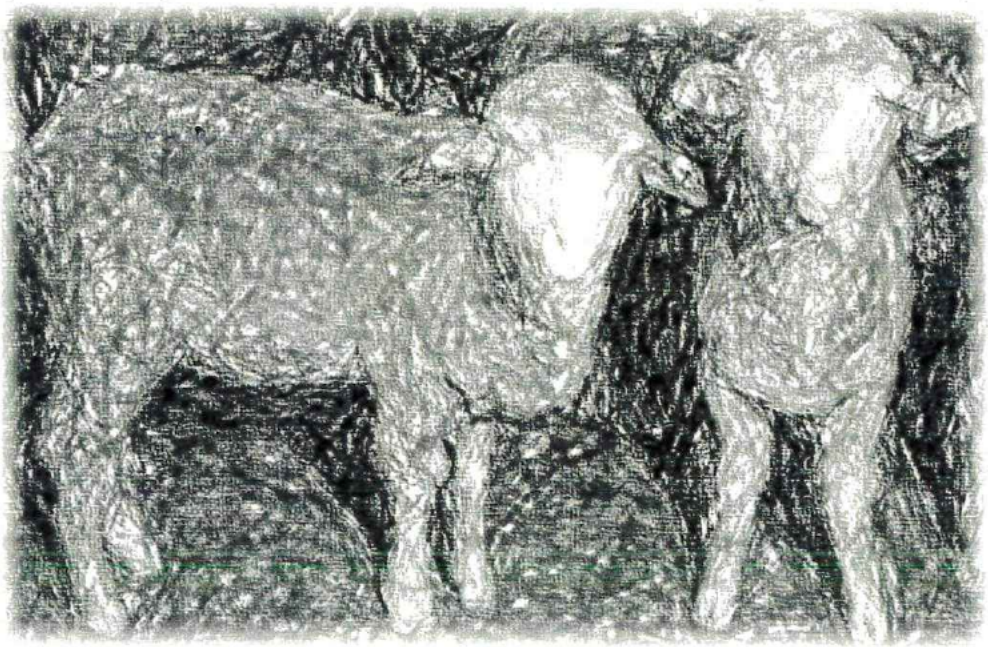
Independent Observer Report for Voyage 161L Aboard Livestock Carrier MV *AL MESSILAH*

FREMANTLE TO KUWAIT, PORT OF HAMAD AND JEBEL ALI

JUNE 6 TO JUNE 26, 2018



Derived from IMG_2036, Lambs 25/06/2018

s. 22(1)(a)(ii)

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APPOINTMENT AS INDEPENDENT OBSERVER

My role as an Independent Observer on board the *Al Messilah* during Voyage 161L was authorized by a direction made to me by the Assistant Secretary, Live Animal Exports on 1 June 2018. A copy of the Direction is attached to this report. The issued Direction required that I to monitor undertakings of the accredited veterinarian of all of the activities in, and the activities of exporters in relation to, the approved export programs through audio or video recordings and photographs. It further authorized the issuing of a written direction to the s. 47F(1) in the event that I identified a deficiency during the undertaking of the activities of the approved programs.

IMG_0002 Leaving Fremantle

EXECUTIVE SUMMARY

This report is from my observations as the Independent Observer during Voyage 161L on the MV *Al Messilah,* departing Fremantle on 6 June 2018 and arriving in Kuwait on 20 June 2018, Port of Hamad on 24 June 2018 and Jebel Ali on 25 June 2018.

I boarded the vessel within several hours of it setting sail and I was not present during the pre-loading and loading phases of the voyage. I was present for the entire sea leg, remained on the ship during the two partial offloads and disembarked, on 26 June 2018, following the final completed offload. The provided load plan recorded that 57428 sheep and 104 head of cattle were loaded. I obtained tallies for the stock offloaded at Kuwait and Port of Hamad but not at Jebel Ali therefore I am unable to verify the absolute head counts via cross referencing. A total of 306 mortalities were recorded for the sheep during the voyage and there were no cattle losses. These and other statistics provided in the Daily Reports are consistent with my observations including those that indicate that Enterotoxaemia was a dominant contributor to the mortalities. I observed keratoconjunctivitis to be a predominant contributor to morbidity in the sheep with shearing cuts also significant particularly in cases euthanized on animal welfare grounds.

I collected photographic data each day of the voyage with a majority focus on the sheep and those aspects considered to pose the greatest risk to the health and welfare of sheep exported to the Middle East namely ventilation, feed and water, pad quality and stocking density. The images appearing in this report are from those I captured during the voyage and can be linked to the original in the digital collection via the image number recorded in the relevant caption.

I found the s. 47F(1) to be professional and respectful, allowing me full, unimpeded and unaccompanied access to all relevant areas. The crew were courteous and accommodating. The s. 47F(1) was collegiate in approach and forthcoming in sharing his knowledge and information. The s. 47F(1) s. 47F(1) was hardworking and dedicated. I consistently observed him applying his experience and practical capacity to the husbandry of the healthy livestock and in the intensified care of at risk, ill thrifty and sick sheep.

My day to day interactions were predominantly via scheduled daily meetings at 10am with the s. 47F(1) s. 47F(1) daily mortality inspection sessions around 9am with the s. 47F(1) and casual encounters over the course of the day with the s. 47F(1) as we went about our respective work and ate lunch. My assigned seat at the same table as the s. 47F(1) for breakfast and dinner produced a good deal of discussion centered on Live Animal Export in general and the progress of this voyage in particular, facilitating a rapid orientation to the operating environment and capacity to navigate to areas of interest.

