

DST 91-1 Lead Paint Regulations

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DST-91-1

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

TO: Distribution

DATE: MAR 28 1991

FROM: Benjamin Chin, Manager *Ben*
Design Services

SUBJECT: Lead Paint Regulations

Attached for your necessary action is a copy of "Occupational Health Standard - Lead in Construction" (2 pages) and "COMAR 09.12.32 - Occupational Exposure to Lead in Construction Work," dated November 28, 1988, prepared by the Maryland Division of Labor and Industry.

The following action should be taken to implement this standard:

1. For Maryland Aviation Administration (MAA) in-house design and design by Architectural/Engineering Consultants under contract to the MAA, the project manager/project engineer shall:

- Determine if the project has potential lead exposure.
- Where the potential for lead exposure exists, request the MAA Safety Coordinator to test the project site for potential areas which may result in lead exposure above the action level.

Test locations and results shall be shown on the contract plans.

- Incorporate the following in the Special Provisions:

"The Contractor shall fully comply with the requirements of COMAR 09.12.32 - 'Occupational Safety and Health Standard - Occupational Exposure to Lead in Construction Work,' dated November 28, 1988, and as may be amended.

"The Maryland Aviation Administration (MAA) has conducted preliminary tests of the project site to determine the potential of lead exposure to workers above the action level. The location and results of those tests are shown in the contract documents.

"The MAA has conducted the tests and made the results available as a matter of courtesy to prospective contractors. This information in no way relieves the Contractor from performing his own tests or complying with the requirements set forth in COMAR 09.12.32."

Lead Paint Regulations
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2. Project inspectors shall follow-up and insure the requirements of COMAR 09.12.32 - "Occupational Safety and Health Standard - Occupational Exposure to Lead in Construction Work" are being complied with.

BC:bk

Attachments

Distribution:

Mr. Alex Noorani
Mr. Charles Steen
Mr. Ali Sarvestani
Mr. Emory Carrigan
Mr. William Tsai
Mr. Don Meredith (MAA Safety Coordinator)
Mr. George Eichner (Greiner, Inc.)
Mr. Chirantan Mukhopadhyay (Parson's)

DESIGN UPDATE

SUBJECT: LEAD PAINT REGULATIONS

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BC:bk
Attachments

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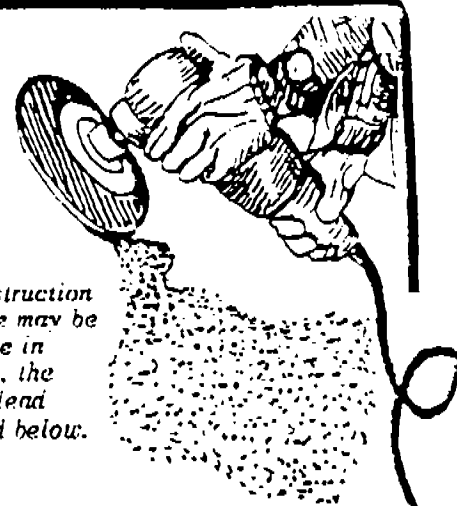
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OCCUPATIONAL HEALTH STANDARD

LEAD in CONSTRUCTION

The Maryland Lead in Construction Standard requires that before beginning any construction work which may result in lead exposure, an employer must determine if any employee may be exposed to lead at or above the action level ($30 \mu\text{g}/\text{m}^3$). This determination must be in writing and be posted. If any employee may be exposed at or above the action level, the employer must conduct air sampling at the start of the operation which may involve lead exposure. The major requirements of the Lead in Construction Standard are detailed below.



Any Airborne Lead	At or Above Action Level ($30 \mu\text{g}/\text{m}^3$)	Above PEL ($50 \mu\text{g}/\text{m}^3$)	
X X	X X	X X X X	CONDUCT EXPOSURE MONITORING <ul style="list-style-type: none"> - at start of job - every six months - every quarter - when job change may result in new or additional exposure - if employee complains of symptoms related to lead exposure <i>Whenever exposure monitoring is performed, employee must be provided with written notice of results.</i>
		X	USE FEASIBLE ENGINEERING AND WORK PRACTICE CONTROLS
		X	DEVELOP WRITTEN COMPLIANCE PROGRAM AND REVIEW EVERY SIX MONTHS
		X X X X X	PROVIDE RESPIRATORY PROTECTION <ul style="list-style-type: none"> - as interim measure - to supplement engineering and work practice controls - when controls not feasible - upon employee request. <i>When respirators are provided, a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f) must be established and fit testing must be conducted. A medical examination must be provided if an employee exhibits difficulty breathing during respirator fit test or use. An employer must provide a powered air purifying respirator at the employee's request.</i>
		X X X X X	PROVIDE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT <ul style="list-style-type: none"> - clean clothing weekly (daily if exposure above $200 \mu\text{g}/\text{m}^3$) - assure protective clothing removed at end of shift - assure appropriate laundering or disposal - clean and repair equipment <i>Protective clothing and equipment must also be provided when the possibility of skin or eye irritation exists.</i>
X X X X	X X X X	X X X X	MAINTAIN ALL SURFACES AS FREE OF LEAD AS POSSIBLE <ul style="list-style-type: none"> - prohibit cleaning by compressed air - use vacuuming or other equally effective cleaning methods - use wet methods when vacuuming not feasible
		X X X X	PROHIBIT EATING, DRINKING AND SMOKING IN JOB AREA <ul style="list-style-type: none"> - provide eating and drinking area - assure employees wash prior to eating or drinking - assure employees do not enter eating area in lead contaminated clothing

