

DESCRIPTION

TITLE OF INVENTION: AMMONIA LEAKAGE TREATMENT FACILITY AND
AMMONIA RECEIVING FACILITY

5 TECHNICAL FIELD

[0001]

The present disclosure relates to an ammonia leakage treatment facility and an ammonia receiving facility.

Priority is claimed on Japanese Patent Application No. 2024-011505, filed
10 January 30, 2024, the content of which is incorporated herein by reference.

BACKGROUND ART

[0002]

For example, Patent Document 1 discloses a liquefied gas storage tank. The
liquefied gas storage tank disclosed in Patent Document 1 is a double-shell tank having an
15 inner shell and an outer shell. A rectangular containment dike is provided on an outer
periphery of such a double-shell tank. In a tank facility including such a containment
dike, even in a case where a liquefied gas leaks from a double-shell tank, a leakage range
of the liquefied gas can be limited to a range surrounded by the containment dike.

Citation List

20 Patent Document

[0003]

Patent Document 1: Japanese Unexamined Patent Application, First Publication
No. 2021-17920

SUMMARY OF INVENTION

25 Technical Problem

[0004]

In the related art, as a liquefied gas, Liquefied Natural Gas (LNG) or Liquefied Petroleum Gas (LPG) is often used. These LNG and LPG have low toxicity of vaporized gas. However, in recent years, liquefied ammonia may be used as a fuel. Ammonia gas generated by vaporizing the liquefied ammonia has higher toxicity than LNG or LPG. Therefore, even in a situation where the release of the ammonia gas into the atmosphere is unavoidable, it is necessary to suppress the ammonia gas from reaching, at a high concentration, an activity zone of humans and livestock near the ground surface around the containment dike.

10 [0005]

The present disclosure has been made in view of the above-described circumstances, and an object of the present disclosure is to suppress the ammonia gas from reaching, at a high concentration, the vicinity of the ground surface when the ammonia liquid leaks.

15 Solution to Problem

[0006]

As a means for solving the above-described problem, the present disclosure adopts the following configurations.

[0007]

20 A first aspect of the present disclosure is an ammonia leakage treatment facility including a containment dike that is capable of retaining leaked ammonia liquid and that is open upward, and a gas injection section configured to inject gas to cause vaporized gas of the ammonia liquid retained inside the containment dike to flow.

[0008]

25 A second aspect of the present disclosure is an ammonia receiving facility

including an ammonia tank configured to store the ammonia liquid, and the ammonia leakage treatment facility according to the first aspect, that is capable of retaining the ammonia liquid leaked from the ammonia tank.

Advantageous Effects of Invention

5 [0009]

The ammonia gas has a specific gravity smaller than that of air at a temperature equal to or higher than a room temperature. Therefore, when the volume of the ammonia gas exceeds the containment dike, there is a possibility that the ammonia gas may reach, at a high concentration, humans and livestock present near the ground surface around the
10 containment dike. On the other hand, in the present disclosure, the gas is injected from the gas injection section to diffuse the ammonia gas upward. Therefore, according to the present disclosure, the ammonia gas is guided by the injected gas to flow upward, and the overflow of the ammonia gas at a high concentration near the ground surface around the containment dike is suppressed. Therefore, the present disclosure can suppress the
15 ammonia gas from reaching, at a high concentration, the vicinity of the ground surface when the ammonia liquid leaks.

BRIEF DESCRIPTION OF DRAWINGS

[0010]

[FIG. 1] A schematic configuration diagram of an ammonia receiving facility
20 according to an embodiment of the present disclosure.

[FIG. 2] A top view showing a schematic configuration of an ammonia receiving facility according to an embodiment of the present disclosure.

[FIG. 3] A schematic view showing a state in which air is injected from an air curtain forming section included in the ammonia receiving facility according to the
25 embodiment of the present disclosure.

[FIG. 4] A schematic view showing a state in which fire-extinguishing water is injected from a water curtain forming section included in the ammonia receiving facility according to the embodiment of the present disclosure.

DESCRIPTION OF EMBODIMENTS

5 [0011]

Hereinafter, an embodiment of an ammonia leakage treatment facility and an ammonia receiving facility according to the present disclosure will be described with reference to the drawings.