All aspects and instances that raised my concern were recorded in my personal notes and wherever suitable for visual representation in the still and video images I captured. During the voyage I had no concerns that necessitated the issuing of a formal notice to the s. 47F(1)

MV *AL MESSILAH*

HISTORY

MV *Al Messilah* is a converted vehicle carrier (*Ocean Highway*) built in 1980 and refurbished to carry livestock in 1995. The vessel is a large livestock carrier with a length of 185m, a breadth of 32m, a displacement of 14kt and when fully laden it is nearly 39kt. *Al Messilah* has a draft of 8m, meaning it can be delayed in and around ports impacted by tidal flow such as Kuwait and with an average speed of 10.9 knots it has a travel time of approximately two weeks to reach the Persian Gulf.

s. 47G(1)(a)

s. 47G(1)(a) the sheep were marshalled for export and the destination feedlots for the sheep in Kuwait and UAE.

In 2016 the *Al Messilah* suffered a high mortality voyage that was investigated by the Department of Agriculture and Water Resources (DAWR). The findings concluded that heat stress was the predominant cause of the 2.51 per cent mortality rate. The investigation also highlighted a major discrepancy in the sheep numbers with 1286 considered not to be accounted for.

In 2017 the Australian Maritime Safety Authority (AMSA) withdrew the vessel's Australian Certificate for the Carriage of Livestock citing major structure and generator defects which were subsequently rectified in dry dock.

Voyage 161L is the second *Al Messilah* voyage to carry an Independent Observer.

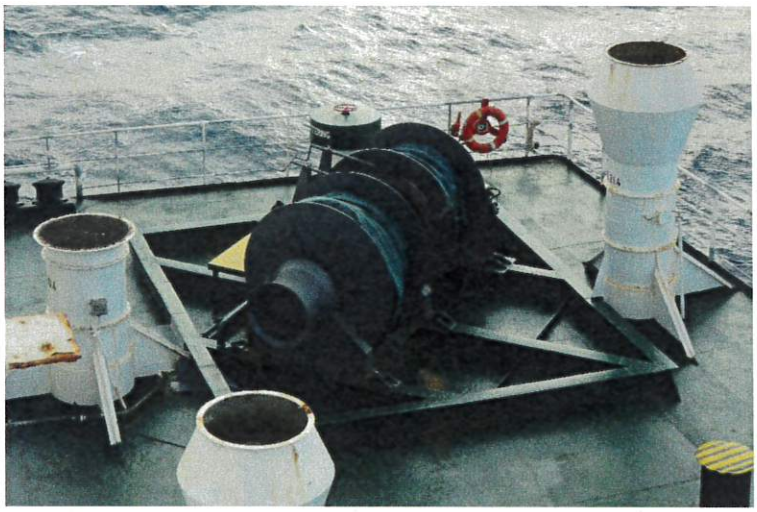
VESSEL STRUCTURES RELEVANT TO VENTILATION

VENTILATION SHAFTS

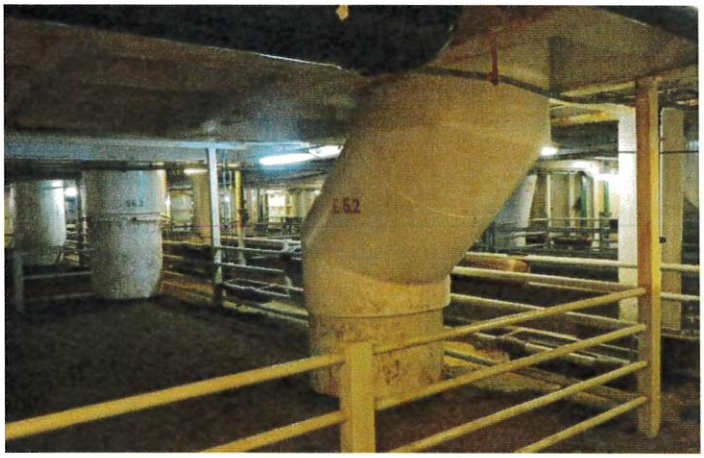
s. 47G(1)(a)

s. 47G(1)(a)

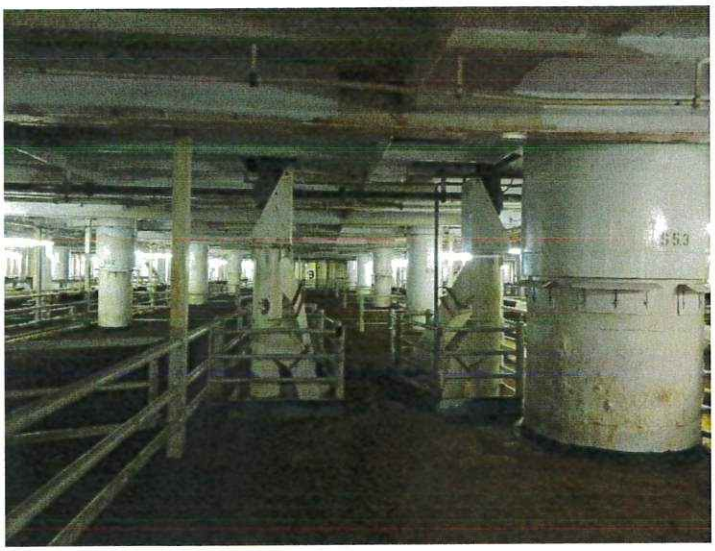
IMG_2089 Conical Exhaust and Flat Top Supply Ventilation Turrets



