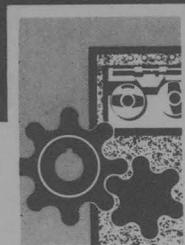


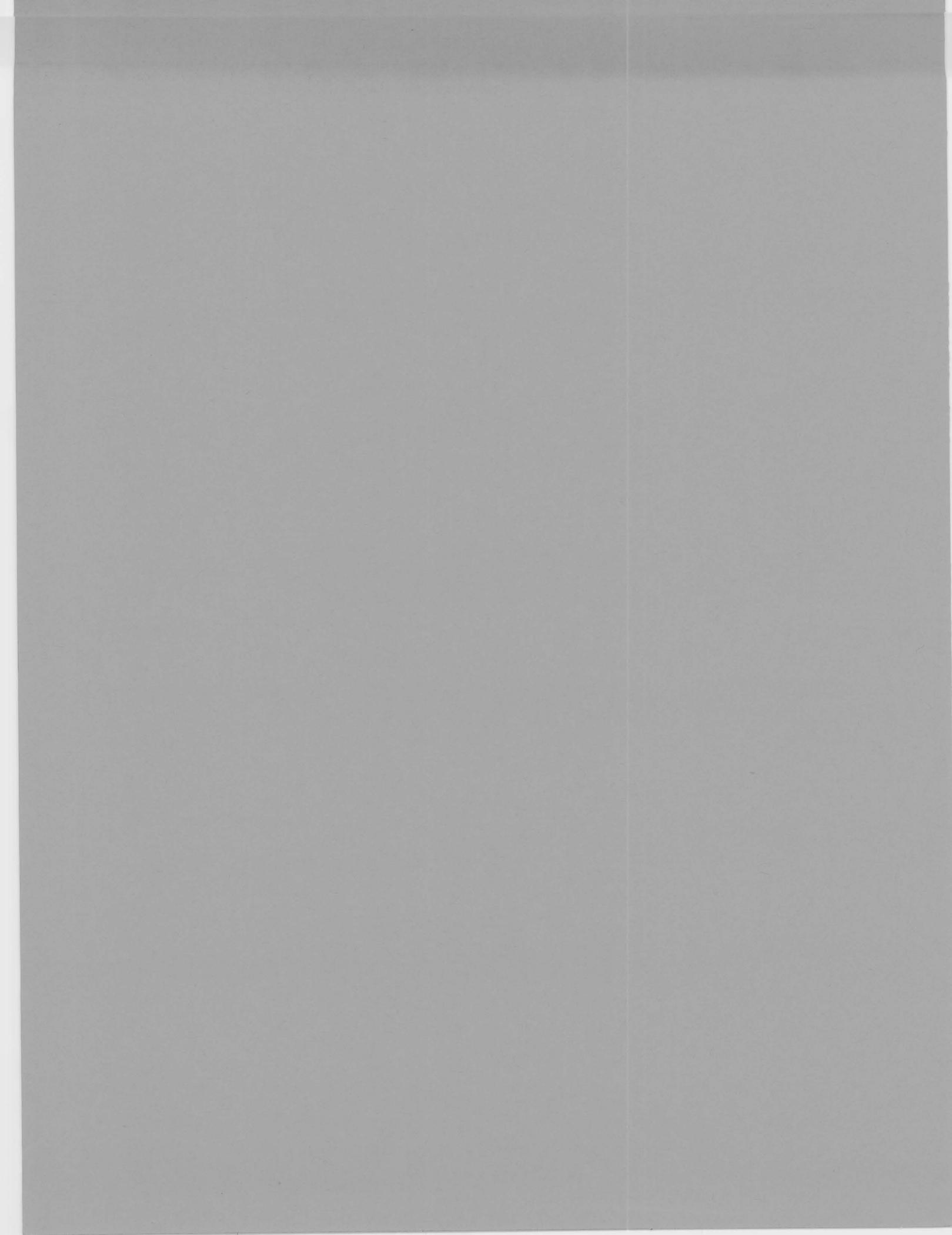
NIOSH



TECHNICAL REPORT

Health Effects Evaluation Data File

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health



Health Effects Evaluation Data File

Data File Design, Abstraction, Coding, and Computerization
of the 1977 and 1978 Health Hazard Evaluation and Technical Assistance Reports

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ABSTRACT

Since 1971, over 700 Health Hazard Evaluation (HHE) and Technical Assistance (TA) requests have been submitted to the National Institute for Occupational Safety and Health (NIOSH) and have resulted in final reports of industrial hygiene and/or medical field surveys. Selected data released in 1977 and 1978 from the HHE and TA reports are part of the computerized Health Effects Evaluation Data (HEED) File. The data in the HEED File provide environmental and medical information that can be used in the surveillance of occupationally related health effects. This report describes the design of the HEED File and the methods used to abstract, code, and computerize HHE and TA data. Sample computer printouts of HHE and TA report data are provided.

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INTRODUCTION

To implement Section 20(a)(6) of the Occupational Safety and Health Act of 1970, the Health Hazard Evaluation and Technical Assistance (HHE/TA) Program was established (1971) in the National Institute for Occupational Safety and Health (NIOSH). Section 20(a)(6) provides, as follows:

"He (the Secretary of Health, Education, and Welfare) shall determine, following a written request by any employer or authorized representative of employees, specifying with reasonable particularity the grounds on which the request is made, whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found, and shall submit such determination both to employers and affected employees as soon as possible."

Requests from employers and from employee representatives who are covered under the 1970 OSH Act and the Federal Mine Safety and Health Act of 1977, for determinations of toxicity in their workplaces, are designated health hazard evaluations (HHEs). Requests from employers who are not covered by the 1970 OSH Act (such as Federal, state, and local government), or for evaluations other than those relating to a determination of toxicity, are designated Technical Assistances (TAs). Requests from the Occupational Safety and Health Administration (OSHA), in the Department of Labor (DOL), for evaluations (usually of medical problems) are also designated TAs.

Since 1971, requests for HHEs have resulted in 600 final reports (as of June 1979). Since mid-1976, 132 final TA reports have been completed. TA record-keeping before that date is not complete.

The final reports represent the findings of surveys conducted by teams of occupational health professionals. The surveys comprehensively cover the problems cited in the requests. Industrial hygienists investigate closely the workplace environment and particularly the process areas covered by the request for existing and potential chemical, physical, and biologic hazards. Current industrial hygiene methods of sampling and analysis, and data from toxicological literature reviews, are employed in determining environmental toxicity. Occupational health physicians, nurses, epidemiologists, and other specialists evaluate the adverse health effects experienced by workers. The scarcity of documented health effects data on workers from field studies makes these medical evaluations an important source of health effects information.

Evaluations of environmental and medical conditions may be conducted independently or jointly, depending upon the investigators' judgment of the utility of correlating exposure with effects. In either event, the data are limited because only hazards that result in acute effects or that manifest a well defined toxicity can be readily investigated. Questions of potential or chronic toxicity are difficult to investigate during the few days that are available for HHEs and TAs.

Final HHE and TA reports are distributed to NIOSH, OSHA, employers, and employees. In addition, the reports are kept by the National Technical Information Service (NTIS) for dissemination to the general public upon request. The HHE reports also can be accessed, in summary form, through NIOSHTIC, which is a NIOSH computerized file of occupational safety and health information. Each record in NIOSHTIC includes certain record identifiers, an abstract of a published reference, and a group of keywords. The system can be searched by keywords or by the abstract's text words. The actual references are available on microfiche as part of NIOSHTIC's backup file.

These dissemination efforts meet some but not all of the information needs of potential users of the data. Because of this, NIOSH decided in October 1976, to explore the feasibility of computerizing descriptive and quantitative information found in the HHE and TA reports. The Health Effects Evaluation Data (HEED) File is the result of that study. This report describes the data file design; the methodology for data abstracting, coding, and computerizing; and sample report printouts that are available from the present HEED File.

One goal of the Surveillance Branch, Division of Surveillance, Hazard Evaluations, and Field Studies (DSHEFS), is to collect, analyze, and disseminate information on workplace hazards and health effects. To do this, full use is made of existing data sources. For this reason, the computerization of the HHE and TA reports was undertaken by the Surveillance Branch in cooperation with the Hazard Evaluation and Technical Assistance Branch (HETAB) of NIOSH.

The importance of these reports is that they provide environmental and medical data about:

- (1) previously unrecognized or new hazards,
- (2) previously unrecognized or new health effects of known hazards, or
- (3) known hazards for which scientific understanding of the toxicity has changed over a period of time.

For the data to be extracted from the HHE/TA reports, the reports had to be consistently and quantitatively abstracted, coded, and computerized for specific data items. The reports, individually or as a group, are not a statistical sample. A correctly designed data base of the reports, however, can yield summary information from more than one report. In aggregate form, the HEED File can provide useful data for occupational health surveillance.

This description of the HEED File is limited to the 1977 and 1978 HHE and TA reports. Certain modifications of the file structure have been planned for the computerization of the 1979 HHE and TA reports, but compatibility between the 1977 to 1979 report files will be maintained. Plans are also being formulated for the computerization of HHE and TA reports issued prior to 1977.

DATA BASE DESIGN

Since HHE and TA reports vary in length, content, and complexity, it was necessary to identify information that was common to all HHE/TA reports and to select, from this information, data items that met criteria of consistency, comparability, and utility.

The following data items were included in the final data base design. These data items are fully described and referenced in Table 1.

A. General Report Information

- (1) HHE or TA File Number
- (2) Date of Request
- (3) Date of Report
- (4) Name of Establishment
- (5) Location of Establishment
 - (a) Zip Code
 - (b) NIOSH/OSHA Region
- (6) Size of Establishment
- (7) SIC Code for Establishment
- (8) Requestor
- (9) Type of Survey
- (10) Dates of Survey
- (11) Investigators
- (12) Number of Exposed Employees

B. Hazards

- (1) NOHS Hazard Codes
- (2) RTECS Accession Numbers
- (3) CAS Numbers
- (4) Environmental Toxicity Determinations
- (5) Medical Toxicity Determinations

C. Occupations

- (1) Bureau of Census Occupational Categories
- (2) Job Title and Process Area Descriptions

D. Environmental Samples

- (1) Hazards Sampled
- (2) Occupations Sampled
- (3) Forms of Hazards
- (4) Type of Samples
- (5) Number of Samples
- (6) Maximum Concentrations
- (7) Minimum Concentrations
- (8) Average Concentrations
- (9) Units of Concentration
- (10) Sampling Methods
- (11) Analytical Methods

E. Morbidity and Mortality Data

- (1) Signs and Symptoms
- (2) Diagnoseable Illnesses
- (3) Deaths
- (4) Hazard Exposures
- (5) Occupations of Workers
- (6) Number of Workers
- (7) Contributing Traits of Workers

F. Laboratory and Medical Tests

- (1) Name of Tests
- (2) Hazard Exposures
- (3) Occupations of Workers
- (4) Number of Workers
- (5) Contributing Traits of Workers
- (6) Number of Samples or Test Runs
- (7) Maximum Values
- (8) Minimum Values
- (9) Average Values
- (10) Units of Concentration
- (11) Sampling Methods
- (12) Analytical Methods

One problem that was encountered in adapting HHE and TA data to form a computerized format was the concern of linking environmental samples (D above) to morbidity and mortality data (E above) and laboratory and medical tests (F above). If environmental and medical data from HHE and TA reports could be linked for individual workers or groups of workers (identified by common job title and/or process area categories), this data base could be more useful for epidemiologic purposes. At present, this is not the case. Therefore, demographic, medical, and environmental data for individual workers were not included in this data base.

Current hazard evaluation procedures often make it impossible to link medical and environmental information about individual workers. In general, environmental and medical data are presented separately in the reports and may have been collected at different times. Often the only apparent factor in common between environmental and medical surveys is the process area(s) within the establishment where the surveys were conducted. Results of medical examinations and interviews are not identified on an individual basis.

Personal or breathing zone samples taken during environmental surveys are reported individually by job title and/or process area, but are not linked to medical survey results. Medical interview and examination results are presented by medical outcome only, and rarely by occupational groupings or individual workers. Morbidity and mortality data are not linked to the quantitative results of laboratory and medical tests. These results are presented for individuals, but infrequently identify occupations or process areas. In a few instances, diagnoseable illnesses are noted and related to worker characteristics, e.g., the age, sex, race, past individual medical history, family medical history, occupational history, past hazard exposure history, and smoking and alcoholic consumption habits of the worker concerned; but illness rates cannot feasibly be inferred from this information.

Where possible, data items such as size of establishment, SIC code, NOHS hazard code, RTECS accession number, CAS number, Bureau of Census Occupational Categories, and diagnoseable illnesses and deaths are taken from established coding systems. These data items will be revised and updated as the coding systems are updated. For example, the medical data from 1979 HHE/TA reports will be coded according to the ICD-9-CM (Clinical Modification of 9th Revision of the International Classification of Diseases--Adapted).

DATA ABSTRACTION, CODING, AND COMPUTERIZATION

The 1977 and 1978 HHE and TA reports were read, abstracted, and coded by people with strong backgrounds in chemistry. These people were employed through the data processing contractor.

One of the primary tasks of the chemist-coders was to generate tables for the following data items:

- (1) Name of Establishment
- (2) Requestor
- (3) Type of Survey
- (4) Investigators
- (5) Job Title and Process Area Description
- (6) Form of Hazard
- (7) Type of Sample
- (8) Units of Concentration
- (9) Sampling Method
- (10) Analytical Method
- (11) Signs and Symptoms
- (12) Laboratory and Medical Tests
- (13) Contributing Traits

These items are comprised only of word descriptions. Established coding systems were not used to code them because established coding systems either did not exist or were considered unsatisfactory. Therefore, the HEED File had to develop coding systems.

In developing the coding systems, the first step was to define a universe of table elements for each data item. Tables were formed and numeric codes assigned sequentially to word descriptions. Word descriptions were written as they appeared in the HHE/TA reports. The result was tables with randomly listed table elements. The table elements were not entered in the tables in a structured manner. Examples of the tables for these data items are given in Appendix A. In addition, a table (Table N) is included showing the word descriptions for the NOHS hazard codes. The titles for these tables were written by the data processing contract programmer and, in some cases, differ slightly from the names of data items given in this report.

For some of these data items such as Name of Establishment, Requestor, Form of Hazard, and Type of Sample, conversion to a structured coding system is not necessary. Almost every HHE and TA report requires a different table entry for Name of Establishment and Requestor. Type of Sample and Form of Hazard

have very few table entries (less than 50) which are not readily categorized into groups. Nevertheless, there are some important advantages to attaching a numeric code to the word descriptions for these data items, e.g., the coders do not need to write word descriptions on the coding forms for the HHE and TA report data as well as for the tables, thus reducing the possible number of keypunching errors that have to be checked and corrected. In other words, it takes less time to check and correct three to five numbers than up to 70 letters. This is especially true when the description may need to be recorded many times within one HHE and TA report, as frequently happens with Type of Sample and Form of Hazard. Identical numeric codes are more easily counted by a computer program than identical word descriptions. A program will usually not match identical descriptions if there are even tiny differences in the spellings of any of the words. Numeric codes, then, facilitate performing simple numerical analyses.