Maryland Occupational Safety and Health

Any Exposure Lead	At or Above Action Level (30 µg/dl)	Above PEL (50 µg/dl)	
		X	PROVIDE CHANGE AREAS AND STORAGE - assure employees do not leave job area in contaminated clothes
X	X	X	PROVIDE WASH FACILITIES [29 CFR 1926.51 (d)] - be sure employees wash at end of shift
X	X	X	PROVIDE LAVATORY FACILITIES [29 CFR 1926.51 (c)]
	X	X	INSTITUTE MEDICAL SURVEILLANCE PROGRAM Biological monitoring (Blood Lead + ZPP or FEP Levels) - prior to assignment - every two months for first six months of exposure - written notification of results to employee <i>Medical examination must be provided when exposure is above action level and employee has developed signs or symptoms associated with lead intoxication, desires advice on effects of exposure on ability to procreate, or employee's blood lead level is at or above 40 µg/100g. A medical examination must also be provided when an employee exhibits difficulty breathing during respirator fit test or use.</i>
	X	X	PROVIDE MEDICAL REMOVAL AND PROTECTION - if blood lead level is at or above 60 µg/100g - if average of last three blood tests is at or above 50 µg/100g - if indicated by a final medical determination
X	X	X	INFORM EMPLOYEES OF STANDARD - make available a copy of standard
	X	X	PROVIDE TRAINING PROGRAM <i>Training must also be made available if the possibility of skin or eye irritation exists.</i>
		X	POST WARNING SIGNS
X	X	X	MAINTAIN RECORDS OF - initial determination - exposure monitoring - medical surveillance - medical removal

This chart is intended to summarize the Maryland Lead in Construction Standard and is not to be interpreted as the complete requirements under the standard. For a complete copy of the standard contact:

MARYLAND DIVISION OF LABOR AND INDUSTRY
MARYLAND OCCUPATIONAL SAFETY AND HEALTH
501 ST. PAUL PLACE — 9th FLOOR
BALTIMORE, MARYLAND 21202-2272
(301) 333-4164

Title 09
DEPARTMENT OF LICENSING AND REGULATION
Subtitle 12 DIVISION OF LABOR AND INDUSTRY

Chapter 32 Maryland Occupational Safety and Health Standard for
Occupational Exposure to Lead in Construction Work

Authority: Article 89, Sections 30(a), 31(1), and 31(m),
Annotated Code of Maryland

.01 Scope and Application.

A. This chapter applies to occupational exposure to lead of every employee engaged in construction work. Each employer shall protect the employment and places of employment of each employee engaged in construction work by complying with this chapter.

B. Compliance with this chapter does not preclude or preempt the applicability of any other regulations or standards.

.02 Definitions.

A. For the purpose of this chapter certain words and terms are defined as follows.

B. Terms Defined.

(1) "Action level" means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 micrograms/cubic meter) averaged over an 8-hour period.

(2) "Commissioner" means the Commissioner of Labor and Industry or designee.

(3) Construction Work.

(a) "Construction work" means construction, alteration, or repair, or all of the above, including, but not limited to, renovation, demolition, reconstruction, refurbishing, restoration, painting, and decorating.

(b) Construction work also includes the erection of new electric transmission and distribution lines and equipment, and the alteration, conversion, and improvement of the existing transmission and distribution lines and equipment.

(4) Lead.

(a) "Lead" means metallic lead, all inorganic lead compounds, and organic lead soaps.

(b) "Lead" does not include any other organic lead compounds.

(5) "PEL" means Permissible Exposure Limit.

(6) "TWA" means Time Weighted Average.

.03 Permissible Exposure Limit (PEL).

A. The employer shall ensure that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter of air (50 micrograms/cubic meter) averaged over an 8-hour period.

B. When an employee is exposed to lead for more than 8 hours in any work day, the employer shall use the following formula to reduce the permissible exposure limit, as a time weighted average (TWA) for that day: Maximum permissible limit (in micrograms/ cubic meter) = 400 divided by hours worked in the day.

C. Respirators. When respirators are used to supplement engineering and work practice controls to comply with the PEL and in accordance with the requirements of Regulation .06, the employer, for the purpose of determining compliance with the PEL, may:

(1) Consider employee exposure to be at the level provided by the protection factor of the respirator for those periods the respirator is worn; and

(2) Average those periods with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

.04 Initial Determination and Exposure Monitoring.

A. General.

(1) For the purposes of this regulation, employee exposure is that exposure which would occur if the employee were not using a respirator.

(2) Personal Samples.

(a) With the exception of monitoring under Section C, below, the employer shall collect personal samples for

the entire time during the shift when lead exposure may occur.

(b) The personal samples shall:

(i) Include at least one sample for every job classification in each work area during each shift; and

(ii) Be representative of the monitored employee's regular, daily exposure to lead.

B. Initial Determination.

(1) An employer having a jobsite covered by this chapter shall determine before the beginning of potential exposure to lead if an employee may be exposed to lead at or above the action level.

(2) Written record.

(a) The employer shall:

(i) Make a written record of the determination, and

(ii) Post the record in a place accessible to employees;

(b) At a minimum, the record shall include:

(i) The information specified in Section C, below,

(ii) The date of determination,

(iii) Location of the jobsite,

(iv) Process,

(v) Materials,

(vi) Location within the jobsite, and

(vii) The name and social security number of employees monitored.

C. Basis of Initial Determination. The employer shall base an initial determination on any of the following, relevant considerations:

(1) Information, observations, calculations, or anticipated operations which would indicate employee exposure to lead;

(2) Previous measurements of airborne lead and analytical methods meeting the criteria of Section I, below; and

(3) Other indications of potential lead exposure.

