

TITLE 8**DIVISION OF INDUSTRIAL SAFETY
GENERAL INDUSTRY SAFETY ORDERS
(Register 75, No. 7—2-15-75)**

442.4.11

(2) **Incidents.** Incidents which result in the release of a carcinogen into any area where employees may be potentially exposed shall be reported in accordance with this paragraph.

(A) A report of the occurrence of the incident and the facts obtainable at that time including a report on any medical treatment of affected employees shall be made within 24 hours to the Chief.

(B) A written report shall be filed with the Chief within 15 calendar days thereafter and shall include:

1. A specification of the amount of material released, the amount of time involved, and an explanation of the procedure used in determining this figure;

2. A description of the area involved and the extent of known and possible employee exposure and area contamination;

3. A report of any medical treatment of affected employees and any medical surveillance program implemented; and

4. An analysis of the circumstances of the incident and measures taken or to be taken, with specific completion dates, to avoid further similar releases.

(g) **Medical Surveillance.** At no cost to the employee, a program of medical surveillance shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.

(1) **Examinations.**

(A) Before an employee is assigned to enter a regulated area, a preassignment medical examination by a licensed physician shall be provided. The examination shall include the employee's personal history and that of the employee's family insofar as these are related to pertinent genetic, occupational and environmental factors.

(B) Authorized employees shall be provided periodic medical examinations, not less often than annually, following the preassignment examination.

(C) In all medical examinations, the physician shall consider whether factors exist, which would predispose the employee to increased risk, such as reduced immunological competence, treatment with steroids or cytotoxic agents, pregnancy and cigarette smoking.

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EXHIBIT**

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(2) Records.

(A) Employers of employees examined pursuant to paragraph (g)(1), above, shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be maintained for the duration of the employee's employment. Upon termination of the employee's employment, including retirement or death, or in the event that the employer ceases business without a successor, records, or notarized true copies thereof, shall be forwarded by registered mail to the Director, National Institute for Occupational Safety and Health.

(B) Records required by this paragraph shall be provided upon request to authorized representatives of the Chief and the Director of the Department of Health and, upon request of an employee or former employee, to a physician designated by the employee or to a new employer.

(C) Any physician who conducts a medical examination required by this paragraph shall furnish to the employer a statement of the employee's suitability for employment in the specific exposure.

NOTE: Authority cited: Section 142.3, Labor Code.

History: 1. New section filed 8-1-74; effective thirtieth day thereafter (Register 74, No. 31). For former section and history, see Register 73, No. 43.

2. Amendment of subsection (d) filed 9-20-74 as procedural; effective upon filing (Register 74, No. 38).

3. Amendment filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).

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(Register 75, No. 7—2-15-75)

(c)(7)(C) of this section which are accessible only to, and handled only by, authorized employees or other employees trained in accordance with paragraph (e)(5) may have the identification of their contents limited to a generic or proprietary name, or other proprietary identification, of the carcinogen and percent.

(B) Containers of a carcinogen and containers required under subparagraphs (c)(4)(E), (c)(6)(H) and (c)(7)(C) of this section which are accessible to, or handled by, employees other than authorized employees or employees trained in accordance with paragraph (e)(5) shall have contents identification which includes the full chemical name and Chemical Abstracts Service Registry number as listed in subsection (a) of this section.

(C) Containers shall display the following warning immediately under, or adjacent to, the contents identification:

CANCER-SUSPECT AGENT

(D) Containers which have carcinogen contents with corrosive or irritating properties shall have label statements warning of such hazards, noting, if appropriate, particularly sensitive or affected portions of the body.

(3) **Lettering.** Lettering on signs required by subparagraphs (e)(1)(A), (B) and (C) of this section shall be a minimum height of 2 inches. Instructions required by subparagraphs (e)(1)(C) and (D) shall be legible and no smaller than standard pica type. The letter height of labels required on containers under this section shall be not less than one-half the size of the largest other lettering on the package, and not less than 8-point type in any instance, but no such required lettering need be more than 1 inch in height.

