**Mortality Investigation Report 70 Buffalo exported by sea to Vietnam in September 2017**

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**Summary**

On 29 September 2017, Frontier International Northern Pty Ltd (FIN) exported 2,167 slaughter cattle and 207 feeder buffalo by sea to Vietnam. The voyage was completed in eight days and discharged in Vietnam on 7 October 2017.

A mortality rate of 2.89 per cent (six buffalo) was reported for the buffalo and 0.14 per cent (three cattle) for the cattle. The mortality rate for buffalo exceeds the reportable mortality level of 0.5 per cent for cattle or buffalo on voyages of less than ten days as prescribed by the *Australian Standards for the Export of Livestock* (ASEL). Only the buffalo consignment is the subject of this report.

Of the six buffalo mortalities reported during the voyage, four died in their pens of unknown causes and two animals that were recumbent and unable to rise (downers) were euthanised during discharge. The cause of the mortalities was not identified. The exporter suggested age, body condition and limited domestication were possible contributing factors. The exporter has implemented a buffalo management plan to address the risk factors associated with export of buffalo by sea.

**Information reviewed**

The department investigated the mortalities by reviewing the following information:

* report from the exporter
* end of voyage report and additional information from the accredited stockperson who accompanied the consignment on board the vessel
* load plans and feed dockets from the exporter
* documents from the Australian Government Accredited Veterinarian (AAV) who prepared the consignment
* report from the Master of the vessel
* documents and information from the regional department veterinary officer (DVO)
* records from the registered premises (RP)
* department records from previous and subsequent voyages.

**Background**

There have been three reportable mortality events for buffalo exported by sea since the introduction of ASEL in 2005 (Report #42 (October 2011), #57 (January 2015) and #67 (November 2016). None of these occurred on the same vessel as this report and no definitive cause of the mortalities was determined for the previous incidents.

Exports of buffalo to Vietnam commenced in February 2014. Between the commencement of exports and this mortality event there were 43 consignments, carrying 15,995 buffalo with 46 mortalities, an overall mortality rate of 0.28 per cent.

Prior to this voyage, FIN had exported one buffalo consignment of 133 animals. No buffalo mortalities were recorded on this consignment. FIN have had one other reportable mortality recorded in cattle exported by sea to Vietnam (report #60).

The department does not routinely require an AAV to be on board for feeder/slaughter cattle exports to Vietnam. On voyages where there is no AAV on board, the Australian Livestock Export Corporation Limited (LiveCorp) accredited stock person is responsible for reporting to the department and works with the Master of the vessel and the crew to maintain the health and welfare of the livestock on board.

**Investigation Findings**

**The Livestock**

The consignment consisted of 207 feeder buffalo bulls averaging 509 kilograms. They were sourced from three properties in the Northern Territory and were mustered using motor vehicles and helicopters in the weeks before entering the RP.

**Preparation in the registered premises**

The RP for this consignment is located in Adelaide River in the Northern Territory and is routinely used to prepare livestock including cattle and buffalo for export. The buffalo arrived at the RP between 18 and 24 September 2017 and were held there until 29 September 2017. This is above the ASEL requirements for a minimum of 24 hours in a RP for short haul voyages with one port loading and one port discharge.

During this period, temperature ranged from 23.3 to 37.9oC with low humidity ranging from 53 to 72 per cent (Bureau of Meteorology, 2017). Five buffalo were rejected at induction into the RP due to lameness. A total of 209 buffalo were examined by the AAV at the RP on 27 September 2017 and all were assessed as fit and healthy for export. Two head were rejected by the DVO on 29 September 2017 due to having long horns. ASEL standards were met for preparation of livestock at the RP. On 29 September 2017, 207 buffalo were trucked to Darwin for loading.

FIN loaded 8.5 additional tonnes of chaff on the vessel because while at the RP, staff identified hesitance of buffalo to consume ship board pellet provided, however they were consuming large amounts of hay.

