Precognition by Brigend Gannochy & Kinnoull Community Council in respect of Air Emissions

Our community has three concerns regarding air emissions:

1) Weather Information

The use of Leuchars weather information does not give a true picture of the local weather in the Tay valley. Whilst sensitivities have recently been conducted using more local weather measurements, we believe that the full impact of the major river and the valley topography on the behaviour of the emissions from the stack has not been demonstrated.

In the attachment, we show a very recent picture of weather conditions that are frequently experienced locally during autumn and spring. We don't believe that this type of weather will be frequently encountered at a location which has been selected as a military airport.

This type of weather, we believe will tend to cause plume inversion. This is a phenomenon whereby cold, dense air is encountered by the gases leaving the stack. The stack gases are generally very much heavier than air and their natural tendency would be to drop when they exit the stack. That stack gases don't normally descend is due to the buoyancy that they acquire from their higher than ambient temperature.

This temperature boost that normally lifts stack gases can be lost when cold, dense air mixes at the stack exit. This can cause plume inversion whereby the stack gases rapidly descend to ground in the close proximity to the stack. This causes local levels of toxic gases to be much higher than modelled using better weather scenarios.

2) Stack Gas Temperature

As mentioned above the major reason for stack gases rising from the stack and dispersing over wide areas is the elevated temperature of the gas leaving the stack. To accomplish good, normal gas dispersion when a relatively low stack is employed requires a higher gas temperature than would normally be needed using a higher stack.

A major source of wasted energy from a chemical plant is the heat that is lost via a stack. Thus a low stack is thermodynamically wasteful and thus contributes heavily to any carbon footprint.

Years of experience from the chemical industry has shown that in the long term wasted heat cannot and will not be tolerated, either by shareholders or by environmentalists. The appellant will be faced with this problem in the foreseeable future. In which case, they will be forced to build a higher stack or surreptitiously drop the gas temperature. It is most unlikely that the appellant will be prepared to build a higher stack in the future. On the other hand, dropping the stack temperature will result in poorer dispersion of the stack gases and higher local concentrations of toxins. We believe that the proposed stack height is likely to be untenable in the longer term.

3) Dioxins

At least two of the recent gasification incinerators (Isle of Wight and Dumfries) have been shut down by environmental agencies due to the dioxin emissions grossly exceeding legislated limits. What steps have been taken by the appellant to ensure similar problems will not be encountered in Perth?

Will these steps prevent the formation of dioxin or will they result in the toxins accumulating in the landfill waste?

We believe these are important areas to explore and understand during the Air Emissions Hearings.