D. Positive Initial Determination and Initial Monitoring.

(1) When a determination conducted under Sections B and C, above, shows the possibility of employee exposure at or above the action level, the employer shall conduct exposure monitoring immediately at the start of the operation which may involve lead exposure.

(2) The monitoring shall be representative of the exposure for each employee in the workplace who is exposed to lead.

(3) When the type of jobsite, process, and materials involved has not changed, measurements of airborne lead, taken in accordance with Section I, below, and made during the preceding 12 months may be used to satisfy this requirement.

E. Negative Initial Determination. When the employer determines, in accordance with Sections B and C, above, that no employee is exposed to airborne concentrations of lead at or above the action level, the employer shall make a written record of the determination in accordance with Section B.

F. Frequency. Except as required by Section G, below, when the initial determination or subsequent monitoring reveals employee exposure:

(1) Above the PEL, the employer shall conduct monitoring quarterly until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL; and

(2) At or above the action level, but not exceeding the PEL, the employer shall conduct monitoring at least once every 6 months until at least two consecutive measurements, taken at least 7 days apart, are below the action level, at which time the employer may discontinue monitoring for that employee.

G. Additional Monitoring.

(1) When there is either a production, jobsite, material, process, control, or personnel change which may result in new or additional lead exposure or any other reason to suspect a change, which may result in new or additional exposures to lead, the employer shall conduct additional monitoring in accordance with this chapter.

(2) When an employee complains of symptoms which may be attributable to exposure to lead, the employer shall conduct personal monitoring representative of the exposure to each employee in the affected job classification or performing the same operation who may be exposed to lead.

H. Employee Notification.

(1) Within 5 working days of the receipt of any monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposure.

(2) Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the PEL, the employer shall include in the written notice:

(a) A statement that the PEL was exceeded; and

(b) A description of the corrective action that has been, or will be, taken to reduce exposure to a level at or below the PEL.

I. Accuracy of Measurement. The employer shall use a method of monitoring and analysis which has an accuracy, to a confidence level of 95 percent, of not less than plus or minus 20 percent for airborne concentrations of lead equal to or greater than 30 micrograms/cubic meter.

.05 Methods of Compliance.

A. Engineering and Work Practice Controls.

(1) When any employee is exposed to lead above the PEL, the employer shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead, except to the extent that the employer can demonstrate that these controls are not feasible.

(2) When the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposure to a level at or below the PEL, the employer shall:

(a) Use them to reduce exposure to the lowest feasible level; and

(b) Supplement them by the use of respiratory protection which complies with the requirements of Regulation .06.

B. Compliance Program.

(1) Each employer shall establish and implement a

written compliance program to reduce exposure.

(2) Written Program. The written compliance program shall, at a minimum, include:

(a) A description of each operation in which lead is expected, including;

- (i) Equipment used,
- (ii) Materials used,
- (iii) Controls in place,
- (iv) Crew size,
- (v) Employee job responsibilities,
- (vi) Operating procedures, and
- (vii) Maintenance practices;

(b) A description of the specific means that will be employed to achieve compliance;

(c) A report of the technology considered in meeting the PEL;

(d) A work practice program which includes items required under Regulations .07, .08, and .09;

(e) The administrative control schedule required by Section C, if applicable; and

(f) Other relevant information.

(3) Written programs shall be:

(a) Submitted upon request to the Commissioner;
and

(b) Available at the jobsite for examination and copying by the Commissioner, any affected employee, or authorized employee representative.

(4) At least every 6 months, the employer shall:

(a) Review the written compliance program; and

(b) If necessary, revise it to reflect the current status of the program.

C. Administrative Controls. If administrative controls are

used as a means of reducing employee TWA lead exposure, the employer shall establish and implement a job rotation schedule which includes:

(1) The name or identification number of each affected employee;

(2) The duration and the exposure level at each job or work station where an affected employee is located; and

(3) Any other information which may be useful in assessing the reliability of administrative controls in reducing exposure to lead.

.06 Respiratory Protection.

A. General.

(1) When this chapter requires the use of respirators, the employer shall:

(a) Provide respirators that comply with the requirements of this regulation, at no cost to the employee; and

(b) Ensure their use.

(2) Respirators shall be used:

(a) During the time period necessary to install or implement engineering or work practice controls;

(b) In a work situation in which engineering and work practice controls are not sufficient to reduce exposure to a level at or below the PEL; and

(c) Whenever an employee requests a respirator.

B. Respirator Selection.

(1) When a respirator is required under this chapter, the employer shall select the appropriate respirator or combination of respirators in accordance with this section from Table I.

(2) Powered Air-Purifying Respirators. The employer shall provide a powered air-purifying respirator instead of the respirator specified in Table I whenever:

(a) An employee chooses to use this type of respirator; and

(b) This respirator will provide adequate

protection to the employee.

(3) The employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

C. Respirator Usage.

(1) The employer shall ensure that the respirator issued to the employee:

- (a) Exhibits minimum facepiece leakage; and
- (b) Is fitted properly.

(2) Fit Test.

(a) For each employee wearing a negative pressure respirator, the employer shall perform either a quantitative or qualitative face fit test:

- (i) At the time of initial fitting; and
- (ii) Minimally, every 6 months after that.

(b) The qualitative fit test:

(i) May be used only to test the fit of a half-mask respirator when it is otherwise permitted to be worn; and

(ii) Shall be conducted in accordance with Appendix D of 29 CFR 1910.1025, here incorporated by reference.

(c) The tests shall be used to select facepieces that provide the protection prescribed in Table I.