It is anticipated that for other data items such as Type of Survey, Investigators, Units of Concentration, Sampling Method, Analytical Method, Laboratory and Medical Tests, and Contributing Traits, the word descriptions will be arranged into logical categories. Doing this will make searching for table elements quicker and will eliminate redundant table entries. Such a rearrangement will not necessitate changing the numeric codes but can be carried out if a consistently numbered, hierarchical arrangement is considered desirable.

For the data items Job Title, Process Area Description, and Signs and Symptoms, the existing coding systems were inadequate because they were not designed for use in occupational health research. The major occupational coding systems such as Bureau of Census Occupational Categories (BCOC) and the Standard Occupational Classification (SOC), were designed for use in economic analyses. The major disease coding systems such as International Classification of Diseases Adapted (ICDA) and its modifications, do not include codes for occupationally related signs and symptoms at a satisfactory level of detail, and some occupationally related diseases cannot be identified by the codes given to them. In the HEED File, these data items have been abstracted as written and at the level of detail given in the HHE and TA reports. This will allow subsequent coding of these data items into another coding system if more useful ones were developed. NIOSH has started the development of a Occupational Illness and Injury Classification and Coding System. The development of a combined Job Title and Process Area coding system is currently being investigated; however, the complexity, magnitude, and cost of these table rearrangements and coding systems development should not be underestimated.

A computer systems analyst/programmer designed the coding forms for the tables and for transcribing abstracted data from the reports into numerical information, and managed the computerization of the basic file for the data base. These forms were entered onto a computer file via a Four Phase system.

Figure 1 shows a flow diagram of the steps taken to abstract, code, enter into a computer file, and produce a printout of a report.

HEED FILE OUTPUTS AND USES

Examples of computer printouts for HHE and TA reports with an issue date in 1977 are shown in Appendix B. These printouts show all of the data that were abstracted from the reports. The data items shown in Appendix A are presented in the report printouts by word descriptions only, except for job title and process area description, which also show numeric codes.

The following data items are shown in the printouts by numerical codes or numbers only:

1. HHE and TA File Numbers
2. Date of Request
3. Date of Report
4. NIOSH/OSHA Region for Establishment Surveyed
5. Zip Code for Establishment Surveyed
6. BLS Category for Size of Establishment
7. Date of Survey
8. SIC Codes
9. Number of Exposed Employees
10. NOHS Hazard Codes
11. RTECS Accession Numbers
12. CAS Numbers
13. Environmental and Medical Toxicity Determinations
14. Bureau of Census Codes
15. Number of Samples
16. Maximum, Minimum, and Average Concentrations
17. Number of Workers
18. Number of Workers with Contributing Trait
19. Diagnoseable Illness Code (H-ICDA Code)
20. Mortality Code (ICDA Code)

When data items could not be determined from the information given in a report, or were unknown, a series of 9's was used to fill the data field. These entries appear as "unknown" or "not reported" in the computer printouts.

In addition to the report printouts described here, several types of computer output can be generated from the HEED File. The data from HHE/TA reports have been coded numerically in the HEED File so that analyses such as hierarchical aggregations, frequency counts, cross tabulations, and selection of quantitative levels of categories can be performed. These analyses can be performed on any data item or combination of data items in the HEED File.

Analyses of data items could prove useful to many user groups in the occupational and environmental health community. Some of the possible users and uses of the HEED File are listed below:

(1) Occupational Safety and Health Administration(OSHA) and the Mine Safety and Health Administration(MSHA)

- (a) Standards Development--Environmental sampling data from HHE/TA reports where the investigators found adverse health outcomes for exposure to hazard under review for a governmental standard.
- (b) Compliance--Names of establishments from HHE and TA reports where environmental levels of hazards exceeded the legal standard.
- (c) Priorities--SIC's (surveyed during HHEs or TAs) ranked according to those most frequently exceeding the environmental standards or having positive toxicity determinations.

(2) Unions and Trade Associations

- (a) Developing Information Bulletins--Abstracted data for HHEs and TAs performed at establishments of particular interest to a union or trade association. Some of the ways establishments can be identified are by name, zip code, requestor (especially for unions), SIC, NIOSH/OSHA Region, or BLS size category.

(3) State and Local Health Agencies

- (a) State Health Agencies--A profile of toxicity determinations for hazards within SIC's in a state can be printed for state health planning departments.
- (b) Local Health Agencies--HHEs and TAs performed in a localized area can be identified by the establishments' zip codes.

(4) NIOSH

- (a) Current Intelligence Bulletins (CIBs) and Special Hazard Reviews(SHRs)--Environmental and health effects data can be identified for HHE and TA reports referring to a hazard selected for a CIB or SHR.

- (b) Priorities for Research--Hazards with the most frequent positive toxicity determinations from HHE and TA reports can be targeted for further research.
- (c) Priorities for conducting new HHEs and TAs.

Potential users both inside and outside NIOSH need to be aware of the existence of the HEED File and ways of accessing the information in the file. This report is a first effort to make this possible. Later reports about the HEED File will present analyses of the data from 1977 through 1979 HHE/TA reports.

Requests for access to the file should be directed to:

Mr. Edward Dacey
IES, SB, DSHEFS, NIOSH
Mail Stop F-2
4676 Columbia Parkway
Cincinnati, Ohio 45226

Telephone: (513) 684-3284

FIGURE 1

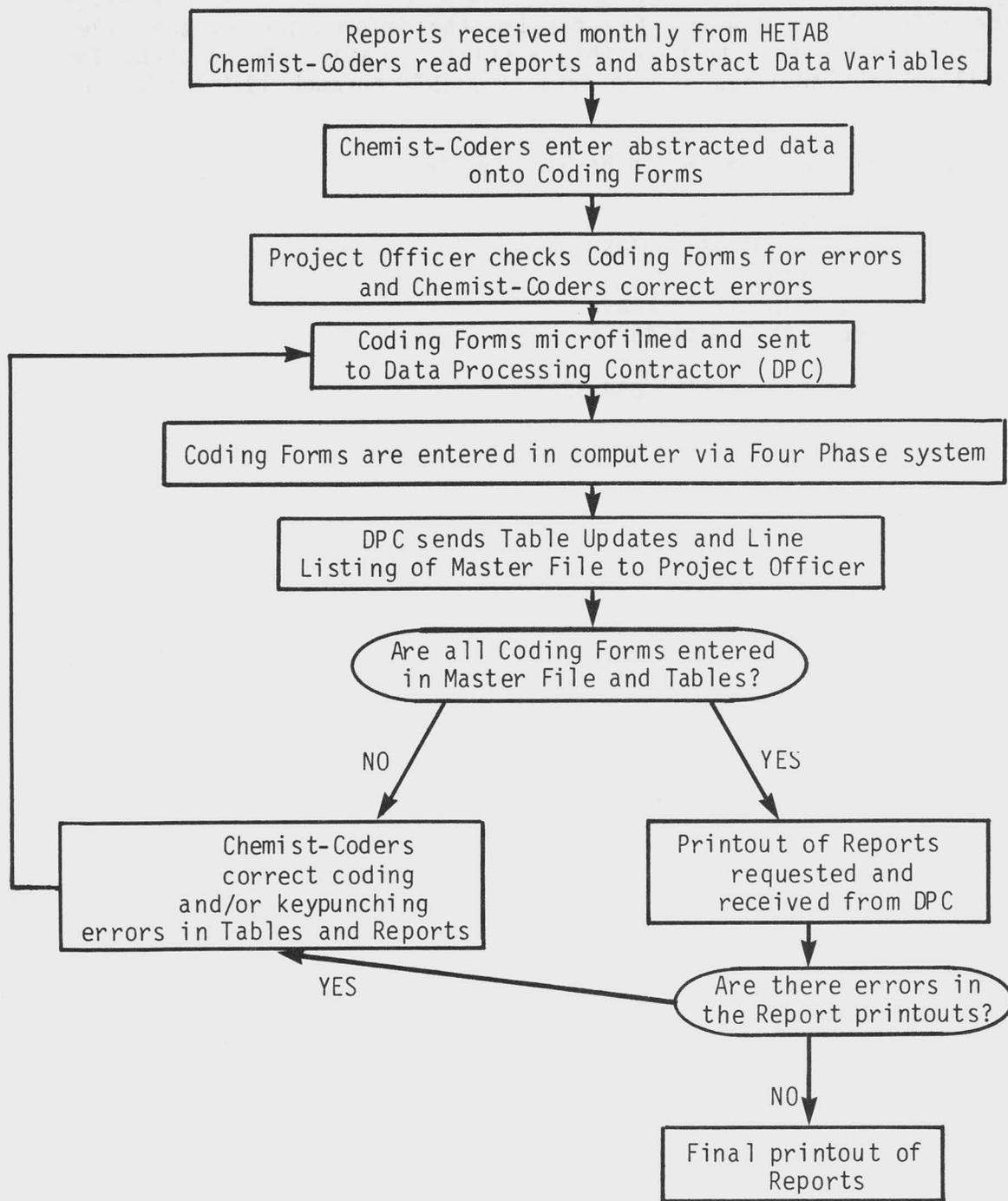


TABLE 1

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
HHE file no.	Assigned by HETAB to final reports.	6 to 9	Numeric	HHE reports-- first page
TA file no.	Assigned by HETAB to final reports.	3 to 5	Alpha- Numeric	TA reports-- first page
Date of request	The date HETAB receives a request. Month and year only in HEED File.	4	Numeric	A HETAB file
Date of report	Issue date of the report. Month and year only in HEED File.	4	Numeric	HHE/TA reports-- first page
Name of establishment	Full name of company, institution, agency, facility, etc., where survey conducted and name of city and state where establishment located.	5	Numeric	See Table B in Appendix A
Zip code of establishment	Self-explanatory.	5	Numeric	HHE/TA reports or Postal Zip Code Directory
NIOSH/OSHA region	The NIOSH/OSHA region where establishment located.	2	Numeric	See Table 2
Size of establishment	Bureau of Labor Statistics Categories for total number of employees at a facility.	1	Numeric	See Table 3

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
SIC code	Classifies industries by the type of activity in which they are engaged.	4	Numeric	Standard Industrial Classification Manual (1972) prepared by the Office of Mgmt. and Budget
Requestor	Person, group, or organization who requested HHE or TA. Personal identifiers are included only when HHE/TA report includes them.	5	Numeric	See Table I in Appendix A
Type of survey	Indicates the type and level of investigation that was conducted.	5	Numeric	See Table J in Appendix A
Date of survey	Month and year only. This date is linked to the type of survey.	4	Numeric	As given in HHE/TA reports
Investigators	The people who conducted the surveys identified by their position and the names and locations of their employers.	5	Numeric	See Table A in Appendix A
Number of exposed employees	For HHE reports only, the number of employees in the areas of an establishment that was surveyed.	3	Numeric	Given in HHE reports under the section called "Distribution & Availability of Determination Report."

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
NOHS hazard code	Codes developed for the National Occupational Hazards Survey (1972-1974). Some new codes and hazards have been added for use in the HEED File only.	5	Alpha-Numeric	See Table N in Appendix A
RTECS accession numbers	From a NIOSH publication--See under reference.	7 (for 1977 & 1978 reports)	Alpha-Numeric	NIOSH Registry of Toxic Effects of Chemical Substances (1977 and 1978 Editions)
CAS numbers	Most widely used system for coding chemicals.	9	Numeric	Chemical Abstracts Service
Environmental and medical toxicity determinations	Toxicity determinations provide a summary of the results of the environmental and medical surveys. Investigators decide after collecting and analyzing data if hazards found at establishments are hazardous to the health of the workers. For the purpose of the HEED File, the hazards mentioned in a report have assigned to them both an environmental & medical toxicity determination. This does not imply that industrial hygiene and medical investigators arrive at these toxicity determinations separately.	1	Numeric	Interpreted from HHE/TA reports

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
Environmental and medical toxicity determinations (cont.)	<p>Four classifications of the toxicity of a hazard are considered:</p> <p>Code 1 = Negative, i.e., at the time of the survey(s), the hazard was determined not to be a health risk to workers in the quantities used or found at the establishment.</p> <p>Code 2 = Positive, i.e., the hazard was determined to be a health risk to workers in the quantities used or found at the establishment surveyed.</p> <p>Code 3 = Both Positive and Negative, i.e., the hazard was determined to be health risk to workers depending on specified circumstances at the establishment. These circumstances are usually given in the report.</p> <p>Code 0 = Undetermined, i.e., an attempt was made to evaluate the hazard but the type, quantity, or quality of the data collected was not sufficient to make a determination of toxicity. Often this code is recorded when an analytical method is not available for determining the environmental concentrations of the hazard.</p>			
Bureau of Census Occupational Categories	Occupational categories developed for the 1970 Census and based on the Dictionary of Occupational Titles (prepared by the Office of Mgmt. and Budget).	3	Numeric	Alphabetic Index of Industries & Occupations, 1970 Census of Population, Bureau of Census

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
Job title and process area description	For each occupation given in a report, a description of what the worker does on the job (Job Title) and where the worker usually performs this job (Process Area)	5	Numeric	See Table M in Appendix A
Form of hazard	The physical state of the hazard at time of sampling	5	Numeric	See Table D in Appendix A
Type of sample	Sample types such as area, personal, or others.	5	Numeric	See Table K in Appendix A
Number of samples	For environmental samples--the number of area samples for each hazard or the number of personal samples for each hazard & occupation. For laboratory & medical tests--the total number of samples or test runs for the number of workers tested.	1-3	Numeric	As given in HHE/TA reports
Maximum, minimum, and average concentrations or values	For environmental sampling--these are TWA's (time-weighted averages) when data are given as such. Applies to laboratory and medical tests also.	up to 9	Numeric	As given in HHE/TA reports
Units of concentration	The units of measurements used.	5	Numeric	See Table E in Appendix A

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
Sampling method	Sampling methods used for environmental measurements or laboratory/medical tests.	5	Numeric	See Table F in Appendix A
Analytical method	Analytical methods used for environmental measurements or laboratory/medical tests.	5	Numeric	See Table G in Appendix A
Signs & symptoms	All observations indicating disorder and/or disease that cannot be satisfactorily classified as diagnoseable illnesses.	5	Numeric	See Table C in Appendix A
Diagnoseable illnesses	Reported illnesses diagnosed by a physician.	4	Numeric	H-ICDA (Hospital Adaptation of International Classification of Diseases-- Adapted for use in U.S.) for 1977 and 1978 reports.
Deaths	Recorded mortality at an establishment surveyed.	4	Numeric	ICDA, 8th Revision (International Classification of Diseases-- Adapted for use in U.S.) for 1977 and 1978 reports.