IMG_0660 Ventilation Turrets at Stern of Vessel



IMG_1858 Exhaust Ventilation Shaft E5.2



IMG_1585 Supply Ventilation Shaft S5.3

At every deck level the shafts are identified by labelling S (supply) or E (exhaust), 1 to 21 forward to aft, full stop, 1 to 4 portside to starboard. Supply shaft S5.3 in the foreground of IMG 1585 above is in the forward starboard section on deck 9 where shafts with relatively large shaft diameters traverse from the upper deck down to Deck 6.

The position of the ventilation shafts appears closely related to an even distribution across the entire deck area with no apparent correlation to pen layout with some shafts situated outside pens and other pens having either exhaust or supply or both. Shafts present within the penned area are either wholly sited within a pen or they form part of the fence line with vents distributing to more than one pen. The siting of hospital pens does not seem to take into consideration the type of available shaft with some served by exhaust vents and others by a supply vent.

FANS

In addition to the integrated ventilation system there are fans installed overhead of the sheep to further circulate air within the deck spaces. Smaller fans are sited against walls to actively deflect airflow and other larger fans sited out from corners and along the greater headspace of the larger decks to redirect and enhance airflow. Six of these large fans had been procured following the previous voyage and these were installed during this voyage.

MVI_0744 Smaller End Fans

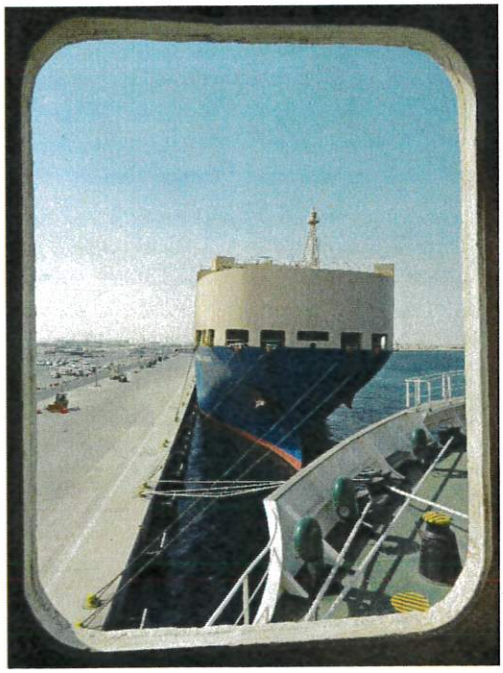
IMG_0109 Large Fixed Fans

IMG_0161 Six New Fans

SEA DOORS AND HATCHES

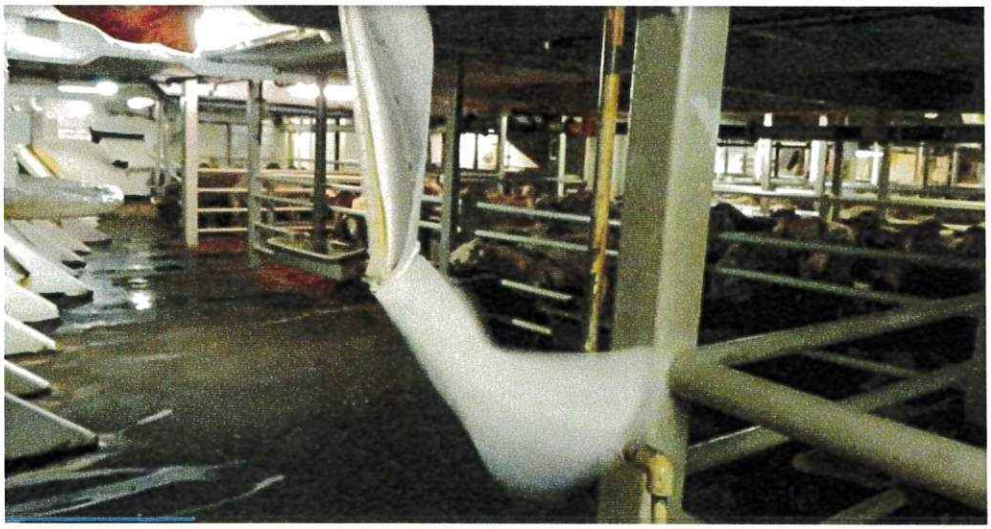
Decks 7 to 11 had various open access points of variable size ranging from the large sea doors either side on deck 7 through pedestrian doors to small half height viewing hatches. Additional ventilation hatches had also been made in the forward wall of decks 10 and 11 in the Animal House.