Table I. Respiratory Protection for Lead Aerosols

Airborne concentration of lead or condition of use	Required respirator ¹
Not in excess of 0.5 milligrams/cubic meter (10X PEL).	Half-mask, air-purifying respirator equipped with high efficiency filters. ^{2,3}
Not in excess of 2.5 milligrams/cubic meter (50X PEL).	Full facepiece, air-purifying respirator with high efficiency filters. ³
Not in excess of 50 milligrams/cubic meter (1000X PEL).	(1) Any powered, air-purifying respirator with high efficiency filters, ³ or (2) Half-mask, supplied-air respirator operated in positive-pressure mode. ²
Not in excess of 100 milligrams/cubic meter (2000X PEL).	Supplied-air respirators with full facepiece, hood, helmet, or suit, operated in positive pressure mode.
Greater than 100 milligrams/cubic meter, unknown concentration or fire fighting.	Full facepiece, self-contained breathing apparatus operated in positive-pressure mode.

¹Respirators specified for high concentrations can be used at lower concentrations of lead.

²Full facepiece is required if the lead aerosols cause eye or skin irritation at the use concentrations.

³A high efficiency particulate filter means 99.97 percent efficiency against 0.3 micron size particles.

(3) If an employee exhibits difficulty in breathing during the fit test or during use, the employer shall make available to the employee an examination in accordance with Regulation .11A(2) to determine whether the employee can wear a respirator while performing the required duty.

D. Respirator Program.

(1) The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134(b), (d),

(e), and (f).

(2) The employer shall:

(a) Permit an employee who uses a filter respirator to change the filter elements when an increase in breathing resistance is detected; and

(b) Maintain an adequate supply of filter elements for this purpose;

(c) Permit an employee who wears a respirator to leave the work area to wash his or her face and respirator facepiece when necessary to prevent skin irritation associated with respirator use.

.07 Protective Work Clothing and Equipment.

A. Provision and Use. When an employee is exposed to lead above the PEL, without regard to the use of respirators, or when the possibility of skin or eye irritation exists, the employer shall:

(1) Provide, at no cost to the employee, appropriate protective work clothing and equipment, such as, but not limited to:

(a) Coveralls or similar full-body work clothing;

(b) Shoes or disposable shoe coverlets, gloves, and hats;

(c) Face shields, vented goggles, or other appropriate protective equipment which complies with 29 CFR 1926.102, here incorporated by reference; and

(2) Ensure that the employee uses the appropriate protective clothing and equipment.

B. Cleaning and Replacement. The employer shall:

(1) Provide the protective clothing required in Section A:

(a) In a clean and dry condition,

(b) Daily to an employee whose exposure level, without regard to a respirator, is over 200 micrograms/cubic meter of lead as an 8-hour TWA, and

(c) At least weekly to other employees;

(2) Provide for the cleaning, laundering, or disposal of protective clothing and equipment required by Section A;

(3) Repair or replace required protective clothing and equipment as needed to maintain their effectiveness;

(4) Ensure that employees remove all protective clothing:

(a) At the completion of a work shift, and

(b) Only in designated change areas;

(5) Ensure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container which:

(a) Is located in the designated change area, and

(b) Will prevent dispersion of lead;

(6) Inform, in writing, any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead;

(7) Ensure that a container required by Section B(5), above, is labelled as follows:

CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS; and

(8) Prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

.08 Housekeeping.

A. Surfaces. An employer shall maintain all surfaces as free as practicable of accumulations of lead.

B. Cleaning Floors.

(1) An employer shall vacuum floors and other surfaces where lead accumulates.

(2) When vacuuming or other equally effective methods are not feasible, an employer shall use wet methods, including wet sweeping, wet shovelling, or wet brushing.

(3) Floors and other surfaces where lead accumulates

may not be cleaned by the use of compressed air.

(4) An employer may use dry methods only when vacuuming and wet methods are not practicable.

C. Vacuuming. When vacuuming methods are used, the employer shall ensure that the vacuums are used and emptied in a manner which minimizes the re-entry of lead into the workplace.

.09 Hygiene Facilities and Practices.

A. For the purpose of this regulation, employee exposure is that exposure which would occur without regard to the use of a respirator.

B. The employer shall ensure that in an area where employees are exposed to lead above the PEL:

- (1) Neither food nor beverage is present or consumed;
- (2) Tobacco products are not present or used; and
- (3) Cosmetics are not applied.

C. Designated Change Areas.

(1) The employer shall provide clean designated change areas for employees who work in areas where their airborne exposure to lead is above the PEL.

(2) The employer shall ensure that designated change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes, sufficient to prevent cross-contamination.

D. Washing Facilities.

(1) The employer shall ensure that employees who work in areas where their airborne exposure to lead is above the PEL, shower or wash at the end of the work shift.

(2) The employer shall provide washing facilities in accordance with 29 CFR 1926.51(f).

(3) The employer shall ensure that employees who are required to shower or wash pursuant to Section D(1) do not leave the jobsite wearing any clothing or equipment worn during the work shift.

E. Food and Beverage Consumption Areas. The employer shall:

(1) Provide employees who work in areas where their airborne exposure to lead is above the PEL with food and beverage consumption areas:

(a) Sufficiently removed from the affected work area; and

(b) Readily accessible to employees.

(2) Ensure that employees who work in areas where their airborne exposure to lead is above the PEL, wash their hands and face prior to eating, drinking, smoking, or applying cosmetics.

(3) Ensure that employees do not enter food and beverage consumption areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming or other cleaning methods.

F. Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with 29 CFR 1926.51(c).

.10 Medical Surveillance Program.

A. General.

(1) The employer shall institute a medical surveillance program for all employees who are or may be exposed above the action level.

