



18 May 1990

File:10-3-3-20

Mr. Larry deBoer, P.Eng.
Director
Geotechnical & Materials Engineering
Ministry of Transportation
and Highways
940 Blanshard St.
Victoria, B.C.
V8W 3E6

COPY

Dear Mr. deBoer:

Re: Toxicity Evaluation of Road Dust Abatement Chemicals

In follow-up to the Ministry of Transportation and Highways request of October 5, 1989, the Ministry of Environment has now completed the requested toxicity studies for following select dust suppressants:

Product

Supplier

25% Calcium chloride	General Chemicals
35% Calcium chloride	General Chemicals
77% Calcium chloride	General Chemicals
29-35% Magnesium chloride	McTar Petroleum
Sodium lignosulfonate (Raybinder 27% solids)	ITT Rayonier
Calcium lignosulfonate (Lignosite 25% solids)	Georgia-Pacific
Emulsion oil	Mohawk Oil Co.

(Sunlight Laundry Detergent - evaluated for the purposes of comparison to a common non-dust suppressant product.)

Bioassays for aquatic toxicity were conducted by the Ministry of Environment Aquatic Toxicity Laboratory, North Vancouver and included the following standard tests:

- i) 96 hr LC50 rainbow trout;
- ii) ~~48~~ 96 hr LC50 daphnia; and
- iii) Microtox EC50 (marine bacterial assay).

The results of these tests indicated that all of the products evaluated, with the exception of emulsion oil supplied by Mohawk Oil, were in the range of practically nontoxic to nontoxic (ie. LC50 or EC50 of >1000 parts per million to > 10,000 parts per million) for each of the above mentioned assays. Mohawk emulsion oil was found to be slightly toxic in the trout assays with a

calculated LC50 of 200 parts per million. By contrast, Sunlight laundry detergent was shown to be of several orders of magnitude greater in toxicity towards trout and daphnia with a reported LC50 value equal to 10 parts per million for both species and had an EC50 of 36 parts per million.

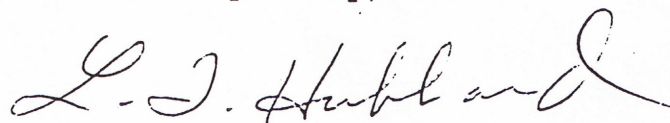
Samples of Lignosite (calcium lignosulfonate) and Raybinder (sodium lignosulfonate) supplied by Georgia-Pacific Corporation and ITT Rayonier Inc respectively, were submitted for dioxin and furan analysis, carried out for the Ministry of Environment by Seakem Analytical Services Ltd, Sidney, B.C. Laboratory testing found no traces of dioxins or furans in either product at the levels of detection.

We have assessed the results of these tests and our assessment has not indicated any definite areas of environmental problems. In this regard we have no objection to the continued use of these products, subject to the use of good application practices which minimize potential impacts on the receiving environment. In this regard the Ministry of Environment recommends the implementation of training programs for all individuals working with these materials, to familiarize them with guidelines for application and that a product quality control program be endorsed for all dust suppressants. The adoption of these measures will ensure the protection of both the public and the environment.

A detailed report of our findings and the results of testing programs is in preparation and will be forwarded to your office at a later date. Copies of the results of toxicity testing and dioxin/furan analysis are enclosed for your reference.

Thank you for your co-operation.

