

31 January 2022

Dr Carol Sheridan
Assistant Secretary
Animal Welfare Branch
Department of Agriculture, Water and the Environment
GPO Box 858
Canberra ACT 2601

By email: animal.welfare@agriculture.gov.au

Dear Dr Sheridan

Re: Review of live sheep exports by sea to, or through, the Middle East during the Northern Hemisphere summer: Draft Report

The Australian Livestock Exporters' Council (ALEC) is a member-based, peak industry body representing Australia's livestock export sector which contributes over \$1 billion in export earnings annually while employing 13,000 mainly regional Australians. ALEC provides strategic direction to the industry, sets industry policy and represents Australia's livestock export trade in Australia and internationally.

ALEC members account for more than 96 per cent of Australia's annual livestock exports, by volume and value. ALEC's membership also extends to supply chain participants including registered premise operators, ship owners, feed suppliers and other service providers to the trade. ALEC welcomes the opportunity to submit comments on the *Review of live sheep exports by sea to, or through, the Middle East during the Northern Hemisphere summer: draft report* (the draft report) released for consultation by the Department of Agriculture, Water and the Environment (DAWE) in December 2021.

The COVID-19 pandemic has shown that the livestock export industry is one of, if not the most resilient industries in the country. The industry has continued to operate near unfettered through this period and proven to be the essential and robust industry that it is. All without government assistance or stimulus. Even so, the industry faces many challenges to remain viable. It is important that the regulatory burden is not compounding these challenges unnecessarily.

ALEC welcomes the opportunity to make a submission to the review. ALEC sought a commitment to a review when the current regulatory arrangements were implemented so that performance data and any advancement in technology or processes could be considered in the context of the regulatory arrangements going forward.

It is clear that the industry and its regulatory framework has undergone significant change over the last three years. The moratorium on live sheep exports to the Middle East during the northern hemisphere summer months is only one component of this. As a result, data collected prior to 2018 on mortalities and animal welfare outcomes is outdated and is not a valid basis for comparison.

Whilst industry steadfastly maintains that a moratorium is appropriate, market-share in key markets has been eroded by competitors such as Romania, Spain and South Africa. Food security is a

sensitive and important matter for our trading partners, and they have been tremendously supportive of the Australian industry as it adjusted to these arrangements. It is important we reciprocate this support by facilitating the safe supply of livestock as much as possible.

It is clear from the data collected that the current stocking density requirements during the shoulder months have resulted in exemplary performance by exporters with mortalities at record low numbers.

Data from the Al Kuwait voyage (the only voyage to have taken place during the moratorium), while highly successful, does not itself automatically justify the expansion of shipping in this period given the number of livestock on this voyage would be considered uncommercial under normal settings. However, the voyage still took place because of the food security imperative of our partners, again highlighting its importance and our responsibility to meet these expectations.

Given the lack of voyage performance data during the moratorium months ALEC proposes a process which would allow voyage data to be gathered over the next two northern summer periods which would inform an ongoing review of the voyage arrangements.

Accordingly, we do not believe that the committed review should conclude before the 2022 northern summer, but instead it should take place over the next two prohibition periods concluding at the end of 2023. During that time industry would request that exemptions be granted for voyages, that can be demonstrated to be minimal risk to animal welfare, to sail until 21 June to both Arabian Gulf and Red Sea destinations at the start of the moratorium and from 23 August for Red Sea destinations and from 1 September for Gulf destinations at the end of the moratorium period. A LiveCorp monitoring program would be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place. At the conclusion of the moratorium period in 2023, the performance data would be assessed and provide a robust evidence base for regulatory change.

These points are discussed in greater detail below.

The broader regulatory environment has changed, and outcomes have markedly improved

The Northern hemisphere summer (NHS) prohibition is only one of many regulatory changes that have occurred since 2018 and it is important that the contributions of all these changes are recognised. Most critically, in 2018, industry voluntarily imposed a moratorium on shipments during the NHS months in response to distressing footage of heat stress events on board live sheep export vessels. After that time, no sheep were exported to the Middle East until approvals were made by the department in September 2018. The draft report notes that since 2018, various orders under the *Australian Meat and Livestock Industry Act 1997* (since repealed) imposed additional conditions. From 2019 onwards, the industry-led moratorium was enshrined as a regulatory prohibition period for voyages during the NHS months (June to September). The most significant additional condition was the change to space allocations, which has been embedded in newer versions of the Australian Standards for the Export of Livestock (ASEL v3.0 onwards).