TABLE 1 (Continued)

DATA ITEM	DESCRIPTION	FIELD LENGTH (in digits)	CHARACTER TYPE	REFERENCE
Laboratory and medical tests	Name of test.	5	Numeric	See Table H in Appendix A
Contributing traits	Categories of workers of epidemiologic interest such as smoking or age categories.	5	Numeric	See Table L in Appendix A
Number workers	For signs/symptoms, diagnoseable illnesses, and deaths: The number of workers reported as having the medical outcome. For laboratory and medical tests: The number of workers for each test, occupation, and contributing trait combination.	1 to 3	Numeric	As given in HHE/TA reports

TABLE 2

NIOSH/OSHA REGIONS

- Region I = Connecticut, Maine, Massachusetts, New Hampshire,
Rhode Island, Vermont
- Region II = New York, New Jersey, Puerto Rico, Virgin Islands,
Panama Canal Zone
- Region III= Delaware, District of Columbia, Maryland,
Pennsylvania, Virginia, West Virginia
- Region IV = Alabama, Florida, Georgia, Kentucky, Mississippi,
North Carolina, South Carolina, Tennessee
- Region V = Illinois, Indiana, Michigan, Minnesota, Ohio,
Wisconsin
- Region VI = Arkansas, Louisiana, New Mexico, Oklahoma, Texas
- Region VII= Iowa, Kansas, Missouri, Nebraska
- Region VIII= Colorado, Montana, North Dakota, South Dakota,
Utah, Wyoming.
- Region IX = Arizona, California, Hawaii, Nevada, Guam,
American Samoa
- Region X = Alaska, Idaho, Oregon, Washington

TABLE 3

BUREAU OF LABOR STATISTICS CATEGORIES FOR SIZE OF ESTABLISHMENT

Category -----	Total Number of Employees -----
1	1-19
2	20-49
3	50-99
4	100-249
5	250-499
6	500-999
7	1000-2499
8	greater than 2500

APPENDIX A

Computer Printout of Tables

Because of the large volume of the tables (over 60 pages) and the high costs of printing, only the first page from each table is shown here. A full table printout is available upon request.

INVESTIGATORS

CODE	DESCRIPTION
A A00044	ACTING CHIEF, H.E.T.A.B., NIOSH CINCINNATI
A A00099	ASSOC.PROF.OF OCCUP.HEALTH, HARWARD SCHOOL OF PUBLIC HEALTH.BOSTON,MA
A A00016	CHEMIST NIOSH CINCINNATI
A A00063	CHIEF, CLINICAL AND BIOCHEMICAL SUPPORT SECTION NIOSH CINCINNATI
A A00072	CHIEF, RADIATION SECTION, NIOSH CINCINNATI
A A00080	CHIEF, SUPPORT SERVICE BRANCH NIOSH, CINCINNATI
A A00003	CLERK-SECRETARY NIOSH CINCINNATI
A A00070	CONSULTANT, OREGON STATE ACCIDENT PREVENTION DIVISION, OREGON
A A00056	D.V.M., BUREAU OF EPIDEMIOLOGY C.D.C., ATLANTA, GEORGIA
A A00051	DEPUTY CHIEF, FIELD STUDIES SECTION, EPA, WENATCHEE, WASHINGTON
A A00069	DIRECTOR, DIVISION OF PREVENTION REGION V
A A00085	DIRECTOR, OCCUP. HEALTH DEPT. CITY OF NAT'L MEDICAL CENTER, CA
A A00030	E.I.S OFFICER (M.D.), KENTUCKY DEPT. FOR HUMAN RESOURCES
A A00082	ELECTROMYROGRAPHER HOUSTON, TEXAS
A A00098	ENGINEER, NIOSH CINCINNATI
A A00091	ENGINEERING STUDENT TRAINEE, NIOSH CINCINNATI
A A00068	ENVIRONMENTAL HEALTH TECHNICIAN, ALOSH, WV
A A00064	EPIDEMIOLOGIST, DIV. OF CDC, COMMONWEALTH OF PENNSYLVANIA
A A00067	EPIDEMIOLOGIST, NIOSH MORGANTOWN, WEST VIRGINIA
A A00053	EPIDEMIOLOGIST, NIOSH, CINCINNATI
A A00043	INDUSTRIAL HYGIENIST LITTLE ROCK AREA OFFICE, LITTLE ROCK, ARKANSAS
A A00001	INDUSTRIAL HYGIENIST NIOSH CINCINNATI
A A00061	INDUSTRIAL HYGIENIST NIOSH MORGANTOWN, WEST VIRGINIA
A A00097	INDUSTRIAL HYGIENIST NIOSH REGION I
A A00026	INDUSTRIAL HYGIENIST NIOSH REGION II
A A00039	INDUSTRIAL HYGIENIST NIOSH REGION III
A A00018	INDUSTRIAL HYGIENIST NIOSH REGION IV
A A00025	INDUSTRIAL HYGIENIST NIOSH REGION IX
A A00004	INDUSTRIAL HYGIENIST NIOSH REGION V
A A00034	INDUSTRIAL HYGIENIST NIOSH REGION VI
A A00027	INDUSTRIAL HYGIENIST NIOSH REGION VII
A A00010	INDUSTRIAL HYGIENIST NIOSH REGION VIII
A A00066	INDUSTRIAL HYGIENIST NIOSH REGION X
A A00009	INDUSTRIAL HYGIENIST REGION UNSPECIFIED
A A00087	INDUSTRIAL HYGIENIST, CAL/OSHA SAN FRANCISCO, CALIFORNIA
A A00093	INDUSTRIAL HYGIENIST, INST.OF RURAL & ENV. HEALTH, COLORADO ST. UNIV.
A A00052	INDUSTRIAL HYGIENIST, OSHA REGION VI DALLAS,TEXAS
A A00065	INDUSTRIAL HYGIENIST, OSHA, REGION V

ESTABLISHMENTS

CODE	DESCRIPTION
B B00043	A AND S TRIBAL INDUSTRIES, POPLAR, MONTANA
B B00084	AIRTEX PRODUCTS, FAIRFIELD ILLINOIS
B B00005	AJAX MAGNETHERMIC CORPORATION WARREN, OHIO
B B00228	ALCAN ALUMINUM CORPORATION FAIRMONT, WEST VIRGINIA
B B00174	ALCOA ALUMINUM COMPANY WARRICK OPERATIONS NEWBURGH, INDIANA
B B00135	ALLEN-BRADLEY COMPANY, MAGNETICS DIVISION SHAWNEE, OKLAHOMA
B B00181	ALLIED CHEMICAL CORPORATION DANVILLE, ILLINOIS
B B00017	ALLIED CHEMICAL CORPORATION MARCUS HOOK, PENNSYLVANIA
B B00250	ALVIN JACOBS, DDS, FORT LEE, NEW JERSEY
B B00119	AMERICAN COLOR AND CHEMICAL LOCK HAVEN, PENNSYLVANIA
B B00064	AMERICAN SMELTING AND REFINING COMPANY DENVER, COLORADO
B B00253	AMPHENOL CADRE LONGMONT, COLORADO
B B00169	AMSTAR CORPORATION PHILADELPHIA, PENNSYLVANIA
B B00117	APPALACHIAN LABORATORY FOR OCCUP. SAFETY & HEALTH MORGANTOWN, WA
B B00106	ARAPAHOE PATTERN COMPANY ENGLEWOOD, COLORADO
B B00045	ARTANIS OFFSET INC., 28 E. 22ND STREET NEW YORK, NEW YORK
B B00101	ASARCO EAST HELENA, MONTANA
B B00237	ASARCO, INC., TACOMA PLANT, RUSTON, WASHINGTON
B B00041	BARRETT BATTERY COMPANY TOLEDO, OHIO
B B00171	BASF WYANDOTTE CORPORATION SOUTH KEARNY, NEW JERSEY
B B00049	BECTON-DICKINSON AND COMPANY JUNCOS, PUERTO RICO
B B00233	BEECH AIRCRAFT CORPORATION BOULDER, COLORADO
B B00129	BEREL'S RESTAURANT DENVER, COLORADO
B B00235	BETHLEHEM STEEL CORPORATION LACKAWANNA, NEW YORK
B B00136	BISHOP TUBE DIVISION CHRISTIANA METAL, INC. FRAZER, PENNSYLVANIA
B B00190	BLUEWATER SEAFOOD PRODUCTS CLEVELAND, OHIO
B B00044	BODNER PROFESSIONAL ASSOCIATION HACKENSACK, NEW JERSEY
B B00011	BOHN ALUMINIUM AND BRASS CORPORATION DANVILLE, ILLINOIS
B B00073	BORDEN CHEMICAL COMPANY, COLUMBUS COATED FABRIC DIVISION COLUMBUS, OH
B B00104	BOULDER MEMORIAL HOSPITAL, BOULDER, COLORADO
B B00148	BUCKEYE AUTOMATIC COMPANY MCARTHUR, OHIO
B B00221	C F & I STEEL PUEBLO, COLORADO
B B00196	CAL WEST PERIODICALS OAKLAND, CALIFORNIA
B B00179	CAMP HILL ANIMAL HOSPITAL CAMP HILL, PENNSYLVANIA
B B00210	CARLETON STEWART MUSIC COMPANY MASON CITY, IOWA
B B00100	CERTAIN-TEED PRODUCTS, INC. RICHMOND, CALIFORNIA
B B00111	CERTAIN-TEED PRODUCTS, INC. TACOMA, WASHINGTON
B B00197	CHALFANT MANUFACTURING COMPANY, ELYRIA, OHIO

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SIGN/SYMPTOMS

CODE	DESCRIPTION
C C00415	CENTRAL NERVOUS SYSTEM - SYMPTOMS
C C00321	CHANGE IN COLOR OF NIPPLE
C C00297	CHEMICAL BURNS
C C00192	CHEST COLD
C C00304	CHEST CONGESTION
C C00020	CHEST PAIN OR DISCOMFORT
C C00208	CHEST SYMPTOMS
C C00028	CHEST TIGHTNESS
C C00039	CHILDREN WITH BIRTH DEFECTS
C C00213	CHILLS
C C00196	CHLORACNE
C C00177	CHOLINESTERASE INHIBITION
C C00147	CHRONIC BRONCHITIS
C C00268	COLD FEET
C C00376	COLDNESS OF EXTREMITIES
C C00211	COLDS
C C00085	COMPLEXION PROBLEMS
C C00106	COMPLICATED SILICOSIS
C C00036	CONFIRMED BLADDER DYSFUNCTION CASE
C C00180	CONFUSION
C C00236	CONJUNCTIVAL ERYTHEMA
C C00370	CONJUNCTIVAL ERYTHEMA (PHYSICAL EXAMINATION FINDINGS)
C C00312	CONJUNCTIVITIS
C C00185	CONSTIPATION
C C00098	CONSTITUTIONAL SYMPTOMS
C C00261	CONVULSIONS
C C00018	COUGH
C C00016	CRACKED SKIN
C C00224	CRUSTING OF SKIN LESIONS
C C00275	CYANOSIS
C C00341	CYTOLOGICAL EVALUATION- ATYPICAL CELLS
C C00342	CYTOLOGICAL EVALUATION- TAPERING OF CELLS
C C00439	DECREASED ANKLE STRENGTH (PHYSICAL EXAMINATION FINDINGS)
C C00437	DECREASED BICEPTS REFLEX (PHYSICAL EXAMINATION FINDINGS)
C C00112	DECREASED BREATH SOUNDS (PHYSICAL EXAMINATION FINDINGS)
C C00323	DECREASED LIBIDO
C C00135	DECREASED OR ASYMMETRIC REFLEXES
C C00164	DECREASED SENSE OF SMELL

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FORM HAZARDS

CODE	DESCRIPTION
D D00010	DUST AND FUMES
D D00013	DUST AND MIST
D D00006	DUST AND/OR PARTICULATE
D D00014	DUST AND/OR VAPOR
D D00005	FIBER
D D00007	FUMES
D D00002	GAS
D D00012	GAS AND DUST
D D00008	LIQUID AND/OR SOLUTION
D D00009	MICROORGANISMS
D D00001	MIST
D D00004	PHYSICAL HAZARD
D D00011	POWDER
D D99999	UNKNOWN
D D00003	VAPORS

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CONCENTRATION UNIT

CODE	DESCRIPTION
E E00053	(ML/MIN/MM HG)/LITER
E E00025	(165-389 MICROGRAM PER DECILITER)
E E00024	(4-370 MICROGRAM PER LITER)
E E00076	BEATS PER MINUTE
E E00067	COLONIES PER CUBIC METER
E E00080	CU.
E E00107	CUBIC MICROMETERS
E E00002	DBA(NOISE)
E E00033	DBC (NOISE)
E E00018	DEGREES FAHRENHEIT
E E00077	ELECTRIC FIELD STRENGTH IN VOLTS PER METER
E E00055	FIBERS .GT. 5 MICRON IN LENGTH PER CUBIC CENTIMETER OF AIR
E E00044	FIBERS GREATER THAN 5 MICROMETER IN LENGTH PER CUBIC METER OF AIR
E E00069	FIBERS OF DIA. LE. 3.5 MICRON & LENGTH .GE. 10 MICRON, PER CUBIC CM.
E E00042	FIBERS PER CUBIC CENTIMETER
E E00072	FOOT-CANDLES (ILLUMINATION LEVEL)
E E00049	GRAMS
E E00016	GRAMS PER DECILITER(G/DL)
E E00110	GRAMS PER 100 ML. BLOOD
E E00027	INTERNATIONAL UNITS(IU)
E E00094	IU PER MILLILITER
E E00051	LITER PER MINUTE
E E00006	LITERS
E E00005	LITERS PER SECOND
E E00078	MAGNETIC FIELD STRENGTH IN AMPS PER METER
E E00023	MCV METER CUBED
E E00012	MICRO GRAMS PER DECILITER(MCG/DL)
E E00011	MICRO-MICRO GRAMS
E E00020	MICROGRAM CADMIUM PER GRAM HAIR
E E00083	MICROGRAM FEP PER DECILITER RBC
E E00095	MICROGRAM FEP/100 MILLILITER WHOLE BLOOD
E E00064	MICROGRAM PER DECILITER ERYTHROCYTES
E E00082	MICROGRAM PER DECILITER URINE, CORRECTED FOR SPECIFIC GRAVITY
E E00065	MICROGRAM PER DECILITER WHOLE BLOOD
E E00060	MICROGRAM PER GRAM CREATININE
E E00019	MICROGRAM PER LITER
E E00097	MICROGRAM PER METER CUBED AS CHROMIUM VI
E E00004	MICROGRAM PER METER CUBED OF AIR

