James W. Hammond presentation
for Humble Safety Meeting
November 18, 1969

LIVING WITH WALSH-HEALEY AND SIMILAR FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Because history is the rope of the past with which we ring the bells of the future, a few actual examples from Humble's past experience will serve to illustrate how we plan to live with future federal occupational regulations and standards. Mr. A. H. Diserens will explain how Humble meets the Federal Supply Contract Regulations (W.H. Act) governing noise. We will leave that important field to him for discussion.

A development of interest because it indicates the trend in our fields, a task force from HEW is developing priorities for occupational air standards. Federal agencies like the Bureau of Labor Standards and HEW plan to use these criteria to set workroom standards, such as TLV on a firmer foundation than these have now.

Early findings from a preliminary survey of industrial plants in the Chicago region and by projection to the national scale gave the following list the top ten hazardous substances and agents:

TABLE 1

Carbon monoxide	Pitch and tar
Lead	Mercury
Silica (free SiO_2)	Cadmium
Carbon tetrachloride	Noise
Benzene	Heat stress

For your information and files, a full list of about 180 priorities, as established by HEW, is appended to this paper.

Benzene is a good example of a commonly known toxic substance on the HEW list. It has been given threshold limit value (TLV) of 25 ppm by ACGIH. These TLV's have been adopted by reference in the Walsh-Healey Regulations.

For many years Humble has monitored work conditions for potential benzene exposures by both air determinations and by measuring employees' actual work exposure. This is done by determination of urinary phenol which is the common metabolite of absorbed benzene. It may gain entrance by either inhalation or/and skin absorption. These tests are started at or before the employees' work exposure begins, Table 2. For the start-up period or until operations have been stabilized, phenol levels should be measured frequently. After conditions are normal, monthly measurements are usually adequate and less sampling may usually be scheduled for a regular schedule.

Table 3 shows our experience with a group of employees loading a tanker. This would be similar to a unit start-up. We don't believe this type of control program can be effectively carried out by drop-in types of inspections of a plant. Only actual and frequent determinations of actual exposures are meaningful for evaluation here. Therefore, only an internal

because there are too many pressing unsolved problems. I urge that enforcement groups, in the administration of regulations which we have or may yet obtain, approach the field of environmental health thus:

1. Industry should be shown the courtesy of proof that a potential problem exists and that there are feasible means of controlling a hazard; particularly where the cost of correction is sizable. Any attempt at a forced change in a method or process that has no bearing on the actual health of the employees is a serious infringement on industry's rights to meet the public needs at a competitive cost.
2. Unreasonable criteria and subsequent standards will adversely affect our economy, labor relations and unjustifiable claims in compensation cases.
3. Only the objective viewpoint should be taken.
4. The goal should be prevention of injury and occupational diseases.

Our governmental agencies and industry alike must live together in an atmosphere of harmony and mutual desire to work together in the field of occupational health toward the same ends.

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program can show the full and true conditions regarding a very serious potential health hazard.

A few years ago two crafts in one of the main shops became grieved with each other over the failure of one to use its available exhaust control devices effectively. To referee the question of whether or not there was health risk associated with the fumes involved, in addition to evaluating the complaint of dirt in the shop, our own industrial hygiene team surveyed the air and other pertinent factors. The complaints persisted on report of negative findings so, on the workers' suggestion, we invited the Industrial Health section of the State Department of Health to evaluate the question. The crafts accepted their answer, which confirmed our earlier findings, and there have been fewer complaints for the past 15 years.

The final example is shown in Chart 2, It represents a 20-year period of success in the control of lead exposure among an average of 100 painters. The year prior to the initiation of an industrial hygiene program, there were 3 lead poison cases. There has not been a single case in over 20 years.

In conclusion, I should like to stress to you forcefully, both the serious trends in government regulations and the complex or subtle technical state in which industrial hygiene finds itself practicing today. We have moved forward in our field of science, but we surely need no hindrance to further progress,