ASEL v3 imposed additional requirements for the sheep trade to the Middle East, most significantly:

- Increased time spent in registered premises prior to the voyage.
- Tighter bedding requirements during the voyage.
- A requirement for automated systems to supply water to livestock onboard vessels.
- Increased fodder to be carried.

The new Export Control (Animals) Rules also imposed further conditions for voyages carrying sheep to the Middle East during shoulder periods (all of May and 1 September to 14 September):

- The sheep must be body condition scores of 2 or 3.
- Any exports to Kuwait, must have Kuwait as the first port of call.

Exports must not stop at more than two ports.

Amendments to Marine Order 43 (MO43) in the last three years have also led to significant changes of relevance to animal welfare outcomes, including:

- Accelerated phase out of two-tier vessels (the last two-tier vessel was retired in 2020).
- Mechanical ventilation requirements (includes minimum air speeds; 2020 onwards).

Auditing and monitoring requirements have also increased, including the deployment of Independent Observers (suspended during the COVID-19 pandemic). ALEC requests that DAWE note the following observations in the final report:

- All these changes have occurred over a very short space of time and industry adaptation has occurred despite challenging external conditions.
- Several sheep vessels have upgraded their ventilation systems to exceed the MO43 standards
- The regulatory changes described are independent of the prohibition and had a marked effect on mortality rates and animal welfare.

The evidence for regulatory changes and increased auditing and monitoring having an impact is shown in changes to mortality rates. Figure 10 in the draft report shows mortality rates for voyages during the northern hemisphere summer months (June to September) from 2013 to 2021¹. DAWE compares average mortality rates in the northern hemisphere summer months from 2015 to 2017 (pre-regulatory period) and 2019 to 2021 (post-regulatory period) and concludes:

During the 3-year period prior to 2018, the mortality rate for the Northern Hemisphere summer was 0.99%. The 15 in scope voyages from 2019 to 2021 had an average mortality rate of 0.20%. This 78% reduction is likely to be associated with factors including the introduction of allometric pen space allowances in 2018, the prohibition of sheep exports during the hottest, most humid months of the Northern Hemisphere summer and additional conditions introduced since 2019.²

The draft report authors' conclusion states they were unable to undertake "...a statistically sound evaluation of the effect of other regulatory changes...".3

ALEC contends that the industry-led responses and regulatory changes, particularly lower stocking densities, combined with increased regulatory scrutiny, have had at least as much of an impact as the prohibition, if not more. The changes have been so considerable in a brief period that previous welfare outcomes on sheep voyages to the Middle East during the NHS can no longer be relied upon as a barometer of future outcomes.

This is revealed in Figure 1 below, which compares mortality rates for the eight months of the year not impacted by prohibition periods. The chart shows a reduction in mortality rates to a similar absolute level as achieved during the prohibition periods.

While the initial moratorium was an industry-led response and ALEC maintains that a moratorium is appropriate, **ALEC does not support the prohibition in its current form.** DAWE should be willing to consider alternatives and develop a more flexible and agile regulatory approach. The fact that voyage mortality rates are so low all year round should give DAWE confidence that heat stress can be successfully managed, during some parts of the current prohibition period, with flexible packages of regulatory conditions on voyages. DAWE has acknowledged that the level of risk for Red Sea

² Draft report p.46

¹ Draft report p 39

³ Draft report p.52

destinations and for Kuwait is lower than previously estimated and that additional flexibility is warranted.

To maintain the viability of the trade and uphold Australia's reputation as a reliable supplier, DAWE should consider gradually and carefully relaxing the most restrictive regulatory measure - the prohibition – on a trial basis. Conducting staged trials would allow LiveCorp to collect new data on the effect of various packages of conditions and enable Australian exporters to maintain market share in the face of increasing competition from African, South American and European exporters.