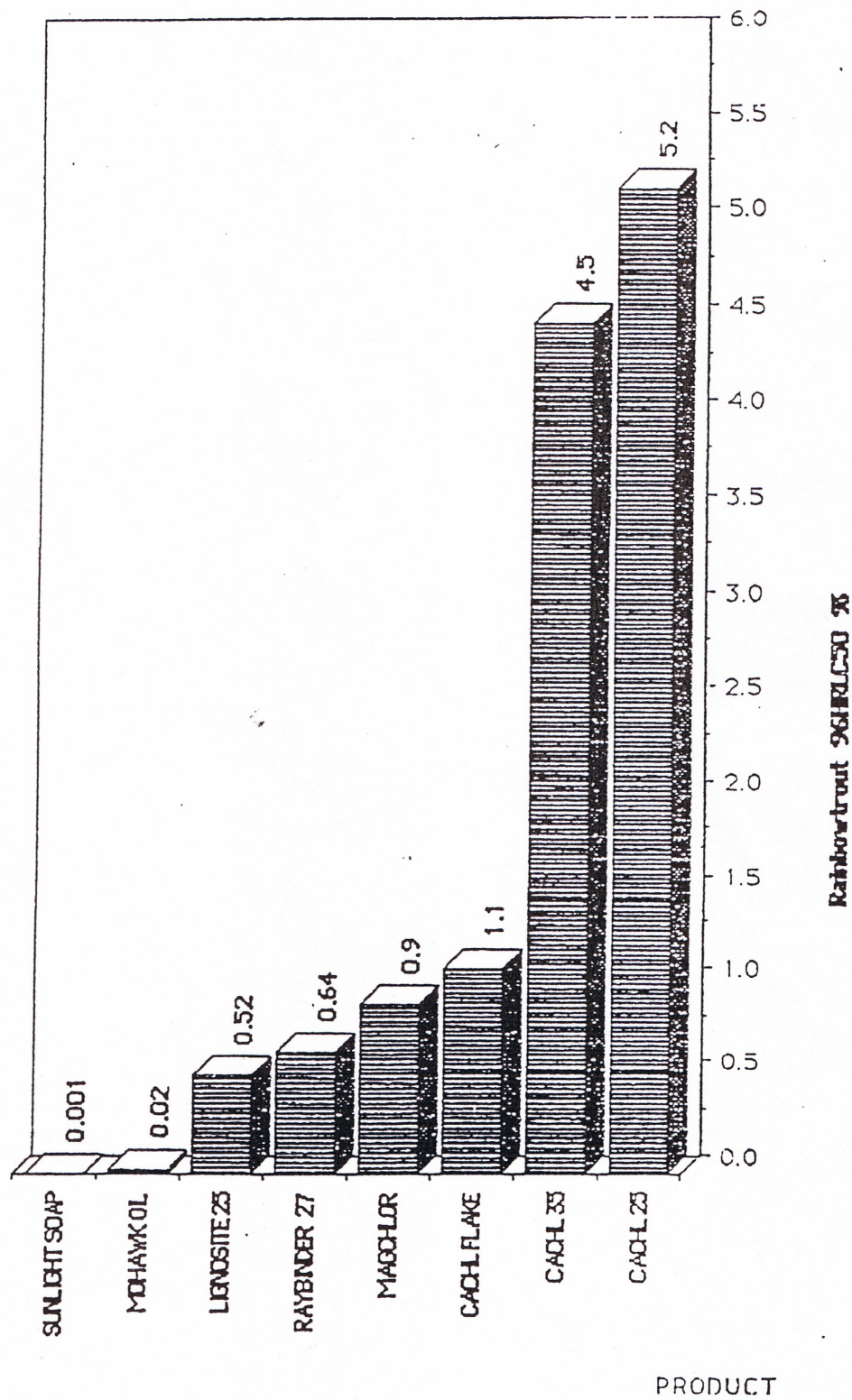
Yours very truly,

A handwritten signature in cursive script, appearing to read "L.T. Hubbard".