TABLE 3

URINARY PHENOL CONCENTRATIONS

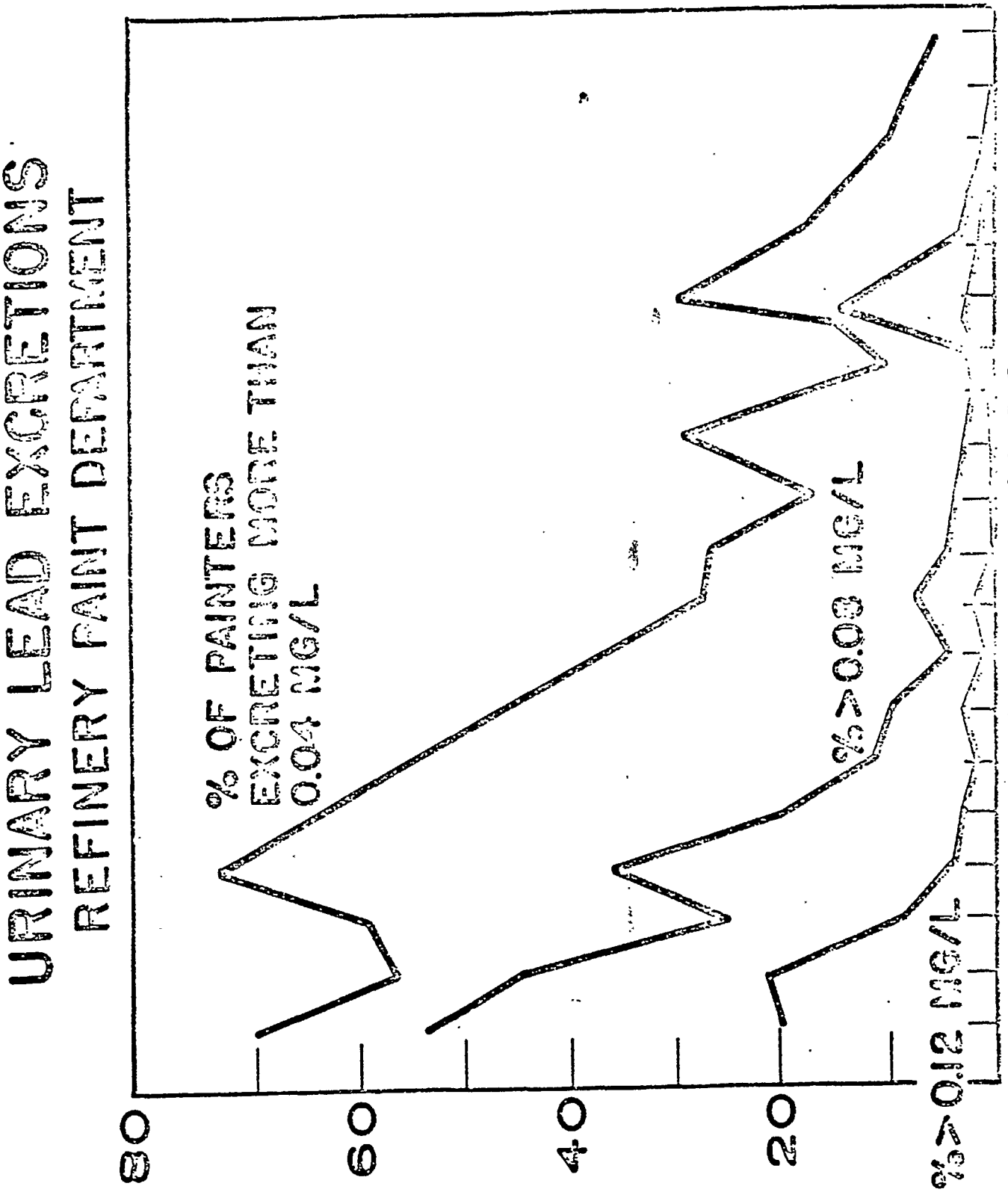
Job	Urinary Phenol, mg/l Before	After	△
Crane Operator	6.6	6.6	0
Pipefitter	5.1	12.8	7.7
Pipefitter	8.6	30.0	21.4
Pipefitter	6.9	10.0	3.1
Pipefitter	7.6	13.0	5.4
Pump Operator	4.1	7.9	3.8
Inspector	10.5	44.9	34.4
Inspector	21.9	27.8	5.9
Hygienist	6.0	45.0	39.0

TABLE 2

BENZENE IN AIR CONCENTRATION

Time	Location	Concentration ppm
0830	Manifold Hook-Up	Nil
1000	Leaky Manifold	Trace
1100	Walkway at Tank Vent	Trace
1200	Ullage Port, Gauger's Breathing Zone	125-150
1320	Draining Hose to Dock Pan	60-110
1350	Hooking Up to Ship's Tank	10
1545	Downwind While Loading	12
1615	Vent Line	1400
1700	Ullage Port	600
1706	20' Downwind of Dock Manifold	7

CHART 2



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APPENDIX

June 26, 1969

Priorities for Criteria for Hazardous Agents*

Aver. Rating	BOSH	Priority	Agent	Action
(14) 7	9	1	Carbon monoxide	Work began 6/25/69
(4) 7	9	1	Coal dust	Interim std. 12/15/6
(16) 7	9	1	Noise (Cont.& Inter)	
(12) 7	8	1	Benzene	
(11) 7	8	1	Carbon tetrachloride	
(11) 6	8	1	Heat stress	
(16) 7	8	1	Lead & cpds.	

