that is required pursuant to State laws, policies, and Executive Orders. This failure will undermine the State's efforts to reduce greenhouse gas emissions. It is well-established that drastic reductions must occur to avert the worst aspects of the increasingly devastating impacts of climate change.

The Department proposed to include, as part of N.J.A.C. 7:1F-2.4, "the list of applicable State requirements, the regulations and guidance being developed pursuant to New Jersey's Executive Order No. 100 (2020), which directs the Department to take regulatory reform actions to reduce emissions and adapt to climate change." 54 N.J.R. at 824. The Department also cited and recognized the mandates of Executive Order No. 100 (2020) and the Department's Administrative Order 2020-01 and the need to increase resiliency of communities and infrastructure to adapt to chronic flooding, severe storm events, and sea level rise. However, despite the Department's recognition of the need for resiliency, and although the Department proposed to require a climate change impact assessment, the rules fail to require resiliency measures to adapt to and protect from climate change impacts. The information required is simply information to be filed away and has no effect on the permit conditions for a cavern system. The Department failed to explain why the rules do not require incorporation of resiliency measures, even though the Department recognized it is required to address resiliency.

Similarly, the rules also fail to require reduction of greenhouse gas emissions, despite the mandates of Executive Order No. 274 (2021), which the Department failed to reference,

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Executive Order No. 101 (2020), and Administrative Order 2020-01, and the urgent need to reduce greenhouse gas emissions. Governor Murphy's goal of reducing greenhouse gas emissions by at least 50 percent by 2030 is ambitious, but necessary and achievable if the State starts now to curtail current and stop new greenhouse gas emissions. Building caverns to hold petroleum gasses and their derivatives moves the State in the opposite direction, working at cross-purposes with these established goals enshrined in New Jersey law, executive orders, the Department's administrative orders, and stated policies. It also puts New Jersey on the wrong side of the greenhouse gas equation – New Jersey will be adding greenhouse gas emissions if caverns are used to store the petroleum products covered by the rules, feeding the climate crisis.

(8)

RESPONSE TO COMMENTS 75, 76, 77, AND 78: The Department agrees there is an urgent need to mitigate climate change and make the State more resilient to the effects of climate change. Although the Department understands the concerns with prohibiting only LNG and not all fossil fuels, in the notice of proposal Summary, the Department explained its rationale for prohibiting the storage of LNG in underground caverns. The Department did not find a similar basis, based on technical feasibility, to prohibit the underground storage of LPG. See 54 N.J.R. 821-22. However, allowing the underground storage of LPG does not mean the rules do not consider climate change impacts or that they increase greenhouse gas emissions. As explained in the Response to Comments 4 through 18, the adopted rules do not encourage development of fossil fuels, but establish a program to regulate the construction, operation, modification, and decommissioning of underground storage cavern systems to protect subsurface and percolating waters, air, and other environmental media from pollution, contamination, diversion or depletion, in accordance with N.J.S.A. 58:10-35.1 et seq. The rules require an applicant to include a climate

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change impact assessment as part of its application for approval to construct. See N.J.A.C. 7:1F-2.4(f). The climate change impact assessment must consider various scenarios, including whether the system is located within a flood hazard area, the 100-year storm events and flooding expected, the facility's proximity to sea level rise projections for the State, and extreme weather events. Using the climate change related data and projections, the applicant must evaluate the potential of a release or impacts to the system and analyze the risk to the system from flooding or potential inundation. The applicant must also evaluate the potential for health-related impacts that may result from flooding or other damage or a release of the regulated substance into flood waters. The climate change impact assessment must also include a list of measures to prevent releases and mitigate climate change impacts. The Department may request any additional information needed related to the climate change impact assessment. See N.J.A.C. 7:1F-2.4(g). To propose a draft approval to construct, the Department must determine that the application and required materials show that the proposed system conforms with the protections and requirements of the Act and N.J.A.C. 7:1F. See N.J.A.C. 7:1F-4.2(d)3. The Department believes these rule requirements will ensure that climate change impacts are properly considered when evaluating an application for approval to construct and operate.

Operating Requirements at N.J.A.C. 7:1F-3

Safety Margin

79. COMMENT: N.J.A.C. 7:1F-1.6 defines "safety margin" as the pressure value that is equal to 10 pounds per square inch gauge (psig) or 10 percent of the test pressure, whichever is greater and "Maximum Design Pressure (MDP)" as the highest pressure at which a pressure test of the cavern may be conducted to verify the integrity of the cavern system. The MDP is the minimum

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calculated hydrostatic pressure at the highest point of the cavern, in pounds per square inch gauge (psig), minus 29 psig. The MDP calculation is derived from a European standard and is the MDP to which a new cavern would be designed. The Department should exclude existing caverns from these requirements and instead clarify that existing caverns are subject to the designed safety margin.

The definition of safety margin combined with the definitions of "MDP" and "Maximum allowable operation pressure (MAOP)" applied to an existing facility create an unnecessary operating condition that the caverns were not designed to operate under. If required of an existing cavern system, the rules would impose a lower operating pressure, far below the existing operating conditions and at, or below, the facility's required reliability limit. The potential requirement for existing caverns to reduce operating pressures could compromise the integrity of the caverns, impact reliability and environmental performance, and result in unsustainable operations.

Therefore, the Department should clarify that the definition for MDP is for a new underground storage cavern and not applicable to underground storage caverns in existence as of the effective date of these rules. Additionally, the Department should set the MDP for existing caverns to be the design criteria established at time of construction. (12)

RESPONSE: N.J.A.C. 7:1F-4.1(b) sets forth the permit renewal requirements for an owner and operator of an existing underground storage cavern. Among other requirements, an owner and operator must submit plans for the operation and maintenance of a cavern system, in accordance with N.J.A.C. 7:1F-3.2. N.J.A.C. 7:1F-3.2(a)3 requires the establishment of procedures to operate the system within the maximum and minimum operating pressures and temperatures (as defined at N.J.A.C. 7:1F-1.6) as submitted to the Department pursuant to N.J.A.C. 7:1F-2.2.

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N.J.A.C. 7:1F-2.2 applies to the construction of a cavern and for major modification, see N.J.A.C. 7:1F-5.2(a)2 and, therefore, does not apply to permit renewal applications for existing caverns. However, the remainder of this provision, regarding safety measures to be implemented and maintained to prohibit pressures and temperatures outside the approved range, does apply to permit renewals. For existing caverns, the approved range is established in the existing permit for the cavern.

The Department acknowledges that the requirements could be confusing due to the originally proposed cross-reference to N.J.A.C. 7:1F-2.2, which applies to a proposed new cavern system and major modification of a system. The Department is, therefore, modifying N.J.A.C. 7:1F-3.2(a)3 upon adoption to separate and thereby clarify the requirements pertaining to an underground storage cavern system with an approval to construct issued pursuant to the chapter (see new N.J.A.C. 7:1F-3.2(a)3i) and for an existing underground storage cavern system in operation as of the effective date of this rulemaking (see N.J.A.C. 7:1F-3.2(a)3ii). Pursuant to the adopted rules at N.J.A.C. 7:1F-3.2(a)3, an owner and operator must establish procedures to operate the system at all times as provided at N.J.A.C. 7:1F-3.2(a)3(i), which applies to a system with an approval to construct issued pursuant to N.J.A.C. 7:1F-4, and N.J.A.C. 7:1F-3.2(a)3ii, which applies to an existing system in operation as of the effective date of this rulemaking. N.J.A.C. 7:1F-3.2(a)3i includes the requirements the Department originally proposed at N.J.A.C. 7:1F-3.2(a)3, which because of the originally proposed cross-reference to N.J.A.C. 7:1F-2.2, applied to systems with an approval to construct issued pursuant to N.J.A.C. 7:1F (that is, “new” systems). For existing systems, the adopted rules at N.J.A.C. 7:1F-3.2(a)3ii require an owner and operator to establish procedures to operate the system at all times within the pressures and temperatures established for the system and approved by the Department. As part of its renewal

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application, an owner and operator of an existing system must specify the pressures and temperatures under which the system operates and demonstrate that appropriate safety measures are in place for the system to operate within the specified range. See N.J.A.C. 7:1F-4.1(b)2.

An owner and operator must also maintain records of the operating parameters and provide the Department with any information necessary to demonstrate that appropriate safety measures will be implemented and maintained to prohibit pressures and temperatures outside the range established for the system and approved by the Department as part of the permit to operate. See N.J.A.C. 7:1F-3.2(a)3.

