**Mortality Investigation Report 71 Buffalo exported by sea to Vietnam in December 2017**

**Summary**

On 1 December 2017, Wellard Rural Exports Pty Ltd (Wellard) exported 3,373 slaughter cattle and 842 slaughter buffalo by sea to Vietnam. The journey was completed in 13 days and discharged in Vietnam between 9 and 13 December 2017.

A mortality rate of 2.26 per cent (19 buffalo) was reported for the buffalo and 0.12 per cent (four cattle) for the cattle. While the overall mortality percentage of the consignment is 0.55 per cent - below the reportable level of 1 per cent on voyages of 10 days or more as prescribed by the *Australian Standards for the Export of Livestock* (ASEL) - the percentage for buffalo exceeds the reportable mortality level. As the reportable level is in respect of a species, only the buffalo consignment is the subject of this report.

Of the 19 buffalo mortalities reported during the voyage, 15 had poor body condition and suffered from inanition (failure to eat/exhaustion resulting from lack of food). Four animals were unfit to discharge and were euthanased. The exporter suggested age, body condition and limited domestication were possible contributing factors. The exporter has implemented actions to specifically address these factors.

**Information reviewed**

The department reviewed the mortalities by assessing the following information:

1. report from the exporter
2. daily reports, the end of voyage report and additional information from the accredited stockperson who accompanied the consignment on board the vessel
3. load plans from the exporter
4. documents from the Australian Government Accredited Veterinarian (AAV) who prepared the consignment
5. report from the Master of the vessel
6. documents and information from the regional department veterinary officer (DVO)
7. records from the registered premises (RP)
8. department records from previous and subsequent voyages.

**Background**

Exports of buffalo to Vietnam commenced in February 2014. Between the commencement of exports and this mortality event there have been 44 consignments, carrying 16,942 buffalo with 47 mortalities, an overall mortality rate of 0.28%.

There have been four reportable mortality events for buffalo exported by sea since 2011 (Report #42 - Indonesia, #57 - Vietnam, #67 - Malaysia and #70 ­ Vietnam). None of these were Wellard voyages. No definitive cause of the mortalities was determined for the previous incidents, however Bovine Respiratory Disease (BRD), capture myopathy, stress and poor body condition were suspected to contribute to the mortalities. In response to these previous mortality events, exporters have updated their processes to require longer time in RPs and more rigorous processes to ensure rejection of buffalo that are not fit to travel.

The department does not routinely require an Australian Government Accredited Veterinarian (AAV) to be on board for feeder/slaughter cattle exports to Vietnam. On voyages where there is no AAV on board, the 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. The department did not require an AAV on board this voyage.

**Investigation Findings**

**The Livestock**

The consignment consisted of 842 slaughter buffalo bulls averaging 476.43 kilograms. The buffalo were sourced from 14 properties in the Northern Territory, all wild caught between September and November 2017.

**Preparation in the registered premises**

Three RPs were used for this consignment. All are located in the Northern Territory and are routinely used to prepare livestock including cattle and buffalo for export. The buffalo arrived at the RPs between 11 and 28 November 2017 and were held there until 30 November 2017.

The required time for buffalo to be held in an RP for short haul voyages with multiple discharge ports is one clear day (a clear day does not include the days on which the livestock arrived at and departed from the RP). For long haul voyages (voyages over 10 days), the buffalo are required to be held in an RP for two clear days.

During this period, the weather at the RP was mostly fine with a maximum temperature of 36°C (Bureau of Meteorology, 2017). The buffalo were examined by an AAV at the three RPs on 29 November 2017 and all but eight were assessed as fit and healthy for export. The eight buffalo were rejected due to their light body condition. No other health issues were identified at the RPs. On 30 November 2017, 842 buffalo were trucked to Darwin for loading.

**The vessel**

The vessel involved in this incident is a converted cargo vessel and is used for livestock export to a range of markets including China, Indonesia, Philippines, Sri Lanka and Vietnam. There have been no reportable mortality events on this vessel prior to this voyage.

**Loading onto the vessel**

Based on the information provided Wellard and the DVO, the department determined that loading was conducted in accordance with ASEL standards. One mortality was recorded during the loading due to injury. The exporter reported that there were no other issues relating to weather or delays, however the DVO noted a slight delay during loading due to delays with trucks. As per Wellard’s feed and water plan, excess chaff and oaten hay was loaded onto the vessel.  While there was no ASEL requirement for bedding on this voyage, 10 tonnes of sawdust was loaded and used on board after wash down and on the races and ramps.

