DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. H–71]

RIN 1218–AA98

Methylene Chloride; Final Rule

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Final rule.

SUMMARY: OSHA is amending its standard regulating occupational exposure to methylene chloride (29 CFR 1910.1052) by adding a provision for temporary medical removal protection benefits for employees who are removed or transferred to another job because of a medical determination that exposure to methylene chloride may aggravate or contribute to the employee's existing skin, heart, liver, or neurological disease. OSHA is also amending the startup dates by which employers in certain identified application groups, i.e., who use MC in certain work operations, must achieve the 8-hour time-weighted-average permissible exposure limit and the dates by which they must achieve the short-term exposure limit by means of engineering controls.

On May 4, 1998, OSHA published for comment amendments to the standard along the lines requested in a motion for reconsideration filed by the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), the Halogenated Solvents Industry Alliance, Inc., and others. OSHA reopened the rulemaking record for 30 days for the limited purpose of receiving public comment on the amendments (63 FR 24501, May 4, 1998). Based on the rulemaking record and the comments received, OSHA is now adopting the amendments as published, with one minor modification.

DATES: This final rule becomes effective on October 22, 1998, except that the revision of paragraph (n)(2) of § 1910.1052 (regarding start-up dates) becomes effective September 22, 1998. See **SUPPLEMENTARY INFORMATION** for a table of start-up dates established in this final rule.

ADDRESSES: In compliance with 28 U.S.C. 2112(a), the Agency designates the Associate Solicitor for Occupational Safety and Health, Office of the Solicitor, Room S–4004, 200 Constitution Ave., N.W., Washington, DC 20210, as the recipient of petitions for review of the final rule.

FOR FURTHER INFORMATION CONTACT: Bonnie Friedman, Director, OSHA Office of Public Affairs, U.S. Department of Labor, Room N3647, 200 Constitution Avenue, NW, Washington, DC 20210, telephone (202) 219–8151.

SUPPLEMENTARY INFORMATION: The startup dates established by the methylene chloride standard, as amended by this final rule, are shown in the following table, with the provisions whose startup dates have already passed listed as being ''in effect.''

STARTUP DATES ESTABLISHED IN THIS FINAL RULE

	Employers in selected applications* with fewer than 20 employees	All other employers with fewer than 20 employees***	Polyurethane foam mfrs. with 20 or more employees	Employers in selected applications* with 1–49 employees and foam fabricators with 1–149 employees	Employers in selected applications* with 50 or more employees and foam fabricators with 150 or more employees	All other employers with 20 or more employees
Engineering controls to achieve 8-hour TWA PEL and STEL.	April 10, 2000 ...	April 10, 2000 ...	October 10, 1999	April 10, 2000 ...	April 10, 1999 ...	In effect.
Respirators to achieve 8-hour TWA PEL.	April 10, 2000 ...	In effect	October 10, 1999** ...	April 10, 2000 ...	April 10, 1999 ...	In effect.
Respirators to achieve STEL	In effect	In effect	In effect	In effect	In effect	In effect.
All other provisions	In effect	In effect	In effect	In effect	In effect	In effect.

* The selected applications/operations are: furniture refinishing; general aviation aircraft stripping; product formulation; use of MC-based adhesives for boat building and repair, recreational vehicle manufacture, van conversion, or upholstery; and use of MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making, or floor refinishing and resurfacing.

** Due to a typographical error, this date was listed as October 10, 2000 in the table accompanying the notice of the motion for reconsideration. However, the date of October 10, 1999 is consistent with the motion.

*** This column was inadvertently omitted from the table accompanying the notice for the motion for reconsideration but is consistent with the text of the motion.

OMB Review Under the Paperwork Reduction Act

OSHA submitted an amended Methylene Chloride Information Collection Request (ICR) to the existing Methylene Chloride ICR (OMB Control Number 1218–0179) when the proposal for Methylene Chloride: Notice of Motion of Reconsideration was published. This amendment calculated burden hours and costs for the additional medical examinations resulting from the inclusion of the Medical Removal Protection provisions. On July 2, 1998, OMB approved the amendment. All methylene chloride collections of information expire on 7/31/2001.

This final rule also extends the compliance dates for the implementation of engineering controls and respiratory protection for employees engaged in selected activities. Paragraphs (n)(2)(A), (B), and (C) provide new implementation dates for engineering controls for employers engaged in the following: polyurethane foam manufacturing; foam fabrication; furniture refinishing; general aviation aircraft stripping; product formulation; adhesive users using adhesives for boat building and repair, recreational vehicle manufacture, van conversion, and upholstering; and construction work. Those employers who choose the option of postponing the implementation of engineering controls and respiratory protection are required to conduct quarterly short-term exposure limit (STEL) monitoring until implementation of the engineering controls and respiratory protection. Since this requirement is already present in the final MC standard, the Agency will submit an ICR to OMB to increase those

burden hours attributed to the additional monitoring. Under 5 CFR 1320.5(b), an agency may not conduct or sponsor a collection of information unless: (1) the collection of information displays a currently valid OMB control number; and (2) the agency informs the potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

I. Background

On January 10, 1997, OSHA issued a standard regulating occupational exposure to methylene chloride (MC)(62 FR 1494, January 10, 1997) codified at 29 CFR 1910.1052. The standard was designed to reduce both the risk that worker exposure to MC will cause cancer and the risk that MC will cause or aggravate certain other adverse health effects. The standard reduced the prior 8-hour time-weighted-average permissible exposure limit (8-hour TWA PEL) to MC from 500 parts per million (ppm) to 25 ppm. It also set a short term exposure limit (STEL) of 125 ppm averaged over a 15 minute period.

The 8-hour TWA PEL was set at 25 ppm to reduce, to the extent feasible, the risk that workers exposed to MC would develop cancer. Data showing that MC exposure presents a risk of cancer included animal bioassay data in multiple species, mechanistic studies detailing the metabolism of MC to carcinogenic products in humans, and epidemiological studies suggesting an elevated risk of biliary cancer and astrocytic brain cancer in MC-exposed workers. The agency used a physiologically-based pharmacokinetic (PBPK) model to estimate the cancer risk. OSHA's final risk assessment estimated that, at the prior 8-hour TWA PEL of 500 ppm (a level that the Agency found was considerably higher than the level at which most affected workers were currently exposed, see 62 FR 1565, January 10, 1997), lifetime occupational exposure to MC could result in approximately 125 excess cancer deaths per 1000 exposed workers (62 FR 1563, January 10, 1997, Table VII). At the new 8-hour TWA PEL of 25 ppm, OSHA estimated that the excess cancer risk would be reduced to approximately 3.6 deaths per 1000 workers. Id. OSHA concluded that a significant risk to workers remains at an exposure level of 25 ppm but set the 8-hour TWA PEL at that level because it was the lowest level for which OSHA could document feasibility across all the affected application groups (62 FR 1575, January 10, 1997).

The STEL was set at 125 ppm to minimize the adverse health effects caused by acute exposure to MC. Central nervous system (CNS) depression has been observed at MC concentrations as low as 175 ppm. CNS depression is characterized by fatigue, difficulty in maintaining concentration, dizziness, and headaches. These consequences of MC exposure constitute material impairments of health and, by reducing workers' coordination and concentration, can lead to workplace accidents. Also, MC is metabolized to carbon monoxide (CO) and therefore causes health impairment similar to that caused by direct exposure to CO. Carbon monoxide blocks the oxygen binding site on hemoglobin, producing carboxyhemoglobin, or COHb. Elevated COHb levels reduce the supply of oxygen to the heart and can aggravate pre-existing heart disease and lead to heart attacks. Physical exertion increases the concentration of COHb in MC-exposed workers and thus increases the risk of a heart attack, particularly for persons with silent or symptomatic cardiac disease, who may be susceptible to very small increases in COHb due to an already impaired blood supply to the heart.

The liver and skin are also susceptible to acute effects from MC exposure. Chlorinated hydrocarbons as a class (of which MC is a member) are generally toxic to the liver. However, animal studies indicate that MC is among the least hepatotoxic of this class of compounds. The limited amount of human data that are available is inconclusive but supports the hypothesis that MC is toxic to the liver (62 FR 1515, January 10, 1997). Prolonged skin contact with MC also causes irritation and skin burns (62 FR 1609, January 10, 1997).

Employers must achieve the 8-hour TWA PEL and the STEL, to the extent feasible, by engineering and work practice controls. If such controls are unable to achieve the exposure limits (and during the time they are being implemented), employers must provide appropriate respirators at no cost to employees and ensure that employees use them. The standard does not permit the use of air-purifying respirators to protect against MC exposure because MC quickly penetrates all currently available organic vapor cartridges, rendering air-purifying respirators ineffective after a relatively brief period of time. Therefore, when respiratory protection is required, the standard provides that atmosphere-supplying respirators must be used.

The standard requires employers to provide medical surveillance to employees who are exposed to MC either (1) at or above the action level (12.5 ppm) on 30 or more days per year or at or above the 8-hour TWA PEL or STEL on 10 or more days per year; (2) at or above the 8-hour TWA PEL or STEL for any time period where an employee who has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition requests inclusion in the medical surveillance program; or (3) during an emergency. The medical surveillance must include a comprehensive medical and work history that emphasizes neurological symptoms, skin conditions, history of hematologic or liver disease, signs or symptoms suggestive of heart disease (angina, coronary artery disease), risk factors for cardiac disease, MC exposures, and work practices and personal protective equipment used during such exposures. The standard's medical surveillance procedures focus on MC's noncarcinogenic health effects because a medical surveillance program cannot detect MC-induced cancer at a preneoplastic stage (62 FR 1589, January 10, 1997). However, the standard's medical surveillance provisions can lead to early detection of cancer and to higher survival rates from early treatment.

OSHA found that the standard was both technologically and economically feasible in all of the industrial applications that use MC. However, the Agency recognized that larger employers are better able than smaller ones to absorb or pass through the costs associated with compliance with the standard. To avoid placing an undue economic burden on small businesses, OSHA provided for later startup dates for small employers. Larger employers were given until April 10, 1998 (one year after the standard's effective date) to complete installation of engineering controls to achieve the PEL and STEL, while employers with fewer than 20 employees were given a total of three years, or until April 10, 2000, to do so. Employers with fewer than 20 employees were also given more time than larger employers to comply with the other provisions of the standard. In addition, intermediate startup dates were established for polyurethane foam manufacturers with 20–99 employees because OSHA anticipated that firms in that group could have somewhat higher capital expenditures to meet the requirements of the standard.

