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1980-08-01

RE: ALCOA HEALTH INFORMATION SYSTEM PROPOSAL

Attached is a draft of the proposal for the Health Information System. It consists of the scope of the proposed system, its benefits and the Medical and Industrial Hygiene requirements of such a system.

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Good start
see p 8 3
BD

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PLAINTIFF'S EXHIBIT AL-1133

ALCOA

752463 0152

SF 4563

THE ALCOA HEALTH INFORMATION SYSTEM

I. SCOPE

The proposed Health Information System (HIS) will contain information on both hourly and salaried Alcoa employees who are active at the time of the system initiation, as well as those individuals employed thereafter.

The HIS will include all Alcoa domestic locations (22) and Alcoa Subsidiaries (2) which have at least one full time medical staff person. The sequence by which these locations will be brought into the system is as follows:

1) Locations with smelters
2) Pittsburgh, ATC
3) Locations with refineries
4) Locations in mill products
5) Subsidiaries

The HIS will contain all employee medical/health data acquired from the time of the pre-employment medical history and examination through active employment until retirement or work termination. In addition to medical information acquired during all examinations by the Medical Department during employment years, off-the-job sickness and symptoms as well as death information will be included.

The HIS will incorporate on an on-going basis all industrial hygiene information concerning workplace exposures to both chemical and physical agents known or suspected to be unhealthful. These exposures will be characteristic of the various jobs or areas in the workplace at specific points in time. No environmental (outside the workplace) data will be included.

The HIS will include complete work (job) histories for length of Alcoa employment as well as pertinent demographic information for all participating employees.

The HIS will contain and keep current a complete inventory of all chemical substances and all physical and biological agents used or produced as final products or by-products within the company. This inventory will include information with respect to locations, jobs and quantity for these materials or agents, at specified periods of time, as well as all corporate and governmental exposure limits.

II. BENEFITS

A major objective of the Health and Safety Department is the establishment of ~~an effective program for creating~~ and maintaining a safe, healthful work environment. The Health Information System ~~will~~ provide an integrated data system which will collect, store, retrieve and allow continual evaluation of information concerning employee health and workplace exposures. The system will provide an efficient means for surveillance of both worker health and the work environment, for determination of the effects of the workplace on the well being of the worker and for adherence to governmental regulations. More explicitly, the system will provide the following benefits which will assist the Health and Safety Department in achieving its objective:

- A foundation for the practice of effective occupational medicine by providing a data base that allows for early detection of individual and/or group adverse health patterns.
- ~~The~~ data resources ~~in manageable form~~ for maintenance of an effective industrial hygiene surveillance program allowing on-going monitoring and control of worker exposures in the work environment as well as identification of problem areas and/or jobs.
- The basis for providing assistance in scheduling periodic medical examinations and industrial hygiene activities.

- The ability of the system to select, summarize, and correlate health and work exposure by means of job history information in order to:
  * Reevaluate existing exposure standards
  * Establish new exposure standards
  * Identify previously unsuspected long term workplace health effects
  * Provide evidence for absence of long term workplace health effects

- The standardization of Medical and Industrial Hygiene recordkeeping throughout the company.

- The means for efficient adherence to governmental regulations on long term record retention and reporting.

III. DESCRIPTION OF THE MEDICAL AREA AND ITS REQUIREMENTS OF A HEALTH INFORMATION SYSTEM

THE MEDICAL AREA

The activities of the location Medical Department are associated with employee health care provided during clinic visits. These fall into two broad categories, namely scheduled visits and unscheduled visits.

SCHEDULED VISITS

Scheduled visits for employees are determined by established criteria which apply to the individual's employment status, age or work exposure. This is the major source of health data collected by the Medical Department for an employee. Although particular sets of data collected may be common to many of the different types of medical examinations, in general, each exam-type solicits information specific to the need for the examination.