(4) **Prohibited Statements.** No statement shall appear on or near any required sign, label or instruction which contradicts or detracts from the effect of any required warning, information or instruction.

(5) **Training and Indoctrination.** Each employee, prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to, the information or requirements of this paragraph. (All materials relating to the training/indoctrination program shall be provided upon request to authorized representatives of the Chief and the Director of the Department of Health.)

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(A) The nature of the carcinogenic hazards including local and systemic toxicity.

(B) The specific nature of the operation involving a carcinogen which could result in exposure.

(C) The purpose for, and application of, the medical surveillance program, including, as appropriate, methods of self examination.

(D) The purpose for, and application of, decontamination practices and procedures.

(E) The purpose for, and significance of, emergency practices and procedures.

(F) The employee's specific role in prescribed emergency procedures.

(G) Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in the release of a carcinogen.

(H) The purpose for, and application of, specific first-aid procedures and practices.

(I) The employee shall be familiarized with the prescribed emergency procedures and rehearsed in their application.

(J) This section shall be reviewed at the employee's first training and indoctrination program and annually thereafter.

 (f) Reports.

(1) Operations. No later than 30 days from the effective date of this Order, the information required by this paragraph shall be reported in writing to the Chief. Any changes in such information shall be similarly reported in writing within 15 calendar days of such change.

(A) A brief description and in-plant location of the area(s) regulated and the address of each regulated area.

(B) The name(s) and other identifying information as to the presence of carcinogen(s) in each regulated area;

(C) The number of employees in each regulated area during normal operations including maintenance activities; and

(D) The manner in which a carcinogen is present in each regulated area; e.g., whether it is manufactured, processed, used, repackaged, released, stored or otherwise handled.

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Director, National Institute for Occupational Safety and Health.

(2) **Emergencies.** Specific emergency procedures shall be prescribed and posted. In an emergency, immediate measures including, but not limited to, the requirements of subparagraphs (A), (B), (C), (D) and (E) of this paragraph shall be implemented.

(A) The potentially affected areas shall be evacuated as soon as the emergency has been determined.

(B) Hazardous conditions created by the emergency shall be eliminated and the potentially affected area shall be decontaminated prior to the resumption of normal operations.

(C) Special medical surveillance by a physician shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency. A report of the medical surveillance and of any medical treatment shall be included in the incident report, in accordance with paragraph (f)(2) of this section.

(D) Where an employee has a known contact with a carcinogen, such an employee shall be required to shower, including washing of the hair, as soon as possible unless contraindicated by physical injuries.

(E) An incident report on the emergency shall be reported as provided in paragraph (f)(2) of this section.

(F) In operations involving beta-propiolactone, or ethyleneimine, emergency deluge showers and eyewash fountains supplied with running potable water shall be located near, within sight of, and on the same level with locations where a direct exposure would be most likely to occur as a result of equipment failure or improper work practice.

(3) Hygiene Facilities and Practices.

(A) Storage or consumption of food, storage or use of containers of beverages, storage or application of cosmetics, smoking, storage of smoking materials, tobacco products or other products for chewing, or the chewing of such products, are prohibited in regulated areas.

(B) Where employees are required by this section to wash or shower, facilities shall be provided in accordance with Section 3260 (f)(1) and (f)(2) or Section 3260 (f)(1) and (f)(3), respectively.

(C) Where employees wear protective clothing and equipment, clean change rooms shall be provided in ac-

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cordance with Section 3260 (g) for the number of such employees required to change clothes.

(D) Where toilets are in regulated areas, such toilets shall be in a separate room in accordance with Section 3260 (e).

• (4) **Contamination Control.**

(A) Regulated areas, except for outdoor systems, shall be maintained under pressure negative with respect to nonregulated areas. Local exhaust ventilation may be used to satisfy this requirement. Clean makeup air in equal volume shall replace air removed.