Pressure Testing

80. COMMENT: The rules at N.J.A.C. 7:1F-3.2(a)5v require the owner or operator to develop a procedure for testing the pressure of the underground cavern system under normal operating conditions once every five years following issuance of a permit, or at shorter intervals, as applicable. The rules provide multiple layers of protection to monitor cavern system integrity, making periodic pressure testing unnecessary. The rules require inspection/testing of wells, well heads, pipes, lines, tubes, as well as the monitoring of the operational pressure of the cavern. In addition, quarterly groundwater level monitoring is done at the existing cavern in Bayway. Additional periodic pressure testing beyond the original construction pressure test is not an industry practice and rarely, if ever, done. To ensure containment of product in a rock-mined cavern, the pressure in the cavern must be lower than the pressure of the water in the rock surrounding the cavern (plus a margin of safety, if appropriate). This is ensured by periodically measuring the water level in monitoring wells and calculating the water pressure at the roof of the cavern. The pressure in the cavern must be maintained below the water head pressure for the

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cavern to operate so a “cavern pressure test” is not necessary to prove the cavern has containment and such testing would pose significant operational challenges and safety risks based on the existing design and construction of the caverns. Therefore, the Department should remove this requirement, and the reference to this requirement at N.J.A.C. 7:1F-4.1(b)5. (12)

RESPONSE: N.J.A.C. 7:1F-3.2 requires an owner and operator to submit an operation and maintenance plan. One of the required elements of the plan is procedures for periodically testing the integrity of the cavern system to ensure that no leaks have developed during the life of the cavern. Pursuant to N.J.A.C. 7:1F-3.2(a)5v(1), the method for integrity testing shall be specified in the procedures provided to the Department. The adopted rules do not prescribe any specific methodology for such a test. The testing can be performed *in situ*, with the regulated substance in place, or after the regulated substance is withdrawn. If necessary, the system must be rendered inert to ensure the prevention of explosion or other hazardous conditions. Because the testing could be done *in situ*, the testing should not disrupt operations or be onerous. It is the owner and operator’s responsibility to specify the method of testing as part of its operation and maintenance plan submitted in accordance with N.J.A.C. 7:1F-3.2, for Department approval.

Ground Water and Soil Vapor Monitoring

81. COMMENT: The Department should confirm that the following provisions only apply to new or expanded underground storage caverns and are specifically not applicable to existing underground storage caverns. N.J.A.C. 7:1F-3.1(a) does not appear to be applicable to existing facilities as it requires submission of material “prior to beginning operation activities”; N.J.A.C. 7:1F-3.1(b) requires information to be submitted “prior to injection of any regulated substance”; N.J.A.C. 7:1F-3.3(a) requires background ground water quality measurements prior to operation;

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N.J.A.C. 7:1F-3.3(b) also requires ground water samples to be taken “before construction begins”; and N.J.A.C. 7:1F-3.3(c) requires ground water monitoring and sampling following construction, and before the system is used. These requirements listed do not make sense for, and should not apply to, existing caverns that have been in operation for many years. (12)

RESPONSE: Certain requirements at N.J.A.C. 7:1F-3, Operating Requirements, apply to existing caverns, as provided at N.J.A.C. 7:1F-4.1(b). N.J.A.C. 7:1F-4.1(b) sets forth the requirements for a permit renewal application that must be submitted by an owner and operator of an existing cavern in operation as of the effective date of these rules. The required material includes a map and diagrams pursuant to N.J.A.C. 7:1F-3.1(a), plans for operation and maintenance of the cavern system pursuant to N.J.A.C. 7:1F-3.2, an emergency response plan pursuant to N.J.A.C. 7:1F-3.4, a decommissioning plan and financial responsibility pursuant to N.J.A.C. 7:1F-6.1(a) and 6.2, and an integrity test conducted in accordance with N.J.A.C. 7:1F-3.2(a)5v. See N.J.A.C. 7:1F-4.1(b).

The operation and maintenance plan requirements at N.J.A.C. 7:1F-3.2 include ground water and soil vapor monitoring procedures in accordance with N.J.A.C. 7:1F-3.3. The Department acknowledges that N.J.A.C. 7:1F-3.3 includes requirements prior to operation and before construction. Specifically, N.J.A.C. 7:1F-3.3(a), in part, requires an owner and operator to measure background ground water quality at the facility prior to operation. N.J.A.C. 7:1F-3.3(b) requires a ground water sample to be taken and analyzed before construction. N.J.A.C. 7:1F-3.3(c) requires that all ground water observation wells be monitored quarterly and analyzed following construction, before the system is used, and during operation. To the extent that N.J.A.C. 7:1F-3.3(a) and (b) include requirements that must be complied with before operation

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and before construction, these requirements do not pertain to the owner and operator of an existing cavern system.

N.J.A.C. 7:1F-3.3(c) pertains to a system during operation and, therefore, applies to the owner and operator of an existing cavern system. To remove any confusion that the Department may direct that all ground water observation wells be sampled, even though initial sampling pursuant to N.J.A.C. 7:1F-3.3(a) and (b) was not done because these provisions pertain to a proposed new system, the Department is modifying N.J.A.C. 7:1F-3.3(c) upon adoption to replace “resampled” with “sampled.”

82. COMMENT: The provisions at N.J.A.C. 7:1F-3.3(a), (b), and (c) require background, baseline, and quarterly ground water samples be collected. In addition, N.J.A.C. 7:1F-3.3(d) requires continuous soil vapor monitoring. At the Bayway Refinery site, as a part of ongoing site remediation by the former site owner, the bedrock aquifer underlying the site which includes the cavern site has been assessed and no adverse impact to the groundwater has been identified despite over 60 years of cavern service. The requirements at N.J.A.C. 7:1F-3.3(a) through (d) should not apply to existing cavern systems without a known leak unless there is a release from a cavern discovered pursuant to N.J.A.C. 7:1F-3.5 and should apply only if ground water monitoring is required by a Licensed Site Remediation Professional following the Department’s Site Remediation requirements. (12)

RESPONSE: The purpose of the ground water and soil vapor monitoring requirements at N.J.A.C. 7:1F-3.3 is to assist with the early detection of any release and provide information about hydrostatic pressure and mechanical integrity of the system. See 54 N.J.R. at 825-26.

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These requirements are necessary for all storage cavern systems, existing and proposed. The Department is adopting these provisions as proposed.

83. COMMENT: N.J.A.C. 7:1F-3.3(d) requires continuous monitoring of the ground water level immediately above the cavern. Continuous is not defined and the Department should allow routine, periodic checks of ground water levels to satisfy this requirement for existing cavern systems. The Department's notice of proposal Summary recognized that the five caverns (two for propane and three for butane storage) constructed in 1957 at the Bayway Refinery site in Linden received operational permits in 1959. These caverns have been in service for over 60 years during which time manual checks of ground water levels have been effective for purposes of monitoring the ground water level. Specific to the Bayway Refinery site, the caverns are located in a relatively flat area close to sea level, which minimizes the amount ground water can fluctuate and negates any need for continuous groundwater monitoring. (12)

RESPONSE: N.J.A.C. 7:1F-3.3(d) requires an owner and operator to monitor, on a continuous basis, the ground water level immediately above the cavern. As the Department explained in the notice of proposal Summary, the level of ground water above the cavern is an important component of the hydrostatic pressure, which helps contain the regulated substance in the cavern. See 54 N.J.R. at 825. To make sure that the hydrostatic pressure is maintained at the level necessary and allow for adjusting of the pressure inside the cavern if the hydrostatic pressure changes too much, observation of the water level above the cavern is necessary. Therefore, the Department explained that the rule requires continual monitoring of ground water levels with quarterly reporting. See 54 N.J.R. at 825.

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Although the Department described the required monitoring as “continual,” N.J.A.C. 7:1F-3.3(d) requires monitoring on a “continuous basis.” Consistent with the Department’s explanation in the notice of proposal Summary, by “continuous,” the Department means that monitoring must be done on a regular basis. The adopted rules do not prescribe any specific monitoring method; an owner and operator may utilize an automatic data logger or daily manual measurements, as example. The owner and operator must include procedures for monitoring as part of its operation and maintenance plan submitted to the Department for approval. See N.J.A.C. 7:1F-3.2(a)2.

84. COMMENT: The rules appropriately require the measurement of ground water quality, level, volume, and soil vapors prior to disturbance of a site and prior to construction, measurement during and after construction, and continuous monitoring during operation and dormancy. The rules at N.J.A.C. 7:1F-6.1(a)1 should also require monitoring to continue after decommissioning for more than five years, depending on the cavern contents and the longevity, toxicity, and propensity of the substance(s) to migrate to other locations or attach to other media. (8)

RESPONSE: Pursuant to N.J.A.C. 7:1F-6, an owner and operator must submit to the Department a decommissioning plan, as a condition of any permit issued pursuant to the adopted rules and before operation activity commences. “Decommission” is defined at N.J.A.C. 7:1F-1.6 to mean “the complete withdrawal of any regulated substance, to the greatest feasible extent, from an underground storage cavern system, the sealing and/or removal of the system’s ancillary equipment, and the cessation of operation at the underground storage cavern system.” As the Department explained in the notice of proposal Summary, the decommissioning plan is intended to prevent any release to the air or contamination to soil or ground water from the regulated

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substance. See 54 N.J.R. 829. N.J.A.C. 7:1F-6 establishes the decommissioning requirements for an underground storage cavern system. N.J.A.C. 7:1F-6.1(a) requires a decommissioning plan to establish a schedule for the annual monitoring of ground water and soil vapor, for a minimum of five years. If the Department determines that annual monitoring for more than five years is necessary to prevent any release to air, soil, or ground water, or to ensure that decommissioning was properly conducted, the Department may require a longer duration.