After the methylene chloride standard was issued, the International Union, United Automobile, Aerospace and Agricultural Implement Workers of

America (UAW), the Halogenated Solvents Industry Alliance, Inc. (HSIA), and others filed a motion with OSHA asking the Agency to reconsider two aspects of the standard: (1) the agency's decision not to include medical removal protection benefits in the medical surveillance provisions of the standard; and (2) the startup dates for engineering controls and for use of respirators to achieve the 8-hour TWA PEL for employers using MC in certain specific applications. Those applications are:

- Polyurethane foam manufacturing;
- Foam fabrication;
- Furniture refinishing;
- General aviation aircraft stripping;
- Formulation of products containing methylene chloride;
- Boat building and repair;
- Recreational vehicle manufacture;
- Van conversion;
- Upholstery; and
- Use of methylene chloride in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making and/or floor refinishing and resurfacing.

II. Summary and Explanation of the Final Rule

After receiving the motion for reconsideration, OSHA published a notice of the motion in the **Federal Register** that contained changes to amend the rule substantially as requested in the motion. 63 FR 24501 (May 4, 1998). In that notice, OSHA explained why it believed the amendments requested in the motion were justified and were consistent with the rulemaking record. OSHA reopened the record for 30 days to allow the public an opportunity to comment on the amendments. Most of the comments the agency received supported the amendments. Several comments in opposition were received. In this section, OSHA describes the amendments to the MC standard being made by this final rule, explains why it concludes the amendments are appropriate in light of the entire rulemaking record, and discusses the comments received in response to the reopening of the record.

Medical Removal Protection Benefits

In this final rule, OSHA is modifying the medical surveillance provisions in paragraph (j) of the MC standard to provide for limited medical removal protection (MRP) benefits.

As discussed above, paragraph (j)(1) of the standard requires employers to provide medical surveillance to employees exposed to methylene chloride (1) at or above the action level on 30 or more days per year or at or above the 8-hour TWA PEL or STEL on 10 or more days per year; (2) at or above the 8-hour TWA PEL or STEL for any time period where an employee who has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition requests inclusion in the medical surveillance program; or (3) during an emergency. Such surveillance includes [paragraph (j)(5)] a comprehensive medical and work history that emphasizes neurological symptoms, skin conditions, history of hematologic or liver disease, signs or symptoms suggestive of heart disease (angina, coronary artery disease), risk factors for cardiac disease, MC exposures, and work practices and personal protective equipment used during such exposures. Paragraph (j)(9) requires the employer to ensure that the physician or other licensed health care provider (PLHCP) who conducts the medical examination provides a written opinion regarding the results of that examination.

Originally, paragraph (j)(9)(i)(A) required that written opinion to include the PLHCP's opinion as to ''whether the employee has any detected medical condition(s) which would place the employee's health at increased risk of material impairment from exposure to MC.'' That paragraph is being amended to provide that the PLHCP's written opinion must include ''whether exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease or whether the employee has any other medical condition(s) which would place the employee's health at increased risk of material impairment from exposure to MC.'' If the PLHCP recommends removal because exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease, new paragraph (j)(11) requires the employer to either transfer the employee to comparable work where MC exposure is below the action level or remove the employee from MC exposure. In either case, the employer must provide MRP benefits to the employee under paragraph (j)(12) by maintaining, for up to six months, the employee's earnings, seniority, and other employment rights and benefits as though the employee had not been removed from MC exposure or transferred to a comparable job.

As explained in the notice, MRP benefits are designed to improve employee participation in medical surveillance by removing a potential economic disincentive to such participation. The medical surveillance conducted under the standard can result in a medical opinion that continued MC exposure would endanger the health of a particular worker and a recommendation that the worker should be removed from his or her present job or have his or her work activities otherwise restricted. The possibility of job loss or transfer can lead to concern among workers that participation in medical surveillance could endanger their livelihoods. For this reason, OSHA has generally found that employees will be reluctant voluntarily to cooperate in medical surveillance programs if they believe they could suffer a loss of income as a result. See, *e.g.*, 50 FR 51120, 51154–56 (Dec. 13, 1985) (cotton dust standard); 43 FR 54442–54449 (Nov. 21, 1978) (lead standard). OSHA similarly found, when it issued the MC standard, that MRP benefits would increase employee participation in medical surveillance by removing an economic disincentive to such participation (62 FR 1595, January 10, 1997).

Although OSHA found that MRP benefits would improve employee participation in medical surveillance, the Agency did not provide for such benefits when it originally issued the MC standard. The Agency noted that there was no biological marker to indicate whether an employee's continued exposure to MC would unduly endanger the employee's health, nor could the Agency identify any other objective criteria that could be used to determine when an employee's exposure to MC should be restricted for medical reasons. Because it did not believe it could offer substantive guidance to medical professionals as to when it would be appropriate to remove an employee from further MC exposure or to return a removed employee to the workplace, OSHA decided not to require employers to provide MRP benefits. 62 FR at 1595.

The motion for reconsideration suggested that a provision limiting MRP benefits to situations in which a PLHCP recommends removal based on an opinion that continued exposure to MC would contribute to or aggravate an employee's existing cardiac, hepatic, neurological, or dermal disease would provide sufficient guidance to PLHCPs because the specified organs are the ones known or believed to be susceptible to the noncarcinogenic effects of MC exposure. The parties further recommended that OSHA instruct PLHCPs to presume that an employee's medical condition is unlikely to require medical removal if

the employee is not exposed to MC above the 8-hour TWA PEL. New paragraph (j)(10) includes that presumption and requires employers to remove such an employee only if the PLHCP cites specific medical evidence in support of a removal recommendation.

OSHA believes that the MRP benefits provision recommended in the motion gives adequate guidance to the PLHCPs who are called upon to make recommendations for or against medical removal under the standard. The provision is consistent with MRP provisions in earlier standards that base medical removal decisions on the informed judgment of the health care professionals who conduct medical surveillance under the standards. For example, the lead standard (29 CFR 1910.1025), in addition to requiring medical removal based on high blood lead levels, requires medical removal ''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 impairment to health from exposure to lead.'' The cadmium standard (29 CFR 1910.1047) requires medical removal if certain biological triggers are met or if a written medical opinion determines that removal is justified by ''evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient. . . .'' The formaldehyde standard (29 CFR 1910.1048) provides for medical removal if there is a medical finding ''that significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization result from workplace formaldehyde exposure and recommends restrictions or removal.''

The American Association of Occupational Health Nurses (AAOHN) suggested that the criteria for medical removal are insufficiently specific and will be difficult for health care professionals to apply (Ex. 3–12). AAOHN states that medical removal works well when it is based on specific biological criteria, such as blood lead levels, but not when it is based on a health care professional's opinion that continued exposure to a contaminant will endanger a worker's health. OSHA disagrees. As noted above, the lead, cadmium, and formaldehyde standards provide for medical removal based on a health care professional's opinion that an employee's existing medical condition will be aggravated by continued exposure to the chemical. OSHA's experience under these standards has shown that the health care professionals who provide medical surveillance have received sufficient guidance from those standards as to when medical removal is appropriate, even when removal is required by medical conditions other than numerical biological triggers. OSHA thus has confidence that the MRP benefits provision in the MC standard, which similarly relies on the informed judgment of health care professionals, will give sufficient guidance to the PLHCPs who will be called upon to make medical removal decisions under the standard.

Organization Resources Counselors, Inc. (ORC) criticized the MRP benefits provision on the basis that OSHA had not estimated the extent to which MRP benefits will increase worker participation in medical surveillance or what incremental benefits might result (Ex. 3–13). Although OSHA cannot quantify precisely the extent to which MRP benefits will increase participation in medical surveillance, it has been OSHA's experience that substantial numbers of workers will be discouraged from participating in medical surveillance if there is a financial disincentive to such participation. For example, in *Phelps Dodge Corp.*, 11 O.S.H. Cas. (BNA) 1441 (Rev. Comm'n 1983), it was reported that 42% of employees failed to undergo medical examinations when they were required to take the examinations on their personal time and provide their own transportation to and from the hospital. Moreover, the workers who most need medical surveillance are those in poor or marginal health, and such workers are likely to be particularly concerned that a medical examination may result in a recommendation that they be removed from their current job. Because MRP benefits will remove a significant financial disincentive to employees participating in medical surveillance, OSHA expects this final rule to result in a significant increase in the number of workers who cooperate with the medical surveillance provided under the MC standard.

Paragraph (j)(10) requires the PLHCP to presume that MC exposure below the 8-hour TWA PEL is not likely to aggravate an existing disease of the heart, liver, central nervous system, or skin. Under this paragraph, a PLHCP may still recommend removal of an employee who is exposed below the 8-hour TWA PEL but must cite specific medical evidence to support the recommendation. Absent such evidence, the employer need not remove the employee. The rulemaking record contains no evidence that exposures below the 8-hour TWA PEL will generally aggravate existing cardiac, hepatic, neurological, and skin diseases, and OSHA therefore believes it is appropriate to require the PLHCP to specifically justify a recommendation that an employee exposed below the 8-hour TWA PEL be medically removed. No comments were received concerning this provision.

When a PLHCP recommends medical removal within the terms of the standard, paragraph (j)(11) requires the employer either to transfer the employee to comparable work where MC exposures are below the action level or to remove the employee from MC exposure. For each employee thus transferred or removed, the employer must maintain the employee's earnings, seniority, and other employment rights and benefits for up to six months. The employer may cease paying MRP benefits before the end of the six-month period upon receipt of a medical determination that the employee's exposure to MC will no longer aggravate any existing cardiac, hepatic, neurological, or dermal disease, or upon receipt of a medical determination concluding that the employee can never return to MC exposure above the action level.

The final rule also adopts provisions similar to those OSHA has included in previous standards that provide for MRP benefits. These provisions (1) allow an employer to condition an employee's receipt of MRP benefits on participation in follow-up medical surveillance [paragraph (j)(12)(ii)]; (2) provide for a reduction in MRP benefits to offset any workers' compensation indemnity payments the employee receives for the same period of time [paragraph (j)(12)(iii)]; (3) provide an offset of MRP benefits against compensation from a publicly or employer-funded compensation program or income the employee receives from other employment that is made possible by virtue of the employee's removal [paragraph (j)(12)(iv)]; and (4) require the employer to pay MRP benefits if it voluntarily removes or restricts an employee due to the effects of MC exposure on the employee's medical condition [paragraph (j)(13)].

The Southern Company (Ex. 3–14) contended that OSHA lacks the statutory authority to provide for MRP benefits and that employee wages should be left to the collective bargaining process. However, the Court of Appeals for the D.C. Circuit has upheld OSHA's statutory authority to require employers to provide MRP

benefits. *United Steelworkers* v. *Marshall,* 647 F.2d 1189, 1230 (D.C. Cir. 1980), *cert. denied,* 453 U.S. 913 (1981). The Court observed that safety issues have traditionally been a subject for collective bargaining but that Congress, by giving OSHA authority to regulate occupational safety and health, expected OSHA regulations to override collective bargaining agreements to the extent necessary to provide safe and healthful workplaces. *United Steelworkers,* 647 F.2d at 1236. MRP benefits promote worker health by encouraging employees to participate in medical surveillance and thereby become aware of whether they have health problems that could be aggravated by MC exposure. OSHA concludes it has the requisite statutory authority to provide for MRP benefits in the methylene chloride standard.