(2) The employer shall ensure that all medical examinations and procedures are performed by, or under the supervision of, a licensed physician.

(3) The employer shall provide the required medical surveillance, as set forth in Regulation .11:

(a) Without cost to employees, and

(b) At a reasonable time and place.

B. Biological Monitoring.

(1) Blood Lead and ZPP or FEP Level Sampling and Analysis. The employer shall make available to each employee covered under Section A(1), above, biological monitoring in the form of blood sampling and analysis for:

(a) Lead; and

(b) Zinc protoporphyrin (ZPP), or

Free erythrocyte protoporphyrin (FEP) levels.

(2) The biological monitoring shall be provided on the following schedule:

(a) Before assignment, when an employee is being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level;

(b) At least every 2 months during the first 6 months to each employee covered under Section A(1), above, after that, every 6 months;

(c) At least every 2 months for each employee whose last blood lead sampling and analysis indicated a blood lead level at or above 40 micrograms/100g of whole blood, until two consecutive blood samples and analyses indicate a blood lead level below 40 micrograms/100g of whole blood;

(d) At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level; and

(e) At the termination of employment.

(3) Follow-up Blood Sampling Tests. When the results of a blood lead level test indicate that an employee's blood lead level exceeds the numerical criteria for medical removal under Regulation .12A(1), the employer shall provide a second (follow-up) blood sampling test within 2 weeks after receiving the results of the first blood sampling test.

(4) Accuracy of Blood Lead Level Sampling and Analysis. Blood lead level sampling and analysis provided pursuant to these regulations shall:

(a) Have an accuracy, to a confidence level of 95 percent, within plus or minus 15 percent or 6 micrograms/100ml, whichever is greater; and

(b) Be conducted by a laboratory which:

(i) Is licensed by the Centers for Disease Control (CDC), United States Department of Health and Human Services, or

(ii) Has received a satisfactory grade in blood lead proficiency testing from CDC in the prior 12 months.

(5) Employee Notification. Within 5 working days after receiving biological monitoring results, the employer shall notify in writing:

(a) Each employee of their blood lead level; and

(b) Each employee whose blood lead level exceeds 40 micrograms/100g, that this chapter requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal under Regulation .12A(1).

.11 Medical Examinations and Consultations.

A. Frequency. The employer shall make available medical examinations and consultations to each employee covered under Regulation .10A(1) according to the following schedule:

(1) Immediately, for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 micrograms/100g;

(2) As soon as possible, upon notification by an employee that:

(a) The employee has developed signs or symptoms commonly associated with lead intoxication,

(b) The employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or

(c) The employee has demonstrated difficulty in breathing during a respirator fit test or during respirator use; and

(3) As medically appropriate for each employee who was either:

(a) Removed from exposure to lead due to a risk of sustaining material impairment to health, or

(b) Otherwise limited pursuant to a final medical determination.

B. Content. Medical examinations made available pursuant to Section A(1), above, shall include all of the following elements:

(1) A detailed work history and a medical history, with particular attention to:

(a) Past lead exposure (occupational and non-occupational),

(b) Personal habits (smoking, hygiene), and

(c) Past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurological problems;

(2) A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems;

(3) Pulmonary status, if respiratory protection will be used;

(4) A blood pressure measurement;

(5) A blood sample and analysis which determines:

(a) Blood lead level which meets the requirements of Regulation .10B(4),

(b) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology,

(c) Zinc protoporphyrin or free erythrocyte protoporphyrin,

(d) Blood urea nitrogen, and

(e) Serum creatinine;

(6) A routine urinalysis with microscopic examination; and

(7) Any laboratory or other test which the examining physician deems necessary by sound medical practice.

C. The content of medical examinations made available pursuant to Section A(2) and (3), above, shall:

(1) Be determined by an examining physician; and

(2) If requested by an employee, include pregnancy testing or laboratory evaluation of male fertility.

D. Multiple Physician Review Mechanism.

(1) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this chapter, the employee may designate a second physician to:

(a) Review any findings, determinations, or recommendations of the initial physician; and

(b) Conduct the examinations, consultations, and laboratory tests the second physician deems necessary to facilitate this review.

(2) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this chapter.

(3) The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within 15 days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

(a) The employee informing the employer that he or she intends to seek a second medical opinion; and

(b) The employee initiating steps to make an appointment with a second physician.

(4) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, the employer and the employee shall ensure that efforts are made for the two physicians to resolve any disagreement.

(5) If the two physicians have been unable to reach agreement quickly, the employer and the employee, through their respective physicians, shall designate a third physician to:

(a) Review any findings, determinations, or recommendations of the prior physicians; and

(b) Conduct the examinations, consultations, and laboratory tests, and engage in discussions with the prior physicians that the third physician deems necessary to resolve disagreement of the prior physicians.

(6) The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

E. Information Provided to Examining and Consulting Physicians.

(1) The employer shall provide the initial physician conducting a medical examination or consultation under this chapter the following information:

- (a) A copy of this chapter;
- (b) A description of the affected employee's duties as they relate to the employee's lead exposure;
- (c) The employee's exposure level or anticipated exposure level to lead and to any other toxic substance (if applicable);
- (d) A description of personal protective equipment used, or to be used;
- (e) Prior blood lead determinations; and
- (f) Prior written medical opinions concerning the employee which are in the employer's possession or control.

(2) The employer shall provide the foregoing information to a second or third physician conducting a medical examination or consultation under this chapter upon request either by the second or third physician, or by the employee.

