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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 260 and 261

[FRL-4804-9]

Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Wastes From Wood Surface Protection

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is issuing a final hazardous waste listing determination for wastes generated from the use of chlorophenolic formulations in wood surface protection processes. Upon reviewing the public comments received on its proposal of April 27, 1993, the Agency has decided not to list wastes from the use of chlorophenolic formulations in wood surface protection processes. As a result of this determination, EPA is not mandating in this rule any specific operating or information collection requirements for owners/operators of wood surface protection plants. If, however, use of chlorophenolic formulations resumes in the future, the Agency would very likely re-evaluate this decision not to list. This rule also finalizes the proposed amendment of SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") to include Method 4010 (Immunoassay Test for the Presence of Pentachlorophenol). In addition, the Agency is adding the following four chemicals to 40 CFR part 261, Appendix VIII: Sodium and potassium salts of pentachlorophenol and tetrachlorophenol.

EFFECTIVE DATE: January 4, 1994.

ADDRESSES: The official record for this rulemaking is identified as Docket Number F-93-F33F-FFFFF and is located in the EPA RCRA Docket, room M2616, 401 M Street, SW., Washington, DC 20460. The public must make an appointment to review docket materials by calling (202) 260-9327. The docket is open from 9 a.m. to 4 p.m., Monday through Friday, excluding holidays. The public may copy up to 100 pages from the docket at no cost. Additional copies cost $0.15 per page.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA/Superfund Hotline at (800) 424-9346 (toll-free) or (703) 920-9810 in the Washington, DC metropolitan area. The TDD hotline number is (800) 553-7672 or (703) 486-3323. For technical information on specific aspects of this rulemaking, contact Mr. David J. Carver at (202) 260-6775, Office of Solid Waste (Mailcode 5304), U.S. EPA, 401 M Street, SW., Washington, DC 20460. For technical information relating to the amendment of SW-846, contact Ms. Gail Hansen at (202) 260-4761, Office of Solid Waste (Mailcode 5304), at the same address provided above.

SUPPLEMENTARY INFORMATION: The contents of today's preamble are listed in the following outline:

I. Legal Authority

These regulations are being promulgated under the authority of sections 2002(a) and 3001(b) and (e)(1) of the Solid Waste Disposal Act, as amended, 42 U.S.C. 6912(a), 6921(b) and (e)(1), and 6922 (commonly referred to as RCRA).

II. Background & Summary

A. Background

Under section 3001(e) of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), EPA is required to make a hazardous waste listing determination for wastes containing chlorinated dioxins and dibenzofurans. As part of this mandate, the Agency began an investigation in 1988 of dioxin-containing wastes from wood preserving and wood surface protection processes. Three categories of wastes from wood preserving processes were listed as hazardous wastes in 1990, (F032, F034, and F035, see 55 FR 50450). A final listing determination for wood surface protection process wastes were deferred due to lack of data (53 FR 53282). In 1991, the Agency began a separate study of the surface protection industry in an effort to obtain sufficient information upon which to base a hazardous waste listing determination. The Agency, upon obtaining and evaluating information, published a proposed rule on April 27, 1993 which proposed a concentration-based hazardous waste listing option and requested comment on an alternative option not to list these wastes as hazardous (58 FR 25707). Details of the options can be found in the following section to this preamble. A detailed summary of all Agency actions related to wood surface protection wastes was provided in the April 27, 1993 proposal (58 FR 25707). The reader is encouraged to consult that document for more information on the wood surface protection rulemaking history.

In accordance with a proposed consent decree signed by EPA and the Environmental Defense Fund (EDF) in *EDF* v. *Browner* (U.S. District Court for the District of Columbia, case no. 89-0591), the Agency has agreed to make a final listing determination for chlorophenolic wastes from wood surface protection processes by December 31, 1993.

B. Summary of the Wood Surface Protection Regulation

After considerable review and study of the rulemaking docket for this action, including comments received on the proposal, the Agency has determined that listing as hazardous wastes from surface protection operations is unnecessary and will not yield the benefits intended by a hazardous waste listing under the RCRA program. This section summarizes elements of the proposed rule of April 27, 1993 (58 FR 25707), and details the conclusions reached in developing this final rule. The reader is cautioned that although some of the highlights brought up in the proposed rule are described below, the majority of information on the industry itself as well as the detailed risk assessment on which the initial proposed rule was based is found in the preamble and background documents to the proposed rule. The information contained in this final rule is primarily concerned with developments subsequent to the proposed rule. This rule describes, in detail, the Agency's justification for not listing wastes from surface protection processes that use chlorophenolic formulations. In addition, it summarizes the Agency's response to comments received on the proposal.