[0012]

10 FIG. 1 is a schematic configuration diagram of an ammonia receiving facility 1 of the present embodiment. FIG. 1 shows a state in which an ammonia liquid X described later does not leak. The ammonia receiving facility 1 of the present embodiment stores liquefied ammonia gas (ammonia liquid X). In addition, as necessary, the ammonia receiving facility 1 of the present embodiment vaporizes the stored ammonia liquid X by
15 a vaporization equipment (not shown) and supplies the vaporized ammonia liquid X to a supply destination such as a boiler. As shown in FIG. 1, the ammonia receiving facility 1 includes an ammonia tank 2 and an ammonia leakage treatment facility 3.

[0013]

The ammonia tank 2 is a tank that stores the ammonia liquid X. The ammonia
20 tank 2 is, for example, a metal double-shell tank including a metal inner shell and a metal outer shell. The ammonia tank 2 includes a heat insulating material filled between the outer shell and the inner shell and stores the ammonia liquid X inside the inner shell in a low temperature state. The ammonia tank 2 is provided on a bottom portion 4a of a containment dike 4 described later.

25 [0014]

The ammonia leakage treatment facility 3 can store the ammonia liquid X leaking from the ammonia tank 2 when the ammonia liquid X leaks from the ammonia tank 2 and is open upward. In the present embodiment, as shown in FIG. 1, the ammonia leakage treatment facility 3 includes the containment dike 4, an air curtain forming section 5 (gas injection section), and a water curtain forming section 6 (water injection section).

[0015]

In the present embodiment, the ammonia leakage treatment facility 3 can store the ammonia liquid X leaking from the ammonia tank 2.

[0016]

10 As shown in FIG. 1, the containment dike 4 includes the bottom portion 4a that supports the ammonia tank 2 and the like from below, and the surrounding wall 4b erected on the bottom portion 4a to surround the ammonia tank 2 when viewed from above and has a retention space open upward. The containment dike 4 is formed of, for example, concrete.

15 [0017]

FIG. 2 is a top view of the ammonia receiving facility 1 of the present embodiment. As shown in FIG. 2, in the present embodiment, the bottom portion 4a and the surrounding wall 4b are formed in a rectangular shape when viewed from above. However, the shapes of the bottom portion 4a and the surrounding wall 4b are not particularly limited. The surrounding wall 4b is provided along an edge portion of the rectangular bottom portion 4a and surrounds the ammonia tank 2 from the entire circumferential direction.

20 [0018]

In addition, as shown in FIG. 1, a height dimension D1 of the ammonia tank 2 from the bottom portion 4a is larger than a height dimension D2 of the surrounding wall 4b from the bottom portion 4a. An upper end surface 4b1 of the surrounding wall 4b

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forms a top portion of the containment dike 4. Therefore, in the present embodiment, a top portion position of the containment dike 4 is lower than a top portion position of the ammonia tank 2. That is, in the present embodiment, the height of the containment dike 4 is lower than the height of the ammonia tank 2.

5 [0019]

However, the configuration is not limited to a configuration in which the height of the containment dike 4 is lower than the height of the ammonia tank 2. For example, a configuration may be adopted in which the height of the containment dike 4 is the same as or higher than the height of the ammonia tank 2. In such a case, the upper end surface
10 4b1 of the surrounding wall 4b is located at the same height as the top portion of the ammonia tank 2 or above the top portion of the ammonia tank 2.

[0020]

FIG. 3 is a schematic diagram showing a state in which air Y is injected from the air curtain forming section 5. The air curtain forming section 5 injects the air Y (gas) to
15 cause the vaporized gas (ammonia gas G) of the ammonia liquid X retained inside the containment dike 4 to flow upward, and prevents the vaporized gas from reaching, at a high concentration, the vicinity of the ground surface around the containment dike 4.

[0021]

In the present embodiment, a plurality of air curtain forming sections 5 are
20 provided. As shown in FIG. 2, the air curtain forming sections 5 are arranged along the surrounding wall 4b to surround the ammonia tank 2. The number of air curtain forming sections 5 installed shown in FIG. 2 is an example and can be changed.

[0022]

As shown in FIGS. 1 to 3, the air curtain forming section 5 includes an air injection
25 nozzle 5a (injection nozzle), an air header pipe 5b (gas guide pipe), an air supply pipe 5c,

and an air blower 5d (blower).

[0023]

In the present embodiment, a configuration will be described in which the air curtain forming section 5 that injects the air Y is provided as the gas injection section.

5 However, the gas injection section is not limited to the air curtain forming section 5 of the present embodiment. For example, a gas injection section that injects an inert gas such as nitrogen gas and the like may be provided.

