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Regulation of jettisoned material from space launch vehicles
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Submission: *Regulation of jettisoned material from vehicles under the EEZ and Continental Shelf Act 2012: Proposed changes*

Introduction

This document constitutes the Petroleum Exploration and Production Association of New Zealand's (PEPANZ) submission in respect of *Regulation of jettisoned material from vehicles under the Exclusive Economic Zone and Continental Shelf Act 2012: Proposed changes* ("Discussion Document"), released by the Ministry for the Environment.

PEPANZ only became aware of this Discussion Document on the afternoon of 13 September 2017 and acknowledges the brief extension of 1 day provided by the Ministry to allow us to submit on it. Given this constrained timing we have focussed on comments on the most salient aspects of the proposals for our sector's activities and have not been able to engage with our members in preparing this submission.

PEPANZ previously submitted on the consultation¹ that preceded the current regulations. The fact the proposed deposit areas were defined and remote was a key factor in assessing the impact on other activities, such as that undertaken by the offshore petroleum sector. We note the new proposals are for a much larger area that appears to be more than half of New Zealand's total EEZ.

It is not apparent from the discussion document what if any processes of planning and engagement would be undertaken with potentially affected existing interests in regard to the timing and potential debris deposit areas by those looking to launch rockets, or whether it is simply a matter of other interests avoiding whatever area and timing is determined by those launching a rocket or taking the albeit small risk of being struck by debris. We are mindful that whilst the likelihood of a vessel within a debris zone being struck by a piece of jettisoned material is very low, the effects of a vessel or piece of equipment being struck by a large piece of debris falling at its terminal velocity (e.g. an 8kg pump assembly or 350 kg motor assembly) could be disastrous.

Further consideration and engagement with other marine users appears required to determine how best to manage the issues we have raised in this submission and we would be happy to participate constructively in this.

¹ The discussion document titled *Proposed regulation of jettisoned material from rockets or space launch vehicles under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act*, which was released by the Ministry for the Environment in August 2016.

Responses to questions in the Discussion Document

Question 4. Do you agree that the existing interests described are the main existing interests? If not, why not? Please describe any other existing interests you are aware of that could be affected by the activity.

While the current rocket debris deposit areas provided for in regulation partially overlap one petroleum prospecting permit, the very large area that is proposed now (over half of New Zealand's EEZ) and outlined in Figure 1 would entirely overlap eight petroleum exploration permits and two petroleum prospecting permits. The potential activities that could be undertaken by the offshore petroleum sector in relation to these permits, or any further permits that might be granted within this large area, are not however mentioned at all in the Discussion Document.

Over the next few years activities undertaken in these permits in the area in which rocket debris deposit could occur under the proposed changes may include:

- marine seismic surveys operated in a defined area within a permit/permits and over a time period of weeks to months;
- drilling of exploration wells by a drilling rig at fixed location subject to a marine consent, with each well taking generally 30 to 60 days;
- support vessel activity in support of seismic survey vessels or drilling rigs.

It is important to note also that unlike transiting vessels a drilling rig cannot simply cease drilling a well halfway through to vacate an area for a period of time to avoid potential rocket debris without incurring substantial complexity and costs and creating additional risks. Successful exploration could in turn lead to the construction and deployment of permanent manned production facilities, pipelines and subsurface facilities within one or more of the existing exploration permits or subsequent permits over the longer term.

Question 5. What do you think the main effects will be on existing interests? Please provide any information you have in relation to those effects.

The main effect on existing interests will be the need to avoid areas where rocket debris could land so as to avoid the risk of being hit by falling debris, particularly larger pieces. While the likelihood of a vessel being hit by debris would be very low it would be prudent for a vessel, drilling rig etc. to avoid the identified marine exclusion zones. If vessels are not intending to be in the exclusion area at the relevant time or can easily avoid it there are no impacts on other interests, however, in the following scenarios there could be meaningful impacts:

- a transiting vessel needs to materially extend the duration and/or course of its journey to avoid an exclusion area;
- a vessel that needs to be within the planned exclusion area makes plans to avoid the exclusion area at the planned launch time but due to a delay/s in the launch is required to make further deviations – for instance a seismic vessel might configure its survey to avoid the exclusion area at the relevant time (thereby mitigating the impact on its activities) but a timing change or changes at potential short notice could undermine this, thereby extending the duration and cost of the survey;
- a drilling rig is required to detach from a well to leave an exclusion area – as noted above this would be problematic and very costly (e.g. millions of dollars).