F. Written Medical Opinions.

(1) The employer shall obtain and furnish to the employee a copy of a written medical opinion from each examining or consulting physician which contains the following information:

(a) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead,

(b) Any recommended special protective measures to be provided to the employee,

(c) Limitations to be placed upon the employee's exposure to lead,

(d) Any recommended limitation upon the employee's use of respirators, including, if a physician determines that the employee cannot wear a negative pressure respirator, a determination of whether the employee can wear a powered air purifying respirator, and

(e) The results of the blood lead determinations;

(2) The employer shall instruct each examining and consulting physician:

(a) Not to reveal either in the written opinion, or in any other means of communication with the employer, any

finding, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead, and

(b) To advise the employee of any medical condition, occupational or non-occupational, which dictates further medical examination or treatment.

G. Alternate Physician Determination Mechanism. The employer and the employee or authorized employee representative may agree to use any expeditious alternate physician determination mechanism in place of the multiple physician review mechanism provided by this chapter, provided that the alternate mechanism satisfies the other requirements contained in this chapter.

H. Chelation.

(1) The employer shall ensure that any person whom he retains, employs, supervises, or controls does not engage in prophylactic chelation of any employee at any time.

(2) If therapeutic or diagnostic chelation is to be performed by any person in Section H(1), above, the employer shall ensure that:

(a) It is done:

(i) Under the supervision of a licensed physician,

(ii) In a clinical setting,

(iii) With thorough and appropriate medical monitoring; and

(b) The employee is notified in writing before its occurrence.

.12 Medical Removal Protection.

A. Temporary Medical Removal and Return of an Employee.

(1) Temporary Removal Due to Elevated Blood Lead Levels. The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that:

(a) A periodic and a follow-up blood sampling test conducted pursuant to Regulations .10 and .11 indicates that the employee's blood lead level is at or above 60 micrograms/100g; or

(b) The average of the last three blood sampling tests conducted, or the average of all blood sampling tests conducted over the previous 6 months, whichever is longer, indicates a blood lead level at or above 50 micrograms/100g of whole blood, unless the last blood sampling test indicates a blood level at or below 40 micrograms/100g of whole blood.

(2) Temporary Removal Due to a Final Medical Determination.

(a) For the purposes of Section A(2), the phrase "final medical determination" means the outcome of either the multiple physician review mechanism or the alternate medical determination mechanism used pursuant to the medical surveillance provisions in Regulation .11, above.

(b) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material health impairment from exposure to lead.

(c) When a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement the recommendations and act consistently with it.

(3) Return of the Employee to Former Job Status.

(a) The employer shall return an employee to his or her former job status in accordance with the following schedule:

(i) For an employee removed pursuant to Section A(1), when two consecutive blood sampling tests indicate that the employee's blood lead level is at or below 40 micrograms/100g of whole blood;

(ii) For an employee removed pursuant to Section A(2), when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material health impairment from exposure to lead.

(b) For the purposes of this subsection, the requirement that an employer return an employee to the employee's former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position

under the terms of a collective bargaining agreement.

(4) Removal of Other Employee Special Protective Measure or Limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

(5) Employer Options Pending a Final Medical Determination. When a multiple physician review mechanism, or alternate medical determination mechanism used pursuant to Regulation .11, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

(a) Removal. The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

(b) Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions:

(i) If the initial removal, special protections, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician; or

(ii) If the employee has been on removal status for the preceding 18 months due to an elevated blood lead level, the employer shall await a final medical determination.

B. Medical Removal Protection Benefits.

(1) Definition of Medical Removal Protection Benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that an employer shall maintain the earnings, seniority, and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or otherwise limited.

(2) Provision of Medical Removal Protection Benefits. The employer shall provide to an employee up to 18 months of

medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this chapter.

(3) Follow-up Medical Surveillance During the Period of Employee Removal or Limitation. During the period of time that an employee is removed from normal exposure to lead, or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this regulation.

(4) Workers' Compensation Claims. If a removed employee files a claim for workers' compensation payments for a lead-related disability:

(a) The employer shall continue to provide medical removal protection benefits pending disposition of the claim;

(b) To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by the amount of the award; and

(c) The employer shall receive no credit for workers' compensation payments received by the employee for treatment-related expenses.

(5) Other Credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives:

(a) Compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program; or

(b) Income from employment with another employer made possible by virtue of the employee's removal.

(6) Employees Whose Blood Lead Levels Do Not Adequately Decline Within 18 Months of Removal.

(a) The employer shall take the measures prescribed by Section 3(6)(b) with respect to any employee:

(i) Removed from exposure to lead due to an elevated blood lead level; and

(ii) Whose blood lead level has not declined within the past 18 months of removal so that the employee has been returned to the employee's former job status.

(b) The employer shall:

(i) Make available to the employee a medical examination pursuant to this chapter to obtain a final medical determination with respect to the employee;

(ii) Ensure that the final medical determination obtained indicates whether the employee may be returned to his or her former job status, and if not, what steps should be taken to protect the employee's health;

(iii) When the final medical determination has not yet been obtained, or once obtained indicates that the employee may not yet be returned to the employee's former job status, continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to the employee's former job status.

(c) When the employer acts pursuant to a final medical determination which permits the return of the employee to the employee's former job status despite what would otherwise be an unacceptable blood lead level, later questions concerning removing the employee again shall be decided by a final medical determination.

(d) The employer need not automatically remove the employee pursuant to the blood lead level removal criteria provided by this regulation.

(7) Voluntary Removal or Restriction of An Employee. Where an employer, although not required by this regulation to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by Section B(2).

.13 Employee Information and Training.

A. Training Program.

(1) Each employer who has a jobsite in which there is a potential exposure to airborne lead at any level shall inform employees of this chapter.