85. COMMENT: In addition to the monitoring of ground water monitoring wells for the substances listed in the rules and at Table 1 of the Appendix at N.J.A.C. 7:9C, substances that are listed in Table 2 of the Appendix at N.J.A.C. 7:9C should also be required to be monitored.

Additionally, all specific constituents of the gas, natural or artificial, that will be stored in the cavern should be added to the suite to be monitored, even if it is not a regulated substance if an EPA Analytical Method is available or can be developed by the owner/operator or producer. (8)

RESPONSE: N.J.A.C. 7:1F-3.3 sets forth the ground water and soil vapor monitoring requirements that must be met prior to and during operation. N.J.A.C. 7:1F-3.3(b) requires sampling to establish a pre-construction, “baseline” profile of ground water quality at a proposed cavern site. The sample must be analyzed for the regulated substance, pH, specific conductance, dissolved oxygen, turbidity, and the constituents with specific ground water quality criteria at N.J.A.C. 7:9C, Ground water quality standards, Appendix, Table 1. The regulated substance may include various constituents and components, which must be identified in the permit application, and included in the monitoring. N.J.A.C. 7:1F-3.3(c) requires quarterly monitoring for the regulated substance, pH, specific conductance, dissolved oxygen, turbidity, and all parameters specified in the permit. N.J.A.C. 7:9C, Appendix, Table 2 provides interim generic criteria for

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synthetic organic chemicals. The definition of synthetic organic chemicals at N.J.A.C. 7:9C-1.4 does not allow for specification of an analyte list and, therefore, the Department did not include Table 2 as part of the monitoring requirements.

86. COMMENT: All data produced by ground water and soil vapor monitoring should be readily available to the public. Public websites should be utilized to post findings in a timely and user-friendly manner. (8)

RESPONSE: All compliance data submitted to the Department pursuant to these rules are public records and may be obtained through a records request in accordance with OPRA. The Department will consider maintaining a public web page with reported ground water and soil vapor monitoring data.

Air Monitoring

87. COMMENT: The rules do not require air monitoring systems. The monitoring protocols and timelines conducted for water and soil vapors should also be conducted for air in the airsheds impacted by the cavern (based on air dispersion models and other science-based assessment methods), including for normal operations during the life span of the cavern and after decommissioning for more than five years, depending on the cavern contents and the longevity, toxicity, and propensity of the substance(s) to migrate to other locations or attach to other media. The owner and operator of an underground storage cavern system should be required to install real-time continuous air monitors that report to the Department and the public. (8)

RESPONSE: The adopted rules require an owner and operator to establish air monitoring procedures. For example, N.J.A.C. 7:1F-3.2(a) requires an owner and operator to submit an

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operation and maintenance plan, which shall establish procedures for air monitoring to detect any release of a regulated substance. N.J.A.C. 7:1F-5.3(a) also requires air monitoring procedures during dormancy. The adopted rules do not require specific monitoring procedures. The Department has determined that the requirements are sufficient without the need to specifically require real-time continuous air monitors.

Releases, Suspected Releases, and Investigations

88. COMMENT: N.J.A.C. 7:1F-3.5 covers release reporting, suspected releases, and investigations. The Department should exempt any releases managed through another Federal or Department program. Reporting of these incidents is managed through existing programs and there is no need to trigger the additional or duplicative requirements set forth in this section. (12)

RESPONSE: N.J.A.C. 7:1F-3.5 applies to releases and suspected releases from underground storage cavern systems. Although there may be other Federal or State programs that require an owner/operator to report a release or suspected release from a cavern or system depending on the type of or impact of the release, the provisions at N.J.A.C. 7:1F-3.5 are separately important as part of the cavern rules. The provisions are intended to be consistent with other Department programs and, in the event of a release or suspected release, serve to protect public health and safety and the State's water and other natural resources.

89. COMMENT: N.J.A.C. 7:1F-1.6 defines a "release" as a discharge or emission of a regulated substance from an underground storage cavern system, excluding any discharge or emission in compliance with any Department permit or regulation. The exclusion should be extended to releases in compliance with any Federal permit or regulation. Some examples for the exclusion

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could be the venting of LPG to a flare in accordance with standard operating practices; emissions managed in accordance with a Leak Detection and Repair Program pursuant to Department or Federal rules; or maintenance activities conducted in accordance with applicable Department or Federal rules. (12)

RESPONSE: If the Department has incorporated a Federal rule or requirement into a Department rule or permit, the Federal rule would be part of this exclusion clause. Furthermore, operational or maintenance procedures implemented to ensure system integrity and proper operations that have been approved by the Department would not be considered a release. If an owner and operator is required to vent or conduct other activities as part of its operating or maintenance practices, an owner and operator should include these in its operating procedures pursuant to N.J.A.C. 7:1F-3.2(a) so that they are not included as a “release” pursuant to the adopted rules. It is the responsibility of the owner and operator to comply with all other applicable requirements, including those in other State or Federal permits, rules, and laws.

90. COMMENT: N.J.A.C. 7:1F-3.5(b) requires an investigation of a suspected release, including, but not limited to, evidence of a hazardous substance or resulting vapors in the soil, in surface water, or in any underground structure or well in the vicinity of the facility. The Department should clarify that the term “facility” is specific to the cavern system and not to the potentially larger facility where a cavern may be located. The Department should also limit this requirement to newly suspected or known releases at sites operating existing cavern storage systems. A suspected release or a release known to be the result of historical contamination, unrelated to the current cavern system operations, are addressed in accordance with other applicable Department rules at sites with ongoing site remediation efforts. Such sites may have

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identified known historical contamination in the shallow soil and groundwater of the existing caverns which is unrelated to existing cavern operations. (12)

RESPONSE: N.J.A.C. 7:1F-3.5(b) requires an owner and operator to complete an investigation of a suspected release within seven calendar days of the indication of a suspected release. A suspected release may be indicated from air monitoring, ground water monitoring, evidence of a hazardous substance, or resulting vapors in the soil, in surface water, or in any underground structure or well in the vicinity of the facility, or maintenance or testing procedures. N.J.A.C. 7:1F-3.5(b)1 through 5. "Facility" is defined at N.J.A.C. 7:1F-1.6 to mean one or more underground storage cavern system(s) owned or operated by one person on a single property site or on contiguous property sites. As the purpose of N.J.A.C. 7:1F-3.5(b) is to investigate suspected releases from a cavern or cavern system, and there may be more than one cavern at a facility, the Department is modifying N.J.A.C. 7:1F-3.5(b)3 on adoption to refer to the vicinity of the "system" rather than "facility."

If there is a site with historical contamination and there is evidence of a hazardous substance or vapors, for example, that is not connected with the current cavern system operation, then that likely would not be a suspected release requiring investigation. However, the owner and operator are responsible for investigating suspected releases if a release is indicated.

91. COMMENT: N.J.A.C. 7:1F-3.6(c) requires operation of an underground storage cavern system to be stopped due to a suspected release of a regulated substance, which is not practical in the event of a suspected release and when N.J.A.C. 7:1F-3.5(b) allows up to seven calendar days to complete an investigation of a suspected release. Stoppage of cavern operation should be

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limited to the time of a known release and, even then, time must be provided to stop cavern operation and remove the regulated substance being released from the cavern. (12)

RESPONSE: The rules include provisions for suspected release investigation, as well as prohibitions. See N.J.A.C. 7:1F-3.5(b) and (c) and 3.6. N.J.A.C. 7:1F-3.6 prohibits certain activities in the event of a release, suspected release, prior to permit approval, and/or permit denial, suspension, or revocation. N.J.A.C. 7:1F-3.6(c) prohibits any person from continuing to operate an underground storage cavern system or any associated ancillary equipment known or suspected to be releasing a regulated substance. “Operate” is defined at N.J.A.C. 7:1F-1.6 to mean the ongoing injection, withdrawal, or storage at an underground storage cavern. If there is a suspected release at a cavern system, including any ancillary equipment, such as pipes and valves, then the owner and operator must investigate and comply with N.J.A.C. 7:1F-3.5 and stop injecting, filling, or withdrawing until the investigation is completed. The Department acknowledges that the definition of “operate” includes the storage of a regulated substance, and that storage cannot be stopped without withdrawing the regulated substance. However, if there is a release or suspected release from the ancillary equipment, such as a pipe or valve, rather than the cavern itself, then withdrawal should not occur until the investigation is completed or the situation mitigated. If there is a known release from the cavern itself, then storage is prohibited in the cavern, meaning the substance must be withdrawn. These are two situations that N.J.A.C. 7:1F-3.6(c) is intended to address. However, the Department acknowledges that including these situations in one prohibition is potentially unclear.