[0024]

Each air curtain forming section 5 includes a plurality of air injection nozzles 5a.

10 A plurality of the air injection nozzle 5a are connected to the air header pipe 5b provided on the upper end surface 4b1 of the containment dike 4. These air injection nozzles 5a inject upward the air Y supplied from the air header pipe 5b. An air curtain directed upward is formed by the air Y injected upward from the air injection nozzles 5a. The number of air injection nozzles 5a installed, that is connected to one air header pipe 5b is
15 not particularly limited.

[0025]

The air header pipe 5b distributes the air Y supplied from the air blower 5d to the plurality of air injection nozzles 5a through the air supply pipe 5c. In the present embodiment, the air header pipe 5b is fixed to the upper end surface 4b1 of the surrounding
20 wall 4b and is formed to extend linearly along the surrounding wall 4b. However, the air header pipe 5b can also be fixed to the outer wall surface or the inner wall surface of the surrounding wall 4b.

[0026]

In the present embodiment, the air injection nozzle 5a and the air header pipe 5b
25 are separate bodies, but the present disclosure is not limited thereto. For example, the air

injection nozzle 5a may be integrally formed with the air header pipe 5b.

[0027]

The air supply pipe 5c is a pipe that connects the air header pipe 5b and the air blower 5d. The air supply pipe 5c is formed to extend in the up-down direction to connect
5 the air header pipe 5b disposed at the top portion of the containment dike 4 and the air blower 5d installed near the ground and guides the air Y from the lower side to the upper side.

[0028]

The air blower 5d is connected to the lower end of the air supply pipe 5c. The
10 air blower 5d suctions the air Y, pressurizes the suctioned air Y, and discharges the pressurized air Y to the air supply pipe 5c. The air Y discharged from the air blower 5d is supplied to the air injection nozzle 5a through the air supply pipe 5c and the air header pipe 5b. That is, the air blower 5d supplies the air Y to the air injection nozzle 5a through the air supply pipe 5c and the air header pipe 5b.

15 [0029]

The air blower 5d is connected to, for example, a control device (not shown), and is driven under the control of the control device. For example, when a signal indicating that the ammonia liquid X is leaking from the ammonia tank 2 is input to the control device, the air blower 5d is driven, and the above-described air curtain is formed. The air blower
20 5d may be manually driven by a worker.

[0030]

When the air curtain forming section 5 forms the air curtain, an upward air current is formed inside the surrounding wall 4b by the flow of the air Y upward. Because of the upward air current, the ammonia gas G generated by the evaporation of the ammonia liquid
25 X leaked inside the surrounding wall 4b flows upward.

[0031]

FIG. 4 is a schematic view showing a state in which the fire-extinguishing water Z is injected from the water curtain forming section 6. The water curtain forming section 6 injects water from the top portion of the containment dike 4. In the present embodiment, a plurality of water curtain forming sections 6 are provided. As shown in FIG. 2, the water curtain forming sections 6 are arranged along the surrounding wall 4b to surround the ammonia tank 2. The number of water curtain forming sections 6 installed shown in FIG. 2 is an example and can be changed.

[0032]

As shown in FIGS. 1 to 4, the water curtain forming section 6 includes a water injection nozzle 6a, a water header pipe 6b, a water supply pipe 6c, and an opening/closing valve 6d. In the present embodiment, a configuration in which the fire-extinguishing water pressurized and supplied from the outside is injected by the water curtain forming section 6 is described. However, the water curtain forming section 6 may include a booster pump, and the stored water may be pressurized and injected. In addition, the water curtain forming section 6 may inject seawater or the like instead of the fire-extinguishing water.

[0033]

Each water curtain forming section 6 includes a plurality of water injection nozzles 6a. A plurality of the water injection nozzle 6a are connected to the water header pipe 6b provided on the top end surface 4b1 of the containment dike 4. These water injection nozzles 6a inject upward the fire-extinguishing water Z supplied from the water header pipe 6b. A water curtain is formed by the fire-extinguishing water Z injected upward from the water injection nozzles 6a. The number of water injection nozzles 6a installed connected to one water header pipe 6b is not particularly limited.

[0034]

The water header pipe 6b distributes the fire-extinguishing water Z supplied through the water supply pipe 6c to the plurality of water injection nozzles 6a. In the present embodiment, the water header pipe 6b is fixed to the upper end surface 4b1 of the surrounding wall 4b and is formed to extend linearly along the surrounding wall 4b. However, the water header pipe 6b can also be fixed to the outer wall surface or the inner wall surface of the surrounding wall 4b.

