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| **Non-Technical Summary** | |
| **Action area** | Steam Boiler |
| **Overview of Activities** | Raising of Steam for heating processes using a Gas-Oil Fired Boiler rated at 2.27MW. |
| **Operating Techniques** | Feed water is softened and treated with water treatment chemicals before being added to the boiler, it does this by converting calcium carbonate to sodium chloride and calcium chloride which keeps prevents any scale from forming.  Gas Oil is held is a 5000L double walled tank and is fed to the boiler by solid pipework.  The water treatment comprises of a) an oxygen scavenger in the form of sodium sulphite, b) pH control to keep the feed water alkaline, c) a polymer to hold any debris in suspension, d) a condensate return pH control to keep the return water alkaline.  The boiler is rated for 10bar and runs at 4bar.  A manual blowdown system of a vessel and outlet is used to blow the system down manually 5 days per week. |
| **Raw Materials** | Gas Oil is used as a fuel and is delivered in bulk to the storage tank.  Water treatment chemicals are delivered in 25L Jerricans and attached to dosing systems at the feedwater tank.  Salt in the form of Water Softener tablets are delivered in 25kg bags and added to the water softening tank. |
| **Waste from the process** | Blowdown water and steam is released from the blowdown vessel and runs to ground.  The Blowdown water will contain increased Total dissolved solids, some boiler scale and trace amounts of boiler water treatment chemicals. |
| **Water use** | Water is provided to the site from the mains supply.  Water is used as boiler feed water and undergoes chemical treatment and water softening as part of the boiler water treatment process to prevent scale build up, reduce oxygen and increase boiler system longevity. |
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| **Point source emissions to air** | The flue from the boiler rises up and exits through the roof of the building.  Boiler flue emissions are optimised with an annual Boiler Flue Combustion Setup check.  The main emissions will be NOX, SOX, CO2 and dust as particulates. |
| **Fugitive emissions to air** | Any leaks of steam will be easily noticed and maintained accordingly.  Heat loss will also occur from pipes, fittings and reactors. |
| **Monitoring of emissions to air** | The site operates one gas-oil fired boiler which provide steam to the process.  Performance monitoring (as opposed to compliance monitoring) of the emissions to atmosphere from the boiler is currently undertaken as part of an annual service by site-based technicians, to ensure that efficient operation of the plant continues.  Additional boiler monitoring using MCERTS equipment will be measured later in 2022 to benchmark compliance to the Medium Combustion Plant Directive (MCPD) and the associated monitoring schedule from 2030.  Impact assessment screening of the point source emissions to air and water has been undertaken using the EA H1 Environmental Impact Assessment software and guidance. All emission points are listed in the Emission Points document. |
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| **Point source emissions to surface water** | Blowdown water. |
| **Fugitive emissions to surface water** | Overflowing of the feed tank. |
| **Point source emissions to sewer** | There are no emissions to sewer. |
| **Monitoring of emissions to water** | Not required. |
| **Emissions to land** | No emissions to land from the installation. |

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| **Non-Technical Summary** | |
| **Odour** | The boiler steam process is within a building. The flue exhausts at the roof of the building. There is no discernible odours. |
| **Noise & Vibration** | No noise complaints have been received. |
| **Energy** | The primary sources of energy used at the installation are electricity imported from the National Grid and Gas-Oil to power a boiler to generate process steam.  Half hourly meters are installed on the site across the site to record electricity usage. Gas-Oil consumption is measured through the purchase order system and visual tank levels. The readings and consumption levels are tracked, looking for anomalies and efficiency of use.  The boilers will fall under the Medium Combustion Plant Directive (MCPD) (2015/2193) as they are rated at 2.27MW and they will need to be registered by 1st January 2029 (and meet the MCPD Emission Limit Values by 1st January 2030) the application to this directive is included with this Environmental Permit application. |
| **Environmental Management system** | The installation operates under an environmental management third party certification scheme to ISO14001:2015.  The process is supported with a management consultant who carries out compliance audits. |
| **Environmental Risk Assessment** | An Environmental Risk Assessment has been undertaken as part of the installation permit. |
| **Incident Management** | Written procedures are in place to manage the identified risks, including procedures relating to spill response, emergency preparedness and response to major emergencies. The Site has a Major Incident Plan and a Fire Prevention Plan which outlines the processes to follow to ensure adequate systems, resources and training are in place to effectively prevent and minimise the impact of an incident. |