*Note: Final priorities grouped according to the following:

1. Includes BOSH priorities 9 and 8 and the highest averages of 7 and 6 ratings.
2. BOSH 8 and 7 and highest averages of 7, 6 and 5 ratings.
3. BOSH 6 and highest averages of 6 and 5 ratings (except for gasoline).
4. BOSH 7 and 6 and 5 and 4 average ratings.
5. BOSH 6 and 4, 3, or no average ratings.
6. No BOSH rating from 9-6 but 7, 6 and 5 average ratings (12 substances).

Aver. Rating	BOSH	Pricrity	Agent	Action
(8)6	8	1	Pet. Naphtha & Min. Spts.	
(15)7	8	1	Silioa (cryst. & misc.)	
(6)6	8	1	Oil mists	
(11)5	7	2	Asbestos	Interim std. rec'd. 8/1/
(3)6	7	2	Asphalt	
(8)5	7	2	Ammonia	
(11)7	7	2	Cadmium & opds.	
(5)6	7	2	Chlorobenzene	
(5)5	7	2	Chloroform	
(8)6	7	2	Chromium opds.	
(6)5	7	2	Ethylene dichloride	
(5)7	7	2	Epoxy resins	
(9)5	7	2	Fluorides & HF	
(6)5	8	2	Kerosene	
(5)6	7	2	Methylene chloride	
(8)5	7	2	Nitric acid	
(9)5	7	2	Nitrogen oxides	
(6)5	8	2	Phosgene	
(8)7	7	2	Pitch & coal tar vol.	

Aver. Rating	BOSH	Priority	Agent	Action
(8)5	8	2	Sulfuric acid	
(9)5	7	2	Sodium hydroxide	
(12)5	7	2	Tetrachloroethylene	
(2)6	7	2	Tin and opds.	
(9)5	7	2	Trichloroethane	
(12)6	7	2	Toluene	
(12)6	7	2	Toluene diisocyanate	
(7)6	-	2	MDI	
(12)6	7	2	Trichloroethylene	
(5)6	7	2	Ultraviolet	
(8)5	6	3	Acetone	
(3)6	6	3	Acrolein	
(3)5	6	3	Aniline	
(5)6	6	3	Carbon disulfide	
(10)5	6	3	Chlorine	
(8)5	6	3	Chromic acid	
(8)5	6	3	Copper & opds.	
(10)5	6	3	Cyanides	
(7)5	6	3	Fibreglas	

Aver. Rating	BOSH	Priority	Agent	Action
(9)6	6	3	Formaldehyde	
(7)4	8	3	Gasoline	
(6)5	6	3	Hydrogen sulfide	
(11)5	6	3	Iron & opds.	
(6)6	6	3	Manganese & opds.	
(12)6	6	3	Mercury	
(10)6	6	3	Methylethyl ketone	
(8)5	6	3	Ozone	
(4)6	6	3	Phenol	
(2)6	6	3	Platinum & opds.	
(2)6	6	3	Tetraethyl lead	
(6)6	6	3	Styrene	
(5)5	6	3	Vinyl ohloride	
(12)5	6	3	Zinc & opds.	
(5)4	6	4	Aluminum & opds.	
(3)5	7	4	Creosote	
-	7	4	2,4 Dinitrophenol	
(8)4	7	4	Niokel & opds	
(5)4	7	4	Phosphorous & opds.	
(3)5	6	4	Methyl ohloride	
(4)5	6	4	Tetraohloroethane	

Aver. Rating	BOSH	Priority	Agent	Action
-	6	5	Acrylonitrile	
-	6	5	Ammonium nitrate	
-	6	5	Cold	
(2)4	6	5	Dioxane	
(4)4	6	5	Ethyl benzene	
(4)4	6	5	Fluorine	
(8)4	6	5	Magnesium & cpds.	
(9)4	6	5	Methyl alcohol	
(8)3	6	5	Microwaves	
(3)4	6	5	Nitroglycerine	
-	6	5	Paraffin	
(4)4	6	5	Ph osphine	
(4)4	6	5	Uranium	
(8)5	-	6	Arsenic	
(5)6	-	6	Arsine	
(11)6	-	6	Beryllium	
(5)5	-	6	Cresol	
(7)6	-	6	Hydrogen chloride	
(7)6	-	6	MDI	
(4)6	-	6	Methyl butyl ketone	
(6)7	-	6	Portland cement	

Aver. Rating	BOSH	Priority	Agent	Action
(7)5	-	6	Selenium & cpds.	
(5)7	-	6	Talc	
(5)5	-	6	Turpentine	
(11)6	-	6	Xylene	

Note: Insecticides, both organic phosphates and chlorinated hydrocarbons, would fall in Class (1), our highest priority ((7)6-9). However, these were not inoluded in our list because CDC has the responsibility in this area.

HFM
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