To clarify the prohibitions, the Department is modifying N.J.A.C. 7:1F-3.6(c) to prohibit the storage of a regulated substance in an underground storage cavern that is known to be releasing a regulated substance. For a suspected release, the owner and operator must follow the

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procedures set forth at N.J.A.C. 7:1F-3.5(b) and (c), which requires the completion of an investigation within seven calendar days of the indication of a suspected release. If the investigation confirms a release from the cavern, the storage of a regulated substance is prohibited. The Department is also modifying the rules to add N.J.A.C. 7:1F-3.6(d) to prohibit the withdrawal of a regulated substance from a system that is known or suspected to be releasing a regulated substance from any ancillary equipment associated with the system, if withdrawal could result in a further release.

As set forth at N.J.A.C. 7:1F-3.2(a)4, an owner and operator must establish procedures for different operating conditions. Therefore, the Department is also modifying N.J.A.C. 7:1F-3.5(e) to make clear that in the event of a confirmed release, the owner and operator must take immediate action to mitigate the release, utilizing any approved operating procedures for the conditions.

Emergency Response Plan

92. COMMENT: Certain surface-level activities related to an underground storage cavern operation will be subject to regulation pursuant to the TCPA rules in addition to the rules at N.J.A.C. 7:1F. Therefore, there should be consistency between definitions and concepts that could give rise to conflict between the TCPA rules and the cavern rules. As an example, the TCPA rules use the defined term “accidental release” (incorporated from Federal regulations at 40 CFR Part 68) and the cavern rules rely on the defined term “EHS release.” The Department should confirm that these defined terms do not have different meanings and are not otherwise inconsistent to ensure reliable and generally uniform application of emergency response procedures. (26)

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RESPONSE: As explained in the Response to Comment 31, the rules at N.J.A.C. 7:1F and the TCPA rules at N.J.A.C. 7:31 are separate programs but may have some overlap. The TCPA rules have broader application than the cavern rules, meaning there are more types of regulated facilities subject to the TCPA rules. Additionally, a cavern system may contain a regulated substance that is not an extraordinarily hazardous substance, which is the basis for determining TCPA applicability. Therefore, an emergency response procedure for a cavern system release must stand alone. N.J.A.C. 7:1F-1.6 defines “release,” rather than “extraordinarily hazardous substance release.” The TCPA rules also contain certain provisions related to releases. If there is a release or suspected release from an underground storage cavern or system, then an owner and operator must follow the procedures at N.J.A.C. 7:1F-3.5 and applicable emergency response plan procedures as required at N.J.A.C. 7:1F-3.4 must be followed. The Department has not identified any inconsistencies or conflicts between the cavern and TCPA rules that would prevent proper implementation of either program.

Permitting Requirements at N.J.A.C. 7:1F-4

General

93. COMMENT: N.J.A.C. 7:1F-4.2(a) states that all permit applications must contain all the information at N.J.A.C. 7:1F-4.2(b), which applies to a proposed system. To remove ambiguity, N.J.A.C. 7:1F-4.2(a) should be limited to all permit applications for new or expanded facilities.

(12)

RESPONSE: N.J.A.C. 7:1F-4.2(b) applies to an application for a proposed system. To clarify N.J.A.C. 7:1F-4.2(a), the Department is revising the text to specify at (b) or (h), which applies to a permit to operate, or N.J.A.C. 7:1F-5.1 or 5.2, for minor and major modification, as applicable.

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The Department is also modifying N.J.A.C. 7:1F-4.2(a) to specify that the application must be submitted in the format and number specified in the form.

94. COMMENT: The rules should contain provisions that the Highlands Council be notified of all applications and supporting documents and plans for a permit for a cavern or to modify a permit for an existing cavern in the Highlands Region. (30)

RESPONSE: Although the rules do not require an applicant to notify the Highlands Council when an application is submitted for a project in the Highlands Region, the Department will coordinate with the Highlands Council if a proposed project is proposed to be located in the Highlands Region. As explained in the Response to Comment 59, there are no existing caverns in the Highlands Region.

Public Notice and Comment

95. COMMENT: The Department does not offer a meaningful public input process regarding permit applications. See N.J.A.C. 7:1F-4.2(f). For instance, a public comment period only begins after the Department issues a draft approval. These highly technical permits would only be open for public comment for 30 days with a 15-day extension, and operating permits have no public comment opportunity at all. The public is largely left out. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

96. COMMENT: There is a lack of robust public input process on draft cavern permits. (6, 36, 37, and 43)

97. COMMENT: The public comment period on the cavern system should begin as soon as records are available, rather than after the Department issues a draft approval as provided at

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N.J.A.C. 7:1F-4.2(f). This procedure is not conducive to substantive public input because each stage of administrative, technical, and other review phases is an opportunity for the public to contribute to information being used by the Department. If the public cannot comment until a draft permit is produced, the public is automatically in an adversarial position against the Department, which will have a tendency to defend its draft decision. (8)

98. COMMENT: N.J.A.C. 7:1F-4.2(f) and 5.2(e) provide a public comment period of only 30 days with a possible 15-day extension. A longer comment period of at least 90 days is needed due to the highly technical nature of these applications and permits, including for major modification. Permits are improved by public input, and the rules should require a transparent, open public comment process that allows for robust public participation. Also, the rules do not provide any public comment period for an operating permit. The Department must correct this oversight so that the public will be able to participate fully at this permitting stage. It is unacceptable and unproductive to shut the public out. (8)

RESPONSE TO COMMENTS 95, 96, 97, AND 98: The Department acknowledges the concerns regarding opportunity for public comment on applications and draft permits. N.J.A.C. 7:1F-4.2(e) requires the Department to publish in the DEP Bulletin a notice of receipt of a permit application, as well as notice of each significant action or determination the Department makes on an application under review. See also N.J.A.C. 7:1F-5.2(d) for major modifications. Therefore, notice would be provided for an application for a permit to operate, as well as a permit to construct.

The rules additionally require a public hearing and comment period on a draft permit to construct or for a major modification. See N.J.A.C. 7:1F-4.2(f) and 5.2(e). The Department is modifying the general permit application provisions to add N.J.A.C. 7:1F-4.1(d) and expressly

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provide that the Department may seek comments from the public whenever the Department finds a significant degree of public interest in an application or whenever the Department determines such comments might clarify one or more issues involved in the decision on the application. This provision is consistent with the public notice and comment provisions at N.J.A.C. 7:1F-4 and 5 and provides the Department flexibility to seek public comments when warranted, such as on a permit to operate, a renewal permit, or a minor modification.

The Department is also modifying N.J.A.C. 7:1F-4.2(f) to provide that the Department may extend the comment period for an additional 30 days, rather than the proposed 15 days, to allow adequate additional time for comment. The Department provided consistent procedures for a permit to construct and a permit for major modification, except for a potential extension of the comment period. Therefore, the Department is also modifying N.J.A.C. 7:1F-5.2(e) to include the potential for a 30-day extension of the comment period on a major modification, which was inadvertently excluded.

99. COMMENT: The rules should require public notification and input on a major modification of a permit. Major modifications can substantially impact communities and the environment. A transparent, robust public participation process should be provided. (8)

RESPONSE: N.J.A.C. 7:1F-5.2 sets forth the requirements for a major modification and includes procedures for public hearing and comment. In accordance with N.J.A.C. 7:1F-5.2(d), the Department will publish notice in the DEP Bulletin of the receipt of a request for major modification and each significant action or determination that the Department makes on the request. As provided at N.J.A.C. 7:1F-5.2(e), the Department will hold a hearing on a draft approval and allow opportunity for public comment. As explained in the Response to Comments

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94, 95, 96, and 97, the Department is modifying the rules upon adoption to allow for an extension of an additional 30 days to the initial 30-day public comment period.

Renewal Provisions

100. COMMENT: The rule provisions on the renewal of active cavern permits are ambiguous. The Department should confirm that the renewal provisions apply to cavern permits approving operation of an underground storage cavern system and that cavern permits approving construction are effective until construction is completed since that construction will take over one year (provided construction is commenced within 12 months of issuance of the construction approval). (26)

RESPONSE: N.J.A.C. 7:1F-4.5(a) provides that unless renewed pursuant to N.J.A.C. 7:1F-4.6, any permit to operate the system issued pursuant to this chapter shall expire after five years from the date of issuance. N.J.A.C. 7:1F-4.6(a) states that a permit for a system shall expire five years from the date of its issuance. The Department acknowledges that N.J.A.C. 7:1F-4.6(a) is not consistent with N.J.A.C. 7:1F-4.5(a). To correct this inconsistency, the Department is modifying N.J.A.C. 7:1F-4.6(a) upon adoption to specify a permit to operate. Pursuant to N.J.A.C. 7:1F-4.5(b), any approval or permit issued pursuant to this chapter shall expire if the authorized activity is not commenced within 12 months after the effective date of the approval or permit.

101. COMMENT: N.J.A.C. 7:1F-4.6(c) states, “[a] current permit for which a complete renewal application is submitted to the Department at least 120 days prior to the expiration date shall remain in effect until the Department grants or denies the renewal application.” The rules should include a reasonable sunset date, such as 12 months, upon which the permit renewal application

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is automatically returned to the applicant so it can be updated and resubmitted if the Department has not acted. Important environmental and technical conditions change over time. (8)

RESPONSE: The Department will review a cavern permit renewal application submitted in accordance with N.J.A.C. 7:1F-4.6(b) and the time frames for application review at N.J.A.C. 7:1F-4.2(h), (i), and (j). Therefore, setting an application sunset date is not necessary.