SAMPLING METHODS

CODE	DESCRIPTION
F F00078	AA CELLULOSE ACETATE FILTERS
F F00158	AA FILTER FOLLOWED BY FLORISIL TUBE
F F00206	AA FILTER FOLLOWED BY ORGANIC VAPOR CHARCOAL TUBE TREATED WITH IODINE
F F00208	AA FILTER IN SERIES WITH IMPINGER CONTAINING SODIUM ACETATE
F F00021	AA FILTERS
F F00019	AA PREFILTER WITH 15 ML SODIUM ACETATE SOLUTION IN IMPINGERS
F F00051	AA 0.8 MICRON MEMBRANE FILTERS
F F00210	ABSORPTION ON CHARCOAL TUBES PLACED IN EXHAUST OF E.S.P. UNIT
F F00052	ACTIVATED CHARCOAL TUBE IN SAMPLE LINE DOWNSTREAM FROM A PVC FILTER
F F00112	ADSORPTION MEDIA TUBES
F F00061	AN EXPIRED AIR TECHNIQUE
F F00103	ASPIRATED DRY-BULB TEMPERATURE MEASUREMENT
F F00104	ASPIRATED WET-BULB TEMPERATURE MEASUREMENT
F F00108	AUTOCLAVED MIDGET IMPINGERS CONTAINING STERILE NUTRIENT BROTH
F F00009	BAG SAMPLER
F F00109	BLOOD AGAR CULTURE PLATES
F F00100	BOTSBALL TEMPERATURE MEASUREMENT
F F00216	BUBBLER CONTAINING 0.5 M SODIUM ACETATE SOLUTION
F F00007	BULK SAMPLE COLLECTION
F F00003	CELLULOSE MEMBRANE FILTERS 0.8 MICRON PORE SIZE
F F00017	CHARCOAL TUBES
F F00006	COLORIMETRIC INDICATOR TUBES
F F00054	COMBUSTIBLE GAS METER
F F00171	COMPLETE EXHALING, RAPID INHALING, EXHALING INTO BAG AFTER 20 SECONDS
F F00097	CONTINUOUS CARBON MONOXIDE ANALYZER WITH STRIP CHART RECORDER
F F00066	CRITICAL ORIFICE ATMOSPHERIC GAS SAMPLER
F F00184	CYCLONE FOLLOWED BY FILTERS
F F00142	CYCLONE FOLLOWED BY PVC FILTER
F F00135	CYCLONE FOLLOWED BY 0.8 MICRON SIZE CELLULOSE MEMBRANE FILTER
F F00032	DETECTOR TUBES
F F00194	DIRECT ANAL.BY PORTABLE INFRARED SPECTROMETRY W/ STRIP CHART RECORDER
F F00214	DIRECT MEASUREMENT
F F00088	DIRECT OBSERVATION OF TREATED FILTER STRIPS
F F00020	DIRECT READING BACHARACH MERCURY SNIFFER
F F00085	DIRECT READING CARBON MONOXIDE ANALYZER
F F00050	DIRECT READING J-W SNIFFER
F F00213	DIRECT READING ULTRA VIOLET ANALYZER
F F00087	DM 800 FILTERS

ANALYTICAL METHODS

CODE	DESCRIPTION
G G00127	DESORPTION WITH HEXADODECANE, ANALYSIS WITH GC AND MASS SPECTROMETRY
G G00160	DESORPTION WITH METHANOL, ANALYSIS BY GAS CHROMATOGRAPHY (FID)
G G00179	DESORPTION WITH WATER, ANALYSIS BY GAS CHROMATOGRAPHY (FID)
G G00029	DETECTOR TUBES
G G00212	DIGESTION WITH HNO3, ATOMIC ABS. SPECTROMETRY (NIOSH P & CAM # 173)
G G00199	DIRECT ANAL. BY PORTABLE INFRARED SPECTROMETRY W/ STRIP CHART RECORDER
G G00112	DIRECT ASPIRATION ATOMIC ABSORPTION METHOD
G G00083	DIRECT OBSERVATION OF TREATED FILTER STRIPS
G G00027	DIRECT READING BACHARACH MERCURY SNIFFER
G G00079	DIRECT READING CARBON MONOXIDE ANALYZER
G G00044	DIRECT READING J-W SNIFFER
G G00219	DIRECT READING ULTRA VIOLET ANALYZER
G G00224	DISOLVED IN TETRAHYDROFURAN, REDEP. ON SILVER MEM. FILTER, X-RAY DIFFR.
G G00057	DUNN CELLS COUNTING METHOD
G G00014	ECOLYZER MODEL 2400
G G00151	ELECTRICAL CONDUCTIVITY MEASUREMENT
G G00206	ELECTROCONDUCTIVITY TECHNIQUE
G G00002	ELECTROMETRIC TITRATION
G G00162	ELECTRONIC PULMONARY FUNCTION MACHINE WITH AUTOMATIC PRINTER
G G00012	ESTERIFICATION OF AZELAIC ACID & IDENTIFICATION OF ESTER BY GC (FID)
G G00042	ETHYL ACETATE DESORPTION FOLLOWED BY GAS CHROMATOGRAPHY
G G00148	ETHYL ACETATE DESORPTION, ANALYSIS BY GAS CHROMATOGRAPHY (FID)
G G00082	ETHYL ACETATE/HCL EXTRACTION MTD. USING ZINC PROTOPORPHYRIN AS A STD.
G G00101	EXTRACTED BY DIST. WATER & ISOPROPANOL, ANALYSED BY ION CHROMATOGRAPHY
G G00142	EXTRACTED BY HCL-HNO3 MIXTURE, ANALYSED BY ATOMIC ABSORP. SPECTROSCOPY
G G00171	EXTRACTION W/ BENZENE, ANAL. BY G.C. WITH FLAME PHOTOMETRIC DETECTOR
G G00049	EXTRACTION W/ BENZENE, CLEANED UP ON SILICA GEL & ANALYSED BY G.C.
G G00180	EXTRACTION W/ BENZENE, METHYLATION W/ DIAZOMETHANE & ANAL. BY GC (ECD)
G G00188	EXTRACTION W/ ETHYL ACETATE, FOLLOWED BY MEOH, FOLLOWED BY G.C. ANAL.
G G00172	EXTRACTION W/ TRIMETHYL PENTANE, ANAL. BY G.C. (ELECTRON CAPTURE DET)
G G00010	EXTRACTION WITH CHLOROFORM FOLLOWED BY FLUORESCENCE SPECTROPHOTOMETRY
G G00037	EXTRACTION WITH CYCLOHEXANE AND DETERMINATION OF SOLUBLE FRACTION
G G00100	EXTRACTION WITH DIST. WATER & IPA, ANALYSED BY BARIUM-THORIN TITRATION
G G00202	EXTRACTION WITH 10 ML CHLOROFORM, ANALYSIS BY NIOSH P & CAM #159
G G00168	FILTER FUSED IN NAOH, NEUTRALISED, ANALYSED BY SPEC. ION ELECTRODE
G G00086	FLAME IONIZATION HYDROCARBON ANALYZER
G G00080	FLAMELESS ATOMIC ABSORPTION SPECTROSCOPIC METHOD
G G00003	FLUORESCENCE METHOD (NIOSH)

LABORATORY TESTS

CODE	DESCRIPTION
H H00032	A/G (SMA)
H H00030	ALBUM (SMA)
H H00037	ALK PHOS (SMA)
H H00051	ALPHA-1 ANTITRYPSIN
H H00049	ALPHA-1 ANTITRYPSIN BLOOD
H H00065	ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
H H00117	APICAL PULSE RATE
H H00009	BASO-BLOOD COUNT
H H00048	BETA MICROGLOBULIN IN URINE
H H00040	BILI (SMA)
H H00042	BLOOD CADMIUM DETERMINATION
H H00067	BLOOD CO
H H00137	BLOOD DIETHYLSTILBESTROL (DES) LEVEL
H H00058	BLOOD LEAD DETERMINATION
H H00146	BLOOD LITHIUM DETERMINATION
H H00061	BLOOD MERCURY DETERMINATION
H H00053	BLOOD PCB LEVELS
H H00064	BLOOD SERUM ANALYSIS FOR ACETONE
H H00076	BLOOD SERUM ANALYSIS FOR METHYL ETHYL KETONE
H H00077	BLOOD SERUM ANALYSIS FOR 1,1,1-TRICHLOROETHANE
H H00162	BLOOD THIRAM LEVEL
H H00093	BRUCellosis SEROPosITIVITY RATES
H H00045	BUN (BLOOD UREA NITROGEN)
H H00022	BUN-(SMA)
H H00111	B2 MICROGLOBULIN DETERMINATION
H H00033	CA (SMA)
H H00090	CA TITER .GE. 1:160, 2ME-CA TITER.LT. 1:20
H H00091	CA TITER .LT.1:80, 2ME-CA TITER .GE.1:20
H H00092	CA TITER .LT.1:80, 2ME-CA TITER .LT.1:20
H H00066	CARBOXYHEMOGLOBIN LEVELS
H H00089	CENTRIFUGAL-AGGLUTINATION (CA) TITER.GE.1:160, 2ME-CA TITER.GE.1:20
H H00035	CHOL (SMA)
H H00026	CL- (SMA)
H H00027	CO2 (SMA)
H H00023	CREAT-(SMA)
H H00081	CREATININE CLEARANCE
H H00109	CREATININE LEVEL
H H00071	CV PERCENT VC

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REQUESTING PARTIES

CODE	DESCRIPTION
I 100006	AUTHORIZED REPRESENTATIVE OF EMPLOYEES-UNSPECIFIED
I 100156	BOULDER MEMORIAL HOSPITAL PERSONNEL BOULDER, COLORADO
I 100176	BUSINESS REPRESENTATIVE, CHICAGO WEB PRESSMANS UNION NO. 7
I 100061	C.W.JACKSON SAFETY MANAGER, MAIN POST OFFICE DENVER
I 100039	CHIEF ADM. OPERATION DIV., DEPT. OF TREASURY, U.S. SECRET SERVICE
I 100175	CHIEF OF ANESTHESIOLOGY AT DENVER GENERAL HOSPITAL, DENVER, COLORADO
I 100178	CHIEF POSTAL INSPECTOR, WASHINGTON D.C.
I 100181	CHIEF STEWARD, INT'L BROTHERHOOD OF TEAMSTERS LOCAL 234
I 100107	CITY ADMINISTRATOR, CITY OF SPRINGDALE, OHIO
I 100064	CLINICAL HEMATOLOGIST, CLEVELAND METROPOLIAN GENERAL HOSPITAL
I 100044	COLORADO OCCUPATIONAL SAFETY AND HEALTH DEPARTMENT
I 100043	COLUMBUS AREA OFFICE O.S.H.A. COLUMBUS, OHIO
I 100209	CONTRACTOR- AUTHORIZED EMPLOYER REPRESENTATIVE
I 100099	COOKS, BEREL'S RESTAURANT DENVER, COLORADO
I 100075	DAVID DITOMMASO, ROBERT GLOVER, REGIONAL OSHA DIRECTOR
I 100032	DAVID GENTNER, PORTEC, INC.
I 100165	DEPARTMENT OF UNIVERSITY SAFETY, PENNSYLVANIA STATE UNIVERSITY
I 100004	DIRECTOR FOR SAFETY IND.HEALTH,INT'L UNION ELECT. RADIO MACH. WORKERS
I 100086	DIRECTOR OF ENGINEERING, HOSPITAL FOR SPECIAL SURGERY, NEW YORK CITY
I 100066	DIRECTOR, CITIZENSHIP-LEGISLATIVE DEPT., O.C.A.W. INT'L UNION
I 100109	DIRECTOR, OFFICE OF PROTECTION SERVICES, SMITHSONIAN INSTITUTION
I 100190	DIRECTOR, OUTPATIENT CLINIC CINCINNATI, OHIO
I 100208	DR. ALVIN JACOBS, OWNER OF DENTAL OFFICE FORT LEE, NEW JERSEY
I 100214	DR. EULA BINGHAM, ASST. SECRETARY OF LABOR OSHA WASHINGTON, D.C.
I 100059	DR. NICHOLAS ALEXIOUS, MEDICAL DIRECTOR, EMPLOYEE HEALTH SERVICE, NY
I 100030	DR. P. MCGOVERN, DIRECTOR OF MEDICAL SERVICE, JERSEY CITY POLICE DEPT.
I 100028	DR. THEODORE BODNER, BODNER PROFESSIONAL ASSOCIATION HACKENSACK, NJ
I 100170	EMPLOYEES OF SCREEN PRINT DEPT., ROCK HILL PRINTING & FINISHING CO.
I 100077	EMPLOYEES' HEALTH NURSE, BOULDER MEMORIAL HOSPITAL
I 100122	EMPLOYER AND A.R.E.-UNITED STEEL WORKERS LOCAL
I 100021	EMPLOYER REPRESENTATIVE,JEFFERY BIGELOW DESIGN GROUP, INC.
I 100142	EMPLOYER, CAMP HILL ANIMAL HOSPITAL CAMP HILL, PENNSYLVANIA
I 100155	EMPLOYER, FRANKLIN INSTITUTE PHILADELPHIA, PENNSYLVANIA
I 100198	EMPLOYER, HARDRIC LABORATORIES, WALTHAM, MASSACHUSETTS
I 100130	EMPLOYER, JOHNNY'S CARPET AND TILE NAZARETH, PENNSYLVANIA
I 100071	EMPLOYER, KELLER INDUSTRIES, INC.
I 100069	EMPLOYER, MARTIN AND SHAFT COMPANY, IDAHO SPRINGS, COLORADO
I 100211	EMPLOYER, WESTERN GEAR CORPORATION JAMESTOWN, NORTH DAKOTA

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TYPES OF SURVEYS

CODE	DESCRIPTION
J J00012	ENVIRONMENTAL SURVEY/PHYSIOLOGICAL STUDY
J J00015	IND. HYG. SURVEY W/ MED. QUEST. AND REVIEW OF MED. RECORDS
J J00004	INDUSTRIAL HYGIENE SURVEY
J J00009	INDUSTRIAL HYGIENE SURVEY WITH MEDICAL AND BEHAVIORAL STUDIES
J J00003	INDUSTRIAL HYGIENE SURVEY WITH MEDICAL EVALUATION
J J00001	INDUSTRIAL HYGIENE SURVEY WITH MEDICAL QUESTIONNAIRE
J J00007	INDUSTRIAL HYGIENE SURVEY WITH REVIEW OF MEDICAL RECORDS
J J00005	INDUSTRIAL HYGIENE WALK-THROUGH WITH MEDICAL EVALUATION
J J00006	INDUSTRIAL HYGIENE WALK-THROUGH WITH MEDICAL QUESTIONNAIRE
J J00002	INDUSTRIAL HYGIENE-WALK THROUGH
J J00010	MEDICAL AND ERGONOMIC SURVEY
J J00011	MEDICAL EVALUATION WITH REVIEW OF INDUSTRIAL HYGIENE RECORDS
J J00013	MEDICAL INVESTIGATION
J J00021	MEDICAL QUESTIONNAIRE
J J00018	MORTALITY INVESTIGATION
J J00008	REVIEW OF MEDICAL RECORDS
J J99999	UNKNOWN
J J00020	WALK THROUGH W/ QUES. & REVIEW OF PREVIOUS INVESTIGATION'S FINDINGS
J J00019	WALK-THROUGH WITH MEDICAL QUESTIONNAIRE AND PSYCHOLOGICAL STUDY
J J00017	WALK-THROUGH WITH MEDICAL QUESTIONNAIRE AND REVIEW OF MEDICAL RECORDS
J J00016	WALK-THROUGH WITH REVIEW OF INDUSTRIAL HYGIENE SURVEY RECORDS
J J00014	WALK-THROUGH WITH REVIEW OF MEDICAL AND IND. HYGIENE SURVEY RECORDS

