U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45226

HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. 76-12-347

U.S. POST OFFICE
CHICAGO, ILLINOIS

DECEMBER 1976

I. TOXICITY DETERMINATION

It has been determined that no health hazard exists from dust as found in the work room air of mail bag handling areas as studied. Samples collected by NIOSH industrial hygienists indicated a maximum personal exposure of less than 10% of the evaluation criteria for nuisance dust (10 mg/M^3).

An actual Health Hazard Evaluation could not be performed on interior building painting procedure due to procedural problems and constantly changing conditions. However, it appears that administrative controls can be applied as required for the hours of possible exposure or complaint as needed.

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination Report are currently available upon request from NIOSH, Division of Technical Services, Information and Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days the report will be available through the National Technical Information Service (NTIS), Springfield, Virginia. Information regarding its availability through NTIS can be obtained from NIOSH, Publications Office at the Cincinnati address.

Copies of this report have been sent to:

a) Postmaster, U.S. Post Office, Chicago, Illinois
b) Authorized Representative of Employees
c) U.S. Department of Labor - Region V
d) NIOSH Regional Consultant for OSHA - Region V

For the purposes of informing the "affected employees", the employer will promptly "post" the Determination Report in prominent places near where the 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 the Postmaster for the City of Chicago, regarding the exposure of employees to dust during mail bag handling. The Postmaster of Chicago also entered a written request that the spray painting of the building interior also be evaluated relative to health hazards to his postal employees.

IV. HEALTH HAZARD EVALUATION

A. Plant Process - Conditions of Use

The main United States Post Office in Chicago receives, separates for distribution and processes mail and provides those services required relative to envelope and package "mailing" in a building which has been described as the largest post office under one roof in the world.

After mail bags are emptied of their contents, they are transported by chutes (floor to floor) or conveyor belts to various locations for sorting, inspection and stacking. Major collection areas are in six different floors (4 thru 9) all of which were described by employees as "dusty", as well as two outside handling areas; the Platform and Central Truck Terminal (CTT).

The entire interior of the main post office building is being spray painted (airless spray) by a painting contractor. When painting first began, about the beginning of 1976, the areas to be painted were not completely curtained off from postal workers - and many complaints of paint odors were received. At the time of this evaluation (May, 1976), it was the practice to, as completely as possible, curtain off the area to be painted with plastic sheeting. This practice has done much to alleviate complaints.

B. Evaluation Design

1. Dust

All bag handling areas in the building, on six different floors (4 thru 9) were observed. It was decided to sample for dust (nuisance) on the (7th) seventh floor, north end, which was described by the union representative as the dustiest location complained of by workers.

2. Paint

In view of the fact that the post office is in very close proximity to the NIOSH Regional Office V, several observations of the interior building painting were made when it was noted on the first visit that postal worker exposure was minimal. On one occasion a battery charging room was being painted. All equipment was covered and only painting contractor personnel were present. On other occasions very large areas (approximately 150 ft. X 200 ft.) were curtained off by plastic sheeting - from ceiling to floor, and no postal workers were seen in the immediate vicinity.

No study was made of the airless spray painting of the building interior for the following reasons:

a. The areas being spray painted were completely curtained off from Post Office workers, minimizing their exposure to a point deemed unnecessary for study.

b. The conditions of exposure to Post Office workers is constantly changing.

c. The only definitely exposed personnel were those of the painting contractor, who are not employees of the requester.

C. Evaluation Methods

1. Survey Sampling

Atmospheric sampling for the detection of nuisance dust in the work-room was accomplished by drawing air through a preweighed 37mm PVC filter of 5.0 um pore size, (closed face), via a gravimetric personal sampling pump operating at a rate of 2.0 liters per minute. One area sample (at supervisors desk) was taken as well as five (5) breathing zone personal samples. All samples were taken for "total" dust.

2. Analytical Method

The membrane filters in three (3) piece cassettes were forwarded to the Utah Biomedical Test Laboratory, Salt Lake City, Utah, for analysis. Gravimetric method of analysis was utilized on the previously preweighed filter cassettes units, and results reported in total milligrams of dust collected.

D. Evaluation Criteria

The primary criteria used for the evaluation of nuisance particulates (dust) was the Threshold Limit Values for Chemical Substances in the Workroom Environment for 1975 of the American Conference of Governmental Industrial Hygienists[1]. That TLV for Nuisance Particulates, containing less than 1% quartz, is 10 mg/M^3 of total dust <1% quartz.

E. Evaluation Results And Discussion

Six (6) air samples were taken for the evaluation of total dust in the bag handling and sorting areas of the Main Chicago Post Office. The sample results from this study indicated no personal exposure above 10% of the TLV for total nuisance dust. Actually the highest sample result obtained was a 59 minute sample of a worker while sweeping the floor and this result was 9.9% of the TLV. Table 1 lists results from dust sample collection.

A "white glove" type of inspection of horizontal surfaces indicated no more dust than one might expect in a normal home environment. It would not have been possible to collect an adequate ledge dust sample from most horizontal surfaces noted due to an inadequate quantity of settled material present.

F. Conclusions

1. Dust

It is concluded from samples collected, analyzed and evaluated as well as visual observations that no health hazard exists from total nuisance dust to Postal Workers in the areas observed.

2. Paint

It is concluded from several observations that it is not possible to study the interior building spray painting procedure and obtain results which would be valid to interpret and apply to other areas of the building.

V. RECOMMENDATIONS

A. Good maintenance practice would dictate the use of a sweeping compound during clean up operations. If workers do not see dust being disseminated in the air, complaints will be greatly reduced.

