

**IN THE PROVINCIAL COURT OF ALBERTA**

**CRIMINAL DIVISION**

BETWEEN:

**HER MAJESTY THE QUEEN**

- and -

**LILYDALE INC.**

**STATEMENT OF AGREED FACTS**

**CHARGE**

Lilydale Inc. stands charged that:

*On or about the 13<sup>th</sup> day of September, 2009, at or near Calgary in the Province of Alberta, did cause or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause a significant adverse effect contrary to s. 109(2) of the Environmental Protection and Enhancement Act, and did thereby commit an offence under s. 227(j) of the Environmental Protection and Enhancement Act.*

**LILYDALE INC.**

Lilydale Inc. ("Lilydale") is a federal corporation with a head office in Edmonton, Alberta. It currently employs about 1900 workers and operates poultry processing facilities in Alberta, British Columbia and Saskatchewan. In April 2010, Lilydale became a wholly owned subsidiary of Sofina Foods Inc., a privately owned meat processor in a transaction valued at about \$130 million.

**COMPLIANCE HISTORY**

On March 6, 2007, Alberta Environment issued a warning letter to Lilydale Inc. pertaining to an allegation that Lilydale failed to report a release of ammonia from a Lilydale facility in Edmonton in a timely manner. No enforcement steps were taken against Lilydale with respect to the release itself.

## LILYDALE RAMSAY PLANT

Lilydale owns and operates a poultry processing plant located at 2126 Hurst Road S.E. in Calgary, Alberta. To the north and west of the plant is a residential area known as Ramsay.

The plant contains a refrigeration system which uses ammonia as a refrigerant. In the event of an over pressurization of the ammonia system, the system has safety pressure relief valves designed to direct excess ammonia under pressure to vents on the roof of the building in the event of a system malfunction. The plant has its own maintenance staff but maintenance work specific to the refrigeration system is managed by an outside contractor.

## AMMONIA

Ammonia is a colourless gas with a sharp, irritating odour and a colourless liquid under pressure. At sufficiently high concentrations, ammonia gas is a respiratory tract, eye and skin irritant.

Under Alberta's *Occupational Health and Safety Code 2009*, occupational exposure limits for ammonia are 25 parts per million (ppm) for an 8 hour occupational exposure and 35 ppm for a 15 minute or ceiling occupational exposure.

The Environmental Protection Agency (EPA) in the United States has developed Acute Environmental Exposure Guidelines for various substances including ammonia. The AEGL thresholds are described below:

*AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposure periods ranging from 10 minutes to 8 hours. AEGL-2 and AEGL-3, and AEGL-1 values as appropriate, will be developed for each of five exposure periods (10 and 30 minutes, 1 hour, 4 hours, and 8 hours) and will be distinguished by varying degrees of severity of toxic effects. It is believed that the recommended exposure levels are applicable to the general population including infants and children, and other individuals who may be susceptible. The three AEGLs have been defined as follows:*

*AEGL-1 is the airborne concentration, expressed as parts per million or milligrams per cubic meter (ppm or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.*

*AEGL-2 is the airborne concentration (expressed as ppm or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.*

*AEGL-3 is the airborne concentration (expressed as ppm or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.*

*Airborne concentrations below the AEGL-1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, no sensory effects. With increasing airborne concentrations above each AEGL, there is a progressive increase in the likelihood of occurrence and the severity of effects described for each corresponding AEGL. Although the AEGL values represent threshold levels for the general public, including susceptible subpopulations, such as infants, children, the elderly, persons with asthma, and those with other illnesses, it is recognized that individuals, subject to unique or idiosyncratic responses, could experience the effects described at concentrations below the corresponding AEGL.*

The AEGL thresholds specific to ammonia are set out in the following table:

<b>AMMONIA (ppm)</b>					
	<b>10 min</b>	<b>30 min</b>	<b>60 min</b>	<b>4 hr</b>	<b>8 hr</b>
<b>AEGL 1</b>	30	30	30	30	30
<b>AEGL 2</b>	220	220	160	110	110
<b>AEGL 3</b>	2,700	1,600	1,100	550	390

## **RELEASE**

On the morning of September 13, 2009, a Lilydale maintenance employee was assigned to complete an annual preventative maintenance task. This task had been performed by other maintenance employees in the past without incident. The task was to replace three filters on a series of water supply lines within the plant. This was the first time this particular employee had performed this task. He had received no specific training in this task nor did Lilydale have a written procedure. The employee did not know which specific water supply systems these lines were associated with and none of the water lines were marked. The maintenance employee was a certified journeyman millwright and the task was within the skillset of a certified journeyman millwright.