The American Association of Occupational Health Nurses (AAOHN) stated that it generally supports removal of employees who are experiencing adverse health effects as a result of workplace exposure to a hazardous material. Ex. 3–12. However, AAOHN recommended that, rather than adopt the MRP provisions, OSHA should strengthen the requirements for engineering controls, work practices, and medical surveillance. AAOHN also suggested that the medical removal provisions are discriminatory and expressed the belief that the Americans with Disabilities Act (ADA) and state workers' compensation statutes provide adequate remedies for individuals with serious diseases that are aggravated by occupational exposure.

OSHA does not agree with AAOHN that strengthening other provisions of the standard is a viable substitute for MRP benefits. OSHA set the 8-hour TWA PEL at the lowest level for which it could document feasibility across the affected application groups. Accordingly, OSHA cannot require employers generally to achieve lower limits through engineering controls and work practices. OSHA notes, however, that the inclusion of MRP benefits under the standard provides an incentive for employers to reduce MC exposures, where feasible, to levels below those required by the standard to minimize the possibility that MC exposure will contribute to or aggravate an employee's existing cardiac, central nervous system, hepatic, or skin disease and thereby require medical removal. The requirement for MRP benefits will therefore encourage employers to minimize MC exposures to the extent it is feasible to do so. Furthermore, medical removal under the final rule is limited to those employees who are particularly vulnerable to MC exposure because they have existing heart, central nervous system, liver, or skin diseases that could be aggravated by continued MC exposure. OSHA believes that, for these especially susceptible employees, removal from MC exposure that could aggravate their diseases is a necessary means of protection.

OSHA also disagrees with AAOHN's contention that the Americans with Disabilities Act provides adequate remedies for individuals with diseases that would be aggravated by occupational exposure to MC. The ADA requires employers to make reasonable accommodations to an employee with a ''disability,'' which is a physical or mental impairment that substantially limits one of more of the employee's ''major life activities'' [29 CFR 1630.2(g)]. Those major life activities include functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working [29 CFR 1630.2(i)]. The cardiac, neurological, hepatic, and dermal diseases which, if aggravated by MC exposure may qualify an employee for MRP benefits, are not necessarily diseases that limit major life activities as defined in the ADA. Therefore, employees who qualify for MRP benefits under this final rule may not be protected by the ADA.

Moreover, even if a worker who is entitled to MRP benefits under this final rule would also qualify for ADA protection, the ADA does not necessarily protect that worker against immediate loss of income. The ADA requires an employer to make reasonable accommodations for a worker whose current job presents an unreasonable risk to the employee's health. However, if no reasonable accommodation is possible, the employer is free to discharge that employee (See Appendix to 29 CFR Part 1630). Therefore, the ADA does not provide the same level of assurance as MRP benefits that participation in medical surveillance will not lead to an immediate loss of the worker's income.

Two commenters in addition to AAOHN (National Air Transportation Association, Ex. 3–9; KAL–AERO, Ex. 3–11) suggested that MRP benefits are not needed because they would duplicate workers' compensation benefits. However, MRP benefits and workers' compensation serve fundamentally different purposes and, in many instances, are not duplicative. Unlike MRP benefits, workers' compensation payments are not a preventive measure available to an employee who must be removed from his or her current job to keep an existing condition from becoming aggravated. Workers' compensation benefits are available only when an employee has already contracted a work-related injury or illness that involves time lost from work and/or medical treatment and has been awarded compensation after submitting a claim.

The underlying diseases that can be aggravated by continued MC exposure and result in MRP benefits under this final rule are not necessarily work-related, and therefore might not qualify an employee for workers' compensation. For example, an employee with a cardiovascular disease that is wholly unrelated to his or her current employment could not collect workers' compensation benefits for that disease even though MC exposure associated with the current job might aggravate that worker's disease. Although that employee would not be eligible for worker's compensation, he or she would qualify for MRP benefits if there is a medical determination that the employee's cardiovascular disease would be aggravated by continued MC exposure.

Some diseases that qualify workers for MRP benefits might be work-related, thereby making the employees eligible for workers' compensation benefits as well. However, the possibility that, in some cases, an employee is eligible for both MRP benefits and workers' compensation does not negate the need for MRP benefits to encourage employees to participate in medical surveillance. The Court of Appeals for the D.C. Circuit has held that MRP benefits may still be needed even though they may overlap with workers' compensation payments. *UAW* v. *Pendergrass,* 878 F.2d 389, 400 (D.C. Cir. 1989). Moreover, new paragraph (j)(12)(iii) of the standard provides that, in cases where both MRP and workers' compensation benefits are payable, the MRP benefits can be reduced by the amount the employee receives for lost wages from workers' compensation. Therefore, the standard ensures that employees are not deterred by a potential loss of income from cooperating with medical surveillance while also ensuring that employers need not provide an employee with MRP benefits and workers' compensation payments that total more than an employee's current earnings.

New paragraph (j)(14)(i) permits the employer to select the initial physician or other licensed health care professional who will conduct the required medical surveillance and recommend whether an employee must be removed for medical reasons. Where

the employer does so, new paragraph (j)(14)(ii) allows employees the option of having the recommendation of the employer-selected PLHCP reviewed by a licensed health care professional of the employee's choice. If the two health care professionals disagree, paragraph (j)(14)(iii) provides that the employer and employee shall instruct them to resolve their disagreement. If they are unable to do so, under paragraph (j)(14)(iv) they must jointly designate a third PLHCP, who must be a specialist in the field at issue and whose written opinion, under paragraph (j)(14)(v), is the definitive medical determination under the standard. OSHA believes that the option for such multi-step review is a necessary part of any MRP benefits provision because it strengthens the basis for medical removal determinations and increases employee and employer confidence in those determinations. OSHA has provided for similar multi-step review in all previous standards that included provisions for MRP benefits.

The Southern Company (Ex. 3–14) contends that multi-step review is ''unwarranted and unnecessary'' and would interfere with state workers' compensation laws that dictate employee choice of physician or that tell employers how occupational illnesses must be diagnosed and treated. As explained above, however, the diseases that can result in medical removal are not necessarily work-related illnesses that qualify for workers' compensation. Moreover, similar multi-step review provisions have been in effect since the lead standard was issued in 1978, and OSHA is not aware of any conflicts or inconsistencies between such provisions and state laws.

OSHA is adopting, in paragraph (j)(11)(i)(B), a provision that is designed to avoid an undue burden that could result if a small business would need to provide MRP benefits to more than one employee at the same time. Under paragraph (j)(11)(i)(B), if one or more employees are already receiving MRP benefits and the employer receives a recommendation for medical removal of an additional employee, and if comparable work that does not involve exposure to MC at or above the action level is not available for that additional employee, the employer need not remove the additional employee if the employer can demonstrate that removal and the costs of MRP benefits to that employee, considering feasibility in relation to the size of the employer's business and the other requirements of this standard, make further reliance on MRP an inappropriate remedy. Although new paragraph (j)(11)(i)(B) is designed to benefit small businesses, it is not explicitly limited to businesses of a certain size because no single size cutoff would be appropriate for all of the employers who might experience feasibility constraints as a result of providing MRP benefits to multiple employees at the same time. However, because feasibility in relation to the size of the business is taken into account in determining whether an employer may retain an employee in his or her present job under paragraph (j)(11)(i)(B), the application of that provision will effectively be limited to relatively small businesses.

In a case governed by paragraph (j)(11)(i)(B), the employer may retain the additional employee in the existing job until transfer or removal becomes appropriate, provided: (i) the employer or the PLHCP informs the additional employee of the risk to the employee's health from continued MC exposure; and (ii) the employer ensures that the employee receives medical surveillance, including a physical examination, at least every 60 days. OSHA believes that, in the limited circumstances specified in this provision, it is appropriate to allow an employer to retain an employee in his or her present job, even when the PLHCP has recommended removal, provided the employer ensures that the employee receives the more frequent medical surveillance specified in the provision and is fully aware of the health risk. Frequent medical surveillance and full information will enable the employer and employee to take steps to minimize the risk under existing workplace conditions by, for example, implementing those controls that are in place and strictly following work practices that are designed to minimize the employee's MC exposure.

The American Association of Occupational Health Nurses (Ex. 3–12) suggests that this provision is discriminatory and could expose companies to litigation under the Americans with Disabilities Act (ADA). The AAOHN did not explain in what way this provision would violate the ADA, and OSHA does not believe it would. As discussed above, the workers who qualify for MRP benefits under this final rule are not necessarily ''disabled'' within the meaning of the ADA and, to the extent they are, MRP benefits provide protection to workers that may not be available under the ADA. Moreover, OSHA does not agree with AAOHN that allowing an employer to retain an employee who is eligible for medical removal in his or her current job while one or more other employees are on medical removal is accurately characterized as ''discrimination.'' All employees receive protection from the new MRP benefits provisions beyond that afforded by the current rule. The employee who is retained in his or her present job under paragraph (j)(11)(i)(B) will receive additional protection through enhanced medical surveillance. Paragraph (j)(11)(i)(B) also requires that the employee be informed of the risk to his or her health from continued MC exposure, thereby enabling the employer and employee to take steps necessary to minimize that risk under existing workplace conditions by, for example, implementing those controls that are in place and strictly following work practices designed to minimize the employee's MC exposure.

Several commenters (Imperial Adhesives, Ex. 3–3; Tupelo Foam Sales, Inc., Ex. 3–6; Diversified Brands, Ex. 3–7) urged OSHA to narrow the MRP provisions to the greatest extent possible to reduce their economic impact. These commenters did not, however, offer specific suggestions as to how the economic impact of the provisions could be narrowed. As discussed below in the final economic analysis, OSHA concludes that addition of the provisions for MRP benefits to the MC standard will have a minimal economic impact on businesses of all sizes. Moreover, paragraph (j)(11)(i)(B) permits an employer to retain an employee who would otherwise need to be removed in his or her present job if the employer can demonstrate that the cost of medical removal would impose an undue economic hardship on the business. OSHA therefore believes that the final rule already reduces the economic impact of MRP benefits to the extent possible while still maintaining the protection those benefits afford to workers.