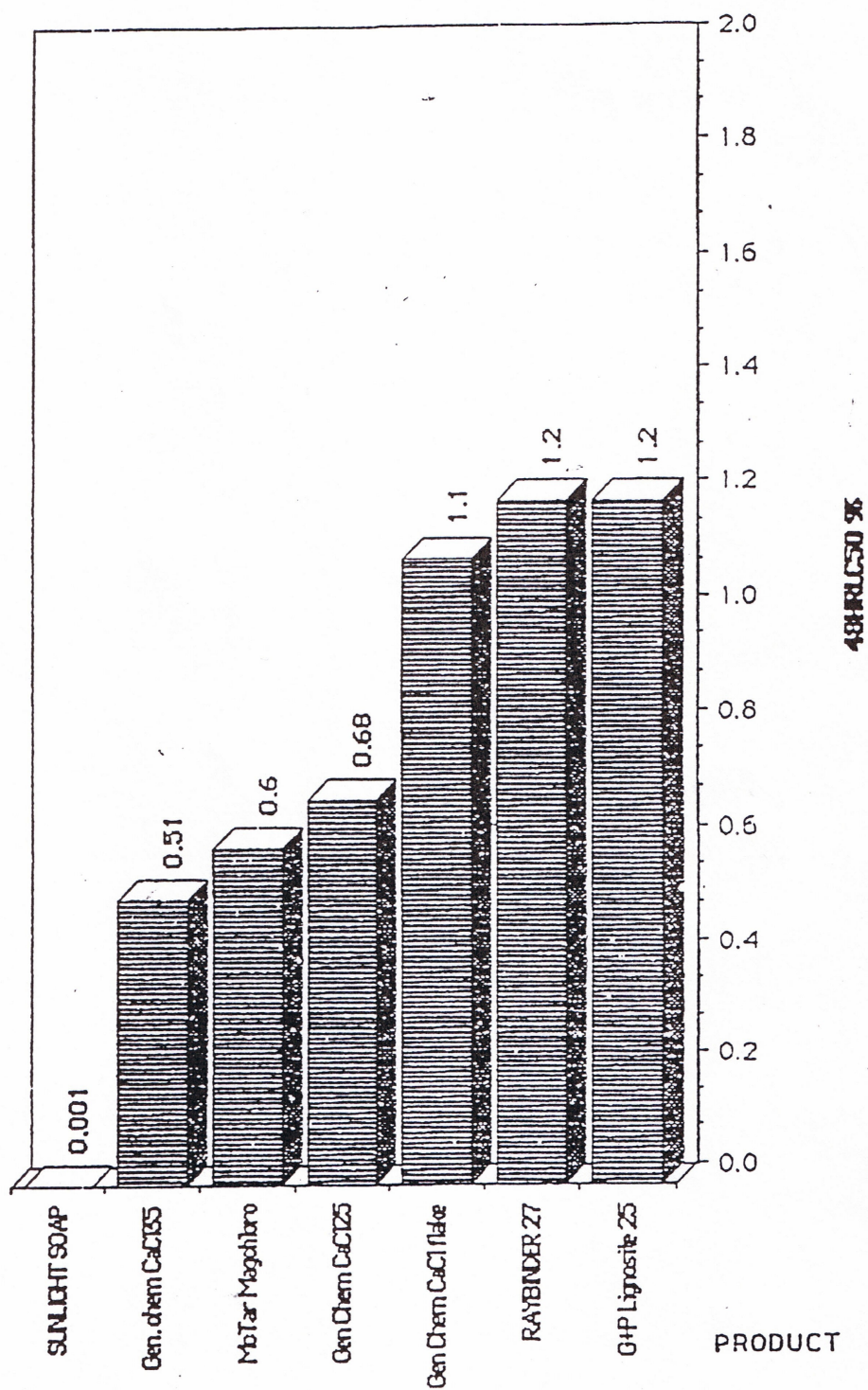
L.T. Hubbard, P.Eng.
A/Director
Municipal Liquid and
Industrial Waste Branch
Environmental Protection Division

Enclosures.

RAINBOW TROUT BIOASSAY RESULTS
DUST SUPPRESSANT STUDY



DAPHNIA 48-HRLC50 BIOASSAY RESULTS
DUST SUPPRESSANT STUDY



MICROTOX EC50 DATA SUMMARY
DUST SUPPRESSANT STUDY

