H-CC-5-11d Unintentional Release Details

The potential pollutants from the process have been detailed previously and comprise:

- Particulate Matter (PM)
- Hydrogen Chloride (HCl)
- Carbon Monoxide (CO)
- Volatile Organic Compounds (VOC).
- Mercury (Hg)
- Dioxins and Furans (PCCD/F)
- Sulphur Dioxide (SO2)
- Oxides of Nitrogen (NOx)
- Carbon Dioxide (CO2)
- Odour - exceptional situations only

Pollutant emissions from the site will only occur when the cremators are operating i.e. Whilst preheating or when cremations are actually taking place.

If a problem occurs during preheat, the cremators shut down and the all emissions stop.

Very occasionally, some large coffins or coffins containing non-compliant materials, can result in high flue gas volumes and high cremation temperatures. This can cause control problems in the cremators themselves, and potentially, the high heat release can exceed the capacity of the flue gas cooling arrangements. Although these situations are rare due to the sophisticated control systems employed, if the cooling capacity is exceeded, the plant will 'fail safe'. This means the emissions abatement plant will close down automatically but the cremator will continue to complete the cremation unabated, with the flue gas being discharged via the abatement plant by-pass ducts. The cremator will operate as a conventional unabated cremator, so pollutant emissions will be in-line with the unabated cremator emissions standard detailed in PG5/2(12). These standards are approved for non-abated cremators and as such the level of emissions should not result in risk to health or the environment. Emissions of mercury, chloride and particulate matter will increase compared to the abated levels, but all other pollutant should be unaffected. Dioxin and furan emissions may also rise, but the design of the cremator is such that any emissions will remain minimal.

In the case of large/heavy coffins the risks of an adverse performance have been mitigated by the cremator control programme which has a control setting for heavy coffins. This will ensure the coffin is charged at a lower main chamber temperature than normal and will also restrict / slow down the rate of cremation, so the heat release is within design limits.

Similar problems to those outlined above can also occur if the bag filter becomes blocked or the flue gas cooler performance is compromised due the fouled heat transfer surfaces. These will both shut down the abatement plant and the cremators will operate unabated. Problems of this nature should be prevented by: the automatic cleaning provisions which are incorporated in the design, the continuous monitoring of duct pressure throughout the plant, and by regular planned maintenance.

In the event of power failure, both the cremators and the abatement plant will inevitably shut down

unless standby power provision were to be provided. Under these circumstances the operation of the cremator will be compromised due to lack of combustion air and the failure of the fan which draws flue gas from the cremator through the abatement plant. As a result, the abatement plant has to be by-passed. Inevitably elevated emissions of pollutants arising from incomplete combustion, e.g. carbon monoxide and smoke are likely to occur at this time. The extent of the elevated emissions will depend upon what stage the cremation had reached prior to the power outage with the worst case being if it occurred just after a cremation has started. In most cases, the residual heat in the cremator should be sufficient to enable the cremation cycle to complete, albeit over an extended period. If power is restored midway through an interrupted cremation cycle, normal unabated cremation operation will resume.

Any period of high emissions represents a short-term excursion only and as such should not represent a serious risk to health. The need to complete the cremation safely becomes the paramount issue and it is possible that plant operators may need to evacuate the building temporarily.

Apart from the cremator emissions there is a small risk of spent reagent spillage. This does no present a risk to the public and minimal risk to the plant operators.