III. Extensions of Startup Dates.

The motion for reconsideration requested that the standard's current final engineering control startup date of April 10, 2000, which was limited in the final standard to employers with fewer than 20 employees, also apply to employers in the specified application groups who have 20–49 employees and to foam fabricators who have 20–149 employees. (When the original standard established different startup dates based on an employer's number of employees, OSHA intended for the number of employees to refer to the total number of workers employed by the particular employer, not the number who work at a particular facility or the number that use methylene chloride in their work. The parties to the motion for reconsideration explained in their motion that they also intended this

definition when they referred to an employer's number of employees). The parties contended that employers in these application groups and size categories, similarly to those with fewer than 20 employees, have limited resources with which to develop and implement engineering controls and will be able to use those resources more efficiently if given additional time to develop and install effective controls and to take advantage of the compliance assistance that OSHA offers. The motion requested shorter extensions of the engineering control dates for larger employers in these application groups.

The parties further requested that respirator use to achieve the 8-hour TWA PEL not be required before the engineering control startup dates for those employers covered by the motion. They contended that workers would be better protected if these employers can concentrate their limited resources on implementing effective engineering controls rather than diverting some of those resources to interim and expensive respiratory protection (i.e., supplied-air respirators) that would no longer be needed a short time later, once full compliance with the 8-hour TWA PEL and STEL is achieved by engineering controls.

In the notice of the motion for reconsideration, OSHA stated that it believed the extensions of the startup dates the parties had requested were justified. The Agency noted that engineering controls, such as local exhaust ventilation, must be properly designed and installed if they are to work properly and provide effective protection. OSHA believed that, for the relatively small employers who would be receiving extensions of the startup dates, additional time to implement engineering controls would enable them to take advantage of compliance assistance that OSHA offers and avoid the uncertainty and expense that would result if each employer attempted to design and implement controls on its own. OSHA further believed that it was appropriate to extend the startup dates for respirator use to achieve the 8-hour TWA PEL to enable the employers receiving that extension to concentrate their resources on developing and implementing engineering controls to reduce airborne concentrations of MC. Based on the comments received and the entire rulemaking record, OSHA is now adopting the requested extensions in paragraph (n) of the final rule.

Most commenters supported the extensions. The National Air Transportation Association (Ex. 3–9) and KAL-AERO (Ex. 3–11) stated that use of MC-based paint strippers in general aviation aircraft stripping had already declined substantially, and that the extended startup dates for that activity would encourage the complete elimination of MC-based paint strippers by the year 2000. The Polyurethane Foam Association (Ex. 3–10) supported the extensions for foam manufacturers and foam fabricators, noting in particular that extending the startup date for respirator use to meet the 8-hour TWA PEL would permit these industries to focus their resources on developing engineering controls.

The National Marine Manufacturers Association (Ex. 3–8) urged OSHA to adopt the extensions for boat building. The Association stated that boat builders now use adhesives that contain MC and that additional compliance time is needed to enable them to determine whether it would be safer to substitute MC-free adhesives, which may be flammable, or to continue to use products that contain MC and install engineering controls to reduce MC exposures. Individual companies supporting the extensions for either their own operations or those of their customers included Benco Sales, Inc. (Ex. 3–1), Imperial Adhesives (Ex. 3–3), Mid South Adhesives, Inc. (Ex. 3–4), Tupelo Foam Sales, Inc. (Ex. 3–6), and Diversified Brands (Ex. 3–7).

Organization Resources Counselors (ORC) was the only commenter opposing the extensions (Ex. 3–13). ORC objected to the deferral of the requirement that the employers covered by the amendments use respiratory protection to achieve the 8-hour TWA PEL until the date that those employers are required to achieve the PEL through engineering controls. ORC notes that MC is a carcinogen and that OSHA has, in its earlier standards for carcinogens, consistently required employers to use respirators to protect employees while engineering controls are being implemented.

OSHA agrees that interim respirator use while engineering controls are being implemented is desirable, and the Agency acknowledged in the notice that it has required interim respirator use in its past air contaminant standards. However, in all of those earlier standards, air-purifying respirators were available that would protect against the contaminant being regulated. For methylene chloride, air-purifying respirators do not provide effective protection because MC quickly penetrates all currently available organic vapor cartridges. For that reason, the MC standard requires that, when respirators are needed, atmosphere-supplying respirators must be provided and used.

Atmosphere-supplying respirators are a relatively expensive type of respiratory equipment, requiring the employer not only to purchase the respirators themselves but also to install an air compressor and associated ductwork or rent cylinders containing breathing air. In the case of methylene chloride, the situation is complicated by the predominance of relatively small companies among the employers whose employees are currently exposed above the 8-hour TWA PEL. For those small employers, the relatively high cost associated with atmosphere-supplying respirators would divert or exhaust resources that can be better spent on developing and installing engineering controls that will permanently and reliably reduce exposures below the 8-hour TWA PEL and STEL. OSHA continues to believe that worker protection is best served by early installation of effective engineering controls and that the smaller employers who are being granted extensions of startup dates by this final rule should therefore be allowed to use their limited resources for engineering controls instead of interim, short-term use of atmosphere-supplying respirators.

Moreover, as explained in the notice, employees will still receive substantial interim protection against MC exposure under these amended startup dates. The STEL will go into effect as scheduled, and employers will be required to ensure that some combination of engineering controls, work practice controls, and respiratory protection reduce exposures below that level. Workers will therefore be protected against acute health effects associated with high short-term exposure to MC. Moreover, reduction of short-term exposures to below the STEL will, in most cases, reduce 8-hour time-weighted average exposures and will thereby provide workers with some interim protection against the chronic effects of MC exposure. If no 15-minute exposures exceed 125 ppm, the 8-hour TWA must by definition be below 125 ppm. In practice, in order to control variable processes such that no excursions above the STEL occur, the average 8-hour concentration may need to be maintained substantially below 125 ppm.

This final rule also does not delay compliance with the requirement that employers implement feasible work practices to reduce MC exposures. Such controls can achieve significant reductions in MC exposures in many workplaces at low cost. Early implementation of work practice controls will also enable employers to evaluate the extent to which exposures

can be reduced by such controls and will enable them to better determine the nature and extent of the engineering controls they will need to achieve the 8-hour TWA PEL and STEL. OSHA has developed Fact Sheets identifying feasible work practice controls for several of the application groups that are receiving extensions of the startup dates in this final rule, and many of those work practices would be feasible and useful for workplaces in other application groups as well. Those work practices were listed in the earlier **Federal Register** notice, 63 FR at 24507–08, and are available in a small entity compliance guide, which can be obtained at OSHA's web site, http://www.osha.gov. Furthermore, the remaining protections of the standard (regulated areas, protective work clothing and equipment, hygiene facilities, hazard communication, employee information and training, and recordkeeping) are already in effect for all employers.

ORC (Ex. 3–13) contends that the final rule does not afford employees sufficient interim protection because it interprets the rule to excuse employers from all use of atmosphere-supplying respirators. However, these amendments do not alter the requirement that employers achieve the STEL and, if necessary, use atmosphere-supplying respirators to do so. This final rule only extends the startup date for using engineering controls and respirators to achieve the 8-hour TWA PEL. Because the STEL will be in effect as originally scheduled, all employers, including those receiving extensions of startup dates to achieve the 8-hour TWA PEL in this final rule, already need to ensure that employee exposures do not exceed the STEL through some combination of engineering controls, work practices, and atmosphere-supplying respirators.

ORC also questions whether employers will know when exposures exceed the STEL because the odor threshold of MC is well above the STEL of 125 ppm. OSHA notes that employers may not rely on the odor of MC to determine whether the STEL is exceeded but must, under paragraph (d) of the standard, conduct exposure monitoring that accurately characterizes the short-term concentrations to which their employees are exposed. Paragraph (d) requires the employer to take ''one or more personal breathing zone air samples which indicate the highest likely 15-minute exposures during such operations for at least one employee in each job classification in the work area during every work shift, and the employee sampled [must be the employee] expected to have the highest MC exposure [within the job classification].''

OSHA is concerned, however, that employers who are required only to comply with the STEL and not with the 8-hour TWA PEL during the interim period created by these amendments may not have adequate information to determine whether they are in fact in compliance with the STEL requirement. Under the current standard, if initial measurements for all job classifications (representing the employee in each job classification with the highest short-term exposure) are below the STEL, no additional (periodic) STEL monitoring is required. In the unusual interim period created by these amendments, during which time controls may not have been implemented to ensure that TWA exposures are below the PEL, a single STEL measurement may be inadequate to ensure that employees are receiving adequate interim protection. To assure that STEL monitoring is conducted with sufficient frequency to characterize employees' short term exposures until compliance with the 8-hour TWA PEL is achieved, OSHA is amending Table 1 in the MC standard to require each employer who is receiving an extended startup date in this final rule to conduct quarterly STEL monitoring, during the period covered by that extension, when its 8-hour TWA exposures are above the PEL. Those employers must already conduct quarterly STEL monitoring if their initial measurements show exposures above the STEL. The amendment to Table 1 thus extends the requirement for quarterly monitoring to those employers whose initial measurements are below the STEL.

The purpose of this additional STEL monitoring is to provide ongoing information, to those employers whose monitoring results show exposures above the 8-hour TWA PEL but below the STEL, that their employees continue to be exposed below the STEL. For this purpose, it is sufficient if those employers conduct the additional monitoring for the highest-exposed employee within the single job classification shown to have the highest short-term exposures. Moreover, because this additional STEL monitoring is intended to apply only to those employers whose 8-hour TWA exposures exceed the PEL, those employers who are required to conduct additional STEL monitoring by this amendment need only conduct such monitoring until they are required to be in full compliance with the 8-hour TWA PEL or until they are in fact in compliance with the 8-hour TWA PEL. Any employer whose initial 8-hour TWA exposures are below the PEL need not conduct any additional STEL monitoring under this amendment.

Normally, the last sentence of the note to paragraph (d)(3) allows an employer to discontinue all STEL monitoring for employees where at least two consecutive measurements taken at least 7 days apart are at or below the STEL. This provision does not apply to the additional monitoring required by this amendment which, according to amended Table 1, must be conducted ''without regard to the last sentence of the note to paragraph (d)(3).'' Once the compliance dates established by these amendments have passed for a particular employer or that employer has achieved compliance with the 8-hour TWA PEL, whichever comes first, the additional monitoring required by these amendments no longer applies, and the note to paragraph (d)(3) would allow that employer to discontinue periodic STEL monitoring for those employees whose exposures are shown to be at or below the STEL by two consecutive measurements taken at least seven days apart. Any TWA or STEL monitoring required after these compliance dates have passed must include each job classification and each shift that does not qualify for discontinuance of monitoring under the note to paragraph (d)(3).

ORC further contends (Ex. 3–13) that it is inappropriate for OSHA to reconsider its earlier rulemaking decisions at the behest of parties who have challenged the standard in court. ORC argues that the possibility of settling litigation over the standard should not induce OSHA to reconsider or change its earlier rulemaking judgments.