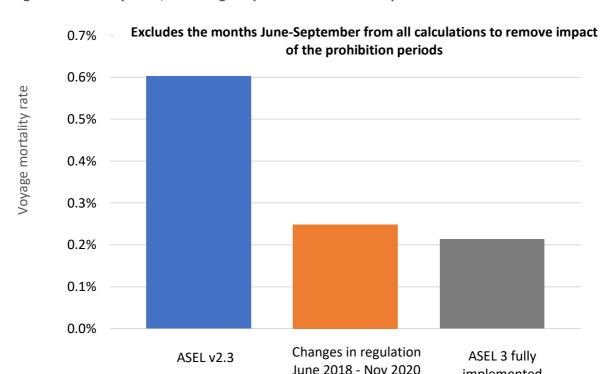


Figure 1: Mortality rates, excluding the period from June to September

The difference between the other conditions and a prohibition period is that conditions still allow the trade to occur, whereas absolute prohibition is an extremely blunt instrument that severely damages the viability of the industry. If DAWE is to be taken seriously in pursuing the objectives related to maintaining a viable trade and upholding Australia's reputation as an exporter of highquality livestock, it is incumbent on DAWE to consider other, less damaging options and encourage the collection of data and evidence to inform regulatory settings on an ongoing basis.

implemented

Regulatory impact analysis process for this review is poor

ALEC acknowledges the regulatory impact analysis (RIA) to date, including the regulatory impact statement (RIS) released in March 2020.4 The Office of Best Practice Regulation assessed the RIS as compliant with requirements, but the RIS was not consistent with best practice standards. The RIS only considered three discrete options:

- The status quo.
- A 3.5-month prohibition with additional conditions.
- A 6-month prohibition.

⁴ DAWE (March 2020), Live sheep exports to, or through, the Middle East - Northern Hemisphere summer: Regulation impact statement (2020 RIS), viewed 24 January 2021.

The authors of the draft report implicitly accept that the existing 'one size fits all' regulatory response (prohibition) is based on a measurement that is not fit-for-purpose (wet bulb temperatures) and lacks sufficient flexibility, hence the consideration of different prohibition periods for different destinations and substitution of prohibition with other regulatory conditions during shoulder periods. Wet bulb temperatures do not easily correspond to heat stress and there is considerable debate on how to measure heat stress in sheep given its complexity. DAWE also does not explicitly account for duration of heat stress, which is a key component of animal welfare. **The regulatory approach should more explicitly take these factors into account**.

In the RIS, DAWE stated the following in its monitoring and evaluation strategy:

A growing body of research is being conducted into more targeted methods to address heat stress risk in sheep. This includes further work into animal welfare indicators and ship conditions experienced by the sheep under different climatic conditions. As such outcomes of this RIS will be reviewed after 2 Northern Hemisphere summer periods (end of 2021). The review will consider whether the stated objective has been achieved and also whether new science has been uncovered.⁵

The regulatory settings would be vastly improved if the policy options were designed in a more flexible way – but this was hampered by a lack of consideration of other options and by a lack of real-world data on outcomes. ALEC has provided a feasible alternative proposal in a letter to the Minister for Agriculture and Northern Australia, the Hon. David Littleproud MP in December 2021. The critical features of a trial are:

- Staged implementation and full assessment of each voyage before further voyages occur, starting with lowest risk destinations, at lowest risk times, from the lowest risk origin ports.
- Use of the most technologically advanced vessels.
- Data collection and analysis undertaken by LiveCorp.
- Results of the analysis would be publicly available.

DAWE should examine, and formally respond to this proposal in the final report and present an analysis relative to the current status quo of the prohibition. Until this is done, **ALEC does not support any extensions to the current prohibition periods.**

Resilience of the industry is being unnecessarily compromised by regulation

ALEC supports regulation of the industry to underpin Australia's reputation as a trusted supplier of high-quality livestock protected by high animal welfare standards. Our markets for Australian live sheep in the Middle East remain integral to the success of Australian sheep producers, in particular, those in Western Australia. Continued government regulatory imposts and costs are eroding the capacity of exporters to supply these markets economically and competitively. Old and new markets for sheep are being affected and our customers are being forced to seek more supply from North Africa and from alternative destinations such as South Africa, Romania and Spain, which do not have equivalent animal welfare safeguards. Excessive regulatory imposts also risk impacting complimentary exports of processed sheep meat to the same markets. The sustainability of the Australian sheep industry is now at further risk.

The resilience of the industry is being unnecessarily tested by regulatory settings that are too prescriptive and not flexible enough to sustain financially viable trade. ALEC's view is that the scientific validity of the claimed gains in animal welfare from several of these prescriptive settings are questionable, and further, the means chosen to achieve them are more costly than necessary. That is, the same or better animal welfare outcomes can be achieved at lower cost to industry and

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⁵ 2020 RIS, pp.44-45

government than through the imposition of an absolute prohibition for more than three months of the year.