Without any clarity as to where the proposed exclusion areas might be in future, how large they would be and how frequently rockets would be launched it is not possible to evaluate how significant these effects or associated costs could be.

Question 10. Do you agree with the terms and conditions proposed for the activity? If not, what changes would you propose and why?

Further conditions appear necessary to manage the following issues:

- any potential conflicts between debris exclusion zones and the practical requirement or legitimate expectation of other marine users (e.g. fishing or oil and gas activities) to be in that area during the relevant time period; and
- mitigating the potential impacts on other marine users by providing processes that give as long a notice of potential exclusion zones as practicable, ensuring the zones are only as large as required and that the timeframes for avoiding an exclusion zone are managed so as to provide maximum certainty to other marine users, including where there are changes/delays in launch.

Given the lack of vessel traffic in the discrete areas prescribed in the current regulations these issues are largely theoretical, however, given it is proposed that exclusion areas could now be established across much of New Zealand's EEZ without any apparent requirement to liaise with other marine users and seemingly at as short a notice as 14 days there is the potential to have much greater impacts on other marine users/existing interests. If the areas where debris could fall on a permitted basis were more clearly defined as under the current regulations then other marine users concerns would likely be lessened significantly.

Managing potential conflicts

A permitted activity rule that allows an activity that can affect other marine users to take place across large tracts of the EEZ without any specific requirements to liaise with potentially affected parties appears to put the onus on those other parties to avoid the debris regardless of the impacts on them, rather than on the launcher to minimise those impacts as far as practicable. Given the relatively limited activity in much of New Zealand's EEZ it would seem possible that constructive engagement between relevant marine users and launchers of rockets could resolve most potential conflict scenarios, however, the proposed conditions do not provide for this in any apparent way. The Notice to Mariners process is simply a notification process and is not designed to resolve conflicts between different users.

Presumably rocket launches will be planned substantially more than 14 days in advance and so a greater than the 14 day notification proposed would be possible. Some other marine users plan their activities over substantially longer timeframes and it would not seem reasonable for these plans to then be adversely affected by the much shorter notice of an exclusion zone being established, particularly if longer notice could realistically be provided. We note other permitted activity regulations under the EEZ Act provide substantially longer notification periods even though those activities have few if any impacts on other marine users.

Whilst recognising the practical realities of launching rockets we consider that measures should be considered under the proposed regulations or otherwise to ensure that other marine users are given reasonable notice and there are processes for rocket launchers to engage with other marine users to enable any potential spatial conflicts or issues to be worked through constructively.

The proposals also do not contain any requirement for a rocket launch and its associated debris exclusion zone to avoid a vessel/structure that is permanent or located for a prolonged period in a certain location (e.g. a drilling rig, mineral mining vessel or cable/pipeline laying or construction vessel).

Is it imagined this would be managed outside the regulations or are there other controls in place or envisaged, for instance under the *Outer Space and High-altitude Activities Act 2017*? What would happen if an exclusion zone was declared over an activity taking place under a marine consent for example (e.g. a drilling rig drilling a well). Whilst this would hopefully be avoided in practice it is not apparent how the framework would address this? An option would be to add to the “Restriction on area” condition a requirement to avoid depositing material on activities undertaken pursuant to a marine consent issued under the EEZ Act.

Mitigating the impacts on other marine users from changes

The accuracy and timeliness of the information provided to other marine users will be important to mitigate the impact on other marine users. The larger the zones to avoid are, and the more uncertain the launch time, the greater the potential impact on other users. We note the Notice to Mariners in relation to the initial launch in May 2017 gave a potential launch window of 13 days, with the launch taking place on the 3rd day of that window.

There is no apparent control or approach to managing delays or changes to the planned launch time or the uncertainty that might be attached with them. There is for instance no minimum time between when a launch is confirmed and when it takes place. If changes in planned launch times (e.g. delays) can occur at relatively short notice (there are no apparent limitations on this amongst the proposals as long as notification is at least 14 days in advance) then this could impose more significant costs for other marine users by upsetting pre-existing avoidance plans, or exposing them to risk.

Brief delays (e.g. a few hours) would not seem to impact other users greatly given the context but longer and uncertain delays (e.g. many hours or days) could do so. For instance a launch might be planned for Tuesday at 2pm but then gets delayed by weather to Wednesday at 2pm and then again to Thursday and eventually takes place at 4pm on Thursday. Presumably the exclusion zones remains in place for that whole period? At worst a vessel could be left waiting to enter or cross an exclusion zone for a prolonged period due to uncertainty regarding if and when a delayed launch might actually occur.