OSHA believes that ORC is mistaken in suggesting that OSHA should be unwilling to reconsider its rulemaking judgments when asked to do so by parties who are challenging the rule in court. Agencies have both the right and the duty to reconsider their decisions if they are persuaded that a different course of action would better serve the statutory purpose. Such requests for reconsideration often come from parties who have brought judicial challenges to a rule because these parties are typically the parties who have the greatest interest in the rule and who were most active in the rulemaking proceeding. Here, labor and industry organizations who had been active participants in the rulemaking presented OSHA with a well-supported motion for reconsideration of certain narrow aspects of the methylene chloride standard. Those parties also stated that they would withdraw their judicial

challenges if OSHA amended the standard along the lines they requested. Upon evaluating the motion, OSHA tentatively concluded that the changes the parties sought were justified and afforded the public an opportunity to comment on those changes.

Having considered the entire rulemaking record, including the comments it received in response to the reopening of the record, OSHA concludes that the amendments it is making in this final rule serve the statutory purpose of protecting employees while avoiding excessive economic burdens on employers, particularly small employers. As discussed above, OSHA believes that the addition of MRP benefits to the standard will increase employee participation in the standard's medical surveillance provisions and thereby ensure that employees are aware of medical conditions that could be aggravated by continued MC exposure. OSHA further believes that the extensions of startup dates being granted to some employers will benefit workers by improving the ability of those employers to comply with the standard. The cornerstone of the standard, the 8-hour TWA PEL of 25 ppm, is not being altered by these amendments. OSHA is issuing these amendments because it believes they are justified by the record and will better effectuate the purposes of the Act, not because the Agency is seeking to resolve legal challenges to the methylene chloride standard.

OSHA does, however, believe that the potential withdrawal of the parties' judicial challenges to the MC standard is a positive benefit. Litigation over earlier standards has hindered OSHA's achievement of its statutory duty to protect the health and safety of workers. In some cases, OSHA standards have been vacated by the courts (e.g., *AFL–CIO* v. *OSHA*, 965 F.2d 962 (11th Cir. 1992), and vacated standards cannot protect worker health or safety. Some standards have also been stayed during judicial review (e.g., *United Steelworkers* v. *Marshall*, 647 F.2d 1189, 1202 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981)), thereby delaying the protection afforded by those standards. In other cases, courts have required OSHA to reconsider certain aspects of its standards (e.g., *Building & Constr. Trades Dep't* v. *Brock*, 838 F.2d 1258 (D.C. Cir. 1988)), and the additional rulemaking proceedings required by such court orders have delayed implementation of important parts of the rule and have diverted OSHA's resources from other important projects. In carrying out its statutory mandate, OSHA cannot ignore the adverse impact that might result from litigation over its standards. However, any modifications to a standard suggested by a litigant or any other person must be justified on their merits and must assure adequate worker protection. That is the case here, and OSHA is therefore including in the final rule the requirements suggested by the parties to the motion for reconsideration.

IV. Final Economic and Regulatory Flexibility Analysis

OSHA is revising paragraph (j), Medical Surveillance, of the final rule governing occupational exposure to methylene chloride (MC) (29 CFR 1910.1052) to add medical removal protection benefits to the rule. This final economic analysis estimates the costs of complying with the final MRP provisions and then assesses the economic feasibility and potential economic impacts of these costs on firms in the affected sectors. The information used in this analysis is taken from the exposure profile, industry profile, and economic impacts analysis presented in the Final Economic Analysis (Ex. 129) that accompanied OSHA's final rule for methylene chloride (62 FR 1494–1619, January 10, 1997). Relying on the data developed for that analysis to support this revision to the final rule ensures analytical consistency and comparability across the two economic analysis documents.

OSHA's final MC rule did not contain medical removal protection provisions. The amendments being made today respond to a motion for reconsideration filed by the United Auto Workers (UAW), the Halogenated Solvents Industry Alliance, Inc., and others. As requested in that motion, OSHA is adding paragraphs (j)(9)(i)(A) and (B), (j)(10), (j)(11), (j)(12), (j)(13), and (j)(14), dealing with medical removal protection, medical removal protection benefits, voluntary removal or restriction of an employee, and multiple health care professional review, respectively, to the final rule. Medical removal protection (MRP) applies only under certain limited circumstances, i.e., medical removal protection would be required only if a physician or other licensed health care professional finds that exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke), or dermal disease. The rule instructs the physician or other licensed health care professional to presume that a medical condition is unlikely to require removal from exposure to MC, unless medical evidence indicates to the contrary, if the employee is not exposed to MC at concentrations above the 8-hour TWA PEL of 25 ppm. The physician or other licensed health care professional may also recommend removal from exposure to MC for any other condition that would, in the health care professional's opinion, place the employee's health at risk of material impairment from exposure to MC, but MRP would only be triggered by a finding that exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke), or dermal disease.

Any employee medically removed must (1) be provided with comparable work where MC exposures are below the action level, or (2) be completely removed from MC exposure. The employee's total pay, benefits and seniority must be maintained throughout the period of medical removal protection, even if the only way to remove the employee from MC exposure is to send him or her home for the duration of the medical removal protection period. The employer may reduce the amount paid to the removed worker to the extent that the worker's previous pay has been offset by other compensation (such as worker's compensation payments) or by wages from another job made possible by the medical removal.

The final rule requires employers to maintain medical removal protection benefits for up to six months. Medical removal protection may be terminated in less than 6 months if a medical determination shows that the employee may return to MC exposure, or a medical determination is made that the employee can never return to MC exposure.

In situations in which no comparable work is available for the medically removed employee, the rule allows the employer to demonstrate that the medical removal and the costs of medical removal protection benefits, considering feasibility in relation to the size of the employer's business and the other requirements of this standard, make reliance on medical removal protection an inappropriate remedy. In such a situation, the employer may retain the employee in the existing job until transfer or removal becomes appropriate, provided that the employer ensures that the employee receives additional medical surveillance, including a physical examination at least every 60 days until removal or transfer occurs, and that the employer or PLHCP informs the employee of the risk to the employee's health from continued MC exposure.

In conducting this economic analysis, OSHA has estimated the number of workers with the four listed types of conditions (neurological, hepatic, cardiac, and dermal disease) that can trigger MRP. OSHA has assumed that medical removal protection would be extended only to employees exposed above the PEL, as reflected by the presumption. This analysis also assumes that all employers will provide medical removal protection whenever a physician or other licensed health care provider recommends removal, i.e., OSHA has not quantified the number of times small firms may retain an employee for whom a removal recommendation has been made in the employee's existing job due to the employer's financial inability (i.e., economic infeasibility) to remove the employee. Because some very small firms may find that medical removal protection is infeasible in their circumstances but this cost analysis assumes that all such employees will be removed, OSHA believes that this analysis is likely to overestimate the costs associated with MRP.

Costs of Medical Removal Protection Provisions

OSHA's estimates of the costs of the medical removal protection provisions are calculated based on the number of workers eligible for medical removal protection times the frequency of the medical conditions that would trigger medical removal protection in the exposed population times the costs of medical removal protection for each type of medical condition.

Number of Workers Eligible for Medical Removal Protection Under the Final Rule

Because of the presumption stated explicitly in paragraph (j)(11)(i)(B), medical removal protection will be limited in almost all cases to employees exposed to MC at concentrations above the PEL of 25 ppm as an 8-hour TWA. The Final Economic Analysis (Ex. 129) estimated that approximately 55,000 employees in all affected application groups are currently exposed above 25 ppm. This estimate is used here to calculate the number of employees potentially eligible for medical removal protection during the year in which medical removal protection will be in effect but the engineering control requirements of the rule will not yet be in effect for some of the application groups. Once the implementation of engineering controls is required, OSHA assumes, for the purposes of this analysis, that 10 percent of those employees previously exposed to an 8-hour TWA above 25 ppm (5,500 employees) would continue to be exposed to an 8-hour TWA above 25 ppm.

OSHA believes that reliance on these assumptions will lead to an overestimate of the number of employees eligible for medical removal protection because some firms will have implemented controls and lowered the exposures of their employees well before the final standard requires them to do so. Once the standard requires employers to implement engineering controls, OSHA's Final Economic Analysis (Ex. 129) estimated that the exposure of almost all employees would be reduced to MC levels below 25 ppm as an 8-hour TWA. To capture all costs potentially associated with the medical removal protection provisions, OSHA has assumed for this analysis that some employees will continue to be exposed above 25 ppm.

Frequency of Medical Removal Protection Under the Final Rule

Paragraph (j)(11)(i) of the final rule provides for medical removal protection if there is a medical determination that exposure to methylene chloride ''may contribute to or aggravate existing cardiac, hepatic, neurological (including stroke), or skin disease.'' Medical removal protection does not apply if the condition is such that removal from MC exposure must be permanent.

OSHA believes that MC-induced or aggravated neurological symptoms (other than stroke) occur infrequently and that when such protection is triggered by neurological manifestations (other than stroke), the period of time involved in the removal will be relatively brief. OSHA also believes that MC-induced or aggravated heart conditions or strokes are likely to result in permanent medical removal, and thus that employers will not incur the costs of medical removal protection in these cases. This analysis therefore focuses on medical removal protection for MC-induced or aggravated dermatitis or abnormal hepatic conditions. Each of these conditions is likely to resolve with time, proper treatment, or both, and these are therefore the conditions likely to result in a determination that temporary medical removal protection, rather than permanent removal, is needed.

Because the final rule would provide for medical removal protection in situations where exposure to MC contributes to or aggravates the listed condition, this analysis focuses on the frequency with which each covered condition occurs in the working population, and not simply on the frequency with which MC causes these conditions. OSHA has no evidence that hepatic conditions are more prevalent in workplaces that use MC than in the general working age population and therefore assumes that the prevalence of hepatic conditions will be the same as in the general working age population (ages 18–65). OSHA thus estimates that 5 percent of the working population will be found on evaluation to have hepatic conditions sufficiently abnormal to trigger medical removal.

For dermatitis, which is seldom a lasting condition, OSHA similarly assumes, in the absence of evidence to the contrary, that the prevalence in the MC-exposed workforce is the same as the rate in the general working age population. For dermatitis, Vital and Health Statistics (National Center for Health Statistics, 1995) reports that, in 1993, the prevalence of dermatitis was 2.93 percent for persons between 18 and 45 and 2.18 percent for persons between 45 and 65. Weighting using the BLS data cited above, OSHA finds that 2.7 percent of the MC-exposed workforce will be found on the first required medical evaluation to have dermatitis and will be medically removed.

After the standard has been in effect for the first year, OSHA assumes that the prevalence of dermatitis will continue at the same rate. For liver conditions, OSHA assumes that most of the conditions that triggered removal in the first year will have been resolved and that the number of older cases that flare up and have to be treated again, combined with new cases that trigger medical removal, will occur at a combined rate ⅕ that of the initial rate.