Professor Malcolm Sparrow (2020) outlines basic criteria for designing an appropriate regulatory model based on the incentives faced by industry and their capacity to identify risks, analyse and design solutions and implement those solutions vis-à-vis the regulator, in this case DAWE.⁶

ALEC contends that the regulatory model is too prescriptive and should be more outcome-focussed, with a greater role for industry in analysing and designing solutions. This relates to both the dates when sheep will not be exported, and the conditions applied to manage risks of heat stress. However, voyage data is needed to develop a 'real world' evidence base from which to determine prohibition periods.

One of the criteria relates to the incentives of the regulator and industry – are they aligned? Sheep exporters face strong commercial incentives to avoid mortalities – it has a commercial cost to exporters – estimated at around \$250 to 300 per head in sunk costs to the point of discharge. This does not include indirect costs faced by producers and other businesses throughout the entire live export supply chain. Exporters are also acutely aware that their businesses must meet the expectations of the Australian community to maintain their ability to operate. Therefore, the incentives to avoid mortalities apply to both DAWE and exporters – as mentioned earlier industry has succeeded in demonstrating this in the last three years.

As will be discussed later, the industry (including both exporters and LiveCorp) have greater knowledge of, and capacity to manage, heat stress risks in a commercially viable manner. ALEC strongly believes that outcomes-based regulation, rather than prescriptive regulation (using a very blunt tool - prohibition), is the most appropriate regulatory model that would deliver greater flexibility without compromising animal welfare. An outcomes-based approach would entail greater flexibility with dates and the conditions (including active voyage management practices) applied at various times to manage heat stress risks. A trial period would enable industry to take responsibility for demonstrating its ability to manage heat stress risks in a staged and careful manner, providing DAWE with real-world data that can be used to improve and refine regulatory settings and practices in future.

Regulatory approach does not factor in adverse commercial impacts

ALEC believes that while the authors of the draft report tout additional flexibility, in practice, the draft recommendations are likely to deliver a longer prohibition period to all critical Gulf destinations, at significant cost to the industry, without delivering any additional benefit in terms of animal welfare. Further, the proposed regulatory settings will not incentivise careful selection and management of

⁶ See Chapter 5: "Alternative Regulatory Structures" – Sparrow, Malcolm K. (2020), Fundamentals of Regulatory Design, pp.100-134

⁷ Cost of sheep delivered to registered premises; feedlot charges (feeding, agistment, handling, shearing and any protocol requirements if applicable); rejects; transport to, handling and inspection at the wharf; stevedoring charges for loading sheep and fodder on the vessel; wharfage; compulsory and voluntary industry levies; DAWE charges; fodder for the voyage; chaff; sawdust; cost for Australian Government accredited veterinarian (AAV) and stockman to accompany vessel and return airfares; cost for Independent Observer; veterinary medicines, hardware, etc.; ESCAS in-market costs; Management fees, finance and insurance; sea freight charges; landing fees at destination market (importer); transport & holding costs (importer).

⁸ Industry has demonstrated the ability to safely undertake a voyage to Kuwait (ML Al Kuwait voyage 002-L) during the prohibition period. The exporter incurred significant financial costs in undertaking the voyage, employing active voyage and route management and collecting data. The mortality rate on the voyage was 0.08% - the lowest ever mortality rate on any voyage between Australia and the Middle East, at any time of year. Panting levels and other behavioural indicators did not show sheep in distress due to heat. There were no ASEL non-compliances during the voyage.

livestock or investment in the newest technology to secure welfare outcomes that would allow shipments to occur over parts of the northern hemisphere summer.

While ALEC believes the shift away from a one size fits all prohibition period to a more tailored approach is warranted, the proposed settings are worse than the current settings in many critical areas and would not deliver any additional flexibility. Applying longer absolute prohibition periods to Gulf destinations (except Kuwait) will ruin economies of scale and impede shipping logistics that the live sheep export trade relies upon for commercial viability. In short, DAWE has demonstrated minimal understanding of the commercial realities facing exporters and the practical impacts their draft recommendations would have.

It is imperative that DAWE has due regard for the commercial pressures facing the livestock export sector and the role of regulatory settings in creating that pressure. If there are less burdensome options than a prohibition for 3 to 4 months of the year (combined with commercially prohibitive) conditions, then these should always be considered. The draft report, while taking small steps in the right direction by recognising the need for greater flexibility and tailored regulation, has not achieved this in practice.