102. COMMENT: Existing cavern system owners/operators should be required to submit a permit application within three years, rather than five, as proposed at N.J.A.C. 7:1F-4.1(b). (8)

RESPONSE: The rules establish a five-year term for a new cavern operating permit. Therefore, the rules provide five years for an owner and operator of an existing underground storage cavern system in operation as of the effective date of the rule to submit a renewal permit application.

103. COMMENT: N.J.A.C. 7:1F-4.6(a) states that a permit for an underground storage cavern expires five years from the date of its issuance. The Department has acknowledged that existing systems are permitted. Because those permit issuance dates predate the chapter, the Department should establish the permit issuance date for an existing cavern as the effective date of the final rules for purposes of the permit renewal requirements. (12)

RESPONSE: N.J.A.C. 7:1F-4.1(b) requires the owner and operator of an existing cavern to submit a permit renewal application within five years of the effective date of the rules. The rules state that any existing permit previously issued shall remain in effect until the Department completes its review and approves or denies the permit renewal application. Each successive permit must be renewed in accordance with N.J.A.C. 7:1F-4.6(a) and (b). As explained in the

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Response to Comment 100, the Department is modifying N.J.A.C. 7:1F-4.6(a) to make clear that the five-year permit term is for operating permits issued pursuant to N.J.A.C. 7:1F.

Dormancy and Decommissioning Requirements

104. COMMENT: The Department should not allow an owner and operator to maintain less than \$1 million financial responsibility, as these are dangerous fossil fuel infrastructure systems with polluting emissions and substantial safety issues. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 39, 40, 42, 44, 45, 46, 47, and 48)

105.COMMENT: An owner/operator is required to maintain financial responsibility assurance of at least one million dollars based on the scope of the decommissioning plan. However, the rules also allow an owner/operator to maintain less than one million dollar financial assurance responsibility if the owner/operator demonstrates that a lesser amount is sufficient to protect the environment, public health, safety, and welfare. N.J.A.C. 7:1F-6.2(a). There is an inherent bias for an owner/operator to request maintaining financial responsibility in a lesser amount.

However, all cavern systems that have stored these dangerous and potentially polluting substances will have decommissioning requirements and processes that are consequential. There are no benefits and potential costs and harm to the public or taxpayers to allow an owner/operator to evade the minimum one million dollar financial responsibility requirement. (8)

RESPONSE TO COMMENTS 104 AND 105: The rules require an owner and operator to demonstrate and maintain a financial responsibility assurance mechanism for decommissioning activities in the amount of at least one million dollars per permit. N.J.A.C. 7:1F-6.2. The amount determined necessary is based on the scope of the decommissioning plan. As explained in the notice of proposal Summary, the financial responsibility assurance is an assurance of availability

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of funds necessary to decommission, maintain, and monitor the underground storage cavern system. See 54 N.J.R. at 829. As indicated in the Summary, this mechanism is required to ensure, before allowing a system to begin operating, that sufficient monetary resources are available for an owner and operator to properly decommission the system if the system is no longer operating.

The rules at N.J.A.C. 7:1F-6.2(b) set forth the factors that the Department will consider in determining the sufficiency of the amount of financial responsibility. The amount may be more than one million dollars based on these factors, which include “the nature and quantity of regulated substance that is present at the system; estimated costs, with inflation considerations, to evacuate substances and residuals, confirm cavern integrity, seal wells, address ground water intrusion, long-term maintenance considerations; and other similar factors.” N.J.A.C. 7:1F-6.2(b). The amount may also be less if the owner/operator demonstrates that a lesser amount is sufficient to protect the environment, public health, safety, and welfare. N.J.A.C. 7:1F-6.2(a). This provision does not allow an owner and operator to evade the minimum requirement; rather, it sets forth the process and standard for the Department to review a request for a lesser amount to ensure that sufficient funds are available for a system to be properly decommissioned.

106. COMMENT: The rules governing dormancy and decommissioning at N.J.A.C. 7:1F-5 and 6 are not clear regarding how long a cavern system can remain in dormant status before requirements for decommissioning would begin. It is also unclear what an owner and operator must do when changing a regulated substance or selling the system for use with a different regulated substance, and whether withdrawal of a permitted regulated substance would be

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considered a period of dormancy. These issues should be cleared up because of safety and environmental implications if the rule provisions are left vague. (8)

RESPONSE: “Dormancy” is defined as a period during which a permitted regulated substance is withdrawn and the cavern is temporarily empty with the intent to inject and store the permitted regulated substance in the future. N.J.A.C. 7:1F-1.6. The adopted rules do not establish the length of time that an underground storage cavern system may remain empty and in dormant status before decommissioning is required. Rather, the rules allow an owner and operator to place a system in dormancy upon approval of a dormancy plan. See N.J.A.C. 7:1F-5.3. The dormancy plan, which must be approved by the Department, will establish the duration of the dormancy. The rules also require a dormancy plan to include procedures for ventilation and cleaning, maintenance of mechanical integrity, and monitoring of ground water, air, and cavern temperature and pressure to protect from safety and environmental risks. An owner and operator must notify the Department of any changes to the established duration and continue the permit renewal process throughout that duration. N.J.A.C. 7:1F-5.3(d). When the owner and operator no longer intend to operate the system, the system must be decommissioned. An owner and operator must submit a decommissioning plan prior to beginning operation and as a condition of any permit.

If an owner/operator intends to change the regulated substance to be stored in the cavern, the owner/operator must submit an application for a major modification of its permit. See also the Response to Comments 43, 44, 45, and 46 regarding regulated substances and LPG.

Withdrawal of a permitted regulated substance to prepare for the storage of a different regulated substance (including any mixture or grade of LPG that was not approved) or sale of the cavern system would not require an owner/operator to place the cavern into dormant status. However,

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such a request may be made if the owner and operator chooses. Any approval for a major modification will include any conditions required for the cavern to store the new regulated substance. If there is a change in ownership or other change of owner or operator, the requirements at N.J.A.C. 7:1F-4.8, Permit transfer, apply.

Permit Denial, Suspension, or Revocation

107. COMMENT: N.J.A.C. 7:1F-4.7 should be clarified to indicate that, in the event of: (1) denial of a renewal application for an operating cavern; (2) suspension of an active permit; or (3) revocation of a permit, cavern operations can continue in a limited capacity to enable the permitholder to wind down operations safely and appropriately (that is, to remove product stored in the subject cavern(s) and owned by a third party until such time as the cavern is no longer storing third-party-owned product). (26)

RESPONSE: The Department acknowledges there are safety concerns to be considered when a permit is denied, suspended, or revoked. Pursuant to N.J.A.C. 7:1F-4.7(d), the Department shall issue a notice in any of these events, which will specify conditions associated with the denial, suspension, or revocation, so that stoppage of operation occurs in a safe, orderly manner. The Department is modifying N.J.A.C. 7:1F-4.7(d) to make clear that the notice may include conditions necessary to protect public health and safety when a permit is suspended, revoked, or denied. Additionally, as part of its application for a permit to operate or a renewal application for existing caverns, an owner and operator must submit an operation and maintenance plan that includes procedures for the cessation of operation activities under normal, abnormal, and emergency conditions, as well as under temporary or special operating conditions. See N.J.A.C. 7:1F-3.2(a)4. The owner and operator must also submit a decommissioning plan for Department

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approval. The decommissioning plan must be certified by a licensed engineer and include a monitoring schedule and financial responsibility. In the event of a permit denial, suspension, or revocation, provisions in the operation and maintenance plan and/or the decommissioning plan may be applicable and the Department may incorporate these provisions into its notice.

Public Access to Records and Confidentiality Claims

108. COMMENT: The rules leave out the public by limiting public access to “confidential” information. (2, 5, 11, 13, 16, 18, 19, 23, 24, 25, 27, 28, 29, 35, 36, 37, 39, 40, 42, 43, 44, 45, 46, 47, and 48)

109. COMMENT: The rules should provide that the disclosure of confidential information may be made to any person pursuant to an order of court or administrative law judge. (8)

RESPONSE TO COMMENTS 108 AND 109: As explained in the notice of proposal Summary, the confidentiality provisions in the adopted rules are consistent with the confidentiality provisions in the TCPA rules at N.J.A.C. 7:31-10. See 54 N.J.R. at 830. The rules include a detailed process for an applicant to make a confidentiality claim and for the Department’s review of such a claim. If the Department determines that the information is not the subject of a prior confidentiality determination, the applicant must submit substantiation to support its confidentiality claim. See N.J.A.C. 7:1F-8.5. Among other requirements, an applicant must explain why the information needs to be treated as confidential and whether any Federal or State law, rule, or regulation requires the public disclosure of the information. For security information, the applicant must also describe the adverse impact that disclosure would have on the facility’s security or its operations. Information that is required to be publicly disclosed pursuant to a Federal or State law or regulation or a court order or ruling is not considered confidential. See N.J.A.C. 7:1F-8.3. Thus, the rules offer the same access and protection from

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disclosure of certain information as the State's Open Public Records Act (OPRA), N.J.S.A.