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TYPES OF SAMPLES

CODE	DESCRIPTION
K K00005	AIR SAMPLES OUTSIDE BLDG. (EMISSION FROM NEARBY CHEMICAL PLANT)
K K00001	AREA
K K00004	AREA AND PERSONAL SAMPLE
K K00002	GENERAL AREA (HAYDEN UTILITY PLANT)
K K00009	GENERAL AREA SAMPLING AT BUSH STREET PLANT
K K00012	GENERAL AREA SAMPLING AT DORSEY ROAD PLANT
K K00008	GENERAL AREA SAMPLING AT JESSUP PLANT
K K00003	PERSONAL
K K00011	PERSONAL SAMPLING AT BUSH STREET PLANT
K K00010	PERSONAL SAMPLING AT JESSUP PLANT
K K00014	SHORT TERM (SIX MINUTE) SAMPLING AT JESSUP PLANT
K K00006	SHORT TERM AREA SAMPLE
K K00007	SHORT TERM PERSONAL SAMPLE
K K99999	UNKNOWN

CONTRIBUTING TRAIT

CODE	DESCRIPTION
L L00015	AFTER FILTER INSTALLATION
L L00031	AGE GROUP .GE. 50
L L00025	AGE GROUP 20-29
L L00026	AGE GROUP 30-39
L L00027	AGE GROUP 40-49
L L00028	AGE GROUP 50-59
L L00029	AGE GROUP 60-69
L L00034	ALL OTHERS EXCEPT NON-HISPANIC WHITES
L L00014	BEFORE FILTER INSTALLATION
L L00057	BLACK
L L00058	CAUCASIAN
L L00073	DURING ALCOHOLIC CONSUMPTION
L L00076	DURING SUMMER MONTHS
L L00093	EMPLOYEES AT BUSH STREET PLANT LOCATION
L L00092	EMPLOYEES AT JESSUP PLANT LOCATION
L L00053	EMPLOYEES WITH PRIOR HISTORY OF BRUCELLOSIS
L L00078	EXPOSED IN THE RECENT PAST
L L00051	EXPOSED PLANT WORKERS
L L00050	EXPOSURE BETWEEN 6 MONTHS AND 43 MONTHS
L L00091	FEMALE EX-SMOKER, POST-SHIFT
L L00088	FEMALE EX-SMOKER, PRE-SHIFT
L L00090	FEMALE NON-SMOKER, POST-SHIFT
L L00087	FEMALE NON-SMOKER, PRE-SHIFT
L L00089	FEMALE SMOKER, POST-SHIFT
L L00086	FEMALE SMOKER, PRE-SHIFT
L L00036	FEMALE WORKER, LESS THAN TWO MONTHS ON JOB
L L00038	FEMALE WORKER, MORE THAN TWO MONTHS ON JOB
L L00044	FEMALE WORKERS
L L00011	FIRST SHIFT
L L00016	FORMERLY EXPOSED ONLY
L L00079	FORMERLY UNEXPOSED
L L00060	GREATER THAN 5 YEARS EXPOSURE
L L00069	HIGH EXPOSURE GROUP
L L00022	HISPANIC
L L00059	LESS THAN 5 YEARS EXPOSURE
L L00070	LOW EXPOSURE GROUP
L L00085	MALE EX-SMOKER, POST-SHIFT
L L00082	MALE EX-SMOKER, PRE-SHIFT

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TITLES & PROCESSES

CODE	DESCRIPTION
M M00380	ABATTOIR WORKERS, BEEF KILL DEPT.
M M00382	ABATTOIR WORKERS, HIDES DEPT.
M M00381	ABATTOIR WORKERS, INEDIBLE RENDERING DEPT.
M M00383	ABATTOIR WORKERS, OFFAL DEPT.
M M01411	ABRASIVE BLASTING OPERATOR, OUTDOOR AREAS
M M00109	ABRASIVE CUTOFF SAW OPERATOR, METAL WORKING DEPARTMENT
M M01266	ACCOUNTANT, MUSIC SHOP
M M00200	ACID FILLING MAN, ACID FILLING AREA
M M01007	ACID RECOVERY OPERATOR, CARBON PLANT
M M01021	ACID RECOVERY OPERATOR, WAREHOUSE
M M00896	ACID TESTER, PICKLE LINE
M M00745	ACME CHUCKER OPERATOR, AUTOMATIC BAR MACHINE AREA
M M00744	ACME OPERATOR, AUTOMATIC BAR MACHINE AREA
M M01554	ACTIVATOR, ACTIVATION AREA
M M00965	ACTIVATOR, PRODUCTION LINE
M M00643	ADD MAKER, COMPOUNDING AREA
M M00093	ADHESIVE APPLICATOR, BENCH WORK AREA
M M00698	ADMINISTRATIVE PERSONNEL, NIOSH ROCKVILLE FACILITIES
M M00760	ADMINISTRATOR, AREA UNSPECIFIED
M M01048	ADMINISTRATOR, NURSING HOME
M M01204	AIDE, CENTRAL SUPPLY
M M01158	AIR ARC REPAIRMAN, INSIDE/OUTSIDE OF TANK
M M01149	AIRCRAFT AND POWER PLANT MECHANIC, MAINTENANCE SHOP
M M00534	ALKYLATION ACID MAN, ALKYLATION UNIT
M M00536	ALKYLATION CONTACT MAN, ALKYLATION UNIT
M M00532	ALKYLATION CONTROL BOARD OPERATOR, ALKYLATION UNIT
M M00535	ALKYLATION HELPER, ALKYLATION UNIT
M M00533	ALKYLATION OPERATOR, ALKYLATION UNIT
M M00476	ALUM BOREMATIC OPERATOR, PLANT AREA UNSPECIFIED
M M00683	ALUMINIUM ETCH LOADER, ALUMINIUM ETCH AREA
M M00682	ALUMINIUM ETCH OPERATOR, ALUMINIUM ETCH AREA
M M00600	ALUMINIUM FURNACE TENDER, ALUMINIUM FOUNDRY
M M00675	ANESTHESIOLOGIST, CYSTOSCOPY ROOM
M M00016	ANESTHESIOLOGIST, OPERATING ROOM
M M00647	ANESTHETIC TECHNICIAN, OPERATING ROOM
M M01104	ANIMAL CARE PERSONNEL, ANIMAL HOSPITAL
M M00430	ANODE BUTT CLEANER, POT DEPARTMENT
M M00425	ANODE SETTER, POT DEPARTMENT

NOHS HAZARDS

CODE	DESCRIPTION
N N00305	AMMONIUM CARBAMATE
N N00593	AMMONIUM HYDROXIDE
N N00599	AMMONIUM THIOCYANATE
N N00492	AMYL ACETATE
N N00558	AMYL ACETATE, SEC-
N N00478	ANILINE
N N00341	ANTHRACENE
N N00524	ANTIBLAZE 19
N N00115	ANTIMONY
N N00663	ANTIMONY
N N00368	AROMATIC AMINES
N N00342	AROMATIC HYDROCARBONS
N N00117	ARSENIC
N N00666	ARSENIC
N N00008	ASBESTOS
N N00761	ASPHALT (PETROLEUM) FUME
N N00350	ASPHALT VOLATILES
N N00338	ASPHALT(PETROLEUM)FUME
N N00588	AZELAIC ACID
N N00521	AZO DYE
N N00633	BACTERIA, COLIFORM
N N00581	BARIUM (SOLUBLE COMPOUNDS)
N N00245	BARIUM CARBONATE
N N00638	BARIUM SULFATE
N N00322	BC 325 VARNISH
N N00471	BENTONITE
N N00311	BENZ(A)ANTHRACENE
N N00736	BENZ(A)ANTHRACENE
N N00004	BENZENE
N N00512	BENZIDENE
N N00517	BENZIDINE YELLOW
N N00680	BENZO(ALPHA)-PYRENE
N N00681	BENZO(ALPHA)-PYRENE
N N00682	BENZO(ALPHA)-PYRENE
N N00029	BENZO(ALPHA)PYRENE
N N00520	BENZO(E)PYRENE
N N00421	BENZOYL PEROXIDE
N N00321	BERYLLIUM

APPENDIX B

Computer Printouts of Reports

Because of the large volume of the report printouts (over 800 pages for 1977 HHE/TA reports alone) and the high costs of printing, only a sample of the reports is shown here. A full set of report printouts is available upon request.

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

HHE/TA NO. TA0076111 U.S. SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

PAGE 1

GENERAL

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*****
* REGION: 3, DATE REQUESTED: 09/76, DATE REPORTED: 06/77, PERSONS EXPOSED: UNKNOWN *
* ZIP: 20013 SIZE: UNREPORTED S.I.C: 7525 *
* REQUESTOR: CHIEF ADM. OPERATION DIV., DEPT. OF TREASURY, U.S. SECRET SERVICE *
* STUDY ON: 10/76 INDUSTRIAL HYGIENE SURVEY WITH MEDICAL EVALUATION *
* *
* INVESTIGATOR DESCRIPTION *
* 1 INDUSTRIAL HYGIENIST NIOSH CINCINNATI *
*****
    
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HAZARDS

DESCRIPTION	ENV. MED.		RTECS CODE	CAS CODE	HAZ. CODE
	TOX. DET.	TOX. DET.			
1 CARBON MONOXIDE	1	1	FG35000	000630080	17460
2 NITROGEN DIOXIDE	1	9	QW98000	010102440	50870
3 NITRIC OXIDE	1	9	QX05250	010102439	50745

ENVIRONMENTAL AND MEDICAL
TOXICITY DETERMINATION DESCRIPTION

- 1 - NEGATIVE
- 2 - POSITIVE
- 3 - BOTH NEGATIVE AND POSITIVE
- 0 - UNDETERMINED
- 9 - UNREPORTED

OCCUPATIONS

CENSUS CODE	T/P CODE	TITLE/PROCESS DESCRIPTION
492	M00312	SCOOTER MECHANIC, GARAGE AREA
780	M00313	LABORER, GARAGE AREA
381	M00314	PARTS CLERK, GARAGE AREA
481	M00315	MECHANIC, GARAGE AREA

GENERAL SAMPLES

- | | | |
|---|--------------------|-----------------------------------|
| 1 | HAZARD: | NITRIC OXIDE |
| | FORM OF HAZARD: | GAS |
| | SAMPLE TYPE : | AREA |
| | CONCENTRATIONS: | MIN = BELOW ANALYT. LIMIT |
| | | MAX = BELOW ANALYT. LIMIT |
| | | AVG = BELOW ANALYT. LIMIT |
| | MEASURED IN: | PARTS PER MILLION BY VOLUME (PPM) |
| | SAMPLING METHOD: | DETECTOR TUBES |
| | ANALYTICAL METHOD: | DETECTOR TUBES |
| | | |
| 2 | HAZARD: | NITROGEN DIOXIDE |
| | FORM OF HAZARD: | GAS |
| | SAMPLE TYPE : | AREA |
| | CONCENTRATIONS: | MIN = BELOW ANALYT. LIMIT |
| | | MAX = BELOW ANALYT. LIMIT |
| | | AVG = BELOW ANALYT. LIMIT |
| | MEASURED IN: | PARTS PER MILLION BY VOLUME (PPM) |
| | SAMPLING METHOD: | DETECTOR TUBES |
| | ANALYTICAL METHOD: | DETECTOR TUBES |
| | | |
| 3 | HAZARD: | CARBON MONOXIDE |
| | FORM OF HAZARD: | GAS |
| | SAMPLE TYPE : | AREA |
| | CONCENTRATIONS: | MIN = UNKNOWN |
| | | MAX = UNKNOWN |
| | | AVG = UNKNOWN |
| | MEASURED IN: | PARTS PER MILLION BY VOLUME (PPM) |
| | SAMPLING METHOD: | ECOLYZER MODEL 2400 |
| | ANALYTICAL METHOD: | ECOLYZER MODEL 2400 |
| | | |
| 4 | HAZARD: | CARBON MONOXIDE |
| | FORM OF HAZARD: | GAS |
| | SAMPLE TYPE : | AREA |
| | NUMBER OF SAMPLES: | 1 |
| | CONCENTRATIONS: | MIN = 12.6000 |
| | | MAX = 12.6000 |

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GENERAL SAMPLES

AVG = 12.6000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: CRITICAL ORIFICE ATMOSPHERIC GAS SAMPLER

PERSONAL SAMPLES

- 1 HAZARD: CARBON MONOXIDE
 FORM OF HAZARD: GAS
 OCUP. GRP: SCOOTER MECHANIC, GARAGE AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 16.1000
 MAX = 16.1000
 AVG = 16.1000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: CRITICAL ORIFICE ATMOSPHERIC GAS SAMPLER

- 2 HAZARD: CARBON MONOXIDE
 FORM OF HAZARD: GAS
 OCUP. GRP: LABORER, GARAGE AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 13.4000
 MAX = 13.4000
 AVG = 13.4000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: CRITICAL ORIFICE ATMOSPHERIC GAS SAMPLER

- 3 HAZARD: CARBON MONOXIDE
 FORM OF HAZARD: GAS
 OCUP. GRP: MECHANIC, GARAGE AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 14.3000
 MAX = 15.0000
 AVG = 14.7000

P E R S O N A L S A M P L E S

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: CRITICAL ORIFICE ATMOSPHERIC GAS SAMPLER

L A B O R A T O R Y T E S T S

- 1 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: SCOOTER MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 9.0000
 MAX = 18.0000
 AVG = 14.0000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

- 2 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: SCOOTER MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 2.3000
 MAX = 4.0000
 AVG = 3.2000
 MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN. (0.5 + CO IN PPM/5)

- 3 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: SCOOTER MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 14.0000
 MAX = 34.0000
 AVG = 24.0000

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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U.S. SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

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LABORATORY TESTS

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

4 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: SCOOTER MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 3.3000
 MAX = 7.3000
 AVG = 5.3000

MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN. (0.5 + CO IN PPM/5)

5 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: LABORER, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 14.0000
 MAX = 14.0000
 AVG = 14.0000

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

6 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: LABORER, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 3.3000
 MAX = 3.3000
 AVG = 3.3000

MEASURED IN: PERCENT
 SAMPLING METHOD: 37 MM POLYVINYL CHLORIDE FILTERS WITH 10 MM NYLON CYCLONES

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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L A B O R A T O R Y T E S T S

ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)

7 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR

NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: LABORER, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 20.0000
 MAX = 20.0000
 AVG = 20.0000

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE)COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

8 LAB TEST: CARBOXYHEMOGLOBIN LEVELS

NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: LABORER, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 4.5000
 MAX = 4.5000
 AVG = 4.5000

MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)

9 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR

NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON SMOKERS-PRE SHIFT
 OCCUP. GRP: PARTS CLERK, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 9.0000
 MAX = 9.0000
 AVG = 9.0000

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE)COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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U.S.SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

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L A B O R A T O R Y T E S T S

- 10 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON SMOKERS-PRE SHIFT
 OCCUP. GRP: PARTS CLERK, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 2.3000
 MAX = 2.3000
 AVG = 2.3000
 MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)
- 11 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON-SMOKERS-POST SHIFT
 OCCUP. GRP: PARTS CLERK, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 17.0000
 MAX = 17.0000
 AVG = 17.0000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE)COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400
- 12 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON-SMOKERS-POST SHIFT
 OCCUP. GRP: PARTS CLERK, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 3.9000
 MAX = 3.9000
 AVG = 3.9000
 MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)
- 13 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON SMOKERS-PRE SHIFT

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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U.S. SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

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LABORATORY TESTS

- OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 7.0000
 MAX = 7.0000
 AVG = 7.0000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400
- 14 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON SMOKERS-PRE SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 1.9000
 MAX = 1.9000
 AVG = 1.9000
 MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)
- 15 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON-SMOKERS-POST SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 18.0000
 MAX = 18.0000
 AVG = 18.0000
 MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400
- 16 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 1
 CONTRIBUTING TRAIT: NON-SMOKERS-POST SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 1

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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U.S.SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

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L A B O R A T O R Y T E S T S

CONCENTRATIONS: MIN = 4.1000
 MAX = 4.1000
 AVG = 4.1000

MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)

17 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 34.0000
 MAX = 60.0000
 AVG = 47.0000

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE)COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

18 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-PRE SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 7.3000
 MAX = 12.5000
 AVG = 9.9000

MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN.(0.5 + CO IN PPM/5)

19 LAB TEST: ALVEOLAR CARBON MONOXIDE CONCENTRATIONS IN EXPIRED AIR
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 42.0000
 MAX = 75.0000
 AVG = 59.0000

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

HHE/TA NO. TA0076111

U.S. SECRET SERVICE VEHICLE GARAGE WASHINGTON, D.C.

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L A B O R A T O R Y T E S T S

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: EXPIRED AIR (BREATH SAMPLE) COLLECTION IN MYLAR BAG
 ANALYTICAL METHOD: ECOLYZER MODEL 2400

20 LAB TEST: CARBOXYHEMOGLOBIN LEVELS
 NO. WITH TRAIT: 2
 CONTRIBUTING TRAIT: SMOKERS-POST SHIFT
 OCCUP. GRP: MECHANIC, GARAGE AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 8.9000
 MAX = 15.5000
 AVG = 12.2000

MEASURED IN: PERCENT
 ANALYTICAL METHOD: CARBOXYHEMOGLOBIN PERCENTAGE CALC. BY RINGOLD EQN. (0.5 + CO IN PPM/5)

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

HHE/TA NO. TA0007659

EAGLE RIVER CHEMICAL COMPANY WEST HELENA, ARKANSAS

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G E N E R A L

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*****
* REGION: 6, DATE REQUESTED: 05/76, DATE REPORTED: 03/77, PERSONS EXPOSED: 102 *
* ZIP: 72390 SIZE: UNREPORTED S.I.C: 2879 *
* REQUESTOR: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION WASHINGTON D.C. *
* STUDY ON: 04/76 INDUSTRIAL HYGIENE-WALK THROUGH *
* STUDY ON: 08/76 INDUSTRIAL HYGIENE WALK-THROUGH WITH MEDICAL EVALUATION *
* *
* INVESTIGATOR DESCRIPTION *
* 1 MEDICAL DOCTOR, BUREAU OF EPIDEMIOLOGY ATLANTA, GEORGIA *
* 2 MEDICAL DOCTOR, BUREAU OF EPIDEMIOLOGY ATLANTA, GEORGIA *
* 3 MEDICAL OFFICER NIOSH CINCINNATI *
* 4 DEPUTY CHIEF, FIELD STUDIES SECTION, EPA, WENATCHEE, WASHINGTON *
* 5 INDUSTRIAL HYGIENIST, OSHA REGION VI DALLAS, TEXAS *
* 6 INDUSTRIAL HYGIENIST LITTLE ROCK AREA OFFICE, LITTLE ROCK, ARKANSAS *
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H A Z A R D S

DESCRIPTION	ENV. MED.	TOX. TOX.	RTECS	CAS	HAZ.
	DET. DET.		CODE	CODE	CODE
1 METHANOL	9 3		PC14000	000067561	45930
2 DICHLOROANILINE	9 2		BX25400	999999999	B0062
3 PROPANIL	9 2		UE49000	000709988	A1699
4 METHOMYL	9 2		AK29750	999999999	B0027
5 METHYL ISOCYANATE	9 3		NQ94500	000624839	47625
6 NITRIC ACID	9 3		QU57750	007697372	50742
7 SULFURIC ACID	9 3		WS56000	007664939	70870
8 MESITYL OXIDE	9 3		SB42000	000141797	45360
9 METHYLENE CHLORIDE	9 3		PA80500	000075092	47270
10 CHLOROBENZOIC ACID	9 3		9999999	000118912	83210
11 DICHLOROBENZENE	9 3		CZ44300	025321226	84142
12 METHYLTHIOACETIDE ALDOXIME	9 3		9999999	999999999	B0028
13 DICHLOROETHYLENE, 1,2-	9 3		KV93600	000540590	03350
14 PROPIONIC ACID	9 3		UE59500	000079094	62460
15 TETRACHLORO AZO BENZENE	9 2		9999999	999999999	B0063

NIOSH HEALTH EFFECTS EVALUATION DATA BASE REPORT

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EAGLE RIVER CHEMICAL COMPANY WEST HELENA, ARKANSAS

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H A Z A R D S

ENVIRONMENTAL AND MEDICAL
TOXICITY DETERMINATION DESCRIPTION

- 1 - NEGATIVE
- 2 - POSITIVE
- 3 - BOTH NEGATIVE AND POSITIVE
- 0 - UNDETERMINED
- 9 - UNREPORTED

O C C U P A T I O N S

CENSUS CODE	T/P CODE	TITLE/PROCESS DESCRIPTION
643	M00302	PACKER, PACKING SECTION
999	M00323	JOB TITLE UNSPECIFIED, OFFICE AREA
999	M00324	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
999	M00351	JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS
999	M00354	JOB TITLE UNSPECIFIED, PLANT AREA UNSPECIFIED
695	M00422	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA

S I G N S / S Y M P T O M S

- | | | |
|---|-----------------|-------------------------|
| 1 | DESCRIPTION: | ACNE |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 3 |
| | | |
| 2 | DESCRIPTION: | SKIN IRRITATION |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 1 |
| | | |
| 3 | DESCRIPTION: | EYE IRRITATION |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 2 |

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S I G N S / S Y M P T O M S

- | | | |
|----|-----------------|--------------------------|
| 4 | DESCRIPTION: | 'SMALL' PUPILS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 5 |
| 5 | DESCRIPTION: | NAUSEA |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 5 |
| 6 | DESCRIPTION: | BLURRED VISION |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 5 |
| 7 | DESCRIPTION: | MUSCLE WEAKNESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 6 |
| 8 | DESCRIPTION: | COUGH |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 2 |
| 9 | DESCRIPTION: | HEADACHE |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 2 |
| 10 | DESCRIPTION: | FAIGUE AND/OR DROWSINESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 4 |
| 11 | DESCRIPTION: | CONFUSION |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 1 |

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- | | | |
|----|-----------------|---|
| 12 | DESCRIPTION: | INCREASED SALIVATION |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PACKER, PACKING SECTION |
| | NO. OF WORKERS: | 3 |
| 13 | DESCRIPTION: | ACNE |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 20 |
| 14 | DESCRIPTION: | SKIN IRRITATION |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 13 |
| 15 | DESCRIPTION: | EYE IRRITATION |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 7 |
| 16 | DESCRIPTION: | 'SMALL' PUPILS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 11 |
| 17 | DESCRIPTION: | NAUSEA |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 6 |
| 18 | DESCRIPTION: | BLURRED VISION |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |
| | NO. OF WORKERS: | 5 |
| 19 | DESCRIPTION: | MUSCLE WEAKNESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA |

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	NO. OF WORKERS:	4
20	DESCRIPTION:	COUGH
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	3
21	DESCRIPTION:	HEADACHE
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	1
22	DESCRIPTION:	FATIGUE AND/OR DROWSINESS
	HAZARD:	METHOMYL
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	4
23	DESCRIPTION:	CONFUSION
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	3
24	DESCRIPTION:	BLUENESS
	HAZARD:	PROPANIL
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	6
25	DESCRIPTION:	INCREASED SALIVATION
	HAZARD:	METHOMYL
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	1
26	DESCRIPTION:	ASTHMA
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	2
27	DESCRIPTION:	ACNE
	HAZARD:	PROPANIL
	OCCUPATION:	JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS
	NO. OF WORKERS:	5

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- | | | |
|----|-----------------|--|
| 28 | DESCRIPTION: | SKIN IRRITATION |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 13 |
| 29 | DESCRIPTION: | EYE IRRITATION |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 6 |
| 30 | DESCRIPTION: | NAUSEA |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 1 |
| 31 | DESCRIPTION: | MUSCLE WEAKNESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 2 |
| 32 | DESCRIPTION: | COUGH |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 3 |
| 33 | DESCRIPTION: | HEADACHE |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 4 |
| 34 | DESCRIPTION: | FATIGUE AND/OR DROWSINESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 1 |
| 35 | DESCRIPTION: | CONFUSION |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS |
| | NO. OF WORKERS: | 2 |
| 36 | DESCRIPTION: | INCREASED SALIVATION |

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	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS
	NO. OF WORKERS:	1
37	DESCRIPTION:	ACNE
	HAZARD:	PROPANIL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	10
38	DESCRIPTION:	SKIN IRRITATION
	HAZARD:	PROPANIL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	12
39	DESCRIPTION:	EYE IRRITATION
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	8
40	DESCRIPTION:	'SMALL' PUPILS
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	4
41	DESCRIPTION:	NAUSEA
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	7
42	DESCRIPTION:	BLURRED VISION
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	5
43	DESCRIPTION:	MUSCLE WEAKNESS
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	1

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- | | | |
|----|-----------------|--|
| 44 | DESCRIPTION: | COUGH |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT. |
| | NO. OF WORKERS: | 4 |
| 45 | DESCRIPTION: | HEADACHE |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT. |
| | NO. OF WORKERS: | 4 |
| 46 | DESCRIPTION: | FATIGUE AND/OR DROWSINESS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT. |
| | NO. OF WORKERS: | 4 |
| 47 | DESCRIPTION: | CONFUSION |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT. |
| | NO. OF WORKERS: | 1 |
| 48 | DESCRIPTION: | ACNE |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, OFFICE AREA |
| | NO. OF WORKERS: | 1 |
| 49 | DESCRIPTION: | SKIN IRRITATION |
| | HAZARD: | PROPANIL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, OFFICE AREA |
| | NO. OF WORKERS: | 1 |
| 50 | DESCRIPTION: | EYE IRRITATION |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, OFFICE AREA |
| | NO. OF WORKERS: | 3 |
| 51 | DESCRIPTION: | 'SMALL' PUPILS |
| | HAZARD: | METHOMYL |
| | OCCUPATION: | JOB TITLE UNSPECIFIED, OFFICE AREA |
| | NO. OF WORKERS: | 1 |
| 52 | DESCRIPTION: | NAUSEA |

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	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, OFFICE AREA
	NO. OF WORKERS:	1
53	DESCRIPTION:	MUSCLE WEAKNESS
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, OFFICE AREA
	NO. OF WORKERS:	1
54	DESCRIPTION:	FATIGUE AND/OR DROWSINESS
	HAZARD:	METHOMYL
	OCCUPATION:	JOB TITLE UNSPECIFIED, OFFICE AREA
	NO. OF WORKERS:	1
55	DESCRIPTION:	ASTHMA
	OCCUPATION:	JOB TITLE UNSPECIFIED, OFFICE AREA
	NO. OF WORKERS:	1
56	DESCRIPTION:	RESPIRATORY IRRITATION
	HAZARD:	SULFURIC ACID
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	1
57	DESCRIPTION:	CHOLINESTERASE INHIBITION
	HAZARD:	METHOMYL
	OCCUPATION:	PACKER, PACKING SECTION
	NO. OF WORKERS:	3
58	DESCRIPTION:	CHOLINESTERASE INHIBITION
	HAZARD:	METHOMYL
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	3
59	DESCRIPTION:	CHLORACNE
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	17

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60	DESCRIPTION:	CHLORACNE
	OCCUPATION:	PACKER, PACKING SECTION
	NO. OF WORKERS:	2
61	DESCRIPTION:	CHLORACNE
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	11
62	DESCRIPTION:	CHLORACNE
	OCCUPATION:	JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS
	NO. OF WORKERS:	4
63	DESCRIPTION:	CHLORACNE
	OCCUPATION:	JOB TITLE UNSPECIFIED, PLANT AREA UNSPECIFIED
	NO. OF WORKERS:	2
64	DESCRIPTION:	DECREASED VIBRATORY SENSATION
	OCCUPATION:	PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
	NO. OF WORKERS:	5
65	DESCRIPTION:	DECREASED VIBRATORY SENSATION
	OCCUPATION:	PACKER, PACKING SECTION
	NO. OF WORKERS:	2
66	DESCRIPTION:	DECREASED VIBRATORY SENSATION
	OCCUPATION:	JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
	NO. OF WORKERS:	5
67	DESCRIPTION:	DECREASED VIBRATORY SENSATION
	OCCUPATION:	JOB TITLE UNSPECIFIED, SAFETY AND LABORATORY AREAS
	NO. OF WORKERS:	3
68	DESCRIPTION:	DECREASED VIBRATORY SENSATION
	OCCUPATION:	JOB TITLE UNSPECIFIED, PLANT AREA UNSPECIFIED
	NO. OF WORKERS:	1
69	DESCRIPTION:	DECREASED VIBRATORY SENSATION