IMG_0367 Large Open Sea Doors



IMG_1936 Additional Hatches in Forward Walls Deck 10 and 11 for increased Ventilation

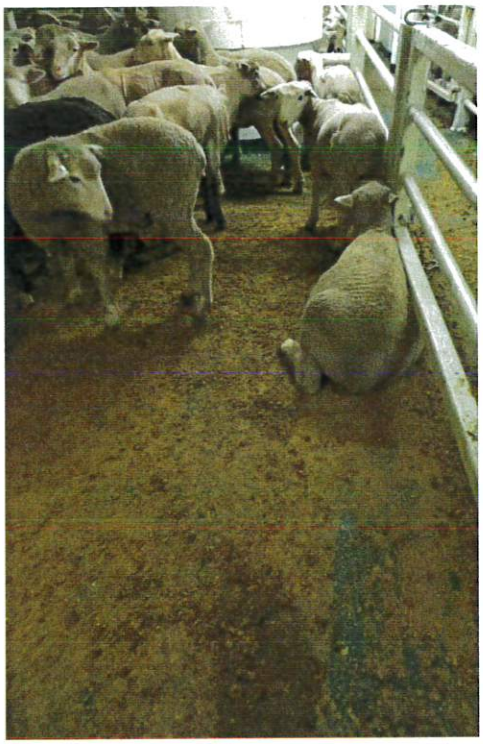
FUNCTION EXAMINATION OF THE VENTILATION SYSTEM



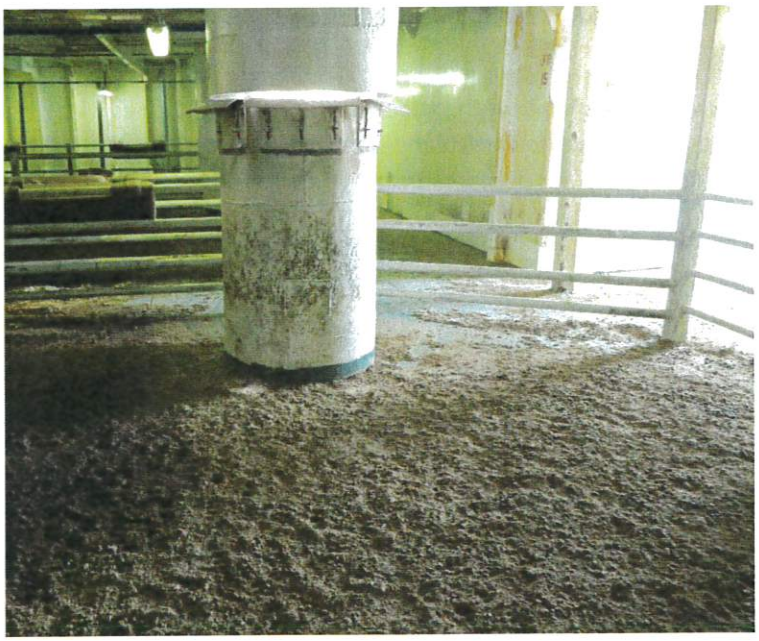
MVI_0108 Using Flapping Paper to Examine Air Flow

I used flapping paper to examine air flow due to the ventilation infrastructure including vents from the shafts and ducts, fixed and mobile fans, open sea doors and hatches. Laminated air flow was observed (and recorded in MVI0688 using flapping paper) through the larger side doors and outflow through small side and the aft facing pedestrian hatches. Near Kuwait considerable movement of dust was seen near the aft pedestrian hatches on decks 9 to 11. Air flow was also observed, using paper, into and out of other spaces such as the engine room.

The functional impact of this complexity was evident in how the sheep distributed themselves within the confinement of each pen and around the available vents particularly when warmer more humid conditions were encountered in the Persian Gulf. It was also demonstrated by the differential drying pattern I observed when mapping the pads on vacated decks immediately following the offload in Kuwait. Pens in the AFT areas of Deck 9, 10 and 11 close to the pedestrian hatches had consistently dry pads and more than elsewhere the pad material migrated out of the pens to be swept up and discarded by the crew. The example in IMG 1581 shows the impact of the ventilation through the pedestrian hatch in drying up pad moisture caused by trough spillage after offload.



IMG_0011 Clustering Within Pens Was a Common Feature



IMG_1581 Differential Drying of the Pad AFT Deck 9, In Pen Supply Vent and AFT Pedestrian Hatch on Right in Image

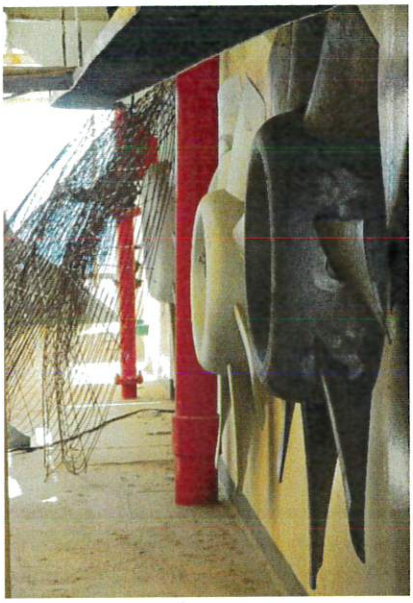
MAINTENANCE AND MODIFICATIONS OF THE VENTILATION SYSTEM

Spare fans and grills for the ventilation shafts were stowed on the upper deck. The s. 47F(1) told me that spares were available for each of the requisite sizes.

I found the following Management Meeting Minutes posted on the Officers Mess noticeboard and it was apparent that much consideration was being put into optimizing ventilation including via the positioning and elevation of the new fans.

s. 47G(1)(a)

Immediately following off load the crew set began routine maintenance activities including to the ventilation turret in IMG_1722. At the end of the voyage I observed changes to supply vent S6.2 on deck 2 and was told that a comprehensive program of vent adjustments was being undertaken following recommendations from a German Ventilation Consultant.