47:1A-1 et seq.

110. COMMENT: If a member of the public requests access to materials subject to a confidentiality claim, the Department should make the confidentiality claim available to the requestor so that the requestor can contest the claim and gain access to the information. (8)

RESPONSE: The confidentiality provisions allow an applicant to claim information required to be submitted as part of its permit application is confidential. The rules provide a detailed process for the Department to determine if the information is entitled to confidential treatment. If the Department makes an affirmative determination, the Department would not disclose the information to the public. If an OPRA request is made and denied based on the Department's pending or final confidentiality determination, the Department will inform the requestor of the basis for the denial and the requestor may utilize remedies available under law to contest the Department's decision.

Miscellaneous

Definitions

111. COMMENT: It is unclear whether the term "surface footprint" as used in the rules refers to the surface area above the entire cavern, or to a limited area on the surface where the cavern system components are visible. The rules should clearly identify the full meaning of "surface footprint." (8)

RESPONSE: "Surface footprint" means the area of land at a site that is located directly above an underground storage cavern. See N.J.A.C. 7:1F-1.6. According to this definition, the surface

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footprint is the area of land if the exterior walls of the cavern are vertically projected to the surface. Pursuant to N.J.A.C. 7:1F-2.4(b)5, the environmental inventory must include the site of the proposed system, including a site plan map, to scale, specifying the surface footprint of any system. "System" is defined to include the cavern and associated ancillary equipment. To conform the use of "surface footprint" at N.J.A.C. 7:1F-2.4(b)5 with the definition of this term, the Department is modifying N.J.A.C. 7:1F-2.4(b)5 to refer to the surface footprint of any cavern instead of system and clarifying that the total acreage and layout are for the facility.

112. COMMENT: The definition of "operator" at N.J.A.C. 7:1F-1.6 is ambiguous as to who is intended to be covered. The responsibilities of an operator, as used in the rules, should be limited to the entity or entities with primary responsibility for operating and maintaining an underground storage cavern system, as reflected on the applicable permit. The Department should confirm that an "operator" does not include hired contractors to manage routine, daily tasks associated with storage of a product in an underground storage cavern system. (26)

RESPONSE: "Operator" is defined at N.J.A.C. 7:1F-1.6 as any person who leases, operates, controls, supervises, or has responsibility for the daily operation of an underground storage cavern system, and each person who has the authority to operate, control, or supervise the daily operation of a system. The operator is the entity that has management control for the daily running of the cavern system at the facility. This definition does not include a contractor hired to perform specific tasks since such a person does not have responsibility for the daily operation of the system. For example, the operator may hire a maintenance contractor to conduct repair or preventive maintenance on a short-time or periodic basis. The maintenance contractor may perform periodic work regularly throughout the year but is not an operator, since the contractor

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does not have management control of the operation. If the contractor has responsibility for the daily operation of the system, the contractor is an operator as defined.

113. COMMENT: N.J.A.C. 7:1F-1.8(a)2 requires certification by a responsible corporate official. The definition of responsible corporate official appears in other Department rules, see, for example, N.J.A.C. 7:27-1.4 and 7:26C-1.5, but in each case, the definitions are chapter specific. The proposed new chapter does not define a responsible corporate official, or the qualifications needed to be considered a responsible corporate official for purposes of the proposed rule. The Department should add a definition so that there is no uncertainty as to signature authority under this chapter. (12)

RESPONSE: N.J.A.C. 7:1F-1.8 requires a certification signed by a responsible corporate official to be included when any person submits an application, report, or other document. The person submitting the application, report, or other document must determine the appropriate corporate official to sign the certification. The corporate official must be an official with responsibility for policy- or decision-making for the entity and authority to bind the entity.

Municipal Ordinances

114. COMMENT: The rules at N.J.A.C. 7:1F-1.7 preserve the authority of a governing body of a municipality or county or board of health to adopt ordinances or regulations. This provision is strongly supported. It is important to allow a local government to enact stricter rules, which would allow for specific and unique conditions to be considered and for greater protection to be afforded to communities and vulnerable environmental and ecosystem features. (8)

RESPONSE: The Department acknowledges the commenter's support of this provision.

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Other

115. COMMENT: Strict regulations are needed to protect the State's natural resources and open space from polluters, lobbyists, and corporations seeking to profit by destroying nature. (31)

RESPONSE: The rules set forth the strict requirements for any person seeking a permit or approval to construct and operate an underground storage cavern system. Among other requirements, an applicant must submit an EHIS, which includes an environmental assessment, health impact assessment, and a climate change assessment. See N.J.A.C. 7:1F-2.4. As explained in the notice of proposal Summary, the rules are intended to ensure the proper construction, management, operation, maintenance, and decommissioning of any underground storage cavern system, thereby preventing the pollution, contamination, diversion, or depletion of waters, air, and natural resources. See 54 N.J.R. at 819.

Summary of Agency-Initiated Changes upon Adoption:

N.J.A.C. 7:1F-1.4 Applicability

The rules, at various places, make clear that an owner and operator must construct and operate a system in accordance with an approved permit and also must ensure that any system is constructed, operated, modified, and decommissioned in accordance with the requirements at N.J.A.C. 7:1F. See, for example, N.J.A.C. 7:1F-1.4(b) and (c) and 3.6. The Department is modifying N.J.A.C. 7:1F-1.4 to include a clear statement of the obligation of each owner and operator of any facility, cavern, or underground storage cavern system to which this chapter applies is responsible for ensuring compliance with the requirements of this chapter and the permit, including all conditions included in the permit.

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N.J.A.C. 7:1F-3.5, Release reporting, suspected releases, and investigations

The Department is correcting N.J.A.C. 7:1F-3.5(a)1 to include “N.J.A.C.” at the cross-reference to N.J.A.C. 7:1F-3.4(a).

Prohibitions at N.J.A.C. 7:1F-3.6

The Department is modifying N.J.A.C. 7:1F-3.6(b) to replace “or” with “including” when referring to “any of the associated ancillary equipment” of an underground storage cavern system. The Department is making this change because, as defined at N.J.A.C. 7:1F-1.6, an “underground storage cavern system” or “system” includes any associated ancillary equipment. The Department is also modifying N.J.A.C. 7:1F-3.6(a), which prohibits the introduction of a regulated substance where no permit is in place. As permits are issued to the underground storage cavern system, including the aforementioned ancillary equipment, and not just to the underground storage cavern, the term “system” is added after the term “underground storage cavern.”

Climate Change Impact Assessment

N.J.A.C. 7:1F-2.4(f) requires an owner and operator of a system to include a climate change impact assessment with any application for a permit or permit renewal pursuant to N.J.A.C. 7:1F-4. However, the Department did not specifically list a climate change impact assessment at N.J.A.C. 7:1F-4.2(h) (requirements for an owner and operator of a proposed system prior to beginning any operation activity) or at 4.1(b) and 4.6(b), regarding permit renewal requirements. The Department is modifying N.J.A.C. 7:1F-4.2(h), as well as N.J.A.C. 7:1F-4.1(b) and 4.6(b) to include a climate change impact assessment to conform with N.J.A.C. 7:1F-2.4(f).

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Permit Application for Minor and Major Modifications

The Department is revising N.J.A.C. 7:1F-5.1(b) and 5.2(a) to refer to a permit application in accordance with N.J.A.C. 7:1F-4.2(a), instead of a written request for a minor or major modification. The Department is making this change upon adoption to make clear that a permit application for a minor or major modification must be submitted to the Department. The Department is also revising these paragraphs to state that the application shall include all required information.

Adjudicatory Hearing Procedures

The Department included adjudicatory hearing procedures at N.J.A.C. 7:1F-7 to set forth the procedures for a permittee to request a hearing to contest an administrative order or permit action. As proposed, N.J.A.C. 7:1F-7.2(a) sets forth the scope of the subchapter as including procedures for requesting a hearing on a denial, revocation, or approval of a permit. As proposed, N.J.A.C. 7:1F-7.4(a) states that a person may request a hearing to contest a denial, suspension, or revocation of a permit or approval, pursuant to N.J.A.C. 7:1F-4.7. As these provisions are not consistent, the Department is modifying these provisions upon adoption to make clear that a person may request a hearing to contest a decision made by the Department to:

- 1) deny an application, or any part thereof, for an approval or permit, for a modification thereof, or for a renewal;
- 2) impose any condition on its approval or permit which the applicant or permittee finds objectionable; or
- 3) revoke or suspend a previously issued approval or permit.