Costs of Medical Removal Protection

Employers incur three kinds of costs for medical removal protection: costs for medical evaluations not already required; costs resulting from changing the employee's job, such as those related to retraining and lost productivity; and, where alternative jobs that do not involve MC exposure are not available, the costs of keeping a worker who is not working on the payroll.

Employers may incur costs for medical evaluations (over and above those already required for medical surveillance) for two reasons: to determine if the employee can return to work, and to determine, using multiple PLHCP review, whether the initial medical determination was correct. Because the final rule allows employees to be removed from medical removal protection status only on the basis of a new medical determination, every instance of medical removal protection will require one additional examination.

OSHA estimated the cost of a medical examination at $130 in the Final Economic Analysis (Ex. 129). Every case of medical removal protection would require at least one additional medical evaluation. In addition, OSHA estimates that 10 percent of all removed cases will require a second medical evaluation either for the purpose of multiple health care professional review or because the first examination showed that the employee could not yet be returned to normal duty.

The largest MRP-related costs in almost all cases will be the cost of paying for time away from work for the removed employee. OSHA estimates that the typical dermatitis case will involve 6 days away from work. BLS (BLS, Occupational Injuries and Illnesses: Counts, Rates, and Characteristics, 1994) reports that, in 1994, the typical lost worktime case of dermatitis involved 3 days away from work. OSHA allowed an additional three days to allow time for a return-to-work determination to be made. For medical removal for hepatic conditions, OSHA estimates that a 4-week period of medical removal will normally be sufficient to provide for stabilization and a return to the normal range for the typical case of elevated liver enzymes. Because almost no cases will be resolved in less than 4 weeks and a small number of cases (such as those involving serious liver disease) may take much longer to resolve, OSHA's cost estimate estimates 5 weeks as the average period of medical removal for these cases.

For the short-term medical removal associated with dermatitis, OSHA has conservatively assumed that the employee will be paid full wages and benefits even though not at work. For the longer term medical removal associated with hepatic conditions, OSHA estimates that, in firms with more than 20 employees, alternative jobs not involving exposure to MC will be found for affected employees. OSHA estimates the costs of moving employees to alternative jobs as equivalent to the loss of 20 person hours in lost productivity and/or retraining expenses. For firms with fewer than 20 employees, OSHA expects that there may be more difficulty finding alternative positions both because fewer alternative positions are available and because more positions in the establishment are likely to involve exposure to MC.

For the very small firms in furniture stripping, where all jobs may involve exposure to MC, OSHA has assumed that all cases of medical removal will involve removing employees from work entirely, and thus that employers will incur the full costs of the employee's wages and benefits for the five weeks the employee is medically removed. Firms with fewer than 20 employees in other application groups tend to be somewhat larger than in furniture stripping and will therefore be more likely to have work that does not involve exposure to MC at levels above the action level. For example, in such small-business-dominated application groups as printing shops, and in small cold cleaning and paint stripping operations, exposure to MC tends to involve only a single employee and is commonly intermittent even for that employee. For establishments with fewer than 20 employees in application groups other than furniture stripping, OSHA estimates that 50% will be able to find alternative employment and 50% will need to send the employee home because alternative jobs without MC exposure cannot be found.

Annualized Cost Estimates

Table 1 shows OSHA's estimated annualized costs for firms in each application group. The total annualized costs for medical removal protection are estimated to be $920,387 per year for all affected employers. The greatest costs are in the cold cleaning application group, the all other industrial paint stripping application group, the construction application group, and the furniture stripping application group. All of these application groups have annualized MRP costs in excess of $100,000 per year.

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TABLE 1

ANNUALIZED COSTS OF MRP FOR METHYLENE CHLORIDE APPLICATION GROUPS

Application Group	Annualized Costs ($)
Methylene Chloride Manufacturing	70
Distribution/Formulation of Solvents	6,597
Metal Cleaning	
Cold Degreasing and Other Cold Cleaning	307,216
Open-Top Vapor Degreasing	2,709
Conveyorized Vapor Degreasing	378
Semiconductors	1,147
Printed Circuit Boards	0
Aerosol Packaging	2,875
Paint Remover Manufacturing	593
Paint Manufacturing	823
Paint Stripping	
Aircraft Stripping	9,662
Furniture Stripping	80,579
All Other Industrial Paint Stripping	206,619
Flexible Polyurethane Foam Manufacturing	4,296
Plastics and Adhesives Manufacturing and Use	52,639
Ink and Ink Solvent Manufacturing	182
Ink Solvent Use	53,298
Pesticide Manufacturing and Formulation	541
Pharmaceutical Manufacturing	3,576
Solvent Recovery	0
Film Base Manufacturing	0
Polycarbonate Manufacturing	0
Construction	115,297
Shipyards	18,652
TOTAL, ALL APPLICATION GROUPS	920,387

Source: Office of Regulatory Analysis; OSHA; Department of Labor

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Potential Cost Savings of the Revisions

OSHA is also altering several provisions concerning the implementation dates for engineering controls and respiratory protection for employers engaged in selected activities. Paragraphs (n)(2)(A), (B), and (C) provide new implementation dates for engineering controls for employers engaged in these selected activities. Under paragraph (n)(3)(E), these same employers would also now be allowed until the implementation date for engineering controls to meet the rule's requirements for respiratory protection to meet the PEL, i.e., the implementation dates for engineering controls and respiratory protection would be the same for employers engaged in these activities.

Qualified employers who choose the option of postponing the implementation of engineering controls and respiratory protection would be required by the final rule to conduct STEL monitoring quarterly until either the implementation date for engineering controls and respiratory protection or the date by which they in fact achieve compliance with the 8-hour TWA PEL. The employers affected by these extensions of the implementation dates for engineering controls and respiratory protection, and thus by the final rule's requirements for quarterly STEL monitoring, are employers with employees exposed above the PEL who are engaged in foam fabrication; furniture stripping; general aviation aircraft stripping; product formulation; adhesive users using adhesives for boat building and repair, recreational vehicle manufacture, van conversions, and upholstering; and construction work for restoration and preservation of building, painting and paint removal, cabinet making, and/or floor refinishing.

OSHA cannot fully evaluate the cost saving effects of these implementation date postponements because OSHA's Final Economic Analysis (Ex. 129) did not provide the data needed to estimate the number of employers in the size classes identified by the final rule for each of the activities affected by the final rule. (OSHA's Final Economic Analysis did analyze impacts on employers of all sizes, but sometimes aggregated them into larger activity groups or different size classes than those specified in these provisions.) OSHA has, however, developed an estimate of the potential cost savings using certain simplifying assumptions. First, OSHA assumes that all employers in the affected application groups will be affected. The effect of this assumption is to include some employers who would not qualify because they do not engage in the prescribed activity, e.g., the estimate includes cost savings for facilities using adhesives for activities other than those specified, i.e., for activities other than boat building and repair, recreational vehicle manufacturing, van conversion or upholstering. This assumption will thus overestimate the cost savings.

OSHA also assumes that no employers will need to install engineering controls or use respiratory protection in order to meet the STEL requirements of the standard. OSHA is uncertain about how many such employers there are, and thus cannot quantify the extent to which this assumption overestimates cost savings. Finally, OSHA assumes that the effect of these provisions of the final rule is that employers of employees currently exposed above the PEL in the affected application groups will not incur the costs of respiratory protection for the two years before they are required to install engineering controls, but will have to provide quarterly monitoring for the STEL during this period.

For each affected employee, the employer would save the costs of installing and maintaining an air-supplied respirator and an air compressor for two years. The Final Economic Analysis (Ex. 129) estimates the annual costs of such respirators as $679 per year. Offsetting this cost savings of $679 per year for each of two years is the cost of quarterly STEL monitoring during that same time period. Based on its Final Economic Analysis (Ex. 129), OSHA estimates the cost of STEL monitoring at these facilities to be $80 for two badge samples. Annual costs for quarterly monitoring would thus be $320 per year (4 times $80). The total cost savings are thus $359 ($679 minus $320) per affected employee per year. OSHA estimates, based on the exposure profile in its Final Economic Analysis (Ex. 129), that there are 18,000 affected employees who are engaged in the activities specified in these provisions. Considering all 18,000 affected employees, these provisions will provide cost savings of $6.4 million per year for each of two years (18,000 employees times $359 per employee). Annualized over ten years at a seven percent discount rate, this represents a potential cost savings of $960,000 per year.

Because this estimate of potential cost savings is based on assumptions that may overestimate the cost savings of the revisions to the final rule, OSHA is not using this estimate of cost savings to offset the costs of MRP in its cost and economic impact analysis. This means that the costs reflected in this analysis will be overstated to some extent after these amendments go into effect.

Economic Impacts

Table 2 combines the cost data from Table 1 and the economic profile information provided in the Final Economic Analysis for the Methylene Chloride rule (Ex. 129) to provide estimates of the potential impacts of these compliance costs on firms in affected application groups. The medical removal protection required by the final rule is clearly economically feasible: on average, annualized compliance costs amount only to 0.0014 percent of estimated sales and 0.03 percent of profits. These impacts do not take into account the cost savings described above. For all but one application group—furniture stripping—compliance costs are less than 0.07 percent of profits, and less than 0.003 percent of the value of sales. Even in furniture stripping, the annualized costs of medical removal protection are still only 0.015 percent of sales and 0.3 percent of profits. Impacts of this magnitude do not threaten the economic feasibility of firms in any affected application group. If highly unusual circumstances were to arise that pose such a threat, the standard allows specifically for the cost impact to be considered on a case-by-case basis.

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Table 2

Screening Analysis to Identify Possible Economic Impacts of the Proposed MC Standard's Medical Removal Provisions

Application Group	Number of Affected Establishments	Annualized Costs of Compliance as Percent of Sales	Annualized Costs of Compliance as Percent of Profit
Manufacture of MC	4	0.0000%	0.0004%
Distribution/Formulation of Solvents	320	0.0003%	0.0046%
Metal Cleaning			
Cold Degreasing and Other Cold Cleaning	23,717	0.0001%	0.0021%
Open-Top Vapor Degreasing	278	0.0001%	0.0016%
Conveyorized Vapor Degreasing	45	0.0001%	0.0014%
Semiconductors	239	0.0000%	0.0002%
Printed Circuit Boards	141	0.0000%	0.0000%
Aerosol Packaging	50	0.0001%	0.0012%
Paint Remover Manufacturing	80	0.0001%	0.0015%
Paint Manufacturing	49	0.0001%	0.0027%
Paint Remover Use (Paint Stripping)			
Aircraft Stripping	300	0.0001%	0.0017%
Furniture Stripping	6,152	0.0154%	0.2977%
All Other Industrial Paint Stripping	35,041	0.0000%	0.0010%
Flexible Polyurethane Foam Manufacturing	100	0.0003%	0.0093%
Plastics and Adhesives Manufacturing and Use	3,487	0.0000%	0.0000%
Ink and Ink Solvent Manufacturing	15	0.0000%	0.0003%
Ink Solvent Use	11,869	0.0004%	0.0098%
Pesticide Manufacturing and Formulation	60	0.0001%	0.0018%
Pharmaceutical Manufacturing	108	0.0000%	0.0004%
Solvent Recovery	35	0.0000%	0.0000%
Film Base	1	0.0000%	0.0000%
Polycarbonates	4	0.0000%	0.0000%
Construction	9504	0.0027%	0.0705%
Shipyards	25	0.0025%	0.0655%
ALL APPLICATION GROUPS	91,624	0.0014%	0.0296%

Source: Office of Regulatory Analysis; OSHA; Department of Labor

BILLING CODE 4510–26–C

OSHA's cost methodology for this final rule tends to overestimate the costs and economic impacts of the standard for several reasons. First, as discussed in the section on potential cost savings, OSHA has not taken into account the cost savings some employers will realize from the extended implementation dates that are permitted by the final rule.