(B) Any equipment, material or other item taken into or removed from a regulated area shall be done so in a manner that does not cause contamination in nonregulated areas or the external environment.

(C) Decontamination procedures shall be established and implemented to remove a carcinogen from the surface of materials, equipment and the decontamination facility.

(D) Dry sweeping and dry mopping are prohibited.

(e) **Signs, Information and Training.**

(1) **Signs.**

(A) Entrances to regulated areas shall be posted with signs bearing the legend:

**CANCER-SUSPECT AGENT
AUTHORIZED PERSONNEL ONLY**

(B) Entrances to regulated areas containing operations covered in paragraph (c) (5) of this section shall be posted with signs bearing the legend:

**CANCER-SUSPECT AGENT EXPOSED IN THIS AREA
IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS
AND AIR-SUPPLIED HOOD REQUIRED AT ALL TIMES
AUTHORIZED PERSONNEL ONLY**

(C) Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas informing employees of the procedures that must be followed in entering and leaving a regulated area.

(D) Prescribed emergency procedures shall be posted in an appropriate location.

(2) **Container Contents Identification.**

(A) Containers of a carcinogen and containers required under subparagraphs (c) (4) (E), (c) (6) (H) and

(F) Laboratory vacuum systems shall be protected with high efficiency scrubbers or with disposable absolute filters except that only high efficiency scrubbers shall be used with beta-propiolactone, bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine.

(G) Employees, other than those engaged in animal support activities, shall be provided with, and shall be required to wear, a daily change of clean, protective laboratory clothing, such as a solid-front gown, surgical scrub suit or fully buttoned laboratory coat. The required change of clean, protective clothing for employees engaged in animal support activities shall include coveralls or pants and shirt, foot covers, head covers, gloves, and appropriate protective respiratory equipment or devices.

(H) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and, at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. Such impervious containers shall be identified as to their contents by labeling according to paragraphs (e)(2), (e)(3) and (e)(4) of this section.

(I) Employees shall be required to wash hands, forearms, face and neck upon each exit from the regulated area, close to the point of exit, and before engaging in other activities.

(J) Employees engaged in animal support activities shall be required to shower, including washing of the hair, after the last exit of the day.

(K) Air pressure in laboratory areas and animal rooms where a carcinogen is handled and bio-assay studies are performed shall be negative in relation to the pressure in surrounding areas. Exhaust air shall not be discharged to regulated areas, nonregulated areas or the external environment unless decontaminated.

(L) There shall be no connection between regulated areas and any other areas through the ventilation system.

(M) A current inventory of carcinogens shall be maintained.

(N) Ventilated apparatus such as laboratory type hoods shall be tested at least semi-annually, or immediately after ventilation modification or maintenance operations, by personnel fully qualified to certify correct containment and operation.

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(7) **Premixed Solutions.** (This paragraph pertains solely to 4,4'-methylene bis(2-chloroaniline).) Where 4,4'-methylene bis(2-chloroaniline) is present only in a pre-mixed solution at a temperature not exceeding 220°F., the establishment of a regulated area is not required. However, the following requirements shall apply:

(A) Only authorized employees shall be permitted to handle such materials.

(B) Each day, employees shall be provided with, and be required to wear, a clean change of protective clothing (smocks, coveralls, or long-sleeved shirts and pants), gloves and other protective garments and equipment necessary to prevent contact with the solution in the processes used.

(C) Employees shall be required to remove and leave protective clothing and equipment when leaving the work area at the end of the work day or at any time when solution is spilled on such clothing or equipment. Used clothing and equipment shall be placed in impervious containers for purposes of decontamination or disposal. The impervious containers shall be identified as to contents according to the labeling requirements of paragraphs (e)(2), (e)(3) and (e)(4) of this section.

(D) Employees shall be required to wash hands and face after removing such clothing and equipment and before engaging in other activities.

(E) Employees assigned to work covered by this paragraph shall be deemed to be working in regulated areas for the purposes of paragraphs (d)(1) and (d)(2); subparagraphs (d)(3)(A), (d)(3)(B), (d)(4)(C) and (d)(4)(D); and subsections (e), (f) and (g) of this section.