N.J.A.C. 7:1F-7.5, Civil Action

As originally proposed, N.J.A.C. 7:1F-7.5(a) provided that if the Department finds a person in violation of the Act, rule, administrative order, permit, or other operating authority issued pursuant to the Act or the chapter, the Department may institute a civil action in Superior

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Court for appropriate relief. The Department included examples of the types of relief the Department may seek at N.J.A.C. 7:1F-7.5(a)1 through 5. However, the language at N.J.A.C. 7:1F-7.5(a) already broadly and generally states that the Department may institute a civil action for appropriate relief, which will be determined by the Court. Therefore, the Department is not adopting the specific types of relief proposed at N.J.A.C. 7:1F-7.5(a)1 through 5.

Federal Standards Statement

N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), require State agencies that adopt, readopt, or amend State rules to which the statute applies, to provide a Federal standards statement. If those rules exceed any Federal standards or requirements, the agency must also include in the rulemaking document a Federal standards analysis. The adopted new rules are not more stringent than Federal requirements because the Federal government does not have standards applicable to underground storage cavern systems. Therefore, no analysis is necessary.

Full text of the adopted new rules follows (additions to proposal indicated in boldface with asterisks ***thus***; deletions from proposal indicated in brackets with asterisks *[thus]*):

CHAPTER 1F

UNDERGROUND STORAGE CAVERNS

SUBCHAPTER 1. GENERAL PROVISIONS

7:1F-1.3 Purpose

(a) (No change from proposal.)

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(b) Any permit issued pursuant to this chapter does not in any way relieve the applicant from the obligation to obtain necessary permits from other governmental agencies and to comply with all other applicable Federal, State, and local rules and regulations.

7:1F-1.4 Applicability

(a) – € (No change from proposal.)

(f) Each owner and each operator is fully responsible for compliance with the requirements of this chapter and with the permit and permit conditions, including adequate design, construction, and operation of the system, even if employees, contractors, or others work on or operate the permitted system.

7:1F-1.6 Definitions

As used in this chapter, the following words and terms shall have the following meanings, unless the context clearly indicates otherwise.“...

“Environmental inventory” means a detailed and comprehensive description of the condition of all environmental parameters*, **prescribed at N.J.A.C. 7:1F-2.4(b),*** as they exist at and around the site of a proposed action prior to implementation of the proposed action. This description is used as a baseline for assessing the environmental impacts of a proposed action.

...

SUBCHAPTER 2. CONSTRUCTION OF AN UNDERGROUND STORAGE CAVERN

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7:1F-2.1 Feasibility study

(a) Prior to construction of any underground storage cavern system and as part of any application for *[a permit]* ***approval to construct*** pursuant to N.J.A.C. 7:1F-4 , the owner and operator shall conduct and submit to the Department a feasibility study that includes the following information:

–. - 3. (No change from proposal.)

4. Identification of the regulated substance to be stored including, if applicable, ***all mixtures and/or grades of LPG to be stored and*** the concentration of any component of the regulated substance*, **including of all LPG mixtures and/or grades to be stored***;

5. An assessment of the compatibility of the regulated substance*, **including all proposed mixtures and/or grades of LPG included in the application,*** with all parts of the system and a demonstration that the mechanical integrity of the system will not be impaired;

6. - 8. (No change from proposal.)

(b) - (c) (No change from proposal.)

7:1F-2.2 Design and construction

(a) Prior to construction of any underground storage cavern system and as part of any application for *[a permit]* ***an approval to construct*** pursuant to N.J.A.C. 7:1F-4, the owner and operator shall submit, to the Department, design specifications and construction plans for the system, including:

1. - 10. (No change from proposal.)

(b) (No change from proposal.)

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(c) The owner and operator of the system shall comply with the following construction requirements:

1. Construction of the system and storage of materials related to construction, including any excavated materials, must be completed in accordance with the Mine Safety Act, N.J.S.A. 34:6-98.1 et seq., ***the Radiation Protection Act, N.J.S.A. 26:2D-1 et seq.,*** and the Explosives Act, N.J.S.A. 21:1A-128 et seq., as applicable, and all other applicable local, State, and Federal laws.

2. - 12. (No change from proposal.)

(d) - (e) (No change from proposal.)

7:1F-2.4 Assessments of environmental, health, and climate change impacts

(a) Prior to construction of any underground storage cavern system and as part of any application for ***[a permit]* *an approval to construct*** pursuant to N.J.A.C. 7:1F-4, the owner and operator of an underground storage cavern system shall prepare and submit to the Department an environmental and health impact statement (EHIS) utilizing a systematic, interdisciplinary approach in order to ensure the integrated assessment of technical, economic, environmental, and social parameters potentially affected by the construction and operation of an underground storage cavern system. The EHIS must include an environmental inventory, environmental assessment, and health assessment, as described at (b), (c), and (d) below. Where the information addressing a requirement of the inventory is supplied in the engineering designs or reports, reference to such designs or reports may be noted in the inventory, provided the appropriate section and page number of the design or report is cross-referenced and indexed.

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(b) The environmental inventory must contain a description of the information listed below. If any category described below presents no impact relative to the proposed facility, a notation of non-applicability shall be entered in the environmental inventory for that category.

1. - 4. (No change from proposal.)

5. The site of the proposed system, including a site plan map, to scale, specifying the boundaries of the facility, total acreage ***of the facility***, surface footprint of any ***[system]*** ***cavern***, and a ***facility*** layout of all buildings, access roads, internal routes of traffic flow, and monitoring systems;

6. (No change from proposal.)

7. How the system or facility will conform or conflict with the objectives of any applicable Federal, State, or local land use and environmental requirements including, but not limited to, those affecting the following:

i. - xiv. (No change from proposal.)

xv. The re-use or disposal of excavated rock or materials, ***[as defined by the Mine Safety Act, N.J.S.A. 34:6-98.1 et seq.]*** ***including how the system or facility will conform or conflict with N.J.A.C. 7:28, as applicable***;

xvi. - xviii. (No change from proposal.)

(c) - (e) (No change from proposal.)

(f) The owner and operator of a system shall include a climate change impact assessment with any application for a permit or permit renewal pursuant to N.J.A.C. 7:1F-4. Assessing the impacts of climate change on a system shall be conducted, in accordance with (f)1 through 4 below. The Department may accept a climate change impact assessment, or similar evaluation

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conducted to satisfy other Department regulatory or permitting programs provided it includes the items described in this subsection.

1. (No change from proposal.)

2. At a minimum, the assessment shall use data and tools from the Department's Climate Change website (<https://www.nj.gov/dep/climatechange>) or other current scientific resources, which must be referenced in the prepared document, to provide a written report considering the following scenarios:

i. Whether the system, including any above-ground ancillary equipment, is located within a flood hazard area, as **[delineated]** ***defined*** by the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13. A system not located in a flood hazard area shall identify the distance from the cavern system to the closest flood hazard area and minimum value or depth flood waters would have to rise to potentially reach the cavern system, using data available at the time the assessment is being prepared for the Department;

ii. - iv. (No change from proposal.)

3. - 4. (No change from proposal.)

(g) (No change from proposal.)

SUBCHAPTER 3. OPERATING REQUIREMENTS

7:1F-3.2 Operation and maintenance

(a) The owner and operator of an underground storage cavern system shall submit to the Department a plan for the operation and maintenance of the system. The plan shall:

1. - 2. (No change from proposal.)

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3. Establish procedures to operate the system at all times *[within the maximum and minimum operating pressures and temperatures as submitted to the Department pursuant to N.J.A.C. 7:1F-2.2]* ***as provided at (a)3i and ii below*** and maintain records of these operating parameters. *[The maximum operating pressure (MOP) must be less than the maximum allowable operating pressure (MAOP).]* The owner and operator shall provide the Department any information necessary to demonstrate that appropriate safety measures will be implemented and maintained to prohibit pressures and temperatures outside the range ***established for the system and*** approved by the Department.

***i. For an underground storage cavern system with an approval to construct issued pursuant to N.J.A.C. 7:1F-4, procedures to operate the system at all times within the maximum and minimum operating pressures and temperatures as submitted to the Department pursuant to N.J.A.C. 7:1F-2.2. The maximum operating pressure (MOP) must be less than the maximum allowable operating pressure (MAOP).**

ii. For an existing underground storage cavern system in operation as of May 1, 2023, a procedure to operate the system at all times within the pressures and temperatures established for the system and approved by the Department.*

4. - 5. (No change from proposal.)

(b) - (c) (No change from proposal.)

7:1F-3.3 Ground water and soil vapor monitoring

(a) - (b) (No change from proposal.)

(c) Following construction, before the system is used and during operation, all ground water observation wells shall be monitored quarterly, and analyzed by a New Jersey-certified

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laboratory, for the regulated substance, pH, specific conductance (SC), dissolved oxygen, turbidity, and any other parameters specified in the permit. If there is an unexplained change in cavern pressure or ground water levels, such that a leak of the regulated substance to ground water from the system is suspected, or if the Department has grounds to suspect a leak, the Department may direct that all ground water observation wells shall be **[resampled]** ***sampled*** for all, or some, of the baseline water quality constituents. The Department shall specify, in the system's permit, the number, location, and depth of ground water observation wells.