Other aspects of OSHA's methodology also tend to result in cost overestimates. OSHA's use of general population prevalence data to estimate the prevalence of conditions that might lead to medical removal overestimates costs by ignoring the possibility that workers in MC establishments may be healthier than the general population, i.e., it ignores the ''healthy worker'' effect. OSHA has also assumed that all unusual hepatic conditions will lead to medical removal, when in many cases no medical removal protection will be necessary. Finally, OSHA has also included in its cost estimate all cases involving medical removal, when it is in fact likely that some smaller firms would be able to argue that the cost of extending MRP benefits to an additional employee would not be feasible (and would therefore make reliance on MRP an inappropriate remedy), and thereby avoid removing that additional employee, as allowed by paragraph (j)(11)(i)(B).

Regulatory Flexibility Screening Analysis and Certification

Tables 3 and 4 provide a regulatory flexibility screening analysis. As in the analysis for all firms in Table 2, OSHA used the cost data presented in Table 1 in combination with the data on small firms presented in the Final Economic Analysis (Ex. 129). Table 3 shows annualized compliance costs as a percentage of revenues and profits using SBA definitions of small firms for each relevant SIC code within each application group. This analysis shows that costs as a percentage of revenues and profits are slightly greater than is the case for all firms in the SIC, but still average only 0.0017 percent of revenues and 0.035 percent of profits. The most heavily impacted industry is furniture stripping, but the impacts in this group are the same for all firms in the group because all furniture stripping firms are small using the SBA definition.

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TABLE 3

Sceening Analysis of Potential Economic Impacts on Smaller Firms
(Small Establishments and Firms as Defined by SBA under Section 3 of The Small Business Act)

Application Group	Number of Small Establishments Affected	Costs As a Percentage of Profits for Small Firms	Costs As a Percentage of Sales for Small Firms
Manufacture of MC	0	NA	NA
Distribution/Formulation of Solvents	278	0.0005%	0.0072%
Metal Cleaning			
Cold Degreasing and Other Cold Cleaning	22,365	0.0003%	0.0067%
Open-Top Vapor Degreasing	262	0.0003%	0.0051%
Conveyorized Vapor Degreasing	42	0.0002%	0.0044%
Semiconductors	185	0.0000%	0.0002%
Printed Circuit Boards	109	0.0000%	0.0000%
Aerosol Packaging	47	0.0002%	0.0019%
Paint Remover Manufacturing	77	0.0001%	0.0026%
Paint Manufacturing	62	0.0002%	0.0045%
Paint Remover Use (Paint Stripping)	77	0.0001%	0.0026%
Aircraft Stripping	173	0.0004%	0.0088%
Furniture Stripping	6,152	0.0154%	0.2977%
All Other Industrial Paint Stripping	33,044	0.0001%	0.0029%
Flexible Polyurethane Foam Manufacturing	49	0.0001%	0.0034%
Plastics and Adhesives Manufacturing and Use	3,281	0.0002%	0.0031%
Ink and Ink Solvent Manufacturing	11	0.0000%	0.0004%
Ink Solvent Use	9,210	0.0005%	0.0106%
Pesticide Manufacturing and Formulation	49	0.0001%	0.0034%
Pharmaceutical Manufacturing	15	NA	NA
Solvent Recovery	24	0.0000%	0.0000%
Film Base	0	NA	NA
Polycarbonates	0	NA	NA
Construction	9,086	0.0033%	0.0866%
Shipyards	0	NA	NA
ALL APPLICATION GROUPS	84,573	0.0017%	0.0352%

NA=No small firms in this application group.

Source: Office of Regulatory Analysis; OSHA; Department of Labor

TABLE 4

Sceening Analysis of Potential Economic Impacts on Firms with Fewer than 20 Employees

Application Group	Number of Small Establishments Affected	Costs As a Percentage of Profits for Small Firms	Costs As a Percentage of Sales for Small Firms
Manufacture of MC	0	NA	NA
Distribution/Formulation of Solvents	139	0.0018%	0.0322%
Metal Cleaning			
Cold Degreasing and Other Cold Cleaning	9,223	0.0005%	0.0110%
Open-Top Vapor Degreasing	0	NA	NA
Conveyorized Vapor Degreasing	11	0.0005%	0.0132%
Semiconductors	0	NA	NA
Printed Circuit Boards	20	0.0000%	0.0000%
Aerosol Packaging	10	0.0006%	0.0072%
Paint Remover Manufacturing	34	0.0003%	0.0114%
Paint Manufacturing	7	0.0006%	0.0194%
Paint Remover Use (Paint Stripping)	34	0.0003%	0.0114%
Aircraft Stripping	75	0.0011%	0.0335%
Furniture Stripping	5,900	0.0155%	0.3034%
All Other Industrial Paint Stripping	25,441	0.0002%	0.0042%
Flexible Polyurethane Foam Manufacturing	8	0.0010%	0.0386%
Plastics and Adhesives Manufacturing and Use	498	0.0013%	0.0264%
Ink and Ink Solvent Manufacturing	3	0.0002%	0.0022%
Ink Solvent Use	5,395	0.0011%	0.0237%
Pesticide Manufacturing and Formulation	40	0.0010%	0.0386%
Pharmaceutical Manufacturing	0	NA	NA
Solvent Recovery	17	0.0000%	0.0000%
Film Base	0	NA	NA
Polycarbonates	0	NA	NA
Construction	9,085	0.0044%	0.1596%
Shipyards	0	NA	NA
ALL APPLICATION GROUPS	55,907	0.0026%	0.0644%

NA=No small firms in this application group.

Source: Office of Regulatory Analysis; OSHA; Department of Labor

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As noted in the discussion of costs, firms with fewer than 20 employees are much more likely to incur greater costs for medical removal protection because such firms may have difficulty in finding a job that does not involve exposure to MC at levels above the action level. OSHA therefore examined annualized compliance costs as a percentage of sales and profits for firms with fewer than 20 employees.

Table 4 shows the results of this analysis. For the typical affected firm with fewer than 20 employees, the annualized costs of medical removal protection represent 0.0026 percent of sales and 0.064 percent of profits. Furniture stripping has the greatest potential impacts—annualized costs are 0.016 percent of sales and 0.3 percent of profits for firms in this application group. These impacts do not constitute significant impacts, as envisioned by the Regulatory Flexibility Act. However, because unusually prolonged medical removal without an alternative job within the establishment might present problems for these very small firms, the standard includes a provision [paragraph (j)(11)(i)(B)] requiring special consideration of the feasibility of, economic burden imposed by, medical removal protection when an employer would otherwise need to provide MRP benefits to more than one employee. This provision ensures that impacts are not unduly burdensome even in rare and unusual circumstances. Therefore, based on its analyses both of impacts and small firms using the SBA definitions, and of very small firms with fewer than 20 employees, OSHA certifies that the MRP provisions in this final rule will not have a significant impact on a substantial number of small entities.

V. Federalism

This final rule has been reviewed in accordance with Executive Order 12612 (52 FR 41685, October 30, 1987), regarding Federalism. This Order requires that agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when there is a clear constitutional authority and the presence of a problem of national scope. The Order provides for preemption of State law only if there is a clear Congressional intent for the Agency to do so. Any such preemption is to be limited to the extent possible.

Section 18 of the Occupational Safety and Health Act (OSH Act) expresses Congress' intent to preempt state laws relating to issues for which Federal OSHA has issued occupational safety and health standards. Under the OSH Act, if an occupational safety or health issue is addressed by an OSHA standard, a State law addressing the same issue is preempted unless the State submits, and obtains Federal OSHA approval of, a plan for the development of occupational safety and health standards and their enforcement. Occupational safety and health standards developed by such State-Plan States must, among other things, be at least as effective in providing safe and healthful employment and places of employment as the Federal standards. Where such standards are applicable to products distributed or used in interstate commerce, they may not unduly burden commerce and must be justified by compelling local conditions.

This final MC rule revises the current MC standard by adding a provision for limited medical removal protection benefits and by extending certain startup dates for employers who use MC in certain applications. As under the current MC standard, states with occupational safety and health plans approved under section 18 of the OSH Act will be able to develop their own State standards to deal with any special problems which might be encountered in a particular state while ensuring that their standards are at least as effective as the Federal standard.

VI. State Plans

The 23 States and two territories with their own OSHA-approved occupational safety and health plans must adopt a comparable standard within six months of the publication of this final rule or amend their existing standards to ensure that their standards are ''at least as effective'' as the Federal MC standard as amended by this final rule. Those states and territories are: Alaska, Arizona, California, Connecticut (for State and local government employees only), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Nevada, New Mexico, New York (for State and local government employees only), North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, the Virgin Islands, Washington, and Wyoming.

Authority and Signature

This document was prepared under the direction of Charles N. Jeffress, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.

List of Subjects in 29 CFR Part 1910

Chemicals, Hazardous substances, Occupational safety and health.

Signed at Washington, DC this 16th day of September, 1998.

Charles N. Jeffress,

Assistant Secretary of Labor.

Part 1910 of title 29 of the Code of Federal Regulations is amended as follows:

PART 1910—[AMENDED]

1. The general authority citation for subpart Z of CFR 29 part 1910 continues to read, in part, as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), or 6–96 (62 FR 111), as applicable; and 29 CFR Part 1911.

* * * * *

2. Section 1910.1052 would be amended by revising paragraphs (d)(3), (j)(9)(i)(A) and (B), and paragraph (n)(2), and by adding paragraphs (j)(10), (j)(11), (j)(12), (j)(13), and (j)(14) as follows:

1910.1052 Methylene Chloride

* * * * *

(d) *Exposure monitoring.*

* * * * *

(3) *Periodic monitoring.* Where the initial determination shows employee exposures at or above the action level or above the STEL, the employer shall establish an exposure monitoring program for periodic monitoring of employee exposure to MC in accordance with Table 1:

TABLE 1—INITIAL DETERMINATION EXPOSURE SCENARIOS AND THEIR ASSOCIATED MONITORING FREQUENCIES

Exposure scenario	Required monitoring activity
Below the action level and at or below the STEL.	No 8-hour TWA or STEL monitoring required.
Below the action level and above the STEL	No 8-hour TWA monitoring required; monitor STEL exposures every three months.
At or above the action level, at or below the TWA, and at or below the STEL.	Monitor 8-hour TWA exposures every six months.