(2) The employer shall:

(a) Institute a training program for employees subject to:

level, or
irritation; and

- (i) Lead exposure at or above the action
- (ii) The possibility of skin or eye

(b) Ensure their participation in the training.

(3) The employer shall provide initial training for those employees covered by Section A(2), above, before the time of initial job assignment.

(4) The training program shall be repeated at least annually for each employee.

(5) The employer shall ensure that each employee is informed of:

(a) The content of this chapter;

(b) The specific nature of the operations which could result in exposure to lead above the action level;

(c) The purpose, proper selection, fitting, use, and limitation of respirators;

(d) The purpose and a description of:

(i) The medical surveillance program, and

(ii) The medical removal protection program;

(e) The adverse health effects associated with excessive exposure to lead, with particular attention to the adverse reproductive effects on both males and females;

(f) The engineering controls and work practices associated with the employee's job assignment;

(g) The contents of any compliance program in effect; and

(h) Instructions to employees that chelating agents should not:

(i) Routinely be used to remove lead from their bodies, and

(ii) Be used at all except under the direction of a licensed physician.

(6) The employer shall:

(a) Obtain from the Commissioner, and include as part of the training program, the materials pertaining to the Maryland Occupational Safety and Health Act, the regulations issued under the Act, and this chapter; and

(b) Distribute them to employees.

B. Access to Information and Training Materials.

(1) The employer shall make readily available to all affected employees a copy of this chapter.

(2) The employer shall provide to the Commissioner, upon request, all materials relating to the employee information and training program.

.14 Signs.

A. General.

(1) The employer may use signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs required by this regulation.

(2) The employer shall ensure that no statement appears on or near any sign required by this regulation which contradicts or detracts from the meaning of the required sign.

B. Signs.

(1) The employer shall post the following warning sign in each work area where the PEL is exceeded:

WARNING

HAZARD

LEAD WORK AREA

NO SMOKING, EATING OR DRINKING

(2) The employer shall ensure that signs required by this regulation are illuminated and cleaned as necessary so that the legend is readily visible.

.15 Recordkeeping.

A. Initial Determination and Exposure Monitoring.

(1) The employer shall establish and maintain an accurate record of:

- (a) Initial determinations; and
- (b) All monitoring required in Regulation .04.

(2) This record shall include:

- (a) The information required in Regulation .04;
- (b) For each sample taken:
 - (i) The date, or dates,
 - (ii) The number of samples,
 - (iii) The duration of sampling,
 - (iv) The location,
 - (v) The results of each sample taken, and
 - (vi) Where applicable, a description of the sampling procedure used to determine representative employee exposure;
- (c) A description of the sampling and analytical methods used and evidence of their accuracy;
- (d) The type of respiratory protective devices worn, if any;
- (e) Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and
- (f) The environmental variables that could affect the measurement of employee exposure.

(3) The employer shall maintain the initial determination and exposure monitoring records for the longer of:

- (a) 40 years; or
- (b) The duration of employment plus 20 years.

B. Medical Surveillance.

(1) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by Regulations .10 and .11.

(2) This record shall include:

(a) The name, social security number, and a description of the duties of the employee;

(b) One copy of each physician's written opinion;

(c) Results of any airborne exposure monitoring conducted for that employee and the representative exposure levels supplied to the physician; and

(d) Any employee medical complaints related to exposure to lead.

(3) The employer shall keep, or ensure that the examining physician keeps, the following medical records:

(a) A copy of the medical examination results, including medical and work history, required under Regulations .10 and .11;

(b) A description of the laboratory procedures together with a copy of any standards or guidelines used to interpret the test results or references to that information; and

(c) A copy of the results of biological monitoring.

(4) The employer shall maintain or ensure that the physician maintains the medical records for at least 40 years, or for the duration of employment plus 20 years, whichever is longer.

C. Medical Removals.

(1) The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to Regulation .12.

(2) Each record shall include:

(a) The name and social security number of the employee;

(b) The date of each occasion on which the employee was removed from exposure to lead, together with the corresponding date on which the employee was returned to his or her former job status;

(c) A brief explanation of how each removal was, or is being, accomplished; and

(d) A statement with respect to each removal indicating whether the reason for the removal was an elevated

blood lead level.

(3) The employer shall maintain each medical removal record for at least the duration of an employee's employment.

D. Availability.

(1) Upon request, the employer shall make all records required by this chapter available to the Commissioner for examination and copying.

(2) Upon request, the employer shall make environmental monitoring, biological monitoring, and medical removal records required by this chapter available to affected employees or their authorized employee representative for inspection and copying.

(3) Upon request, the employer shall make an employee's medical records required to be maintained by this regulation available to the affected employee or former employee, or to a physician or other individual designated by the affected or former employee for examination and copying.

E. Transfer of Records.

(1) When the employer ceases to do business:

(a) The successor employer shall receive and retain all records required by this chapter.

(b) If there is no successor employer to receive the records required by this chapter and to retain them for the prescribed retention period, the employer shall transmit these records to the Commissioner.

(2) At the expiration of the record retention period prescribed by this chapter, the employer shall:

(a) Notify the Commissioner at least 3 months before the disposal of the records; and

(b) Transmit the records to the Commissioner, if requested within the period.

.16 Observation of Monitoring.

A. Employee Observation. The employer shall provide affected employees or their designated representative an opportunity to observe monitoring of employee exposure to lead conducted pursuant to Regulation .04.

B. Observation Procedures.

(1) When observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing, or equipment is required, the employer shall:

(a) Provide the observer with and ensure the use of the respirators, clothing, and equipment; and

(b) Require the observer to comply with all other applicable safety and health procedures.