(d) - (g) (No change from proposal.)

7:1F-3.5 Release reporting, suspected releases, and investigations

(a) In the event of a release from the system, the owner and operator shall:

1. Implement procedures and measures for emergency response pursuant to ***N.J.A.C.***

7:1F-3.4(a); and

2. (No change from proposal.)

(b) For a suspected release, the owner and operator shall complete an investigation of a suspected release within seven calendar days of the indication of a suspected release. An indication of a suspected release may include, but is not limited to:

1. - 2. (No change from proposal.)

3. There is evidence of a hazardous substance or resulting vapors in the soil, in surface water, or in any underground structure or well in the vicinity of the **[facility]** ***system***;

4. - 5. (No change from proposal.)

(c) - (d) (No change from proposal.)

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(e) In the event of a confirmed release from the cavern system, the owner and operator must take immediate action to mitigate the release*, **including any approved operating procedures for the conditions***. The owner and operator shall coordinate and conduct remediation activities, in accordance with Department rules.

(f) - (g) (No change from proposal.)

7:1F-3.6 Prohibitions

(a) No person shall introduce a regulated substance into an underground storage cavern ***system*** that is not permitted with the Department pursuant to N.J.A.C. 7:1F-4, or where a permit has been revoked, suspended, or denied.

(b) No person shall introduce a regulated substance into an underground storage cavern system, ***[or]* *including*** any of the associated ancillary equipment, known or suspected to be releasing a regulated substance.

(c) No person shall ***[continue to operate]* *store a regulated substance in*** an underground storage cavern ***[system, or any of the associated ancillary equipment,]*** known ***[or suspected]*** to be releasing a regulated substance.

(d) No person shall withdraw a regulated substance from an underground storage cavern system that is known or suspected to be releasing a regulated substance from any ancillary equipment associated with the system, if withdrawal could result in the further release of a regulated substance.

SUBCHAPTER 4. PERMITTING REQUIREMENTS

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7:1F-4.1 General

(a) (No change from proposal.)

(b) By *[(five years of the effective date of this rulemaking)]* **May 1, 2028***, the owner and operator of an existing underground storage cavern system in operation as of *[(the effective date of this rulemaking)]* **May 1, 2023***, shall submit to the Department a permit renewal application and include the following materials:

1. - 3. (No change from proposal.)

4. A decommissioning plan and financial responsibility, pursuant to N.J.A.C. 7:1F-6.1(a) and 6.2; *[and]*

5. An integrity test of the system conducted, in accordance with N.J.A.C. 7:1F-3.2(a)5v*[*]*; **and**

6. A climate change impact assessment in accordance with N.J.A.C. 7:1F-2.4(f).*

(c) (No change from proposal.)

(d) The Department may seek comments from the public whenever the Department finds a significant degree of public interest in an application or whenever the Department determines such comments might clarify one or more issues involved in the decision on the application.

7:1F-4.2 Permit application

(a) All permit applications must be submitted on forms provided by the Department obtained from the address at N.J.A.C. 7:1F-1.10 and contain the information specified at (b) ***or (h)*** below*, or N.J.A.C. 7:1F-5.1 or 5.2, as applicable, in the format and number specified in

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the form*. The permit application must be accurately completed, signed, dated, and returned to the address provided at N.J.A.C. 7:1F-1.10.

(b) - (e) (No change from proposal.)

(f) Upon publication of the notice in the DEP Bulletin regarding a draft approval to construct, the Department shall hold a public hearing, no sooner than 15 days after publication of the notice. A comment period will also be held open for a period of 30 days after publication in the DEP Bulletin. The Department, in its discretion, may extend the comment period for an additional ***[15]* *30*** days beyond the initial 30-day comment period.

(g) (No change from proposal.)

(h) Prior to beginning any operation activity, and in addition to the requirements at (a) and (b) above, the owner and operator of a proposed system shall submit:

1. - 3. (No change from proposal.)

4. A decommissioning plan, in accordance with N.J.A.C. 7:1F-6; ***[and]***

***5. A climate change impact assessment in accordance with N.J.A.C. 7:1F-2.4(f);**

and*

[5.]* *6. (No change from proposal.)

(i) - (k) (No change from proposal.)

7:1F-4.6 Permit renewal

(a) A permit ***to operate issued pursuant to this chapter*** for an underground storage cavern system shall expire five years from ***[the date of]*** its issuance.

(b) No less than 120 days prior to expiration date of the permit, the owner and operator of a system shall submit to the Department a permit renewal application, the materials required

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pursuant to N.J.A.C. 7:1F-*2.4(f),* 3.2*,* and 3.4 and indicate to the Department any updates to the information since a prior issuance. The Department shall review the materials in accordance with N.J.A.C. 7:1F-4.2(h) through (j).

(c) (No change from proposal.)

7:1F-4.7 Grounds for denial, suspension, or revocation of a permit

(a) - (c) (No change from proposal.)

(d) The Department shall inform the owner and operator of an underground storage cavern system of the denial of issuance, suspension, or revocation of a permit by notice. The notice shall include either specific grounds for the denial of issuance as set forth at (a) above, specific grounds for suspension of a permit as set forth at (b) above, or specific grounds for revocation as set forth at (c) above. The Department shall provide the notice by certified mail or by personal service. ***The notice will include any conditions necessary to protect the waters of the State, and public health and safety.***

(e) - (g) (No change from proposal.)

SUBCHAPTER 5. MODIFICATIONS

7:1F-5.1 Minor modifications

(a) (No change from proposal.)

(b) An owner and operator shall submit *[a written request]* ***an application in accordance with N.J.A.C. 7:1F-4.2(a)*** for a minor modification *[and any]* *, **which shall include all*** information required pursuant to this chapter that is related to the proposed minor modification.

(c) - (f) (No change from proposal.)

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7:1F-5.2 Major modifications

(a) Prior to performing a major modification, an owner and operator of an underground storage cavern system shall submit *[a written request]* ***an application in accordance with N.J.A.C.**

7:1F-4.2(a)* for major modification *[and]* *****, **which shall include*** the following information to the Department:

1.-6. (No change from proposal.)

(b) - (d) (No change from proposal.)

(e) Upon publication, in the DEP Bulletin, of a notice of a draft approval of a major modification, the Department shall hold a public hearing no sooner than 15 days after publication of the notice. A comment period will be held open for a period of 30 days after the public hearing. ***The Department, in its discretion, may extend the comment period for an additional 30 days beyond the initial 30-day comment period.***

(f) (No change from proposal.)

SUBCHAPTER 7. VIOLATIONS, REMEDIES, AND ADJUDICATORY HEARING PROCEDURES

7:1F-7.2 Scope

(a) This subchapter establishes procedures governing the Department's issuance of civil administrative orders and commencement of a civil action for violation(s) of any provisions of the Act, this chapter, or any order, permit, or operating authority issued pursuant thereto. This subchapter shall also govern the procedures for requesting an adjudicatory hearing on an

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administrative order, or *[a denial, revocation, or approval of a permit]* ***a Department decision on an application for an approval or permit, as provided at N.J.A.C. 7:1F-7.4*.**

(b)-(d) (No change from proposal.)

7:1F-7.4 Adjudicatory hearing requests and procedures

(a) A person may request a hearing to contest *[a denial, suspension, or revocation of a permit or approval, pursuant to N.J.A.C. 7:1F-4.7,]* an administrative order issued pursuant to N.J.A.C.

7:1F-7.3, *[or]* a certified notice denying a confidentiality claim pursuant to N.J.A.C. 7:1F-8*,

or a decision made by the Department to:

1. Deny an application, or any part thereof, for an approval or permit, for a modification thereof, or for a renewal thereof;

2. Impose any condition on its approval or permit which the applicant or permittee finds objectionable; or

3. Revoke or suspend a previously issued approval or permit.*

(b) - (f) (No change from proposal.)

7:1F-7.5 Civil action

[(a)] Whenever, on the basis of available information, the Department finds a person in violation of the Act, or any rule promulgated, or any administrative order, permit, or other operating authority issued pursuant to the Act and this chapter, the Department may institute a civil action in Superior Court for appropriate relief. *[Such relief may include, singly, or in combination:

1. A temporary or permanent injunction;

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2. Assessment against the violator for the costs of any investigation, inspection, or monitoring survey that led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action pursuant to this section;

3. Assessment against the violator for any costs incurred by the State in removing, correcting, or terminating the adverse effects upon the environment resulting from any unauthorized regulated activity for which legal action pursuant to this section may have been brought;

4. Assessment against the violator for compensatory damages for any loss or destruction of wildlife, fish, or aquatic life, plants, and for any other actual damages caused by an unauthorized regulated activity. Assessments pursuant to this section shall be paid to the State Treasurer, except that compensatory damages shall be paid by specific order of the court to any persons who have been aggrieved by the unauthorized regulated activity; and/or

5. A requirement that the violator restore or rehabilitate the site of the violation to the maximum extent practicable and feasible, or in the event that restoration of the site of the violation is not practicable and feasible, provide for off-site restoration alternatives, as approved by the Department.]*