TABLE 1—INITIAL DETERMINATION EXPOSURE SCENARIOS AND THEIR ASSOCIATED MONITORING FREQUENCIES—Continued

Exposure scenario	Required monitoring activity
At or above the action level, at or below the TWA, and above the STEL.	Monitor 8-hour TWA exposures every six months and monitor STEL exposures every three months.
Above the TWA and at or below the STEL	Monitor 8-hour TWA exposures every three months. In addition, without regard to the last sentence of the note to paragraph (d)(3), the following employers must monitor STEL exposures every three months until either the date by which they must achieve the 8-hour TWA PEL under paragraph (n) of this section or the date by which they in fact achieve the 8-hour TWA PEL, whichever comes first: employers engaged in polyurethane foam manufacturing; foam fabrication; furniture refinishing; general aviation aircraft stripping; product formulation; use of MC-based adhesives for boat building and repair, recreational vehicle manufacture, van conversion, or upholstery; and use of MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making, or floor refinishing and resurfacing.
Above the TWA and above the STEL	Monitor 8-hour TWA exposures and STEL exposures every three months.

[*Note to paragraph (d)(3)*: The employer may decrease the frequency of 8-hour TWA exposure monitoring to every six months when at least two consecutive measurements taken at least seven days apart show exposures to be at or below the 8-hour TWA PEL. The employer may discontinue the periodic 8-hour TWA monitoring for employees where at least two consecutive measurements taken at least seven days apart are below the action level. The employer may discontinue the periodic STEL monitoring for employees where at least two consecutive measurements taken at least 7 days apart are at or below the STEL.]

* * * * *

(j) *Medical surveillance.*

* * * * *

(9) *Written medical opinions.*

(i) * * *

(A) The physician or other licensed health care professional's opinion concerning whether exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease or whether the employee has any other medical condition(s) that would place the employee's health at increased risk of material impairment from exposure to MC.

(B) Any recommended limitations upon the employee's exposure to MC, including removal from MC exposure, or upon the employee's use of respirators, protective clothing, or other protective equipment.

* * * * *

(10) *Medical Presumption.* For purposes of this paragraph (j) of this section, the physician or other licensed health care professional shall presume, unless medical evidence indicates to the contrary, that a medical condition is unlikely to require medical removal from MC exposure if the employee is not exposed to MC above the 8-hour TWA PEL. If the physician or other licensed health care professional recommends removal for an employee exposed below the 8-hour TWA PEL, the physician or other licensed health care professional shall cite specific medical evidence, sufficient to rebut the presumption that exposure below the 8-hour TWA PEL is unlikely to require removal, to support the recommendation. If such evidence is cited by the physician or other licensed health care professional, the employer must remove the employee. If such evidence is not cited by the physician or other licensed health care professional, the employer is not required to remove the employee.

(11) *Medical Removal Protection (MRP).*

(i) Temporary medical removal and return of an employee.

(A) Except as provided in paragraph (j)(10) of this section, when a medical determination recommends removal because the employee's exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke), or skin disease, the employer must provide medical removal protection benefits to the employee and either:

(*1*) Transfer the employee to comparable work where methylene chloride exposure is below the action level; or

(*2*) Remove the employee from MC exposure.

(B) If comparable work is not available and the employer is able to demonstrate that removal and the costs of extending MRP benefits to an additional employee, considering feasibility in relation to the size of the employer's business and the other requirements of this standard, make further reliance on MRP an inappropriate remedy, the employer may retain the additional employee in the existing job until transfer or removal becomes appropriate, provided:

(*1*) The employer ensures that the employee receives additional medical surveillance, including a physical examination at least every 60 days until transfer or removal occurs; and

(*2*) The employer or PLHCP informs the employee of the risk to the employee's health from continued MC exposure.

(C) The employer shall maintain in effect any job-related protective measures or limitations, other than removal, for as long as a medical determination recommends them to be necessary.

(ii) End of MRP benefits and return of the employee to former job status.

(A) The employer may cease providing MRP benefits at the earliest of the following:

(*1*) Six months;

(*2*) Return of the employee to the employee's former job status following receipt of a medical determination concluding that the employee's exposure to MC no longer will aggravate any cardiac, hepatic, neurological (including stroke), or dermal disease;

(*3*) Receipt of a medical determination concluding that the employee can never return to MC exposure.

(B) For the purposes of this paragraph (j), 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.

(12) *Medical Removal Protection Benefits.*

(i) For purposes of this paragraph (j), the term medical removal protection benefits means that, for each removal, an employer must maintain for up to six months the earnings, seniority, and other employment rights and benefits of the employee as though the employee had not been removed from MC exposure or transferred to a comparable job.

(ii) During the period of time that an employee is removed from exposure to MC, 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 section.

(iii) If a removed employee files a workers' compensation claim for a MC-related disability, the employer shall continue the MRP benefits required by this paragraph until either the claim is resolved or the 6-month period for payment of MRP benefits has passed, whichever occurs first. To the extent the employee is entitled to indemnity payments for earnings lost during the period of removal, the employer's obligation to provide medical removal protection benefits to the employee shall be reduced by the amount of such indemnity payments.

(iv) The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal from either a publicly or an employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

(13) *Voluntary Removal or Restriction of an Employee.* Where an employer, although not required by this section to do so, removes an employee from exposure to MC or otherwise places any limitation on an employee due to the effects of MC exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to those required by paragraph (j)(12) of this section.

(14) *Multiple Health Care Professional Review Mechanism.*

(i) If the employer selects the initial physician or licensed health care professional (PLHCP) to conduct any medical examination or consultation provided to an employee under this paragraph (j)(11), the employer shall notify the employee of the right to seek a second medical opinion each time the employer provides the employee with a copy of the written opinion of that PLHCP.

(ii) If the employee does not agree with the opinion of the employer-selected PLHCP, notifies the employer of that fact, and takes steps to make an appointment with a second PLHCP within 15 days of receiving a copy of the written opinion of the initial PLHCP, the employer shall pay for the PLHCP chosen by the employee to perform at least the following:

(A) Review any findings, determinations or recommendations of the initial PLHCP; and

(B) conduct such examinations, consultations, and laboratory tests as the PLHCP deems necessary to facilitate this review.

(iii) If the findings, determinations or recommendations of the second PLHCP differ from those of the initial PLHCP, then the employer and the employee shall instruct the two health care professionals to resolve the disagreement.

(iv) If the two health care professionals are unable to resolve their disagreement within 15 days, then those two health care professionals shall jointly designate a PLHCP who is a specialist in the field at issue. The employer shall pay for the specialist to perform at least the following:

(A) Review the findings, determinations, and recommendations of the first two PLHCPs; and

(B) Conduct such examinations, consultations, laboratory tests and discussions with the prior PLHCPs as the specialist deems necessary to resolve the disagreements of the prior health care professionals.

(v) The written opinion of the specialist shall be the definitive medical determination. The employer shall act consistent with the definitive medical determination, unless the employer and employee agree that the written opinion of one of the other two PLHCPs shall be the definitive medical determination.

(vi) The employer and the employee or authorized employee representative may agree upon the use of any expeditious alternate health care professional determination mechanism in lieu of the multiple health care professional review mechanism provided by this paragraph so long as the alternate mechanism otherwise satisfies the requirements contained in this paragraph.

* * * * *

(n) *Dates.*

* * * * *

(2) *Start-up dates.* (i) Initial monitoring required by paragraph (d)(2) of this section shall be completed according to the following schedule:

(A) For employers with fewer than 20 employees, within 300 days after the effective date of this section.

(B) For polyurethane foam manufacturers with 20 to 99 employees, within 255 days after the effective date of this section.

(C) For all other employers, within 150 days after the effective date of this section.

(ii) Engineering controls required under paragraph (f)(1) of this section shall be implemented according to the following schedule:

(A) For employers with fewer than 20 employees: within three (3) years after the effective date of this section.

(B) For employers with fewer than 150 employees engaged in foam fabrication; for employers with fewer than 50 employees engaged in furniture refinishing, general aviation aircraft stripping, and product formulation; for employers with fewer than 50 employees using MC-based adhesives for boat building and repair, recreational vehicle manufacture, van conversion, and upholstering; for employers with fewer than 50 employees using MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making and/or floor refinishing and resurfacing: within three (3) years after the effective date of this section.

(C) For employers engaged in polyurethane foam manufacturing with 20 employees or more: within thirty (30) months after the effective date of this section.

(D) For employers with 150 or more employees engaged in foam fabrication; for employers with 50 or more employees engaged in furniture refinishing, general aviation aircraft stripping, and product formulation; for employers with 50 or more employees using MC-based adhesives in boat building and repair, recreational vehicle manufacture, van conversion and upholstering; and for employers with 50 or more employees using MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making and/or floor refinishing and resurfacing: within two (2) years after the effective date of this section.

(E) For all other employers: within one (1) year after the effective date of this section.

(iii) Employers identified in paragraphs (n)(2)(ii)(B), (C), and (D) of this section shall comply with the requirements listed below in this subparagraph by the dates indicated:

(A) Use of respiratory protection whenever an employee's exposure to MC exceeds or can reasonably be expected to exceed the 8-hour TWA PEL, in accordance with paragraphs (c)(1), (e)(3), (f)(1) and (g)(1) of this section: by the applicable dates set out in paragraphs (n)(2)(ii)(B), (C) and (D) of this section for the installation of engineering controls.

(B) Use of respiratory protection whenever an employee's exposure to MC exceeds or can reasonably be expected to exceed the STEL in accordance with paragraphs (e)(3), (f)(1),

and (g)(1) of this section: by the applicable dates indicated in paragraph (n)(2)(iv) of this section.

(C) Implementation of work practices (such as leak and spill detection, cleanup and enclosure of containers) required by paragraph (f)(1) of this section: by the applicable dates indicated in paragraph (n)(2)(iv) of this section.

(D) Notification of corrective action under paragraph (d)(5)(ii) of this section: no later than (90) days before the compliance date applicable to such corrective action.

(iv) Unless otherwise specified in this paragraph (n), all other requirements of this section shall be complied with according to the following schedule:

(A) For employers with fewer than 20 employees, within one (1) year after the effective date of this section.

(B) For employers engaged in polyurethane foam manufacturing with 20 to 99 employees, within 270 days after the effective date of this section.

(C) For all other employers, within 255 days after the effective date of this section.

* * * * *

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