Multi-port voyages are critical to the economics of the live sheep trade to Gulf destinations. Single-port voyages are simply uneconomic and so, having longer prohibition periods for Gulf destinations other than Kuwait means that the shipments to Kuwait during those extended periods will not occur, despite a draft report recommendation to shorten the absolute prohibition period for shipments to Kuwait by a week and introduce a conditional period for another two weeks. The shortening of the prohibition period for Kuwait will have zero benefit for exporters and will damage Australia's reputation as a reliable supplier to that market.

By DAWE's own admission, the mortality rates have been exceptionally low in recent years. Therefore, the department should be willing to engage in constructive regulatory reform with industry and allow genuine commercial flexibility. Instead, in some cases, DAWE is proposing an effective regulatory tightening, imposing an additional penalty on industry that is completely unwarranted and contrary to the Government's stated objectives: to maintain a viable live sheep export trade supported by improved animal welfare outcomes; and uphold Australia's reputation as an exporter of high-quality livestock.⁹

The draft report does acknowledge that the prohibition period for Red Sea destinations is unnecessarily long compared to the heat stress risk and ALEC welcomes this acknowledgement. However, as noted above, the use of threshold ambient wet bulb temperatures alone to define prohibition periods is not an appropriate regulatory setting and therefore, ALEC questions the validity of such an approach.

Greater role for LiveCorp in assessing heat stress risks and mitigation measures

The scientific and statistical assessment being undertaken by the animal welfare branch (AWB) in DAWE should be contracted to competent entities, such as Research and Development Corporations (RDCs). This has the added benefit of more efficient and effective use of exporter levies.

It is essential that regulatory decisions are practical and guided by robust research and evidence undertaken and analysed by recognised RDCs. This is extremely pertinent now as the global economy battles the impact of COVID-19, and even more so for our trading partners where these regulatory decisions have a real and tangible impact on their food security.

The AWB assessment of the current prohibition settings are negatively impacted by the inability, and unwillingness in some circumstances, to understand the impracticality of its outcomes and decisions (they are not experts in these matters, like the RDCs), and therefore negatively impacting the viability

⁹ The government's primary objectives are described in the draft report, pp 6 and 36.

and sustainability of the industry it regulates, contrary to the Government's stated objectives. The authors of the draft report clearly did not have the ongoing food security challenges and imperatives of our Middle East trading partners in mind. This disconnect would not have occurred had LiveCorp been tasked with the review.

ALEC is firmly of the view that LiveCorp has the skills, expertise, and resources to gather evidence and produce robust scientific analysis that is sorely needed to inform regulatory settings that are fit-for-purpose, maintain incentives for exporters to invest in animal welfare improvements and avoid unnecessary regulatory costs.

Thank you for the opportunity to provide comment on the draft report. Please do not hesitate to contact me at ceo@livexcouncil.com.au or on 0400 980 452 should you wish to discuss further.

Yours Sincerely

Mark Harvey-Sutton

Chief Executive Officer

Australian Livestock Exporters' Council

Appendix 1: ALEC response to draft report recommendations

Draft report recommendation	ALEC position
1. There should continue to be a prohibition in place to reduce the risk of heat stress and heat related mortalities during export of sheep to, or through, the Middle East during the hottest, most humid part of the Northern Hemisphere summer.	Support continuation of prohibition in principle - current prohibition periods should be maintained while allowing for additional flexibility through instigating trial shipments within agreed shoulder periods for the 2022 and 2023 prohibition periods. LiveCorp would evaluate data collected on these trial shipments to be used by DAWE to inform future regulatory settings
2. Sheep should not be exported to Oman via the Persian Gulf between 8 May and 21 September (instead of 8 May to 14 September under section 6–12 of the Animals Rules as currently in force). However, for single port of discharge voyages sailing directly to Oman (i.e., not via the Persian Gulf), the prohibition should apply from 8 May to 14 August (instead of 8 May to 14 September under section 6–12 of the Animals Rules as currently in force).	performance data during the moratorium months ALEC proposes a process which would allow voyage data to be gathered over the next two northern summer periods which would inform an ongoing review of the voyage arrangements. During that time industry supports exemptions being granted for voyages, that can be demonstrated to be minimal risk to animal welfare, to sail until 21 June to both Gulf and Red Sea destinations at the start of the moratorium and from 23 August for Red Sea destinations and from 1 September for Gulf destinations at the end of the moratorium period. A LiveCorp monitoring program would be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place.
3. Sheep should not be exported to Persian Gulf countries other than Kuwait between 22 May and 21 September (instead of 1 June to 14 September for countries other than Qatar under section 6–14 of the Animals Rules as currently in force; in the case of Qatar, the current prohibition dates are 22 May to 22 September under section 6–13 of the Animals Rules).	Do not support - Given the lack of voyage performance data during the moratorium months ALEC proposes a process which would allow voyage data to be gathered over the next two northern summer periods which would inform an ongoing review of the voyage arrangements. During that time industry supports exemptions being granted for voyages, that can be demonstrated to be minimal risk to animal welfare, to sail until 21 June to both Gulf and Red Sea destinations at the start of the moratorium and from 23 August for Red Sea destinations and from 1 September for Gulf
	destinations at the end of the moratorium period. A LiveCorp monitoring program would