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III. Overview of the Proposed Rule

The April 27, 1993 proposal discussed and requested comment on each of the following:

(1) Proposing a concentration-based hazardous waste listing for certain wood surface protection wastes,

(2) Proposing various testing, analysis, recordkeeping requirements and management standards for wood surface protection plants,

(3) Adding six hazardous constituents to appendix VIII of 40 CFR part 261,

(4) Amending of appendix VII of 40 CFR part 261 by adding F033 and the hazardous constituents found in the wastes,

(5) Modifying the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list of hazardous substances to reflect the newly proposed listing,

(6) Amending SW–846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") to include Method 4010 (Immunoassay Test for the Presence of Pentachlorophenol), and

(7) An alternative option not listing chlorophenolic wastes as hazardous.

The Agency proposed to list as hazardous at 40 CFR 261.31 only those wastes from wood surface protection processes using a formulation with a pentachlorophenate concentration greater than 0.1 ppm. Under this proposed option, surface protection operations using formulations with pentachlorophenate concentrations equal to or less than 0.1 ppm would not generate F033 listed wastes. The Agency proposed this concentration-based listing because it had information which suggested that many surface protectors who previously used chlorophenolics did not sufficiently clean out equipment prior to abandoning the use of chlorophenolics. Because of this, many formulations from past users of chlorophenolics exhibit "cross-contamination," the contamination of current formulations by dioxins and chlorophenolic compounds from old formulations. The rule proposed the following hazardous waste listing description for the F033 waste code and included the following specific waste streams from process operations:

> F033:Process residuals, wastewaters that come into contact with protectant, discarded spent formulation, and protectant drippage from wood surface protection processes at plants that use surface protection chemicals having an in-process formulation concentration of pentachlorophenate (expressed as pentachlorophenol during analysis) exceeding 0.1 ppm. (T)

Along with this option, various testing and recordkeeping requirements were proposed. For an owner/operator to demonstrate that he/she is not generating F033 wastes, EPA proposed formulation testing requirements for all surface protection plants. All owner/operators of wood surface protection plants would be required to test their formulation to determine the concentration of pentachlorophenate if the owner/operators wanted to avoid generating F033 wastes. If the analysis showed a concentration at or below 0.1 ppm, the owner/operator would be required to sign a certification to that effect and maintain records on site related to the testing procedure. This testing proposed an analysis using a method listed within the EPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW–846). The Agency proposed to add Method 4010 to SW–846. Method 4010 is an immunoassay test for the presence of pentachlorophenol, which determines whether a sample is above or below a set limit (such as the 0.1 ppm concentration level proposed).

Under the proposal, if analysis showed that a facility's formulation contains pentachlorophenate at levels exceeding 0.1 ppm, then the wastes generated from surface protection at that facility would be F033 wastes and the owner/operator would be subject to additional operating requirements proposed as subpart T of parts 264 and 265. For details on the specific operating requirements, the reader should refer to the proposed notice (58 FR 25706).

A number of the constituents of concern that are present in wastes generated from wood surface protection processes which use chlorophenolic formulations do not appear on the list of hazardous constituents at 40 CFR part 261, appendix VIII. The Agency proposed to add six hazardous constituents to appendix VIII: sodium pentachlorophenate, potassium pentachlorophenate, the sodium salt of 2,3,4,6-tetrachlorophenol, the potassium salt of 2,3,4,6-tetrachlorophenol, octachlorodibenzo-p-dioxin (OCDD) and octachlorodibenzofuran (OCDF).

Sodium and potassium pentachlorophenate are the sodium and potassium salts of pentachlorophenol. These salts were proposed for addition to appendix VIII of 40 CFR part 261 since, as a result of gastric secretions following ingestion, the sodium and potassium salts of pentachlorophenol and 2,3,4,6-tetrachlorophenol are readily converted to the corresponding phenols by acidification. Therefore, the sodium and potassium salts are reasonably expected to elicit the same health effects as the corresponding phenols. For this reason, the Agency proposed to add these four compounds to the list of hazardous constituents in appendix VIII of 40 CFR part 261.

The Agency also requested comment on an option not to list as hazardous wastes generated from surface protection processes. The Agency included the so-called "no-list" option in the proposal because the future generation of chlorophenolic wastes is expected to diminish rapidly to zero and because the results of risk analyses show that the risks from the dominant exposure pathways are relatively modest, assuming the widespread use of chlorophenolic formulations does not resume. The Agency believed at the time of the proposal that reintroduction of chlorophenolic formulations into the market place in the future was not likely to occur. EPA also noted that the Agency would always have the option of reconsidering the listing determination should chlorophenolic surface protection formulations be reintroduced in the future.