Pre-employment Examination: The pre-employment medical examination is given to each prospective employee prior to hire. The scheduling is initiated by the Personnel Department. It is during this examination that much information is acquired on past health and past work exposures as well as the present medical status of the possible employee. The kinds of information that might be collected at this time are:

Work History
Medical History
Personal Habits
Physical Exam
Family History
X-Ray - Chest & Back

Blood Count & Urinalysis
Audiogram
Serology
Sickle Cell Preparation
EKG
Pulmonary Function

Information that must be made available to the Medical Department prior to the examination includes:

S.S.#
Name
Birthdate
Sex
Highest Education Level
Job Applied For
Marital History
Location
Department

On completion of the examination, medical recommendations or work restrictions, if any, are defined.

Periodic Examination: The periodic examination is provided to each active employee, on a voluntary basis, at a frequency which depends on the age of the employee. It is by this examination that the medical-health status of the employee is kept current and any indication of adverse change made known. Information required by the Medical Department prior to this examination includes results of previous periodic (or pre-employment) examinations. The new information collected at this time are the results of a set of medical and biological investigations needed to update the health status of the employee (probably comprised of some subset of the information listed for the pre-employment examination.) On completion of the examination, appropriate medical recommendations are made.

Occupational Examination: The occupational examination is provided, at a specified frequency, to each employee exposed in his job to any one (or more) of the following:

Alumina
Asbestos
Carbon Monoxide
Chlorine - Hydrochloric Acid
Coke and Calcined Coke
Copper Fumes and Dust
Fluorides
Mercury
Nuisance Dusts
Silica
Ozone
PPOM
Chlorinated Hydrocarbons
Phosgene
PCB's
Sodium Hydroxide
Stoddard Solvent
Sulfur Dioxide
Sulfuric Acid
Welding Fumes
Lead
Noise
Heat
Radiation
Vibration

An occupational exam may also be scheduled for any job/exposure change or termination. Exposed employees are identified by means of job-history information and the Materials Inventory maintained by the Industrial Hygiene area.

Each type of occupational examination has its own required information that Medical must have prior to the scheduled employee visit. The information that will be required for an occupational examination due to asbestos exposure is listed as an example:

S.S.#
Name
Job (Code)
Location

Exposure Level
Department
Previous Exam Date
Changes Reported on Previous Exam
Respiratory or Other Protective
Equipment Required
Respirator Type
OSHA Std. or TLV

Again, medical investigations and/or biological monitoring performed are specific to the type of exposure of the employee. The information that will be acquired during an occupational examination due to asbestos exposure is given as an example:

British Medical Respiratory Questionnaire
Smoking History (Update)
Px. Exam
Pulmonary Function Testing
PA Chest (X-Ray)

On completion of the examination, medical recommendations are defined, at which time the frequency of this type of examination for a particular employee may be modified based on the new health findings.

UNSCHEDULED VISITS

Unscheduled visits are initiated usually by the employee. Although in some instances visits in this category may be pre-arranged by appointments, these also are to be considered "unscheduled" in the sense that they have no regularity of occurrence and would not be considered in a scheduling system. Most unscheduled visits fall into one of the following categories:

- On the Job Injuries or Illness
- Personal Injury or Illness
- Return to Work After Injury or Illness Absence

In each instance, limited amounts of information are recorded, the most important of which is either the nature of the injury or the illness diagnosis which is coded and used as a source of morbidity information.

MORTALITY INFORMATION

In addition to the information accumulated from all visits (scheduled and unscheduled) to the Medical Department over an employee's employment years, mortality information is recorded for each identified death. Death certificates (copies) are obtained from the location Personnel Department for all deceased active and retired employees. (Note: Those employees who have left work prior to retirement have unknown vital status unless additional "follow-up" efforts are made.) Information acquired from the death certificates includes:

Date of Death
Cause of Death (Nosologist coded)
Place of Death

REQUIREMENTS OF A HEALTH INFORMATION SYSTEM IN MEDICAL

LOCATION REQUIREMENTS

- Schedule visits (required medical examinations) based on appropriate examination frequency.

- Provide Medical with the health history or medical data concerning the employee required prior to the scheduled visit to assist in a medical evaluation. (See examples under Scheduled Visits.)

- Input, edit and store all information acquired from medical examinations (Scheduled and Unscheduled Visits.)

- Inform Medical of active and retired employee deaths.

- Input, edit and store mortality information.