[0035]

In the present embodiment, the water injection nozzle 6a and the water header pipe 6b are separate bodies, but the present disclosure is not limited thereto. For example, the water injection nozzle 6a may be integrally formed with the water header pipe 6b.

[0036]

The water supply pipe 6c is a pipe that connects the water header pipe 6b and a water source. The opening/closing valve 6d is provided at an intermediate position of the water supply pipe 6c. The fire-extinguishing water Z flows into the water supply pipe 6c by opening the opening/closing valve 6d, and the fire-extinguishing water Z is supplied to the water injection nozzle 6a. In addition, in a state where the opening/closing valve 6d is closed, the supply of the fire-extinguishing water Z to the water injection nozzle 6a is stopped.

[0037]

Such an opening/closing valve 6d is connected to, for example, a control device (not shown), and is opened and closed under the control of the control device. For example, when a signal indicating that a fire has occurred is input to the control device, the opening/closing valve 6d is opened, and the above-described water curtain is formed. The opening/closing valve 6d may be manually opened and closed by a worker.

[0038]

When the water curtain forming section 6 forms a water curtain, the radiant heat from the external fire to the ammonia tank 2 can be suppressed.

[0039]

5 In the present embodiment, as shown in FIGS. 1 to 4, the air injection nozzle 5a and the air header pipe 5b are located on the center side (ammonia tank 2 side) of the containment dike 4 with respect to the water injection nozzle 6a and the water header pipe 6b. Therefore, the formation position of the air curtain is located closer to the center of the containment dike 4 than the formation position of the water curtain. Accordingly, the
10 ammonia gas G is more likely to flow because of the upward air current caused by the air curtain.

[0040]

In addition, the formation position of the water curtain is located closer to the outside of the containment dike 4 than the formation position of the air curtain. Therefore,
15 it is possible to suppress the fire-extinguishing water Z forming the water curtain from entering the inside of the containment dike 4.

[0041]

In the ammonia receiving facility 1 of the present embodiment, when the ammonia liquid X leaks from the ammonia tank 2, as shown in FIG. 3, the air blower 5d is driven,
20 and the air Y is injected from the air injection nozzle 5a. As a result, an air curtain directed upward from the top portion of the containment dike 4 is formed.

[0042]

The ammonia gas G generated by the vaporization of the ammonia liquid X inside the containment dike 4 is promoted to flow upward by the upward air current formed by
25 the air curtain. Therefore, the ammonia gas G accumulated inside the containment dike

4 is discharged upward from the containment dike 4. The ammonia gas G has a smaller specific gravity than the air. Therefore, the ammonia gas G discharged upward flows toward the upper air without flowing into the vicinity of the ground surface.

[0043]

5 It is noted that when a fire does not occur outside the containment dike 4, the opening/closing valve 6d of the water curtain forming section 6 is held in a closed state as shown in FIG. 3. Therefore, when the ammonia liquid X leaks from the ammonia tank 2 and a fire does not occur, only the air curtain is formed, out of the air curtain and the water curtain.

10 [0044]

In addition, in the ammonia receiving facility 1 of the present embodiment, when a fire occurs outside the containment dike 4, as shown in FIG. 4, the opening/closing valve 6d is opened, and the fire-extinguishing water Z is injected from the water injection nozzle 6a. As a result, a water curtain directed upward from the top portion of the containment dike 4 is formed. Therefore, it becomes possible to block the radiant heat from the fire with the water curtain.

[0045]

When the water curtain is formed, the air blower 5d can be stopped, and only the water curtain can be formed, out of the air curtain and the water curtain. However, both
20 the water curtain and the air curtain may be formed.

[0046]

The ammonia leakage treatment facility 3 of the present embodiment includes the containment dike 4 and the air curtain forming section 5. The containment dike 4 can retain the leaked ammonia liquid X and is open upward. The air curtain forming section
25 5 injects the air Y to cause the vaporized gas of the ammonia liquid X retained inside the

containment dike 4 to flow.