**The vessel**

The vessel involved in this incident is a purpose built livestock carrier and is used for livestock export to a range of markets including Cambodia, China, Indonesia and Vietnam. There have been no reportable mortality events on this vessel prior to this voyage.

**Loading onto the vessel**

Loading was completed in 8.5 hours and was conducted in accordance with ASEL standards. There were no issues relating to weather or delays. Excess fodder in addition to chaff (equivalent to 20 per cent above ASEL specifications) was loaded onto the vessel.  While there is no ASEL requirement for bedding on short-haul voyages, seven tonnes of sawdust was carried on board.

**Conditions during the voyage**

An experienced on board stockperson was engaged for this shipment and was responsible for managing livestock health and welfare and reporting to the department. Sea conditions were calm during the whole voyage. The temperature ranged from 29 to 32°C and humidity fluctuated between 77 and 79 per cent. The buffalo consumed an average of 10.52 kilograms of fodder per head per day and 32.68 litres of water per head per day. The decks were reportedly dry throughout the journey.

**Mortalities and treatments**

There were a total of six buffalo mortalities in the consignment of 207 buffalo, a final mortality rate of 2.89 per cent. The first mortalities were recorded on day four. Four of the buffalo mortalities occurred during the voyage and two were the result of euthanasia in port in Vietnam as they were recumbent and unable to rise. Details of mortalities are presented in Table 1.

| Table 1: Information of buffalo mortality |
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| **Date** | **Voyage Day** | **Number of mortalities** | **Cumulative Mortality** | **Cause of mortalities** |
| 30/09/2017 | 1 | 0 | 0 | N/A |
| 01/10/2017 | 2 | 0 | 0 | N/A |
| 02/10/2017 | 3 | 0 | 0 | N/A  |
| 03/10/2017 | 4 | 2 | 2 | Cause unknown – BRD suspected |
| 04/10/2017 | 5 | 1 | 3 | Cause unknown – BRD suspected  |
| 05/10/2017 | 6 | 0 | 3 | N/A |
| 06/10/2017 | 7 | 1 | 4 | Cause unknown – BRD suspected  |
| 07/10/2017 | 8 | 2 | 6 | Downers – euthanised |

All buffalo mortalities were on deck 5 of the vessel (where all 207 buffalo were penned during the voyage).

**Exporter’s Actions**

FIN could not identify the cause of the mortalities. They suggested that stress induced by mustering, changing environments and social conditions may have exacerbated existing health conditions.

FIN consider a longer time in the RP and increased scrutiny at selection of buffalo, with particularly attention to buffalo which do not transition well to domestication and possible health conditions, would mitigate the risk of future mortality events.

In response to this mortality event and a trial on the subsequent consignment, FIN have implemented a Buffalo Export Management Plan for exporting buffalo by sea. This includes the following:

* Additional bedding and chaff beyond ASEL requirements loaded on the vessel.
* Additional scrutiny at selection of buffalo, paying particular attention to buffalo which do not transition well to domestication.
* Buffalo will spend a minimum seven days in the RP prior to loading.
* Buffalo pens on board the vessel will be hosed down more regularly during the voyage.

FIN exported their next consignment of 92 buffalo to Vietnam in December 2017 on the same vessel. The buffalo were of a similar age and weight. FIN prepared the consignment in accordance with their management plan. One buffalo mortality was recorded which is below the reportable of level of 0.5 per cent or three animals.

**Australian Maritime and Safety Authority Evaluation of the Vessel**

The Australian Maritime Safety Authority (AMSA) did not conduct an investigation because the overall voyage mortality level of all livestock (cattle and buffalo) exported, according to the definitions in Section 2 of Marine Order 43, was less than 1 per cent.

**Conclusions**

The department’s review of all information including that provided by the exporter indicates the buffalo were prepared and managed in accordance with ASEL. The department could not determine a definitive cause of the mortalities. It is likely the cause of mortalities was multifactorial. A combination of stress due to mustering, transport preparation and poor transitioning after capture may have contributed to the buffalo mortalities.

The department accepted the actions implemented by the exporter and did not take any regulatory action against the exporter.​

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