IMG_1724 Spare Fans and Grills for Ventilation Shafts

IMG_1722 Ventilation Share Maintenance

IMG_1760 Adjustment of Ventilation Vent S6.2

DECK LAYOUT

The deck layout is consistent with a vehicle to livestock carrier conversion including the variable deck heights. The lower headspace on Deck 11 was observed (by using a surface thermometer, courtesy of the AAV) to negatively impact the amount of heat transfer from the sun exposed areas of the upper deck. Decks 9 to 11 are shorter at the stern than Decks 6 to 8 and Decks 2AFT to 5AFT end further forward. Forward of a structural divider Decks 2FWD to 5FWD are also variably smaller spaces within the shape of the hull

s. 47G(1)(a)

PENS

The pens are variable in size, and sometimes shape, fitting into a three column array with two side by side pens in each column (A&B, C&D, E&F) separated by two laneways extending the length of each deck. Somewhat irregular cross laneways provide access points to each column of pens which are filled and emptied via gates between adjacent pens.

IMG_1589 Column Formation of the Pens Constructed with Pipe Rail Fencing

The pipe rail fencing where no troughs were attached was observed to be essentially porous to adventurous lambs and smaller sheep with significant numbers wandering freely in the laneways and seen to jump through fences when driven at offloading. Gates between adjacent pens in each column were often left open to allow sheep of the same class to further distribute within the available space.

The pen distribution in column C&D is disrupted by the presence of the engine room. Some of these pens abut the detectably warm walls of the engine room and on Deck 8 a large space is devoid of pens to accommodate a more pronounced floor temperature gradient coming away from the engine facility. B and E pens lateral to the engine room are separated from it by the width of the laneways however a consistent air temperature gradient was observable here also. I collected surface temperature data to examine the effect of the heat emitted by engine room and observed the sheep penned adjacent to it. I was unable to observe any significant negative effect. In fact to some extent it seemed to be the opposite particularly in areas with increased air movement and I was left wondering if the engine warmth has a localized drying effect that improves the conditions in the affected pens.

MVI_0778 B Pens Separated from Engine room by Laneway

IMG_0028 Pens Abutting the Engine Room Wall

FODDER STORAGE AND WATER STORAGE

Two identical fodder silos Tanks P and S extend forward either side of midline on deck 7 and downwards to encompass the load space below deck 7. s. 47G(1)(a) s. 47G(1)(a) The following composite image shows the position and relative size of the fodder silos as shown on the engineering diagrams.

WATER AND FEED TROUGHS

Pens were well serviced by water and feed troughs with the majority having at least two of each and most more than two of either. A small number of pens in the aft section of decks 9 and 10 had only one water with two feed troughs or one feed trough with two water troughs. The set-up of these pens seemed to be limited by the available fence space upon which troughs could be attached.

IMG_0055 Feed and Water Troughs

The provision of fodder to the livestock was of the highest standard and I made no observations of sheep or cattle being without feed during the entire voyage.

FEED AND WATER DISTRIBUTION LINES

s. 47G(1)(a)

s. 47G(1)(a)

IMG_0740 Feed Lines

DECK FLOORING

The deck floors in the animal house are rough painted decking that provides a nonslip but abrasive surface as evident in IMG showing the knees of a free ranging wether on Day 5. For contrast IMG 2035 shows a lamb penned on a pad, Day 19.

MVI_0385 Abraded Knees of a Free Ranging Wether Day 5

IMG_2035 Intact Wool Over Knees and Distal Limbs of a Penned Lamb Day 19

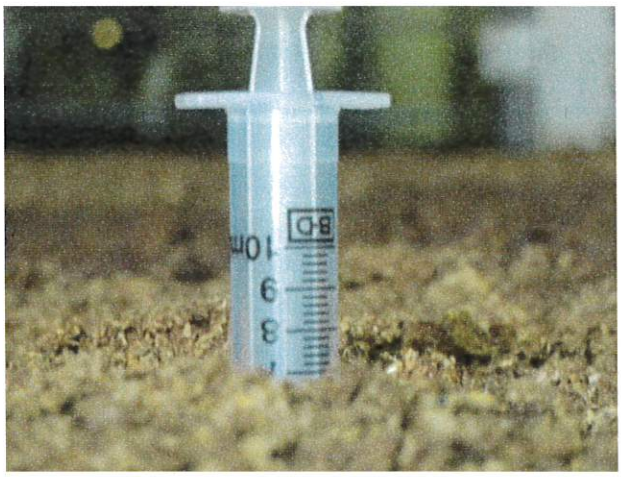
BEDDING AND PAD

Pine shavings and sawdust were loaded according to the attached load plan with shavings used for cattle bedding and sawdust used predominantly as a remedial agent to dry up excess pad wetness. I recorded this technique as being effective after a breached water pipe leaked water across two pens on deck 3 early in the voyage.

The pad of manure admixed with some spilt fodder provided for sheep bedding as it built up from the bare deck at loading to a variably thick 5-12 cm dry to moist layer at the time of offloading.

Immediately after departure from Fremantle I noticed a noticeable ammonia smell on deck 2 which the s. 47F(1) identified as being related to this deck being loaded early. Later in the voyage I detected a similar level on deck 9 however for most of the voyage the smell of ammonia was minimal.

