

CASE NOTES

Western Australia

Bryan Robert Jenkins v Kalgoorlie Consolidated Mines Pty Ltd (Court of Petty Sessions, 5 January 1999, Complaint No. KA2052 of 1998)

1. Introduction

On 16 November 1997, in the Kalgoorlie Court of Petty Sessions, the Department of Environmental Protection (DEP) alleged that Kalgoorlie Consolidated Gold Mines (KCGM) had committed an offence under the *Environmental Protection Act* (the Act). The DEP asserted that KCGM had contravened the license issued to it in relation to its Gidji roasting facility, by exceeding the level of sulphur dioxide (SO²) emission allowable under Condition A7a of that license. Section 58(1) of the Act renders any contravention of a license an offence.

2. DEP's submission

The DEP's first witness was the Manager of its Air Quality Monitoring Branch, Mr Robert Kleinfelder. He gave evidence as to the operation of the air quality monitoring equipment used by KCGM. He explained that the machines calculate SO² by utilising a principle called "ultraviolet fluorescence". An air sample is exposed to ultraviolet light. Any SO² molecules in the sample absorb some of the light's energy and become electrically excited. When the molecules decay, they return to their previous energy state, and release ultraviolet light. The amount of light released is proportionate to the number of SO² molecules present in the sample. The reading obtained from the light detector, therefore, indicates the concentration of SO² molecules in the sample.

The DEP also called Mr Michael Bell, who explained how the monitoring machinery was calibrated once a month and checked once a week, and how the calibration data was delivered to the Director of the Pollution Investigation Division. Mr Bell is an environmental scientist at KCGM who manages the Gidji roaster and the SO² monitoring networks. He is also an environmental officer in the Pollution Investigation Division for the Kwinana and Kalgoorlie Policy Area. The DEP's purpose in calling Mr Bell was unclear as his evidence appeared to add little to its case.

Finally, Mr Arthur Grieco, an environmental officer in the Air Quality Monitoring section of the DEP, was called. He explained that the purpose of calibrating the machinery is to determine whether it is functioning properly, by introducing unknown concentrations of SO² and ensuring that the light detector produces the correct reading. He described how a linear equation is used to develop a calibration formula.

3. KCGM's response.

Counsel for KCGM attacked the DEP's evidence on a number of grounds. Mr Kleinfelder's qualification as an expert was challenged on the basis that he had neither had experience in nor studied any relevant field of expertise. This objection was formally noted by the Magistrate and in cross examination Counsel focused on a number of ambiguities in Mr Kleinfelder's evidence regarding the functioning of the monitoring equipment. Specifically, Counsel drew attention to the fact that the SO² concentration indicated by the light detector could be influenced by the presence of materials other than SO² in the air sample. Counsel also highlighted a number of other potential sources of inaccuracies in the data relied upon by the prosecution. These ranged from the inherent potential errors in the machinery itself (which were not quantified by Mr

Kleinfelder), to the fact that the machines were affected by mains power fluctuations that were common in the Kalgoorlie area. Mr Kleinfelder conceded that approximately 0.5% of the amount of SO² recorded was attributable to errors arising during the measurement process itself and during the logging of the data.

KCGM also objected to Mr Grieco's evidence on the basis that the calibration evidence was taken nineteen days after the offence allegedly occurred and was irrelevant. Counsel further submitted that the evidence failed to meet the requirements of the *National Measurements Act* 1980 (Cth) and therefore was inadmissible.

KCGM called Mr Solman Galupo, an environmental technician at KCGM experienced in the calibration of the monitoring equipment. Mr Galupo described the calibration procedure for the machines at the time of the alleged offence. It became apparent during cross examination and re examination that Mr Galupo relied upon equipment and information supplied to him by others. He did not know or calculate the actual concentrations of SO² in the permeation tube that was used for the purposes of calibration. He did not have certificates relating to the accuracy of his equipment.

Counsel for KCGM submitted that the Crown had failed to prove beyond reasonable doubt that KCGM exceeded the ambient air quality standards. Counsel stated that it was not for KCGM to establish the inaccuracy of the monitoring equipment – rather, it was for the Crown to prove that the recordings of the machine could be relied upon. Counsel detailed further problems with the prosecution evidence, including the fact that no independent expert had been called to give evidence that the machines were accurate. Further, much of the method of operation of the machines remained unexplained, and witnesses could not tell the Court exactly what happened to the measurements at each step of the measuring process. There were also issues relating to a number of variables in the calibration and measurement processes (for example, the impact of interfering gases such as water vapour) that remained unaddressed or unresolved. The expert evidence was challenged on the basis that it was partisan and given by unqualified witnesses. Alternatively, Counsel submitted that even if the accuracy of the SO² monitors was proven, section 10 of the *National Measurements Act* rendered readings from the monitoring equipment inadmissible as evidence.

In response to these submissions, counsel for the DEP acknowledged that allowances should be made for span drift, and errors made in data logging and calibration. However, it was submitted that even allowing for these deductions, the output of SO² from the defendant's facility still exceeded that permitted by the license.

4. Judgment of Mr P. A. Nicholls S.M.

Due to the ambiguities in the evidence, Mr Nicholls held that the prosecution had not established beyond a reasonable doubt that the defendant had exceeded the level of SO² emissions permitted by its license. As he stated:

“For this Court to be satisfied beyond reasonable doubt it must be satisfied that the monitors at BSY and MEX accurately record what they purport to record, that is concentrations of SO² in micrograms per cubic metre of dry air at 0 degrees Celsius and one atmosphere pressure.”

Having found for the defendant on that basis, Mr Nicholls did not find it necessary to rule on the admissibility of the data under the *National Measurements Act*.