

September 19, 1994

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STATE OF OHIO  
HAZARDOUS WASTE  
FACILITY BOARD

BEFORE THE  
STATE OF OHIO  
HAZARDOUS WASTE FACILITY BOARD

IN THE MATTER OF  
SOUTHDOWN, INCORPORATED  
FAIRBORN, OHIO  
CASE NO. 91-NF-0700

*OPINION AND FINAL ORDERS*

ISSUE DATE:	MARCH 23, 1994
JOURNALIZATION DATE:	SEPTEMBER 19, 1994
EFFECTIVE DATE:	SEPTEMBER 19, 1994

# H W F B

State of Ohio Hazardous Waste Facility Board

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George V. Voinovich  
Governor

Gerry Ioannides  
Chairman

## MEMORANDUM

TO: DISTRIBUTION

FROM: ROBERT E. BROWN, ACTING EXECUTIVE DIRECTOR

RE: TRANSMITTAL OF OPINION AND FINAL ORDERS - IN THE MATTER OF SOUTHDOWN,  
INCORPORATED, CASE NO. 91-NF-0700, CD 2.3-

DATE: September 19, 1994

Transmitted herewith is a true and accurate copy of the Opinion and Final Orders issued in the above-captioned case, as such documents were entered in the Journal of the Board on September 19, 1994.

Included in the document is the manner in which an appeal of the Board's Order may be effectuated.

encls.

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cc: Alan Rowley, Southdown Incorporated  
Thomas Crepeau, DHWM, Ohio EPA  
Edwin Lim, DHWM, Ohio EPA  
Ohio EPA, SWDO, DHWM  
Director, Waste Management Division,  
U.S. EPA, Region V  
Bruce Cornet, Greene Environmental Coalition

11. Violation of the law of conservation of matter;
12. Arbitrary selection of parameter values to obtain the highest possible flame temperature;
13. Demonstrated lack of understanding of basic concepts of heat transfer;
14. Arbitrary selection of a value for a convection heat transfer coefficient in the flame temperature calculation;
15. Arbitrary decision to not use the convection heat transfer coefficient of the flame temperature calculation in the residence time calculation;
16. Violation of the chemical laws of combining weights;
17. Violation of the laws of radiant heat transfer;
18. Inability to recognize significance of errors and correct them after they had been identified by Board staff.
19. Failed to write equations where in the units of parameters are consistent on the right and left sides; and
20. Misquotes Applicant's CD .97 and Applicant's references.

The above, when considered in its totality, leads the Board to the finding and determination that Applicant's evidence submitted in support of its application is *not* competent, *not* credible; and does *not* provided a reasonable assurance of trustworthiness in Applicant to employ and/or follow fundamental scientific and engineering principles and practice in the construction, operation and management of its facility.

Applicant, however, chose to proceed to decision, and must be adjudged accordingly and accept the consequences.

*N. SUMMARY OF FUNDAMENTAL SCIENTIFIC AND ENGINEERING ERRORS,  
INCONSISTENCIES AND INADEQUACIES*

In summary, Applicant's risk assessments and oral argument contained a litany of fundamental scientific and engineering errors, inconsistencies and inadequacies, which include, as a partial list, the following:

1. Inconsistencies in mass quantities;
2. Inconsistencies in temperature estimates;
3. Underestimation of air emissions from a fire;
4. Underestimation of pollutant concentrations resulting from a spill into a stream;
5. Disregard for estimates of flame temperature in the Applicant's references;
6. Disregard for estimates of flame height of the Applicant's references;
7. Disregard of the Applicant's references on estimate of combustion efficiency of a fire;
8. Disregard of the Applicant's reference regarding the relationship between the burn rate and the evaporation rate;
9. Use of an inappropriate equation for the calculation of evaporation rates from a fire;
10. Violation of the first law of thermodynamics;

O. CONCLUSION

The instant case is a prime example of the fullest utilization of the technical fact-finding expertise of an administrative board, deeply concerned with values of fairness, acceptability and accuracy. The calculations involved in the risk assessments were of such an elementary nature, that when the Southdown Director of Compliance stated that Applicant did not "have the expertise in-house to conduct the type of detailed verification process" of the complexity required, confidence in Applicant's ability to do *any* engineering calculations was totally undermined.<sup>40</sup>

Good engineering solutions require internal consistencies in the values of parameters used in the calculation. Such was not present in the evidence submitted by Applicant. But further, the concerns of this Board go beyond the internal inconsistencies and violations of fundamental engineering assumptions and scientific law which were found in the risk assessments. For, not only is Applicant's evidence not competent or credible, in several instance, identified *supra*, it could be surmised that Applicant intended for the information to be misleading.

Applicant did *not* demonstrate an ability or intent to adequately respond to and address Board Member questions regarding Applicant's documents. What was demonstrated, however, was

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<sup>40</sup>As Board Member Mr. Tyler aptly spoke: "If the arithmetic is wrong, can we assume all the other stuff is right?" Tr. at 91.

Southdown, Incorporated  
Case No. 91-NF-0700  
*Opinion and Final Order*

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of competent, credible evidence presented by Applicant, which provides a reasonable assurance of trustworthiness in Applicant to employ and/or follow fundamental scientific and engineering principles and practice in the construction, operation and management of its facility.