I mapped deck 9 after it was completely vacated through offload in Kuwait. I found this valuable in identifying the pad depth range described above and understanding the predominant nature of typical pad material as in the following images. This material had minimal odor and was similar in appearance to dry aged cow pat.

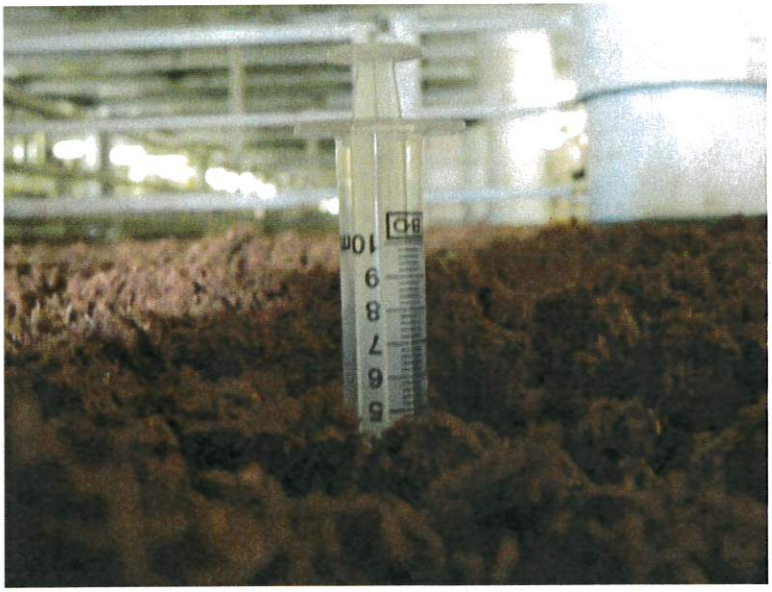


IMG_1561 Mapped Deck 9 with Typical Pad Depth Day 16

IMG_1559 View from Fence Line with Bare Deck Showing through to Slightly Mounded Area Central in Pen

IMG_1564 Depth of Pad Deck 9 Day 16

In IMG 1564 the level of green paint at the base of the supply shaft further verifies the pad thickness measured on Deck 9, Day 16.



IMG_1563 Thinner Pads were Wetter

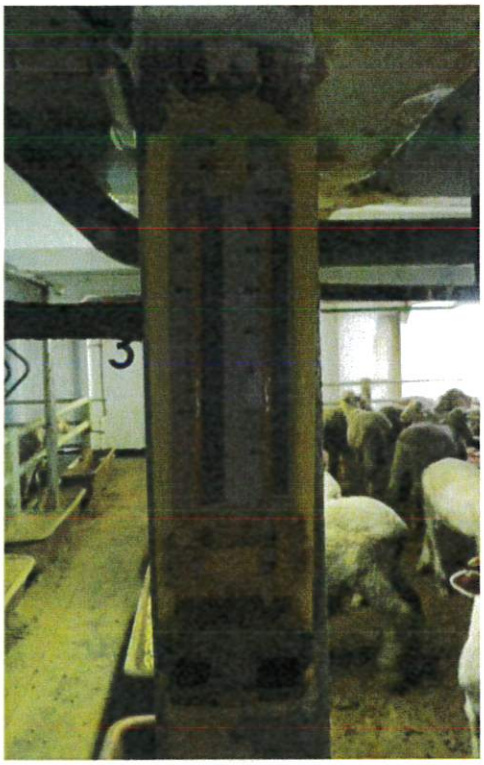
There appeared to be an inverse correlation of pad depth to pad wetness with thinner pads, such as the one in IMG 1563, being the wettest and more textured without the smoother dry crusted surface of the pad in IMG 1561.

IMG_1591 Dry and Essentially Odorless.

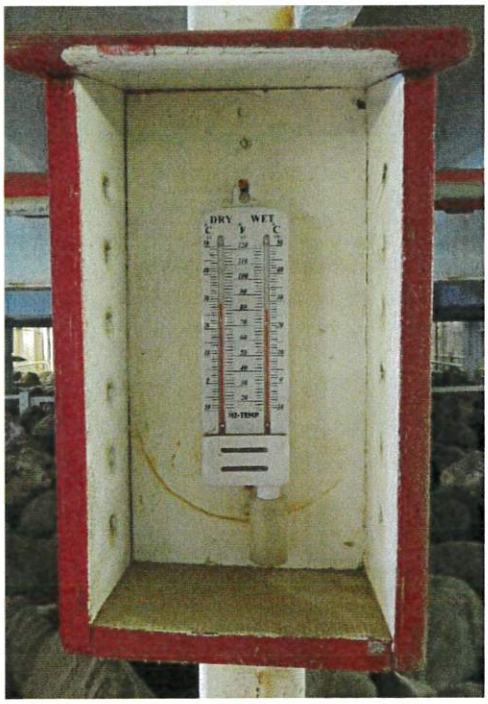
THERMOMETERS

Each of the decks/half decks has just one thermometer. These are located in a position that is generally central and handy to access for reading s. 47C(1) s. 47C(1) All of the thermometers have wet and dry bulbs however there is much variability in their set up and the ease at which they can be read. The thermometer on forward Deck 3 (IMG 0812) was the most difficult to read because of mercury filling, poor lighting and because it could not be removed to facilitate reading. This thermometer was mounted bare onto the upright however others were mounted within a wooden box surround. The effect of the varied setups is unknown however the critical nature of temperature and humidity assessment to the management of livestock that are at risk of heat stress should mandate the capacity for increased and better quality surveillance.