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OCCUPATION: JOB TITLE UNSPECIFIED, OFFICE AREA
NO. OF WORKERS: 4

70 DESCRIPTION: CHLORACNE
OCCUPATION: JOB TITLE UNSPECIFIED, OFFICE AREA
NO. OF WORKERS: 2

D I A G N O S I B L E I L L N E S S

1 CODE: 02899
HAZARD: DICHLOROANILINE
OCCUPATION: PESTICIDE AND HERBICIDE PRODUCTION WORKER, PLANT AREA
NO. OF WORKERS: 4

2 CODE: 02899
HAZARD: DICHLOROANILINE
OCCUPATION: JOB TITLE UNSPECIFIED, CUSTODIAL AND MAINTENANCE DEPT.
NO. OF WORKERS: 1

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GENERAL

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*****
* REGION: 3, DATE REQUESTED: 11/76, DATE REPORTED: 09/77, PERSONS EXPOSED: 12 *
* ZIP: 16117 SIZE: UNREPORTED S.I.C: 3823 *
* REQUESTOR: A.R.-INTL. MOLDERS AND ALLIED WORKERS OF AMERICA,LOCAL 2, AFL-CIO-CLC *
* STUDY ON: 12/76 INDUSTRIAL HYGIENE SURVEY WITH MEDICAL EVALUATION *
* *
* INVESTIGATOR DESCRIPTION *
* 1 INDUSTRIAL HYGIENIST NIOSH CINCINNATI *
* 2 MEDICAL PERSONNEL NIOSH CINCINNATI *
* 3 MEDICAL OFFICER NIOSH CINCINNATI *
* 4 INDUSTRIAL HYGIENIST NIOSH CINCINNATI *
* 5 INDUSTRIAL HYGIENIST NIOSH CINCINNATI *
*****
    