For each of three water lines, the employee closed the inlet and outlet valves associated with the filter assembly and opened a bypass valve to allow water to continue to flow through the water lines. One of the water lines was critical to the operation of the refrigeration system because it supplied water used for cooling

ammonia condenser units. The employee then discovered that he did not have the correct replacement filters. He reinstalled the old filters and opened the inlet valves for all three lines and the outlet valves for two of the lines but forgot to open the outlet valve on the third line. The result was that no water was flowing to the line that fed cooling water to the ammonia condensers. He then left the plant at the end of his shift at approximately 2:30 p.m.

The lack of cooling water to the condensers caused the ammonia system to overheat. This overheating caused the pressure in the ammonia system to increase. Although there was a safety shutdown device which should have shut the ammonia compressor off in the event of over pressurization to prevent accidental releases of ammonia, this device failed to operate. Shortly before 7:30 p.m., the pressure increase triggered system relief valves which opened as designed and vented ammonia onto the roof of the plant. The liquid ammonia on the roof began to pool and resulted in ammonia gas boiling off into the atmosphere. The wind was blowing from the south east and directed the ammonia gas in the direction of the residential area located near the plant.

Shortly after the venting of the ammonia onto the roof, a tenant in a house adjacent to the plant telephoned the plant manager, and reported a strong ammonia smell coming from the plant. The plant manager immediately contacted the assistant plant manager and directed him to go to the facility to assess the situation and manage any emergency response activities required of Lilydale personnel. The plant manager also contacted the refrigeration contractor responsible for maintenance of the plant's ammonia system and asked them to immediately go to the plant to assist with emergency response. There were only two employees at the plant at the time of the incident and both employees evacuated the plant without incident. After the incident, Lilydale's refrigeration contractor recharged the system with about 4500 lbs of ammonia.

## **EMERGENCY RESPONSE**

The Calgary Fire Department (CFD) was dispatched at 7:24 pm as a result of a 911 call and arrived at the Lilydale plant within 10 minutes. CFD personnel spoke to bystanders who complained of ammonia odours and difficulty breathing; these persons were told to leave the area. CFD also directed that a nearby convenience store close.

Access to the area near the plant (including the residential area) was blocked by police and fire personnel. Local residents were told to "shelter in place"; stay in their homes with windows and doors closed and heating devices turned off. Transit buses were brought to the area to shelter persons who had left their homes. Numerous private vehicles were seen to leave the area through the roadblocks and no vehicles were permitted to enter.

Employees from Lilydale's refrigeration contractor arrived on the scene and were able to shut off the ammonia flow. One of the contractor's employees noticed that the water supply to the condenser units was shut off.

CFD then began fogging the ammonia pooled on the plant roof with water in order to prevent further ammonia from being released into the air. The emergency response was concluded by about 3 am on September 14, 2009.

## **MEASURED AMMONIA CONCENTRATIONS**

Winds were observed to be moderate from the southeast thereby directing the ammonia vapour towards the residential area west of the plant.

CFD personnel used instruments to measure ammonia concentration in the air. Near the plant and up to one block west, the ammonia detection instrument was observed to be “over range”, meaning that concentrations of ammonia in the air soon after the arrival of CFD exceeded the 250 ppm maximum that the instruments could record for a short time. Other much lower readings were observed by CFD at various locations and times in the nearby residential area during the incident response.

## **REPORTS BY NEARBY RESIDENTS**

There were reports of some individuals experiencing discomfort from exposure to the ammonia:

- One individual, reported severe nose irritation and headache when exposed to the ammonia. Her husband took her for emergency medical care. She was treated with oxygen and released a few hours later.
- One individual living close to the Lilydale plant who remained in his residence, reported a slightly sore throat and cough during the night
- One individual reported a strong and burning ammonia smell. She and her family remained in their home reporting a faint ammonia smell indoors; however, she reported a sore throat and cough the next morning.
- One individual reported that a fireman knocked on her door and told her to “leave the area for a while”. She noticed a very strong ammonia smell outside and left the area until 11 pm that night. She said there was still a noticeable ammonia smell when she returned and that she could not go to work the next day because she felt like she had “a hangover”.
- One individual reported burning eyes and nose, difficulty breathing and nausea. She left the area, however returned at 10 pm to check on her pets and then left again until midnight.
- Two individuals reported that they left their home in the area because of the ammonia with eyes irritated and watering, throats burning. They attempted to

return to their home later that night but were told by police they could not do so and spent the night in a hotel.

- The team leader at a group home in the area, reported feeling lightheaded as a result of the ammonia exposure. She said that all of their residents and staff were removed from their residence for the night.

AGREED TO THIS \_\_\_\_\_ DAY OF JUNE, 2012

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Alex MacWilliam  
Counsel for the Defendant  
Lilydale Inc.

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Peter Roginski  
Agent for the Attorney General