Toward the end of the voyage I came across several thermometers where the wet bulb temperature was as high as and in one case higher than the dry bulb reading which highlighted to me the importance of maintenance to the usefulness of these rudimentary thermometers.



IMG_0812 Thermometer Deck 3 Forward



IMG_0799 Deck 11 Thermometer

OBSERVATIONS OF DECK TEMPERATURES

Over the course of the voyage I collected temperature data, from the available thermometers, at different times of the day and I compared these to the data that was entered into the log on the Bridge. Although there were small variations I did not see any discrepancies that indicated that the timing of the data collection (twice daily at 11:00 and 23:00) made any particular difference to the knowledge being obtained. Moving deck to deck to collect of data from the 14 deck thermometers took me at least 30 mins to perhaps 45 mins to complete and in the case of the crew this may have been spread out over a longer period to account for wet bulb maintenance.

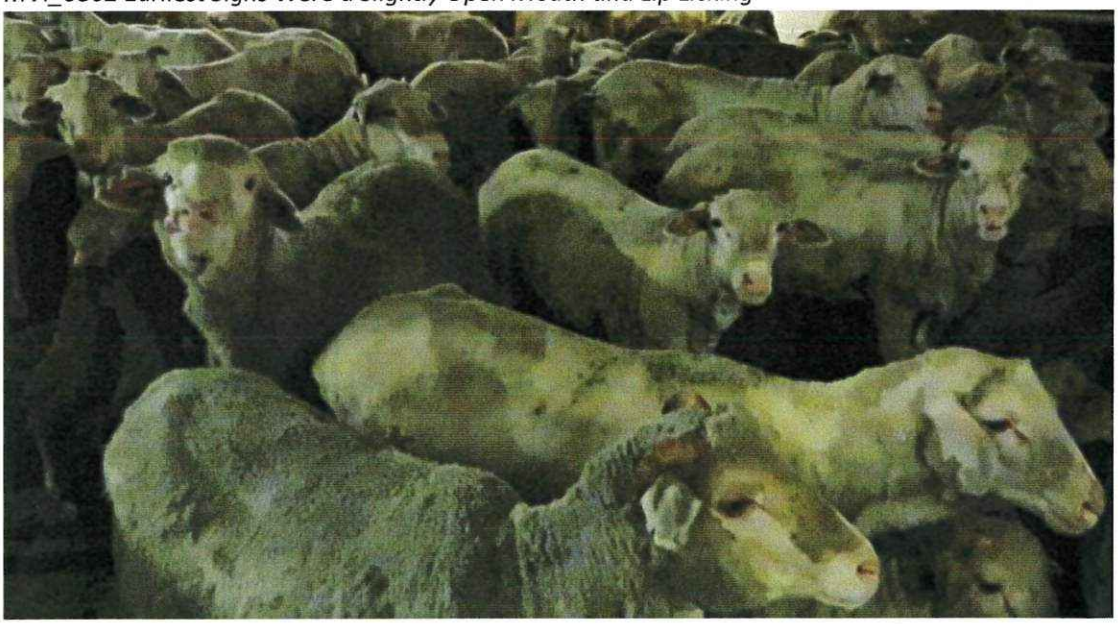
AMBIENT TEMPERATURE AND ITS RELATIONSHIP TO INCREASED RESPIRATORY EFFORT IN THE SHEEP

The relationship between ambient temperature (based on readings from the available thermometers) and signs of increase respiratory effort/stress did not emerge as clear cut to me. Early in the voyage when the temperature and humidity conditions were comfortable small numbers of sheep were seen to have increase respiratory rates with periodically lip licking and slightly open mouths. Single sheep such as in MVI 0430 show apparent respiratory stress.

MVI_0430 Single Sheep Showing Increased Respiration and Open Mouthed Breathing

When the dry bulb temperature increased to around 32-22 degrees Celsius and the wet bulb was also high around 29-30 degrees Celsius a greater percentage of the sheep showed the slightly open mouth breathing and lip licking in MVI 0862 and MVI 0584.