B. If complaints are received from Postal Workers during the building spray painting, it is recommended that administrative controls be utilized to alleviate the problem for the few hours of its existence. The Safety Officer of the Post Office has been supplied a graph with which to spot sample using an explosimeter to determine the order of magnitude of personnel exposure. A copy of this graph is attached to the back of this report.

VI. REFERENCE

Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes for 1975, American Conference of Governmental Industrial Hygienists.

VII. AUTHORSHIP AND ACKNOWLEDGEMENT

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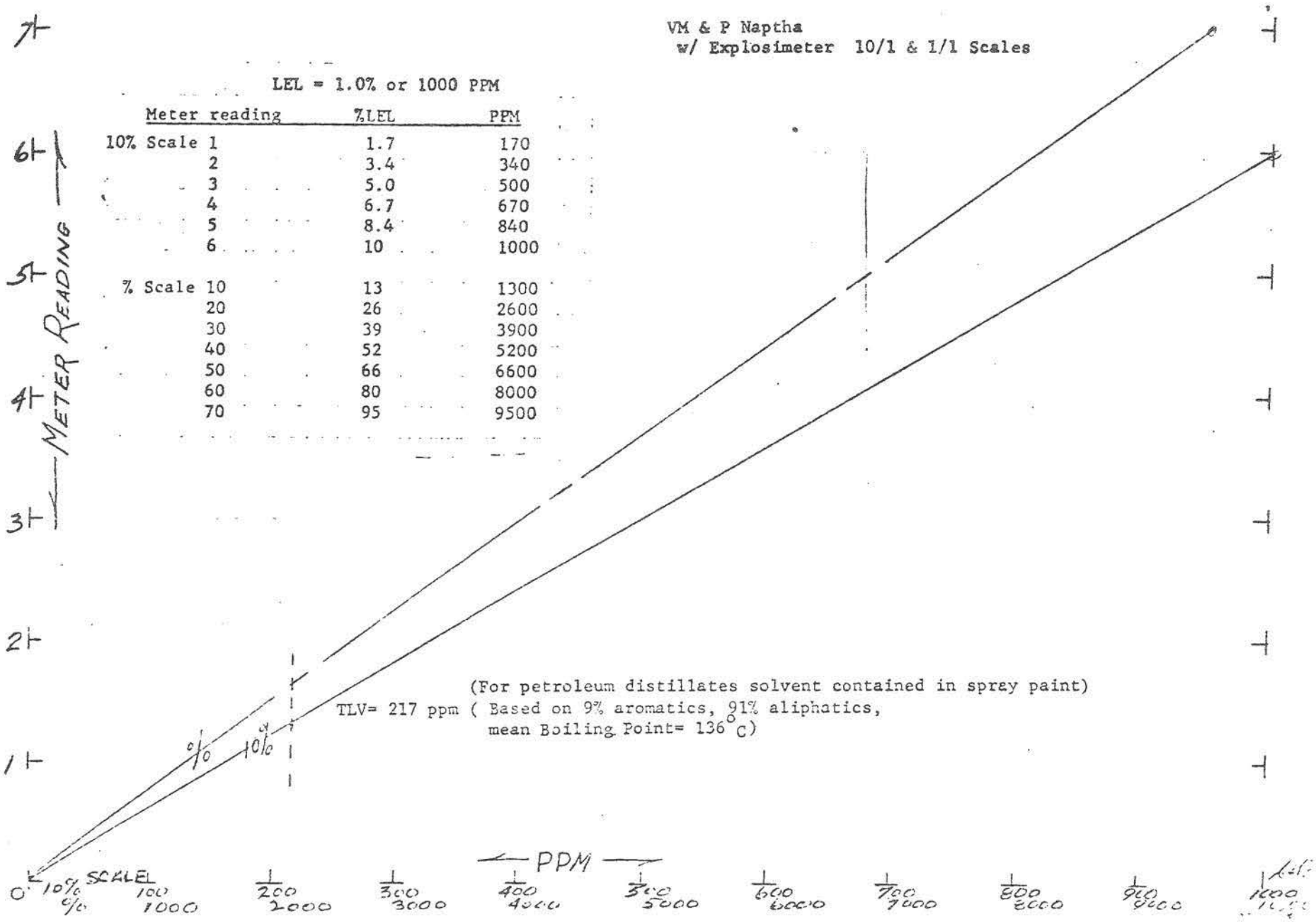
TABLE 1

AIRBORNE CONCENTRATIONS OF NUISANCE DUST TLV = $10mg/m^3$

U.S. POST OFFICE
CHICAGO, ILLINOIS
MAY 1976

SAMPLE	TYPE	VOLUME LITERS	TIME MIN.	mg/m^3	% TLV
1	Area	600.9	284	0.1498	1.5
2	Personal	90.6	54	0.9931	9.9
3	"	506.1	282	0.8891	8.9
4	"	465.6	281	0.7732	7.7
5	"	471.8	271	0.5732	5.7
6	"	364.4	185	0.2195	2.2
7	Blank	0.0	0	-	-
8	"	0.0	0	-	-
9	"	0.0	0	-	-
10	"	0.0	0	-	-

EXPLOSIMETER RESPONSE CURVE



LEL = 1.0% or 1000 PPM

Meter reading		%LEL	PPM
10% Scale	1	1.7	170
	2	3.4	340
	3	5.0	500
	4	6.7	670
	5	8.4	840
	6	10	1000
% Scale	10	13	1300
	20	26	2600
	30	39	3900
	40	52	5200
	50	66	6600
	60	80	8000
	70	95	9500