```

HAZARDS

DESCRIPTION	ENV. MED.		RTECS CODE	CAS CODE	HAZ. CODE
	TOX. DET.	TOX. DET.			
1 PARTICULATES	1	3	9999999	999999999	T0252
2 FREE CRYSTALLINE SILICA	2	2	VV73300	999999999	M1806
3 FORMALDEHYDE	1	3	LP89250	000050000	33640
4 PHENOL	1	1	SJ33250	000108952	55460
5 AMMONIA	1	3	B008750	007664417	05250
6 HYDROGEN CYANIDE	1	1	MW68250	000074908	38530
7 CEMENT	9	9	9999999	999999999	M1355

ENVIRONMENTAL AND MEDICAL
TOXICITY DETERMINATION DESCRIPTION

- 1 - NEGATIVE
- 2 - POSITIVE
- 3 - BOTH NEGATIVE AND POSITIVE
- 0 - UNDETERMINED
- 9 - UNREPORTED

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O C C U P A T I O N S

CENSUS CODE	T/P CODE	TITLE/PROCESS DESCRIPTION
690	M00371	MACHINE OPERATOR, MACHINE AREA
690	M00553	CEMENT MIXER OPERATOR, CEMENT MIXING AREA
643	M00554	CORE PACKER, PACKING STATION
999	M00726	JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
999	M00727	JOB TITLE UNSPECIFIED, CARTRIDGE COATING AREA

G E N E R A L S A M P L E S

- 1 HAZARD: FREE CRYSTALLINE SILICA
 FORM OF HAZARD: DUST AND/OR PARTICULATE
 SAMPLE TYPE : AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 0.0200
 MAX = 0.0300
 AVG = 0.0250
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: TARED FWS-B FILTER WITH STEEL CYCLONE
 ANALYTICAL METHOD: X-RAY DIFFRACTION METHOD

- 2 HAZARD: PARTICULATES
 FORM OF HAZARD: DUST AND/OR PARTICULATE
 SAMPLE TYPE : AREA
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 0.5900
 MAX = 0.7200
 AVG = 0.6500
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: TARED FWS-B FILTER WITH STEEL CYCLONE
 ANALYTICAL METHOD: GRAVIMETRIC WEIGHT GAIN

- 3 HAZARD: FORMALDEHYDE
 FORM OF HAZARD: VAPORS
 SAMPLE TYPE : AREA
 NUMBER OF SAMPLES: 6

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GENERAL SAMPLES

CONCENTRATIONS:	MIN =	0.0700
	MAX =	0.7800
	AVG =	0.2100
MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)	
SAMPLING METHOD:	MIDGET IMPINGER CONTAINING 1 PERCENT SODIUM BISULFITE SOLUTION	
ANALYTICAL METHOD:	COLORIMETRIC METHOD	
4 HAZARD:	AMMONIA	
FORM OF HAZARD:	GAS	
SAMPLE TYPE :	AREA	
NUMBER OF SAMPLES:	6	
CONCENTRATIONS:	MIN =	1.6400
	MAX =	4.6400
	AVG =	2.7200
MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)	
SAMPLING METHOD:	IMPINGERS CONTAINING 0.01N SULFURIC ACID	
ANALYTICAL METHOD:	COLORIMETRIC METHOD	
5 HAZARD:	PHENOL	
FORM OF HAZARD:	VAPORS	
SAMPLE TYPE :	AREA	
NUMBER OF SAMPLES:	6	
CONCENTRATIONS:	MIN =	BELOW ANALYT. LIMIT
	MAX =	BELOW ANALYT. LIMIT
	AVG =	BELOW ANALYT. LIMIT
MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)	
SAMPLING METHOD:	MIDGET IMPINGER CONTAINING 15 ML OF 0.1N SODIUM HYDROXIDE SOLUTION	
ANALYTICAL METHOD:	GAS CHROMATOGRAPHY	
6 HAZARD:	HYDROGEN CYANIDE	
FORM OF HAZARD:	GAS	
SAMPLE TYPE :	AREA	
NUMBER OF SAMPLES:	6	
CONCENTRATIONS:	MIN =	BELOW ANALYT. LIMIT
	MAX =	BELOW ANALYT. LIMIT
	AVG =	BELOW ANALYT. LIMIT
MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)	

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GENERAL SAMPLES

SAMPLING METHOD: MIDGET IMPINGER CONTAINING 15 ML OF 0.1N SODIUM HYDROXIDE SOLUTION
 ANALYTICAL METHOD: ION SPECIFIC ELECTRODE METHOD

PERSONAL SAMPLES

- 1 HAZARD: FREE CRYSTALLINE SILICA
 FORM OF HAZARD: DUST AND/OR PARTICULATE
 OCUP. GRP: CEMENT MIXER OPERATOR, CEMENT MIXING AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 0.1100
 MAX = 0.2700
 AVG = 0.1900
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: TARED FWS-B FILTER WITH STEEL CYCLONE
 ANALYTICAL METHOD: X-RAY DIFFRACTION METHOD

- 2 HAZARD: PARTICULATES
 FORM OF HAZARD: DUST AND/OR PARTICULATE
 OCUP. GRP: CEMENT MIXER OPERATOR, CEMENT MIXING AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 1.2500
 MAX = 1.5400
 AVG = 1.4000
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: TARED FWS-B FILTER WITH STEEL CYCLONE
 ANALYTICAL METHOD: GRAVIMETRIC WEIGHT GAIN

- 3 HAZARD: PARTICULATES
 FORM OF HAZARD: DUST AND/OR PARTICULATE
 OCUP. GRP: CEMENT MIXER OPERATOR, CEMENT MIXING AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 6.0200
 MAX = 8.8000

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P E R S O N A L S A M P L E S

	AVG =	7.4100
MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR	
SAMPLING METHOD:	PRE-WEIGHED VINYL MEMBRANE FILTER	
ANALYTICAL METHOD:	GRAVIMETRIC WEIGHT GAIN	
4	HAZARD:	FORMALDEHYDE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	MACHINE OPERATOR, MACHINE AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	3
	CONCENTRATIONS:	MIN = 0.0300
		MAX = 0.1100
		AVG = 0.0800
	MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)
	SAMPLING METHOD:	MIDGET IMPINGER CONTAINING 1 PERCENT SODIUM BISULFITE SOLUTION
	ANALYTICAL METHOD:	COLORIMETRIC METHOD
5	HAZARD:	AMMONIA
	FORM OF HAZARD:	GAS
	OCUP. GRP:	MACHINE OPERATOR, MACHINE AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	1
	CONCENTRATIONS:	MIN = 3.0200
		MAX = 3.0200
		AVG = 3.0200
	MEASURED IN:	PARTS PER MILLION BY VOLUME (PPM)
	SAMPLING METHOD:	IMPINGERS CONTAINING 0.01N SULFURIC ACID
	ANALYTICAL METHOD:	COLORIMETRIC METHOD
6	HAZARD:	FORMALDEHYDE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	CORE PACKER, PACKING STATION
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	3
	CONCENTRATIONS:	MIN = 0.0700
		MAX = 0.1300
		AVG = 0.1000

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P E R S O N A L S A M P L E S

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: MIDGET IMPINGER CONTAINING 1 PERCENT SODIUM BISULFITE SOLUTION
 ANALYTICAL METHOD: COLORIMETRIC METHOD

7 HAZARD: AMMONIA
 FORM OF HAZARD: GAS
 OCUP. GRP: CORE PACKER, PACKING STATION
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 3.7100
 MAX = 3.7100
 AVG = 3.7100

MEASURED IN: PARTS PER MILLION BY VOLUME (PPM)
 SAMPLING METHOD: IMPINGERS CONTAINING 0.01N SULFURIC ACID
 ANALYTICAL METHOD: COLORIMETRIC METHOD

S I G N S / S Y M P T O M S

- 1 DESCRIPTION: EYE IRRITATION
 OCCUPATION: JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
 NO. OF WORKERS: 2
 2 FEMALE WORKERS
- 2 DESCRIPTION: EYE IRRITATION
 OCCUPATION: CORE PACKER, PACKING STATION
 NO. OF WORKERS: 2
 2 FEMALE WORKERS
- 3 DESCRIPTION: NASAL IRRITATION
 OCCUPATION: CEMENT MIXER OPERATOR, CEMENT MIXING AREA
 NO. OF WORKERS: 2
- 4 DESCRIPTION: NASAL IRRITATION
 OCCUPATION: MACHINE OPERATOR, MACHINE AREA
 NO. OF WORKERS: 2
 2 FEMALE WORKERS

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S I G N S / S Y M P T O M S

- | | | |
|----|--|--|
| 5 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | NASAL IRRITATION
JOB TITLE UNSPECIFIED, CARTRIDGE COATING AREA
1
1 FEMALE WORKERS |
| 6 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | NASAL IRRITATION
JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
4
4 FEMALE WORKERS |
| 7 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | THROAT IRRITATION
CEMENT MIXER OPERATOR, CEMENT MIXING AREA
1 |
| 8 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | THROAT IRRITATION
MACHINE OPERATOR, MACHINE AREA
2
2 FEMALE WORKERS |
| 9 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | THROAT IRRITATION
JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
1
1 FEMALE WORKERS |
| 10 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | SKIN IRRITATION
CEMENT MIXER OPERATOR, CEMENT MIXING AREA
5 |
| 11 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | SKIN IRRITATION
JOB TITLE UNSPECIFIED, CARTRIDGE COATING AREA
3
3 FEMALE WORKERS |
| 12 | DESCRIPTION:
OCCUPATION:
NO. OF WORKERS: | SKIN IRRITATION
JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
2
2 FEMALE WORKERS |

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S I G N S / S Y M P T O M S

- 13 DESCRIPTION: NOSE BLEEDS
OCCUPATION: CEMENT MIXER OPERATOR, CEMENT MIXING AREA
NO. OF WORKERS: 2
- 14 DESCRIPTION: NOSE BLEEDS
OCCUPATION: MACHINE OPERATOR, MACHINE AREA
NO. OF WORKERS: 1
1 FEMALE WORKERS
- 15 DESCRIPTION: NOSE BLEEDS
OCCUPATION: JOB TITLE UNSPECIFIED, CARTRIDGE COATING AREA
NO. OF WORKERS: 1
1 FEMALE WORKERS
- 16 DESCRIPTION: NOSE BLEEDS
OCCUPATION: JOB TITLE UNSPECIFIED, WIRE PUSHING AREA
NO. OF WORKERS: 3
3 FEMALE WORKERS

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GENERAL

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*****
* REGION: 8, DATE REQUESTED: 07/76, DATE REPORTED: 05/77, PERSONS EXPOSED: 100 *
* ZIP: 80201 SIZE: UNREPORTED S.I.C: 3484 *
* REQUESTOR: UNITED STEELWORKERS UNION, LOCAL 5550 DENVER, COLORADO *
* STUDY ON: 07/76 INDUSTRIAL HYGIENE SURVEY WITH MEDICAL QUESTIONNAIRE *
* STUDY ON: 11/76 INDUSTRIAL HYGIENE SURVEY WITH MEDICAL EVALUATION *
* *
* INVESTIGATOR DESCRIPTION *
* 1 INDUSTRIAL HYGIENIST NIOSH REGION VIII *
* 2 NURSE OFFICER NIOSH CINCINNATI *
* 3 MEDICAL SUPPORT TEAM NIOSH CINCINNATI *
* 4 MEDICAL SUPPORT TEAM NIOSH CINCINNATI *
* 5 MEDICAL OFFICER NIOSH CINCINNATI *
* 6 MEDICAL TECHNICIAN, NIOSH CINCINNATI *
*****
    
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HAZARDS

DESCRIPTION	ENV. MED.		RTECS CODE	CAS CODE	HAZ. CODE
	TOX. DET.	TOX. DET.			
1 ACETONE	3	1	AL31500	000067641	02820
2 METHYL ETHYL KETONE (2-BUTANONE)	1	1	EL64750	000078933	13980
3 1,1,1-TRICHLORO ETHANE	1	1	KJ29750	000071556	46970
4 OILS	1	1	RI74000	999999999	M1460

ENVIRONMENTAL AND MEDICAL
TOXICITY DETERMINATION DESCRIPTION

- 1 - NEGATIVE
- 2 - POSITIVE
- 3 - BOTH NEGATIVE AND POSITIVE
- 0 - UNDETERMINED
- 9 - UNREPORTED

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O C C U P A T I O N S

CENSUS CODE	T/P CODE	TITLE/PROCESS DESCRIPTION
690	M00204	MACHINIST, MACHINE AREA
602	M00252	SCOPE ASSEMBLER, SCOPE ASSEMBLY AREA
785	M00254	LABORER, DEBURRING AREA
785	M00255	LABORER, BUFFING AREA
785	M00256	LABORER, COLD WASH AREA
785	M00257	LABORER, VAPOR DEGREASING AREA
785	M00258	LABORER, PUNCH PRESS AREA
602	M00259	COLLIMATOR, SCOPE ASSEMBLY AREA
694	M00260	REPAIRER, SCOPE REPAIR AREA
690	M00261	VAPOR DEGREASER, ULTRASONIC CLEANER AREA
690	M00262	VAPOR DEGREASER, MACHINE SHOP

G E N E R A L S A M P L E S

1 HAZARD: 1,1,1-TRICHLORO ETHANE
 FORM OF HAZARD: VAPORS
 SAMPLE TYPE : AREA
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 567.0000
 MAX = 567.0000
 AVG = 567.0000
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: ORGANIC VAPOR CHARCOAL TUBES
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

P E R S O N A L S A M P L E S

1 HAZARD: ACETONE
 FORM OF HAZARD: VAPORS
 OCUP. GRP: SCOPE ASSEMBLER, SCOPE ASSEMBLY AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 54
 CONCENTRATIONS: MIN = 284.0000

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P E R S O N A L S A M P L E S

- | | | |
|--------------------|--|--|
| | MAX = | 1677.0000 |
| | AVG = | 814.7000 |
| MEASURED IN: | MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR | |
| SAMPLING METHOD: | ORGANIC VAPOR CHARCOAL TUBES | |
| ANALYTICAL METHOD: | GAS CHROMATOGRAPHY | |
| | | |
| 2 | HAZARD: | ACETONE |
| | FORM OF HAZARD: | VAPORS |
| | OCUP. GRP: | COLLIMATOR, SCOPE ASSEMBLY AREA |
| | SAMPLE TYPE : | PERSONAL |
| | NUMBER OF SAMPLES: | 4 |
| | CONCENTRATIONS: | MIN = 167.0000 |
| | | MAX = 597.0000 |
| | | AVG = 406.7000 |
| | MEASURED IN: | MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR |
| | SAMPLING METHOD: | ORGANIC VAPOR CHARCOAL TUBES |
| | ANALYTICAL METHOD: | GAS CHROMATOGRAPHY |
| | | |
| 3 | HAZARD: | ACETONE |
| | FORM OF HAZARD: | VAPORS |
| | OCUP. GRP: | REPAIRER, SCOPE REPAIR AREA |
| | SAMPLE TYPE : | PERSONAL |
| | NUMBER OF SAMPLES: | 4 |
| | CONCENTRATIONS: | MIN = 94.0000 |
| | | MAX = 213.0000 |
| | | AVG = 176.5000 |
| | MEASURED IN: | MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR |
| | SAMPLING METHOD: | ORGANIC VAPOR CHARCOAL TUBES |
| | ANALYTICAL METHOD: | GAS CHROMATOGRAPHY |
| | | |
| 4 | HAZARD: | METHYL ETHYL KETONE (2-BUTANONE) |
| | FORM OF HAZARD: | VAPORS |
| | OCUP. GRP: | SCOPE ASSEMBLER, SCOPE ASSEMBLY AREA |
| | SAMPLE TYPE : | PERSONAL |
| | NUMBER OF SAMPLES: | 54 |
| | CONCENTRATIONS: | MIN = BELOW ANALYT. LIMIT |
| | | MAX = 68.0000 |

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P E R S O N A L S A M P L E S

	AVG =	5.1000
MEASURED IN:		MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
SAMPLING METHOD:		ORGANIC VAPOR CHARCOAL TUBES
ANALYTICAL METHOD:		GAS CHROMATOGRAPHY
5	HAZARD:	METHYL ETHYL KETONE (2-BUTANONE)
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	COLLIMATOR, SCOPE ASSEMBLY AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	4
	CONCENTRATIONS:	MIN = BELOW ANALYT. LIMIT
		MAX = 121.0000
		AVG = 31.7000
	MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES
	ANALYTICAL METHOD:	GAS CHROMATOGRAPHY
6	HAZARD:	METHYL ETHYL KETONE (2-BUTANONE)
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	REPAIRER, SCOPE REPAIR AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	4
	CONCENTRATIONS:	MIN = BELOW ANALYT. LIMIT
		MAX = BELOW ANALYT. LIMIT
		AVG = BELOW ANALYT. LIMIT
	MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES
	ANALYTICAL METHOD:	GAS CHROMATOGRAPHY
7	HAZARD:	1,1,1-TRICHLORO ETHANE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	LABORER, DEBURRING AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	4
	CONCENTRATIONS:	MIN = 42.0000
		MAX = 523.0000
		AVG = 166.2000

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P E R S O N A L S A M P L E S

MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: ORGANIC VAPOR CHARCOAL TUBES
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

8 HAZARD: 1,1,1-TRICHLORO ETHANE
 FORM OF HAZARD: VAPORS
 OCU. GRP: LABORER, BUFFING AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 2
 CONCENTRATIONS: MIN = 367.0000
 MAX = 2608.0000
 AVG = 1487.5000

MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: ORGANIC VAPOR CHARCOAL TUBES
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

9 HAZARD: 1,1,1-TRICHLORO ETHANE
 FORM OF HAZARD: VAPORS
 OCU. GRP: LABORER, COLD WASH AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 364.0000
 MAX = 364.0000
 AVG = 364.0000

MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: ORGANIC VAPOR CHARCOAL TUBES
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

10 HAZARD: 1,1,1-TRICHLORO ETHANE
 FORM OF HAZARD: VAPORS
 OCU. GRP: LABORER, VAPOR DEGREASING AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 1
 CONCENTRATIONS: MIN = 90.0000
 MAX = 90.0000
 AVG = 90.0000

MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR

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P E R S O N A L S A M P L E S

	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES
	ANALYTICAL METHOD:	GAS CHROMATOGRAPHY
11	HAZARD:	1,1,1-TRICHLORO ETHANE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	LABORER, PUNCH PRESS AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	1
	CONCENTRATIONS:	MIN = 154.0000
		MAX = 154.0000
		AVG = 154.0000
	MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES
	ANALYTICAL METHOD:	GAS CHROMATOGRAPHY
12	HAZARD:	1,1,1-TRICHLORO ETHANE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	VAPOR DEGREASER, ULTRASONIC CLEANER AREA
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	1
	CONCENTRATIONS:	MIN = 244.0000
		MAX = 244.0000
		AVG = 244.0000
	MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES
	ANALYTICAL METHOD:	GAS CHROMATOGRAPHY
13	HAZARD:	1,1,1-TRICHLORO ETHANE
	FORM OF HAZARD:	VAPORS
	OCUP. GRP:	VAPOR DEGREASER, MACHINE SHOP
	SAMPLE TYPE :	PERSONAL
	NUMBER OF SAMPLES:	2
	CONCENTRATIONS:	MIN = 198.0000
		MAX = 866.0000
		AVG = 532.0000
	MEASURED IN:	MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
	SAMPLING METHOD:	ORGANIC VAPOR CHARCOAL TUBES

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P E R S O N A L S A M P L E S

ANALYTICAL METHOD: GAS CHROMATOGRAPHY

14 HAZARD: OILS
 FORM OF HAZARD: MIST
 OCUP. GRP: MACHINIST, MACHINE AREA
 SAMPLE TYPE : PERSONAL
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 0.3000
 MAX = 1.0000
 AVG = 0.5300
 MEASURED IN: MILLIGRAMS OF SUBSTANCE PER CUBIC METER OF AIR
 SAMPLING METHOD: PRE-WEIGHED FILTERS
 ANALYTICAL METHOD: FLUORESCENCE SPECTROSCOPY

S I G N S / S Y M P T O M S

1 DESCRIPTION: SLEEPINESS
 HAZARD: ACETONE
 NO. OF WORKERS: 6

2 DESCRIPTION: BURNING OF THE EYES
 HAZARD: ACETONE
 NO. OF WORKERS: 4

3 DESCRIPTION: HEADACHE
 HAZARD: ACETONE
 NO. OF WORKERS: 4

4 DESCRIPTION: DRY OR SORE THROAT
 HAZARD: ACETONE
 NO. OF WORKERS: 5

5 DESCRIPTION: NASAL IRRITATION
 HAZARD: ACETONE
 NO. OF WORKERS: 3

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S I G N S / S Y M P T O M S

6	DESCRIPTION:	TEARING OF THE EYES
	HAZARD:	ACETONE
	NO. OF WORKERS:	4
7	DESCRIPTION:	WHEEZING
	HAZARD:	ACETONE
	NO. OF WORKERS:	2
8	DESCRIPTION:	NASAL DISCHARGE
	HAZARD:	ACETONE
	NO. OF WORKERS:	3
9	DESCRIPTION:	BREATHING DIFFICULTIES
	HAZARD:	ACETONE
	NO. OF WORKERS:	2
10	DESCRIPTION:	NAUSEA
	HAZARD:	ACETONE
	NO. OF WORKERS:	1
11	DESCRIPTION:	DIZZINESS
	HAZARD:	ACETONE
	NO. OF WORKERS:	2
12	DESCRIPTION:	'DRUNK' FEELING
	HAZARD:	ACETONE
	NO. OF WORKERS:	1
13	DESCRIPTION:	HEART MURMERS OR IRREGULARITIES
	HAZARD:	ACETONE
	NO. OF WORKERS:	1
14	DESCRIPTION:	COUGH
	HAZARD:	ACETONE
	NO. OF WORKERS:	2
15	DESCRIPTION:	SKIN IRRITATION

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S I G N S / S Y M P T O M S

	HAZARD:	ACETONE
	NO. OF WORKERS:	2
16	DESCRIPTION:	TINGLING AND/OR NUMBNESS IN EXTREMITIES
	HAZARD:	ACETONE
	NO. OF WORKERS:	2
17	DESCRIPTION:	SLEEPINESS
	NO. OF WORKERS:	10
18	DESCRIPTION:	BURNING OF THE EYES
	NO. OF WORKERS:	11
19	DESCRIPTION:	HEADACHE
	NO. OF WORKERS:	8
20	DESCRIPTION:	DRY OR SORE THROAT
	NO. OF WORKERS:	3
21	DESCRIPTION:	TEARING OF THE EYES
	NO. OF WORKERS:	1
22	DESCRIPTION:	WHEEZING
	NO. OF WORKERS:	2
23	DESCRIPTION:	BREATHING DIFFICULTIES
	NO. OF WORKERS:	1
24	DESCRIPTION:	NAUSEA
	NO. OF WORKERS:	2
25	DESCRIPTION:	DIZZINESS
	NO. OF WORKERS:	1
26	DESCRIPTION:	'DRUNK' FEELING
	NO. OF WORKERS:	2

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S I G N S / S Y M P T O M S

- 27 DESCRIPTION: HEART MURMERS OR IRREGULARITIES
 NO. OF WORKERS: 2
- 28 DESCRIPTION: HEADACHE
 HAZARD: 1,1,1-TRICHLORO ETHANE
 NO. OF WORKERS: 1

L A B O R A T O R Y T E S T S

- 1 LAB TEST: TRICHLOROACETIC ACID (TCA) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: PRE SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = BELOW ANALYT. LIMIT
 MAX = 7.0000
 AVG = 4.0000
 MEASURED IN: MILLIGRAMS METABOLITE PER LITER OF URINE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA
- 2 LAB TEST: TRICHLOROACETIC ACID (TCA) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: POST SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 3.0000
 MAX = 6.0000
 AVG = 5.0000
 MEASURED IN: MILLIGRAMS METABOLITE PER LITER OF URINE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA
- 3 LAB TEST: TRICHLOROETHANOL (TCE) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: PRE SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 9.0000
 MAX = 13.0000
 AVG = 11.0000

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L A B O R A T O R Y T E S T S

MEASURED IN: MILLIGRAMS METABOLITE PER LITER OF URINE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

4 LAB TEST: TRICHLOROETHANOL (TCE) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: POST SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 5.0000
 MAX = 18.0000
 AVG = 12.0000

MEASURED IN: MILLIGRAMS METABOLITE PER LITER OF URINE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

5 LAB TEST: TRICHLOROACETIC ACID (TCA) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: PRE SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = BELOW ANALYT. LIMIT
 MAX = 5.0000
 AVG = 3.0000

MEASURED IN: MILLIGRAMS METABOLITE PER GRAM CREATININE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

6 LAB TEST: TRICHLOROACETIC ACID (TCA) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: POST SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 2.0000
 MAX = 3.0000
 AVG = 3.0000

MEASURED IN: MILLIGRAMS METABOLITE PER GRAM CREATININE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

7 LAB TEST: TRICHLOROETHANOL (TCE) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: PRE SHIFT
 NUMBER OF SAMPLES: 3

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LABORATORY TESTS

CONCENTRATIONS: MIN = 5.0000
 MAX = 9.0000
 AVG = 7.0000
 MEASURED IN: MILLIGRAMS METABOLITE PER GRAM CREATININE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

8 LAB TEST: TRICHLOROETHANOL (TCE) ANALYSIS IN URINE
 NO. WITH TRAIT: 3
 CONTRIBUTING TRAIT: POST SHIFT
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 3.0000
 MAX = 9.0000
 AVG = 6.0000
 MEASURED IN: MILLIGRAMS METABOLITE PER GRAM CREATININE
 ANALYTICAL METHOD: COLORIMETRIC PROCEDURE OF TANAKA AND IKEDA

9 HAZARD: 1,1,1-TRICHLORO ETHANE
 FORM OF HAZARD: VAPORS
 LAB TEST: BLOOD SERUM ANALYSIS FOR 1,1,1-TRICHLOROETHANE
 NO. WITH TRAIT: 999
 NUMBER OF SAMPLES: 3
 CONCENTRATIONS: MIN = 0.1300
 MAX = 0.2700
 AVG = 0.1800
 MEASURED IN: MILLIGRAMS PER DECILITER (MG/DL)
 SAMPLING METHOD: STANDARD VENAPUNCTURE TECHNIQUE
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

10 HAZARD: ACETONE
 FORM OF HAZARD: VAPORS
 LAB TEST: BLOOD SERUM ANALYSIS FOR ACETONE
 NO. WITH TRAIT: 999
 NUMBER OF SAMPLES: 29
 CONCENTRATIONS: MIN = 1.3000
 MAX = 4.8000
 AVG = 3.1000
 MEASURED IN: MILLIGRAMS PER DECILITER (MG/DL)

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L A B O R A T O R Y T E S T S

SAMPLING METHOD: STANDARD VENAPUNCTURE TECHNIQUE
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

11 HAZARD: METHYL ETHYL KETONE (2-BUTANONE)
 FORM OF HAZARD: VAPORS
 LAB TEST: BLOOD SERUM ANALYSIS FOR METHYL ETHYL KETONE
 NO. WITH TRAIT: 999
 NUMBER OF SAMPLES: 13
 CONCENTRATIONS: MIN = BELOW ANALYT. LIMIT
 MAX = 2.0000
 AVG = 0.8100
 MEASURED IN: MILLIGRAMS PER DECILITER (MG/DL)
 SAMPLING METHOD: STANDARD VENAPUNCTURE TECHNIQUE
 ANALYTICAL METHOD: GAS CHROMATOGRAPHY

