

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45202

HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. 73-152-111

RICE GROWERS ASSOCIATION
WEST SACRAMENTO, CALIFORNIA
MARCH, 1974

I. TOXICITY DETERMINATION

It has been determined that rice hull dust is not toxic in the concentrations found in the work environment at the Rice Growers Association mill. This determination is based upon the investigator's judgment of the conditions experienced by the Western Pacific Railroad Company employees during the time they are present on the grounds of the Rice Growers Association. The environmental exposure of workers to rice hull dust could not be characterized with air sampling data because climatic conditions were such that dust levels were too low to provide any useful information. There were no apparent adverse effects to workers from exposure to rice hull dust.

It is recommended that approved dust respirators be provided to Western Pacific Railroad Company employees for their short-term use during those times when dust levels become high enough to cause discomfort.

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination Report are available upon request from the Hazard Evaluation Services Branch, NIOSH, U.S. Post Office Building, Room 508, 5th and Walnut Streets, Cincinnati, Ohio 45202. Copies have been sent to:

- a) Rice Growers Association, West Sacramento, California
- b) Western Pacific Railroad Company, Sacramento, California
- c) Authorized Representative of Employees
- d) U.S. Department of Labor - Region IX
- e) NIOSH - Region IX

For the purposes of informing the affected employees, the employer will promptly "post" the Determination Report in a prominent place near where affected employees work for a period of 30 calendar days.

III. INTRODUCTION

Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6), authorizes the Secretary of Health, Education, and Welfare, following a written request by any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The National Institute for Occupational Safety and Health (NIOSH) received such a request from an authorized representative of employees of the United Transportation Union (Director, United Transportation Union, California State Legislative Board) regarding exposure of railroad workers (Local 1935) to rice hull dust at the Rice Growers Association facilities in West Sacramento, California.

IV. HEALTH HAZARD EVALUATION

A. Plant Process - Conditions of Use

The Rice Growers Association (RGA) operates a mill in West Sacramento where harvested rice is separated from its outer protective cover (hull). The mill is equipped with several dust collectors but according to a ruling by the local air pollution control district, the controls are still inadequate. The RGA is in the process of complying with the ruling and is installing supplementary dust collecting devices.

The Western Pacific Railroad has a contract to transport rice for the RGA and is allowed access to the mill to load rice. Depending upon the size of the load, a train crew of four employees remains in the loading dock area for 30-60 minutes per shift and is exposed to the prevailing outdoor dust levels.

B. Initial Worksite Evaluation

On October 30, 1973, an opening conference with representatives of the United Transportation Union and the RGA was held prior to the initial worksite evaluation. Facts relevant to the investigation were discussed.

The train crew would normally stay with the train while the rice is loaded. The train would be located between the warehouse loading dock and one of the mills. On October 30, no trains were scheduled for loading. Dust conditions were extremely light this day which is the case more often than not. However, during certain climatic conditions such as thermal inversions, overcast or fog with no wind, ambient dust levels can increase sharply.

C. Evaluation Criteria

No Federal Standard has been promulgated for rice hull dust. In contrast to fibrogenic dusts which cause permanent damage to the lungs when inhaled in large enough quantities, the so-called "nuisance" dusts have a long history of little adverse effect on lungs and do not produce significant organic disease or toxic effect when exposures are kept under reasonable control.¹ These dusts have also been called (biologically) inert dusts, but this classification is inappropriate since all dusts can evoke some cellular response. All dusts, organic and inorganic, in high enough concentrations can give rise to lung disorders. Inhalation of certain grain dusts has caused temporary or chronic illness.² For example, organic materials contained in the husks and hulls of grain can result in upper respiratory symptoms from an irritation or allergic response. Various dusts have been classified as "nuisance" dusts and are required to be controlled to less than 15 milligrams of dust per cubic meter of air (8-hour time-weighted average) by the Federal Standard as promulgated by the U.S. Department of Labor. It would seem logical to include grain dust as a "nuisance" dust, but it must be stressed that grain dust has not been so classified. Therefore, for the purposes of making such a classification, a characterization of environmental levels, work practices, and subsequent worker symptomatology should be made.

D. Evaluation Results

Environmental levels for rice hull dust were not measured because ambient levels for the prevailing climatic conditions were too low to provide any meaningful data. A train crew was not present during the day of the evaluation, but the Legislative Representative for Local #1935 (United Transportation Union) who initiated action on this request and works on one of the train crews was available for interview. He stated that to the best of his knowledge, no workers were complaining of suffering any adverse effects from working near the mill but he felt that conditions were not healthy when dust levels were high. Several facts were clarified or obtained during this evaluation: (1) dust levels were high only during certain climatic conditions, (2) rice is harvested only during the autumn months, (3) a train crew is exposed to ambient rice hull dust for a period of 30-60 minutes per day, and (4) no apparent symptomatology was noted among train crew employees.

Therefore, it is concluded that rice hull dust at the concentrations experienced by train crews under the conditions found in the work environment at the time of the evaluation were not toxic.

E. Recommendations

A closing conference with representatives of the United Transportation Union and the Rice Growers Association was held to discuss

findings and recommendations. Although the conclusion of the investigator was that rice hull dust was not toxic under the conditions found during the evaluation, recommendations were made to management in order to offer more complete protection to workers. It is recommended to:

- 1) Provide approved dust respirators to train crews for short-term use when unusually severe ambient dust levels are present.
- 2) If new evidence that workers are being adversely affected by rice hull dust appears, a new request for a health hazard evaluation should be submitted so that evaluation of dust exposures can be made.

V. REFERENCES

1. American Conference of Governmental Industrial Hygienists (ACGIH): Threshold Limit Values (TLV's), 1973.
2. "Hazards to Grain Handlers," Occupation Health Bulletin, Vol. 21, Nos. 11 & 12, 1966.

VI. AUTHORSHIP

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