(F) Work areas upon which solution may be spilled shall either be protected by a clean covering which shall be changed daily, or after any spill, or such areas shall be cleaned thoroughly each day and after any spill.

(d) **General Regulated Area Requirements.**

(1) **Employee Identification.** A daily roster of employees entering regulated areas shall be established and maintained. The rosters or a summary of the rosters shall be retained for a period of 20 years. The rosters and/or summaries shall be provided upon request to authorized representatives of the Chief and the Director of the Department of Health. In the event that the employer ceases business without a successor, rosters shall be forwarded by registered mail to the

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upon each exit from the regulated areas, close to the point of exit, and before engaging in other activities.

(3) **Open Vessel System Operations.** Open vessel system operations as defined in paragraph (b)(13) of this section are prohibited.

(4) **Transfer From a Closed System, Charging or Discharging Point Operations, or Otherwise Opening a Closed System.** In operations where a carcinogen is contained in a "closed system" but is transferred, charged or discharged into other normally closed containers, the following provisions shall apply:

(A) Access shall be restricted to authorized employees.

(B) Each operation shall be provided with a "laboratory type hood" or with equivalent continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation. Exhaust air shall not be discharged to regulated areas, nonregulated areas or the external environment unless decontaminated. Clean makeup air shall be introduced in sufficient volume to maintain the correct operation of the local exhaust system.

(C) Employees shall be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls or long-sleeved shirts and pants), shoe covers and gloves prior to entering the regulated area. Shoe covers are not required when the substance is bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine.

(D) Employees engaged in the handling of carcinogens shall be provided with, and be required to wear and use as minimum protection, a half-face, filter type respirator for dusts, mists and fumes. Those employees engaged in the handling of beta-propiolactone, bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine shall be provided with, and be required to wear, a fullface, supplied air respirator of the continuous flow or pressure-demand type. The use of respiratory protective equipment shall be in accordance with Sections 5144 (b), (c), (d), (e), (f), (h), and (i).

(E) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and, at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of subsequent decontamination or disposal. The contents of such impervious containers shall be identified as re-

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quired under paragraphs (e)(2), (e)(3) and (e)(4) of this section.

(F) Employees shall be required to wash hands, forearms, face and neck on each exit from the regulated area, close to the point of exit, and before engaging in other activities. Exception to this requirement is permitted when the substance is beta-propiolactone, bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine.

(G) Employees shall be required to shower after the last exit of the day except in those cases in which the substance is beta-propiolactone, bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine.

(H) Drinking fountains are prohibited in the regulated area.

(5) **Maintenance and Decontamination Activities.** In cleanup of leaks or spills, maintenance or repair operations on contaminated systems or equipment, or any operations involving work in an area where direct contact with a carcinogen could result, each authorized employee entering that area shall:

(A) Be provided with, and be required to wear, clean, impervious garments including gloves, boots and continuous air-supplied hood in accordance with Section 5144.

(B) Be decontaminated before removing the protective garments and hood.

(C) Be required to shower, including washing of the hair, upon removing the protective garments and hood.

(6) **Laboratory Activities.** The requirements of this paragraph shall apply to research and quality control activities involving the use of a carcinogen.

(A) Mechanical pipetting aids shall be used for all pipetting procedures.

(B) Experiments, procedures and equipment which could produce aerosols shall be confined to laboratory type hoods or glove boxes.

(C) Laboratory work surfaces on which a carcinogen is handled shall be protected from contamination.

(D) Contaminated wastes and animal carcasses shall be collected in impervious containers which are closed and decontaminated prior to removal from the work area. Such wastes and carcasses shall be incinerated in such a manner that no carcinogenic products are released.

(E) All other forms of a carcinogen shall be inactivated prior to disposal.