(2) Without interfering with the monitoring, observers shall be entitled to:

(a) Receive an explanation of the measurement procedures;

(b) Observe all steps related to the monitoring of lead performed at the place of exposure; and

(c) Record the results obtained or receive copies of the results when returned by the laboratory.

Administrative History

Effective date: January 16, 1984 (11:1 Md. R. 43)

Chapter recodified from COMAR 09.12.32C to 09.12.32 (13:11 Md. R. 1272)

Regulations .01-.16 amended effective November 28, 1988 (15:24 Md. R. 2768-2769)

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION

NUMBER: DM-05-01
DATE: 10/91
PAGE: 1 OF 1

TO: Distribution

DATE: MAY 22 1990

FROM: Benjamin Chin, Manager
Project Design

SUBJECT: Contractor Access
to BWI Airport

Maryland Aviation Administration (MAA) directive 6314.0.1, dated April 30, 1990, (copy attached), establishes new procedures for control of padlocks on all airfield post gates at BWI Airport. Effective May 30, 1990, all padlocks will be removed from airfield post gates except for A-1 padlocks for MAA and Maryland State Police access and a second padlock for MAA Maintenance.

In the future, contractors requiring access through the post gates will not be allowed to use their own padlocks. Instead, they will be issued keys for the MAA Maintenance padlock. Accordingly, in contract documents taking effect on or after May 30, 1990, the following language should be inserted in the Special Provisions (S.P.) sections for "Access to Site:"

All contractors who require access through any airfield post gate(s) will be issued padlock keys(s) by the Maryland Aviation Administration(MAA) - Division of Maintenance. The contractor will be required to post a \$500 key deposit for each key. The deposit will be made with the MAA - Office of Business Administration, Division of Finance, Accounting Section. A receipt will be issued to the contractor by the Accounting Section. Upon completion of the contract, the contractor shall return all keys to the MAA Division of Maintenance. After verifying that all keys have been returned, the MAA - Division of Maintenance will notify the Accounting Section to refund the contractor's deposit. If the contractor shall lose a key(s), the \$500 deposit per key will be forfeited. The contractor may request a replacement key at an additional key deposit of \$500. Each replacement key will also be subject to forfeiture of the \$500 deposit if lost by the contractor.

BC:bk

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MARYLAND AVIATION ADMINISTRATION DIRECTIVE

MAA: 6314.0.1
DATE: April 30, 1990
DISTRIBUTION: MAA-L

Title: CONTRACTOR ACCESS TO BALTIMORE/WASHINGTON INTERNATIONAL
AIRPORT (BWI)

I. REFERENCES

None

II. PURPOSE AND APPLICABILITY

- A. This Directive establishes procedures for control of padlocks on all airfield post gates at BWI Airport.
- B. This Directive is applicable to all elements of the Administration.

III. DIRECTIVE STATEMENT

- A. The Office of Airport Operations, Division of Maintenance will provide and install two padlocks for airfield post gates at BWI Airport.
- B. The A-1 padlocks will remain on airfield post gates in order to provide access to Administration and Maryland State Police (MSP) personnel.
- C. A second padlock will be installed by the Division of Maintenance on airfield post gates. Keys for these locks will be issued to contractors who have an active contract with the Administration and who require access through airfield post gates.
- D. Thirty days past the issue date of this Directive, the Division of Maintenance will remove all padlocks from airfield post gates except for those installed under A and C, above.
- E. All contractors who require access to any airfield post gate will be required to post a \$500 key deposit for each key required.

DST 91-2 Manhole Covers

subject file

DST 91-2

**MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION**

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager *Ben*
Design Services

DATE: October 3, 1991

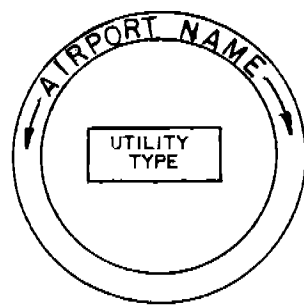
SUBJECT: Design Standards at BWI and Martin State Airports

Please incorporate the following item into your preliminary and final design of contract documents and in your review of building permits.

- All new and replacement manhole/handhole covers/lids shall include customized cover/lid surface lettering as follows:

All Airport manhole/handhole covers/lids shall include the name "BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT" or "MARTIN STATE AIRPORT" and the type of utility -

"ELECTRIC"
"STORMWATER"
"SANITARY SEWER"
"WATER"
"GAS"
"TELEPHONE"



- Lettering shall be Helvetica, medium, capitalized and 1½ inches in height.

BC:bk

Distribution:
Mr. Emory Carrigan
Mr. Brad Collins
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Mr. William Tsai

DST 91-3 Americans with Disabilities Act (ADA)

**MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION**

MEMORANDUM

TO: Distribution

FROM: Benjamin Chin, Manager *Benjamin Chin*
Design Services

DATE: December 17, 1991

SUBJECT: Americans With Disabilities Act (ADA)

Attached for your review and necessary action is a copy of the ADA Regulations summary reports, rules and regulations. The ADA has been in effect since August, 1990. Accordingly, please incorporate the requirements of ADA into the final design documents of all Maryland Aviation Administration projects.

Included at the end of the regulations is a list of persons/organizations and their telephone numbers for any interpretations or clarifications regarding the ADA.

BC/bk

Attachment

Distribution:

Mr. Emory Carrigan
Mr. Wally Dela Barre
Mr. George Eichner
Mr. Alex Noorani
Mr. Chirantan Mukhopadhyay
Mr. Ali Sarvestani
Mr. Charles Steen
Mr. Bill Tsai

cc: Mr. Richard Keen
Mr. Mike Skinner