MVI_0862 Earliest Signs Were a Slightly Open Mouth and Lip Licking



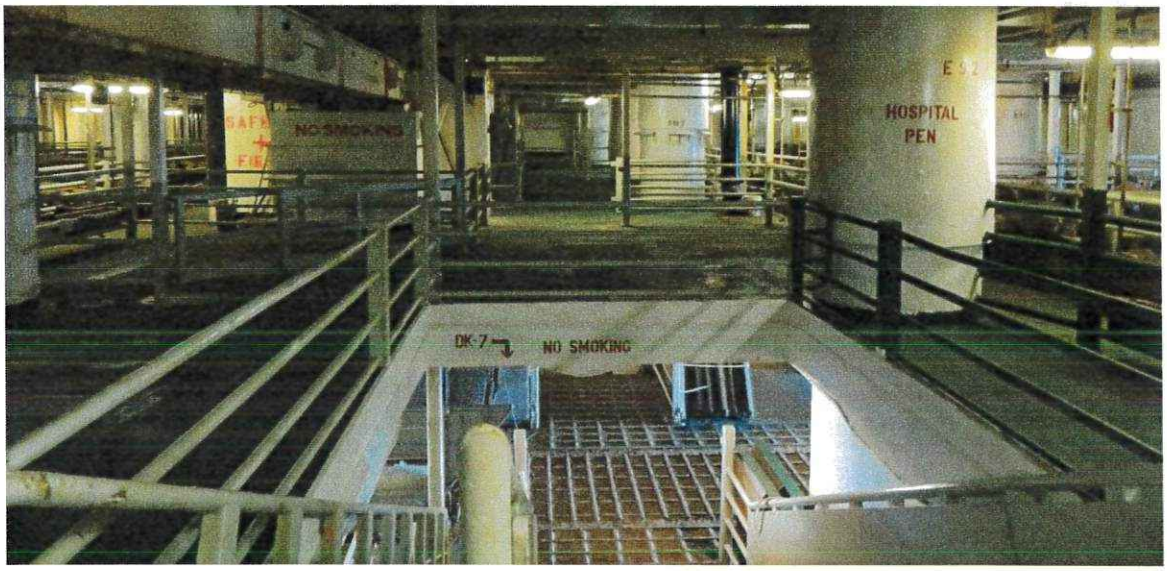
MVI_0584 Lip Licking and Variable Numbers of Sheep with Slightly Open Mouths

MVI_0569 Shows the open mouth breathing and panting that were most commonly seen on the day that the voyage entered the Persian Gulf. The panting was episodic lasting less than a minute after which the sheep would close its mouth for a period of time in a pattern that appeared to be a normal physiological response. The 'irritable' behavior of the sheep on the left in MVI_0563 was also observed in a small number of sheep during the same conditions that caused a general increase in respiration rates and open mouth breathing.

MVI_0563 Slightly Open Mouth Increase Respiratory Rate and Increase in 'Irritable' Behaviour

LOAD PLAN AND STOCKING DENSITY DURING VOYAGE

The Load Plan recorded the total final number of sheep loaded as 57428 head and 104 cattle which was 7906 less head of sheep and 124 less cattle than the previous similar voyage and was well within the requisite ASEL plus 17.5% additional space. A large area of deck 8 seen in IMG 0059 was vacant at the time the vessel set sail.



IMG_0059 Empty Space on Deck 8 at Time of Departure

The provided load plan for pen distribution is included as an attachment however its relevance to the voyage is limited because of active redistribution undertaken, as allowed in the Voyage Instructions LNC-10213, to preferred and available space during the first days. The process appeared to be driven by the combined experience of the s. 47F(1) and the s. 47F(1) with a stated aim of proactively taking control of those sheep most at risk of being shy feeders or otherwise considered at risk from possible conditions during the voyage. The previously mentioned porous nature of the fence structures and within column open gate management practice further devalued the official load plan as a relevant representation of stock density during the voyage.

I observed nothing that concerned me with respect to stocking density with at least greater than half of the stock in any pen able to be recumbent at any one time. As the voyage progressed I observed more sheep remaining recumbent as I passed by and very often nearly all the sheep, except those at the troughs, would be recumbent. Post redistribution the pens of the larger sheep appeared relatively empty and those with lambs relatively more stocked which s. 47F(1) explained was a consequence of the revised requirements based on average weight per unit area rather than head count.

IMG_0073 Sheep at Rest Unaware of My Approach and Representative of Stocking Density

The distribution of sheep within the available pen space appeared to be more closely correlated with other factors including the location of ventilation vents rather than floor area.

MANAGEMENT AND STAFFING

EXPORTER

The Exporter s. 47G(1)(a)

MASTER OF THE VESSEL

The s. 47F(1) indicated that he has been a Master Mariner onboard *Al Messilah* since the conversion to a Livestock Carrier and is therefore very experienced in the carriage of livestock to the Middle East including during this time of year and to the destinations of this voyage.

I was told that the s. 47F(1) takes a personal interest in ensuring that the livestock have clean drinking water and resultant very high standard of water trough cleanliness was verified by the observation of only one trough with water fouling throughout the entire voyage. On my first morning on board I came across the s. 47F(1) in the Animal House and he explained the both he and the s. 47F(1) inspect the livestock each day sharing the different decks between them.

Immediately before we entered the Persian Gulf on 19 June 2018 the s. 47F(1) provided me with the Kuwait weather four day forecast and the temperature and humidity maps for the Gulf. I have attached these to this report. The humidity on land around the Gulf was very low and the humidity across the water extremely variable to high but apparently much better than it can be. This observation gave me some insight into the importance of the s. 47F(1) expertise in plotting an optimal course through the Persian Gulf during the Northern Hemisphere Summer. I was able to discuss the significance of the data with a member of the s. 47F(1) who also showed me the type of information I have captured in IMG 1114. Matching the best course to avoid areas of high humidity must also take into consideration congestion from oil platform installations and associated tanker traffic and in some areas prescribed shipping lanes. The shallow estuarine and tidal dependent approach to Kuwait was an additional complexity to the s. 47F(1) responsibilities in relation to minimizing delays and ensuring the consignment reached Kuwait safely.

IMG_1114 Plotting a Course Through the Persian Gulf That Minimizes Humidity, Avoids Other Commercial Activities Such As Oil Platforms and Stays With Prescribed Shipping Lanes