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DIVISION OF INDUSTRIAL SAFETY
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442.4.1

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Chemical	Chemical Abstracts Registry number	Percent*
2-Acetylaminofluorene	53963	1.0
4-Aminodiphenyl	92671	0.1
Benzidine (and its salts)	92875	0.1
3,3'-Dichlorobenzidine (and its salts)	91941	1.0
4-Dimethylaminoazobenzene	80117	1.0
alpha-Naphthylamine**	134327	1.0
beta-Naphthylamine**	91598	0.1
4-Nitrobiphenyl	92933	0.1
N-Nitrosodimethylamine	82779	1.0
beta-Propiolactone	57578	1.0
bis-Chloromethyl ether	542851	0.1
Methyl chloromethyl ether	107302	0.1
4,4'-Methylene bis (2-Chloroaniline)	101144	1.0
Ethyleneimine	151564	1.0

* By weight or volume

** This section does not apply to these materials in operations involving the destructive distillation of carbonaceous materials, such as occurs in coke ovens.

(b) Definitions.

(1) **Absolute Filter.** A filter capable of retaining 99.97 percent of a mono disperse aerosol of 0.3 micrometer particles.

(2) **Authorized Employee.** An employee whose duties require him to be in the regulated area and who has been specifically assigned by the employer.

(3) **Chief.** The Chief of the Division of Industrial Safety, 455 Golden Gate Avenue, San Francisco, California 94102.

(4) **Clean Change Room.** A room where employees put on clean clothing and/or protective equipment in an environment free of carcinogens. This room shall be contiguous to, and have entry from, a shower room when shower facilities are otherwise required by this section.

(5) **Closed System.** Any operation involving a carcinogen where containment prevents release into regulated areas, nonregulated areas or the external environment.

(6) **Decontamination.** The inactivation of a carcinogen or its safe disposal.

(7) **Disposal.** The safe removal of a carcinogen from the work environment.

(8) **Emergency.** An unforeseen circumstance or set of circumstances resulting in the release of a carcinogen which may result in exposure to, or contact with, the carcinogen.

(9) **External Environment.** Any environment external to regulated and nonregulated areas.

(10) **Isolated System.** A fully enclosed structure, other than the vessel of containment of a carcinogen, which is impervious to the passage of the carcinogen and which would

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prevent the entry of the carcinogen into regulated areas, non-regulated areas or the external environment should leakage or spillage from the vessel of containment occur.

(11) **Laboratory Type Hood.** A device enclosed on three sides and the top and bottom, designed and maintained so as to draw air inward at an average linear face velocity of 150 feet per minute with a minimum of 125 feet per minute; designed, constructed and maintained in such a way that an operation involving a carcinogen within the enclosure does not require the insertion of any portion of any employee's body other than hands and arms.

(12) **Nonregulated Area.** Any area under the control of the employer where entry and exit is neither restricted nor controlled.

(13) **Open Vessel System.** An operation involving a carcinogen in an open vessel which is not in an isolated system, in a laboratory type hood or in any other system affording equivalent protection against the entry of a carcinogen into regulated areas, nonregulated areas or the external environment.

(14) **Protective Clothing.** Clothing designed to protect an employee against contact with, or exposure to, a carcinogen.

(15) **Regulated Area.** An area where entry and exit is restricted and controlled.

(e) **Regulated Areas.** A regulated area shall be established by an employer where a carcinogen is manufactured, processed, used, released, stored or otherwise handled. All such areas shall be controlled in accordance with the requirements for the following category or categories describing the operation involved:

(1) **Isolated Systems.** Employees working with a carcinogen within an isolated system such as a "glove box" shall wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.

(2) **Closed System Operations.** Within the regulated areas where a carcinogen is stored in sealed containers or is contained in a closed system, including piping systems with any sample ports or openings closed while a carcinogen is contained within:

(A) Access shall be restricted to authorized employees;

(B) With the exception of those cases in which the substance is beta-propiolactone, bis-chloromethyl ether, methyl chloromethyl ether, or ethyleneimine, employees shall be required to wash hands, forearms, face and neck

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