[0047]

The ammonia gas G has a specific gravity smaller than that of air at a temperature equal to or higher than room temperature. However, because of the wind direction or the temperature of the ammonia gas G being low, the ammonia gas G may get over the containment dike 4 and reach, at a high concentration, the vicinity of the ground surface around the containment dike 4. On the other hand, in the ammonia leakage treatment facility 3 of the present embodiment, the air Y is injected from the air curtain forming section 5 to cause the ammonia gas G to flow upward. Therefore, according to the ammonia leakage treatment facility 3 of the present embodiment, the ammonia gas G flows upward by being guided by the injected air Y, and the ammonia gas G is suppressed from getting over the containment dike 4 and overflowing to the vicinity of the ground surface. Accordingly, the ammonia leakage treatment facility 3 of the present embodiment can suppress the ammonia gas G from reaching, at a high concentration, the vicinity of the ground surface when the ammonia liquid X leaks.

[0048]

In addition, in the ammonia leakage treatment facility 3 of the present embodiment, the air curtain forming section 5 includes the air injection nozzle 5a, the air header pipe 5b, and the air blower 5d. The air injection nozzle 5a is installed at the top portion of the containment dike 4. The air header pipe 5b is connected to the air injection nozzle 5a. The air blower 5d supplies the air Y to the air injection nozzle 5a through the air header pipe 5b.

[0049]

According to the ammonia leakage treatment facility 3 of the present embodiment, the air Y pumped from the air blower 5d can be injected from the plurality of air injection

nozzles 5a. Therefore, the air Y can be injected into a wider range. That is, according to the ammonia leakage treatment facility 3, it is possible to form an air curtain having a wide width.

[0050]

5 In addition, in the ammonia leakage treatment facility 3 of the present embodiment, the air curtain forming section 5 injects the air Y upward. According to the ammonia leakage treatment facility 3 of the present embodiment, the air curtain forming section 5 can form an upward air current, and the ammonia gas G inside the containment dike 4 can be caused to flow upward. Therefore, according to the ammonia leakage
10 treatment facility 3 of the present embodiment, it is possible to efficiently keep the ammonia gas G away from the vicinity of the ground surface.

[0051]

In addition, in the ammonia leakage treatment facility 3 of the present embodiment, the gas injected from the air curtain forming section 5 is the air Y.
15 According to the ammonia leakage treatment facility 3 of the present embodiment, the air curtain can be formed using the outside air. Therefore, it is not necessary to separately prepare a gas for injection.

[0052]

In addition, the ammonia leakage treatment facility 3 of the present embodiment
20 includes a water curtain forming section 6 that injects water from the top portion of the containment dike 4. According to the ammonia leakage treatment facility 3 of the present embodiment, it is possible to suppress the radiant heat from reaching the vicinity of the ground surface around even when a fire occurs inside the containment dike 4.

[0053]

25 In addition, in the ammonia leakage treatment facility 3 of the present

embodiment, fire-extinguishing water Z is used as the water injected by the water curtain forming section 6. In general, in a plant such as the ammonia receiving facility 1 or the like, the fire-extinguishing water Z can be used. In the ammonia leakage treatment facility 3 of the present embodiment, since the water curtain is formed using the fire-extinguishing water Z, it is not necessary to prepare dedicated water for the ammonia leakage treatment facility 3.

[0054]

In addition, the ammonia receiving facility 1 of the present embodiment includes the ammonia tank 2 that stores the ammonia liquid X and the ammonia leakage treatment facility 3. The ammonia leakage treatment facility 3 injects the air Y to cause the ammonia gas G to flow and suppress the accumulation of the ammonia gas G inside the containment dike 4. Therefore, the ammonia receiving facility 1 of the present embodiment can also suppress the inflow of the ammonia gas G into the vicinity of the ground surface when the ammonia liquid X leaks, as in the ammonia leakage treatment facility 3.

[0055]

Although preferred embodiments of the present disclosure have been described and illustrated above, the present disclosure is not limited to the above-described embodiments. The various shapes, combinations, and the like of each constituent member shown in the above-described embodiment are merely examples and can be variously changed based on design requirements and the like within the scope of the present disclosure defined in the claims.

[0056]

For example, in the above-described embodiment, a configuration in which a plurality of air curtain forming sections 5 are provided has been described. However, for

example, it is also possible to adopt a configuration in which a single air curtain forming section 5 is provided. In such a case, for example, by forming the air header pipe 5b to be continuously annular along the surrounding wall 2e, the air curtain can be formed to surround the ammonia tank 2 from the entire circumference.

5 [0057]

In addition, in the above-described embodiment, a configuration in which a plurality of water curtain forming sections 6 are provided has been described. However, for example, it is also possible to adopt a configuration in which a single water curtain forming section 6 is provided. In such a case, for example, by forming the water header
10 pipe 6b to be continuously annular along the surrounding wall 2e, the water curtain can be formed to surround the ammonia tank 2 from the entire circumference.