IV. Summary of Public Comments and Responses

Comments received on the proposed rule are placed under two separate headings for purposes of this summary. The first addresses the more general comments associated with the proposal, including those relating to: (1) General implementation issues of a listing for wastes generated by the wood surface protection industry; (2) technical approaches discussed in the proposal relating to data sampling methodologies; and (3) various engineering assumptions on which the proposed listing was based. The second part of this section describes the Agency's response to comments dealing with the risk assessment methodology used to support the listing determination for these wastes.

A. General Comments

Several comments were submitted on the proposed listing of F033 wastes. Four commenters supported the listing in general and two commenters supported the concentration-based approach in particular. Three commenters opposed the proposed listing and urged EPA to rely on its authority under FIFRA to control the risks posed by chlorophenolic formulations. One commenter supported an outright ban on the use of chlorophenolics for wood surface treatment.

Two commenters warned that listing F033 wastes would hinder remediation efforts at contaminated wood surface protection sites. The Agency agrees with

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the commenters' point that a hazardous waste listing may provide a disincentive for owner/operators of surface protection plants to initiate voluntary remediation efforts. The regulation of potentially large amounts of contaminated soil as listed hazardous waste could delay the start of cleanup due to the administrative and economic realities of regulatory compliance.

Three commenters expressed concern over the possibly perceived interchangeability of the proposed 0.1 ppm concentration level and the Toxicity Characteristic (TC) regulatory level for pentachlorophenol. Although the Agency is not finalizing the F033 hazardous waste listing, EPA nevertheless wants to make clear that the concentration level proposed in the F033 listing description was not intended as a regulatory level for any purpose other than defining a waste as F033. The current regulatory level for pentachlorophenol that defines a waste as hazardous under the TC (100 mg/L) would not have been affected by this rulemaking in any way had the F033 listing been promulgated today. Levels set for the TC are obtained by running models which simulate acidic landfill conditions. For the proposed listing, the proposed 0.1 ppm level was calculated using a Maximum Contaminant Level (MCL) of 0.001 ppm and a risk analysis using the Agency's Multi-med model. Multi-med simulates groundwater contamination from specific sources, and for this proposal, it incorporated variables which are specific to sawmill conditions. The Agency's analysis approximated the dilution of pentachlorophenate from the time the waste contacts the ground to when it reaches a ground water well. The Agency did not arrive at the 0.1 ppm level by applying a dilution attenuation factor (DAF) of 100 (as the Agency has done in other circumstances) to the MCL. Indeed, the Agency did not take a position in the proposal about the use of DAFs in calculating acceptable risk levels for any constituents. A detailed discussion of the Agency's modeling assumptions and actual parameters used to generate risk approximations can be found in the docket for the proposed rule.

One commenter expressed reservations regarding the decontamination procedures promulgated previously for wood preserving equipment (55 FR 50482–50483, December 6, 1990). The Agency is aware that equipment cleaning will not always prevent cross-contamination. However, it will certainly reduce the amount of contamination that would occur if no equipment cleaning took place. Although the Agency is not finalizing the proposed F033 hazardous waste listing, EPA encourages owner/operators of surface protection plants to clean or replace any surface-treating equipment that was used previously with chlorophenolic formulations upon a switch to non-chlorophenolic chemicals and properly dispose of the wastes in an environmentally sound manner. Furthermore, the Agency has obtained information which shows that some new substitute products are more effective if residual chlorophenolic contamination is removed. Hence, removing sludge and cleaning equipment from previous chlorophenolic use will not only be more environmentally sound, but may also enhance the new products effectiveness. Methodology on recommended cleaning and operating practices for surface protectors will be published in the near future by the Agency in a pollution prevention and waste minimization guidance document.

One commenter suggested that the proposed operating standards for surface protection plants be codified in part 262 as opposed to parts 264/265. The commenter reasoned that most surface protection plants are only generators and do not function as treatment, storage, and disposal facilities (TSDFs). However, since the F033 hazardous waste listing is not being promulgated, this issue is moot and there is no need for special generator requirements.

Several commenters had specific concerns about the applicability of the proposed F033 listing. Since the Agency is not finalizing the proposed F033 listing, these concerns are also moot. However, where appropriate, answers specific to each of these comments have been addressed in the background document of this final rule.

One commenter questioned the representativeness of the Agency's data on cross-contamination. The commenter stated that because sites were not randomly selected, there is no true sample representation of the surface protector population. EPA did not choose sampling sites based on their statistical representativeness. Rather, the sites were selected as appropriate from what the Agency considered to be typical operating plants. The Agency visited more than 15 surface protection sites in the Nation (both large and small plants). From the information obtained from these plant tours and interviews, the Agency developed a view of what it considered typical from an engineering standpoint (*e.g.* size of equipment, production scale, presence of containment systems, size of storage yards, amount of drippage, etc). The sites sampled need not represent the entire surface protection industry in terms of the process used and the degree of cross-contamination present to allow the Agency to demonstrate that wastes from current and previous use of chlorophenolics at surface protection sites were contaminated with the constituents of concern. These sites were chosen from information obtained by a questionnaire sent out under the Agency's 3007 RCRA authority.