- Inform Medical of employees having specified physical or chemical exposures and of employees having any new physical or chemical exposures due to changes in products or processes.

- Provide to location Medical reports on a regular basis giving summaries or listings of specified location health data.

- Provide to location Medical on request (special reports) location data or data summaries for any individual or group of individuals by specified values of:

  Health variables
  Demographic variables
  Department or Job Code
  Exposure variables
  Time variables
  A combination of above

- Assist in maintaining confidentiality of location employee health information.

CORPORATE REQUIREMENTS

- Provide to corporate Medical reports on a regular basis giving summaries or listings of specified health data for all or a specified subset of locations.

- Provide to corporate Medical on request data or data summaries for groups of employees by specified values of:

  Health variables
  Demographic variables
  Department or Job Code
  Exposure variables
  Time variables
  Location Code
  A combination of above

- Provide to corporate Medical on request specified subsets of employee health data along with respective employee demographic, work history and exposure data in a form amenable to further statistical analyses and epidemiological studies.

IV. DESCRIPTION OF THE INDUSTRIAL HYGIENE AREA ITS REQUIREMENTS OF A HEALTH INFORMATION SYSTEM

THE INDUSTRIAL HYGIENE AREA

The major activities in the location Industrial Hygiene area involve the monitoring and control of employee exposures in the workplace. The monitoring is accomplished by both scheduled and unscheduled sampling surveys and subsequent analyses of exposure levels of chemical substances and physical agents in the work environment. Training and education programs are provided by Industrial Hygiene to assist in the control of individual employee exposures.

SCHEDULED SURVEYS

Scheduled surveys are triggered by the results of previous monitoring activities and legal requirements or other priorities established by Industrial Hygiene. These surveys occur at a frequency determined by certain criteria specific for each of the environmental contaminants of concern. Either personal or area sampling may be performed during a survey. Most of the exposure data acquired by Industrial Hygiene consists of the results of personal (and thus specific-job-related) samples which approximate the actual exposure levels experienced by employees. Because of the large number of employees, sampling is not performed for each individual. Personal sampling is performed for a small number of representative employees with a given, well defined job and the results are extrapolated to all others with the same specific job. A particular job is defined by its type of work, its exposures and its safety

characteristics.

In addition to personal sampling, there are instances when area sampling is performed to evaluate the effectiveness of engineering controls, to identify major exposure areas or for other reasons.

As an example, the following is a list of chemical contaminants and physical agents for which periodic monitoring might be performed.

Acrylonitrile
Aldehydes
Ammonia
Antimony
Arsenic
Asbestos
Benzene
Beryllium
Cadmium
Chlorine
Cresol
Di-2-Ethylhexyl Phthalate
Dust - Total and Respirable
Fluorides
Hydrogen Chloride
Hydrogen Fluoride
Hydrogen Sulfide
Isocyanates
Lead and its Inorganic Compounds
Metals
Naphthalene
Nitric Acid
Oil Mist
Organic Solvents
Oxides of Nitrogen
Ozone
Phosgene
Phosphine
Particulate Polycyclic Organic Matter
Sulfur Dioxide
Sulfuric Acid
Vinyl Chloride
Heat
Radiation
Noise

The information typically collected for each personal sample during a survey is defined in Figure 1, a currently used Sampling

Data Sheet. In the case of area samples, employee identification and job classification are, of course, not applicable. A subset of information, similar to that presented below, is necessary for long term recordkeeping.

Chemical Identification Number
Employee I.D.
Job Code
Department Code
Exposure Data (Sample Results)
Respirator Code
Date
Location Code
Sample Identification
IH Report Number
Sample Duration
Analytical Code

On completion of the survey, the schedule is updated and the scheduling frequency may be modified based on the new monitoring results.

UNSCHEDULED SURVEYS

Unscheduled surveys are initiated at a location for one of several reasons.

- to identify and quantify contaminants in a newly suspected area
- to investigate employee complaints
- to determine changes in the work environment due to changes in materials, processes or work practices in an area

Examples of possible exposures are listed above. As in the scheduled surveys, the sampling may be of either the personal or area type. The information recorded is also the same as in scheduled surveys. On completion of a survey, repeat sampling may be scheduled based on the monitoring results.

