CLIMATE CHANGE RISK ASSESSMENT

Unit 2 Tan Yard Brow, Gorton, Manchester, M18 8UJ

Cosmor Groundworks Limited

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CONTENTS

1 Background

1.1 Note

1.1.1 This document includes a summary of Climate Change Adaptation measures which have been integrated into the site EMS, informed by risk assessment.

1.1.2 The Met Office UK Climate Projections (UKCIP) has developed scenarios of climate change, which are summarised as:

- Warmer, wetter winters
- Hotter, direr summers
- Increased frequency and intensity of extreme weather (storms, droughts, intense downpours)

1.1.3 Reflecting these, the UK Climate Change Risk Assessment (CCRA) identifies a number of priority risk and opportunities.

1.1.4 The following sections outline specific mitigation in relation to managing risks and adapting to climate change at the installation, with reference to the risk assessment guidance on the government website in relation to the chemicals sector.

1.1.5 Impacts from climate change were considered in detail as part of the permit application process for the installation. This information has been integrated into this EMS document in the relevant sections, reviewed and updated as applicable.

2 Summer Daily Maximum Temperatures

2.1 Impacts of Rising Summer Temperatures

2.1.1 The summer daily maximum temperatures may be around 7^{0C} higher compared to average summer temperatures now, with the potential to reach extreme temperatures as high as over 40^{0C} with increasing frequency based on today's values.

a) Impact 1: Potential increase in temperature may result in expansion and stress of plant, pipework and fittings. The site utilises the following mitigation:

- Regular preventative maintenance and inspections for all plant and machinery to ensure in good condition and good working order.
- The plant at the site operates at temperatures in excess of 100 degrees Celsius, hence any rise in ambient temperature due to climate change is likely to have a negligible effect on the amount of additional energy which it is necessary to input to the cooling system in order to maintain its effective operation.
- Based on the design of the plant the outer skin of the engines of the plant is approximately 50 degrees Celsius or less.
- Based on the design of the buildings given the buildings are open fronted it is anticipated that there will be no requirement for cooling during the summer months either at present or as a result of any average or extreme rises in temperatures as a result of climate change.

b) Impact 2: There could be an increase in dust emissions from the site. The site utilises the following mitigation:

- The site has access to mains water and hoses located on the site which can be used to dampen down any stockpiles.
- Good housekeeping is maintained on site at all times.

c) Impact 3: There could be an increase in odour from the site. The site utilises the following mitigation:

- Due to the waste types accepted at the site the likelihood of odour becoming an issue is highly unlikely.

3 Winter Daily Maximum Temperatures

3.1 Impacts of extreme winter temperatures

3.1.1 The temperatures could be 4^{0C} more than the current average with the potential for more extreme temperatures, both warmer and colder than present.

a) Impact 1: There could be an increased risk of pipework ruptures. The site utilises the following mitigation:

- The site will mitigate this through regular inspection and preventative maintenance of the site, plant and equipment, including pipework. Pipework will be suitably insulated where there is a risk of freezing.

b) Impact 2: Frozen onsite roadways may restrict access for staff and emergency vehicles. The site utilises the following mitigation:

- Site management will mitigate this through regular inspection of site surfaces. Grit is always available onsite to ensure that the site remains safely accessible for staff and emergency vehicles.

c) Impact 3: There could be damage to site infrastructure from snow-loading over extended periods. The site utilises the following mitigation:

- The majority of site infrastructure is contained within the building which provides mitigation from snow-loading.

4 Daily extreme rainfall and average winter rainfall

4.1 Impacts of extreme rainfall events

4.1.1 Daily rainfall intensity could increase by up to 20% on today's values. Average winter rainfall may increase by over 40% on today's averages.

a) Impact 1: Flooding could lead to increased site surface water and flash flooding. The site utilises the following mitigation:

- The site is served by dedicated drainage system, which has been designed to manage a 1 in 100-year flood event (inclusive of appropriate climate change allowance) and therefore is designed to manage the potential increase in rainfall associated with climate change.
- The surface drainage system is regularly inspected for integrity.
- The sites perimeter is bound by 3m high sunken concrete panel fencing which would be used to prevent flooding from the adjacent Gore Brook located to the north.
- The site can be accessed from the A57 and Tan Yard Brow from the south. The A57 comprises a major arterial route for which the M60 can be accessed. The site is therefore accessible from multiple directions via major arterial routes, priority to which is likely to be allocated by Highways England when constructing resilience measures to mitigate the effects of climate change.

b) Impact 2: The site may experience reduced access or egress due to site flooding. The site utilises the following mitigation:

- In the event of reduced access/egress due to flooding, site management will make a decision on whether to reduce operations at the site, having consideration to health and safety requirements.

5 Sea Level Rise

5.1 Impacts of sea level rise.

5.1.1 Sea level rise could be as much as 0.6m higher compared to today's level.

a) Impact 1: If located near the coast a site could experience increased risk of flooding and associated impacts and corrosion due to increase in saltwater spray. The site utilises the following mitigation:

- In the event that the site is inundated with water or considered to be under threat of being Inundated with water, barge boards and sandbags will be placed as necessary to prevent insofar as possible water ingress into the building.
- As the floor level of the site is above sea level approximately 70m AOD this will be above the projected mean sea level taking into account the most extreme projections for the lifetime of the site, it is highly likely that the sea level will never rise to this level, therefore the risk posed to surface water quality as a result of the inundation of the site is negligeable.
- Sensitive materials will be moved or protected as necessary so as to prevent their coming into contact with flood water.
- No potentially contaminative materials with a high leaching potential will be stored at the site. No stockpiling or storage of powdered, cohesive or granular materials is undertaken.
- In the event of the failure of flood defences, the site is likely to inundate from the north. The operator will receive flood alerts and warnings from the Environment Agency. In the event of a flood alert or warning, a watching brief will be maintained for any breach in the flood defences to the south of the site.
- In the event that a breach in the flood defences to the north of the site is observed, the plant will be shut down and made safe as possible, the building will be sealed, and the site will be evacuated via Tan Yard Brow and the A57 away from the direction of inundation from which the wider highways network can be accessed.

6 Drier Summers

6.1 Impacts of drier summers

6.1.1 Summers could see potentially up to 40% less rain than now.

a) Impact 1: Potential increased use or reliance on mains water for dust suppression and cleaning. The site utilises the following mitigation:

- Water will be required for the sites dust suppression measures, a mobile dust cannon will be utilised to dampen down stockpiles during windy and dry conditions. The mobile dust cannon utilises a tank that will only be used for dust suppression purposes.
- In order to optimise water efficiency at the site, the operator reviews water use every four years.
- Opportunities to save water or exploit alternative sources are under constant review.
- If the site requires more water in cases of emergencies the adjacent Gore Brook and reservoir located to the east could be used for a water supply.

7 River Flow and storms

7.1 Impacts of increased river flow and storm events

a) Impact 1: Reduced dilution available in receiving watercourse for discharge of effluent, resulting in increased pollution.

- The site is sealed and designed to prevent any surface water runoff, the only discharge of surface water will be clean uncontaminated water from the roofs of the buildings and rainwater.

7.1.2 Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lighting during these events provides the potential for more extreme storm impacts.

7.1.3 Storms and high winds could damage building structures with increased potential for fugitive emissions.

- The building at the site was constructed to meet latest standards.
- Integrity of structures will be subject to periodic assessment/review. If deemed necessary, reinforcements will be included.