be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place.

4. Sheep should not be exported to Kuwait between 1 June and 7 September (instead of 1 June to 14 September under section 6–14 of the Animals Rules as currently in force).

Partially support - ALEC acknowledges DAWE's assessment that heat stress risks for shipments to Kuwait are lower than previously estimated.

Given the lack of voyage performance data during the moratorium months ALEC proposes a process which would allow voyage data to be gathered over the next two northern summer periods which would inform an ongoing review of the voyage arrangements.

During that time industry supports exemptions being granted for voyages, that can be demonstrated to be minimal risk to animal welfare, to sail until 21 June to both Gulf and Red Sea destinations at the start of the moratorium and from 23 August for Red Sea destinations and from 1 September for Gulf destinations at the end of the moratorium period. A LiveCorp monitoring program would be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place.

5. Sheep should not be exported to, or through, the Red Sea between 15 June and 14 September (instead of 1 June to 14 September under section 6–14 of the Animals Rules as currently in force).

Partially support – ALEC acknowledges DAWE's assessment that heat stress risks for Red Sea shipments are lower than previously estimated.

Given the lack of voyage performance data during the moratorium months ALEC proposes a process which would allow voyage data to be gathered over the next two northern summer periods which would inform an ongoing review of the voyage arrangements.

During that time industry supports exemptions being granted for voyages, that can be demonstrated to be minimal risk to animal welfare, to sail until 21 June to both Gulf and Red Sea destinations at the start of the moratorium and from 23 August for Red Sea destinations and from 1 September for Gulf destinations at the end of the moratorium period. A LiveCorp monitoring program would

be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place. 6. The Animals Rules should be amended to **Support** - additional data loggers will enable require the relative humidity and wet bulb collection of better objective data to inform temperatures in at least 2 locations on the future regulatory settings bridge of the vessel to be automatically measured and recorded by data loggers every 20 minutes during the voyage. 7. A conditional prohibition should apply to the Support conditional (shoulder) periods in following destinations and time periods, when **principle** - shipments to or through the Middle sheep can be exported provided they meet East should be allowed on a trial basis within additional conditions (to be specified in the agreed shoulder periods for the 2022 and 2023 Animals Rules) aimed at further mitigating heat prohibition periods. During that time industry stress risk: supports exemptions being granted for •Kuwait: 1 June to 14 June voyages, that can be demonstrated to be •Persian Gulf other than Kuwait: 22 May to 31 minimal risk to animal welfare, to sail until 21 June to both Gulf and Red Sea destinations at May and 15 September to 21 September •Oman (via Persian Gulf): 15 September to 21 the start of the moratorium and from 23 August for Red Sea destinations and from 1 September •Red Sea: 15 June to 30 June and 7 September September for Gulf destinations at the end of to 14 September. the moratorium period. A LiveCorp monitoring program would be in place for these voyages to both collect performance data and to monitor animal welfare alongside safeguards exporters themselves would have in place. 8. The additional conditions to mitigate heat Do not support - packages of additional stress are upper weight limits, selection of heat conditions for shoulder periods should be tolerant breeds, wool length requirements, flexible and determined on a case-by-case minimum vessel pen air turnover scores while basis by regulator in consultation with sailing (sailing PAT), additional space on board, individual exporters. LiveCorp should conduct additional preparation time and feeding and publish ex post evaluations of the requirements at Registered Establishments and effectiveness of different packages of increasing the fodder provided during the conditions in mitigating heat stress and animal voyage. welfare risks. DAWE should use the evaluations to inform future regulatory

settings