**Conditions during the voyage**

An experienced on board stockperson was engaged for this shipment and was responsible for managing livestock health and welfare as well as reporting to the department as required by ASEL. The department reviewed the daily and end of voyage reports provided by the stockperson. The stockperson reported that sea conditions were mostly calm during the voyage. The temperature ranged from 22 to 33°C and humidity fluctuated between 76 and 86 per cent. The buffalo were sprayed with fresh water during the hottest time of the days from day four onwards.

The decks were washed once during the voyage (upper decks on day five, lower decks on day seven).

Buffalo were moved to adjust the pen densities during the first two days of the voyage. Following the first port of discharge, the buffalo were again readjusted to lower the stocking density further.

**Mortalities and treatments**

There were a total of 19 buffalo mortalities in the consignment of 842, leading to a final mortality rate of 2.26 per cent. The first mortalities were recorded on day four. Fifteen of the buffalo mortalities occurred during the voyage, the other four buffalo mortalities were the result of euthanasia in port in Vietnam as they were determined to be unfit for discharge. 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** |
| 01/12/2017 | 1 | 0 | 0 |  |
| 02/12/2017 | 2 | 0 | 0 |  |
| 03/12/2017 | 3 | 0 | 0 |  |
| 04/12/2017 | 4 | 2 | 2 | Poor condition/Inanition |
| 05/12/2017 | 5 | 2 | 4 | Poor condition/Inanition |
| 06/12/2017 | 6 | 6 | 10 | Poor condition/Inanition |
| 07/12/2017 | 7 | 2 | 12 | Poor condition/Inanition |
| 08/12/2017 | 8 | 0 | 12 |  |
| 09/12/2017 | 9 | 1 | 13 | Poor condition/Inanition |
| 10/12/2017 | 10 | 1 | 14 | Poor condition/Inanition |
| 11/12/2017 | 11 | 1 | 15 | Poor condition/Inanition |
| 12/12/2017 | 12 | 2 | 17 | Unfit for discharge – euthanised |
| 13/12/2017 | 13 | 2 | 19 | Unfit for discharge – euthanised |

The buffalo in the consignment were sourced from 14 properties of origin. The 19 mortalities occurred in buffalo sourced from six of these properties. One buffalo mortality lost its tag and could not be traced back to a definitive property of origin. The buffalo were mustered between September and November 2017.

The stockperson reported that the ‘older and freshly mustered animals exhibited signs of stress early in the voyage, which meant they did not come to the front of the pens to eat’. To manage this, several lighter and highly stressed buffalo were moved into hospital pens (when this was able to be done without creating any safety concerns to the stockpersons or crew). The buffalo in the hospital pens were fed chaff and fodder ad libitum (ad lib). Salt and molasses were used to encourage the buffalo to eat the fodder. The buffalo were also provided chaff or compressed hay in the alleyways with the troughs lifted up to give the buffalo better access to the feed.

During the voyage, antibiotics and anti-inflammatories were used for buffalo that showed signs of illness (early signs of BRD) or injury.  The hospital pens received fresh sawdust which was used as bedding each day of the voyage. Wellard, their internal veterinarian and the AAV who prepared the consignment provided assistance to the stock persons on a daily basis to manage the buffalo and provide treatment advice.

Wellard could not definitively determine the cause of the mortalities, however reported the mortalities were attributed to the older buffalo in the consignment not adapting well to domestication, co-mingling with other buffalo, and stress from on-board transport.

**Exporter’s Actions**

To address the risk of future buffalo mortalities, Wellard updated their standard operating procedures to require all subsequent buffalo consignments to be held for a minimum of 10 days in properties of origin prior to induction into the RP. Buffalo will also be held in the RP for a minimum of five days to adapt to shipboard feed rations.

Wellard have implemented a more rigorous drafting and selection process for buffalo in the RPs include measures to ensure buffalo are not showing signs of undue stress or inanition prior to loading onto the vessel.

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

AMSA conducted their investigation when the vessel returned to Australia in December 2017. They concluded that all livestock services were operating satisfactorily during the voyage. There was no evidence noted to indicate the high mortalities were due to the vessel's non-compliance with [Marine Order 43 (MO43)](https://www.amsa.gov.au/vessels/standards-regulations/marine-orders/%22%20%5Ct%20%22_blank). ASMA reported there was no evidence of failure of any of the systems required under MO43 to provide ventilation, fodder, water, lighting or drainage whilst livestock was on board.

**Conclusions**

The department department’s review of all information, including that provided by the exporter, determined that the cause of the mortalities was multifactorial. Based on the reports from the on board stockperson, the mortalities were largely a result of inanition and stress in the older and poor conditioned buffalo. Minimal time spent in the RP, poor transitioning after capture, and poor body condition are thought to have led to the buffalo mortalities.

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