Note: An additional type of exposure monitoring, the biological

monitoring of body concentrations of contaminants, is normally performed by and the results maintained by the location Medical Department. Industrial Hygiene uses the results of some biological monitoring as well as personal and area sampling information in their function of evaluating levels of exposures. Examples of these types of measurements include:

Urinary Fluorides
Blood Lead
Audiometric Testing

TRAINING PROGRAMS

Training programs are provided by Industrial Hygiene as required by certain governmental health standards (as well as by corporate guidelines) that mandate that employees exposed to various specified substances be educated as to the health hazards of these substances. The employee must also be taught in these training sessions how to avoid unnecessary exposure and how the company will assist him. For example, an employee exposed to benzene is informed of the health effects of this compound and concurrently fitted with and taught the proper way to use a respirator. The standards also require refresher training on a regular basis at a specified frequency. The information recorded at each session includes:

Contaminant
Employee I.D.
Job
Date of Training
Training Content (coded)

MATERIALS INVENTORY

Industrial Hygiene has the responsibility of maintaining an accurate and complete inventory of all chemical substances and

physical and biological agents used or produced as final products of by-products within the company. The information recorded for each entry includes:

- All known names and numeric identifiers (for chemical substances, this information is available from the Chemical Abstract Service - CAS).

- The locations, departments and jobs at which each material or agent is used or produced with calendar date introduced or withdrawn.

- The approximate quantities of materials or levels of agent at each location, department and job with calendar date.

- All exposure standards (exposure limits) for each contaminant.

It is by means of this inventory in conjunction with employees work histories that Industrial Hygiene can identify the individual employees ever-exposed as well as the total number of employees currently exposed to a particular material or agent.

REQUIREMENTS OF A COMPUTERIZED HEALTH INFORMATION SYSTEM IN INDUSTRIAL HYGIENE

LOCATION REQUIREMENTS

- Schedule sampling surveys based on appropriate monitoring frequency.

- Input, edit and store specified information obtained from area and personal sampling as a result of scheduled and unscheduled surveys.

- Schedule employee's industrial hygiene training sessions.

- Input, edit and store records of individual employee's industrial hygiene training.

- Input, edit, store and update on an ongoing basis the information in the Materials Inventory.

- Provide to location Industrial Hygiene reports on a regular basis giving summaries or listings of specified location industrial hygiene and biological monitoring data.

- Provide to location Industrial Hygiene special reports containing various subsets of location industrial hygiene and biological monitoring records based on specified parameters.

- Provide to location Industrial Hygiene the ability to perform statistical analyses and graphics with specified subsets of the location personal, area and biological monitoring data.

CORPORATE REQUIREMENTS

- Provide to corporate Industrial Hygiene regular reports giving summaries or listings of specified industrial hygiene and biological monitoring data for all or a specified subset of locations.

- Provide to corporate Industrial Hygiene, on request, reports containing various subsets of industrial hygiene

and biological monitoring data based on specified parameters for all locations or a specified subset of locations.

- Provide to corporate Industrial Hygiene the ability to perform statistical analyses and graphics with specified subsets of personal, area and biological monitoring data for all locations or a specified subset of locations.

FIGURE 1

Industrial Hygiene

SAMPLING DATA SHEET

WORKS _____

Building _____ Location/Process _____ (1) Date _____

Sample No. (2) _____ Analysis For _____ (3)

Employee Name _____ (4) Clock # _____ (5) Soc.Sec.# _____ (6)

Respirator Used: (Yes) _____ (No) _____ Job Classification _____ (7)

Collecting Medium _____ (8)

Pump Ident. _____ (9) Flow Rate _____ (10) per min./stroke Counter Finish _____ (11)

Time of Sampling _____ (14) to _____ (15) Duration _____ (16) min. Counter Start _____ (12)

Total Air Volume _____ (17) Sampling Strokes _____ (13)

Notes: (Environmental, Operating Practices, Use of Personal Protection, Instrumentation, etc.) (18)

(19) System Check

SAMPLE

Analytical Data and Calculations

Concentration _____

(20)

Sampled by _____

Analyzed by _____

Checked by _____

March 1980

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