[0058]

In addition, in the above-described embodiment, a configuration in which the water curtain forming section 6 is provided has been described. However, the present
15 disclosure is not limited thereto. For example, it is also possible to adopt a configuration in which the water curtain forming section 6 is not provided.

[0059]

The embodiments described above can also be described as, for example, the following supplementary notes.

20 [0060]

(Supplementary Note 1)

An ammonia leakage treatment facility comprising:

a containment dike that is capable of retaining leaked ammonia liquid and that is open upward; and

25 a gas injection section configured to inject gas to cause vaporized gas of the

ammonia liquid retained inside the containment dike to flow.

[0061]

(Supplementary Note 2)

5 The ammonia leakage treatment facility according to Supplementary Note 1,
 wherein the gas injection section includes
 an injection nozzle installed at a top portion of the containment dike,
 a gas guide pipe connected to the injection nozzle, and
 a blower configured to supply the gas to the injection nozzle through the gas guide
 pipe.

10 [0062]

(Supplementary Note 3)

 The ammonia leakage treatment facility according to Supplementary Note 1 or 2,
 wherein the gas injection section injects the gas upward.

[0063]

15 (Supplementary Note 4)

 The ammonia leakage treatment facility according to any one of Supplementary
 Notes 1 to 3,
 wherein the gas is air.

[0064]

20 (Supplementary Note 5)

 The ammonia leakage treatment facility according to any one of Supplementary
 Notes 1 to 4, further comprising:

 a water injection section configured to inject water from the top portion of the
 containment dike.

25 [0065]

(Supplementary Note 6)

An ammonia receiving facility comprising:

an ammonia tank configured to store the ammonia liquid; and

the ammonia leakage treatment facility according to any one of Supplementary

5 Notes 1 to 5, that is capable of retaining the ammonia liquid leaked from the ammonia tank.

[0066]

(Supplementary Note 7)

The ammonia receiving facility according to Supplementary Note 6,

wherein a height of the containment dike is lower than a height of the ammonia

10 tank.

INDUSTRIAL APPLICABILITY

[0067]

It is possible to provide an ammonia leakage treatment facility capable of suppressing the ammonia gas from reaching, at a high concentration, the vicinity of the

15 ground surface when the ammonia liquid leaks.

REFERENCE SIGNS LIST

[0068]

1 Ammonia receiving facility

2 Ammonia tank

20 2e Surrounding wall

3 Ammonia leakage treatment facility

4 Containment dike

4a Bottom portion

4b Surrounding wall

25 4b1 Top end surface (top portion)

5 Air curtain forming section (gas injection section)

5a Air injection nozzle (injection nozzle)

5b Air header pipe (gas guide pipe)

5c Air supply pipe

5 5d Air blower (blower)

6 Water curtain forming section (water injection section)

6a Water injection nozzle

6b Water header pipe

6c Water supply pipe

10 6d Opening/closing valve

G Ammonia gas (vaporized gas)

X Ammonia liquid

Y Air (gas)

Z Fire-extinguishing water (water)

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CLAIMS

[Claim 1] An ammonia leakage treatment facility comprising:

a containment dike that is capable of retaining leaked ammonia liquid and that is open upward; and

5 a gas injection section configured to inject gas to cause vaporized gas of the ammonia liquid retained inside the containment dike to flow.

[Claim 2] The ammonia leakage treatment facility according to Claim 1,

wherein the gas injection section includes

an injection nozzle installed at a top portion of the containment dike,

10 a gas guide pipe connected to the injection nozzle, and

a blower configured to supply the gas to the injection nozzle through the gas guide pipe.

[Claim 3] The ammonia leakage treatment facility according to Claim 1 or 2,

wherein the gas injection section injects the gas upward.

15 [Claim 4] The ammonia leakage treatment facility according to Claim 1 or 2,

wherein the gas is air.

[Claim 5] The ammonia leakage treatment facility according to Claim 1 or 2, further comprising:

20 a water injection section configured to inject water from the top portion of the containment dike.

[Claim 6] An ammonia receiving facility comprising:

an ammonia tank configured to store the ammonia liquid; and

the ammonia leakage treatment facility according to Claim 1 or 2, that is capable of retaining the ammonia liquid leaked from the ammonia tank.

25 [Claim 7] The ammonia receiving facility according to Claim 6,

wherein a height of the containment dike is lower than a height of the ammonia tank.

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