B. Comments Regarding Risk Assessment

Five commenters responded to the risk assessment presented in the proposed rule. One commenter stated that the EPA incorrectly converted units of measurement in the record sampling data used for the risk assessment causing the overestimation of incremental risk for the fish/shellfish consumption and soil ingestion pathways by a 1,000-fold. The EPA agrees with the commenter. The dioxin concentrations in the formulation at one of the affected facilities (Aquasco, MD) were reported in the wrong units, causing a 1,000-fold error to be incorporated into the risk estimates for the fish and shellfish ingestion and soil ingestion scenarios. When this error is corrected, the TCDD-TEQ dioxin levels used as the source concentration (the concentration of formulation dripping onto the ground) for affected facilities (cross-contamination from past use of chlorophenolic formulations) and used in the lifetime individual risk estimates for the soil ingestion scenario and fish and shellfish ingestion scenario were reduced by a 1,000-fold. The lifetime individual risk values using the corrected data are presented in Table 1.

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TABLE 1.—INDIVIDUAL RISK FROM CROSS-CONTAMINATION FROM PAST USAGE OF CHLOROPHENOLIC FORMULATIONS FROM FISH AND SHELLFISH INGESTION

Population	Recreational fishers		General population	
	Central tendency	High end	Central tendency	High end
Constituent: 2,3,4,7,8-TCDD TEQ[1]	2E–12	3E–11	8E–13	1E–11

[1] Excess lifetime cancer risk.

The estimated risk to any one individual using the corrected values are 1,000-fold lower than the risk estimated in the proposed rule from cross-contamination due to past use. In this case for the typically exposed individual in the general population, the incremental risk of developing cancer is a chance of 0.8 in a trillion (8E–13); in the recreational fisher person, the risk of developing cancer is increased by only 2E–12. The estimated incremental population risk is also reduced, after correction, approximately by a 1,000-fold, to 0.0002 cases/70 years for the anticipated increase in the development of cancer as a result of exposure to ingestion of fish/shellfish contaminated with wastes from the use of chlorophenolic formulations for wood surface protection. Chart 1 in Section V Part A of this final rule shows the original values reported in the April 27, 1993 proposed notice.

The soil ingestion scenarios also were based on the storage yard soil concentrations. The soil ingestion scenario assumed that children ages 1 to 6 could come into contact with the contaminated soil at the sawmill sites because sawmill sites could be converted to rural residential land use and the child's play area could be located on the area previously used as a storage yard area. The lifetime individual risks, using the corrected formulation concentration values for dioxin, associated with the soil ingestion scenario for cross-contamination from past users of chlorophenolic formulations are presented in Table 2.

TABLE 2.—INDIVIDUAL RISK FROM CROSS-CONTAMINATION FROM PAST USAGE OF CHLOROPHENOLIC FORMULATIONS FROM DIRECT SOIL INGESTION

Source	Storage yard	
	Central tendency	High end
Constituent: 2,3,7,8-TCDD TEQ[1]	7E–10	2E–9

[1] Upper bound excess lifetime cancer risk.

The estimates presented in Table 2 show that the incremental risks from direct soil ingestion by children are below what the Agency considers a level of concern. A child exposed to storage yard soils cross-contaminated by past users of chlorophenolics under typical conditions (consumption of 0.1 gram of soil/day for 160 days/year for six years) would be subject to an increased cancer risk of 7E–10 over a lifetime, or a chance of 0.7 in a billion. The estimated incremental population risk is also reduced approximately 1,000-fold (to 4E–7 cases per year over a 70-year period) for the anticipated increase in the development of cancer as a result of exposure to direct ingestion of soil contaminated with wastes from the use of cross-contaminated formulations for wood surface protection.

One commenter remarked that the EPA failed to specifically address the incremental risks to subsistence fisher persons from consumption of fish/shellfish contaminated from the use of chlorophenolic formulations for wood surface protection. EPA agrees that the risks to highly exposed sub-populations should be considered. The fish ingestion scenarios developed for the proposed rule considered exposure to a general population and recreational fisher at the outflow of a drainage area containing surface protection facilities.

EPA used the analysis for the high end recreational fisher to approximate the risk to the subsistence fisher. Recent data show that the high end ingestion rate for a subsistence fisher is greater than for a recreational fisher by a factor of approximately 2. Therefore, the incremental risk for a subsistence fisher would not exceed a level of concern, since the projected risk to recreational fishers is much less than 10^{-6}.

The analysis of risks from fish consumption assumes that all fish in the drainage basin are contaminated. The estimates of PCDDs and PCDFs in fish tissue are based on sediment concentrations of these constituents. The sediment concentrations are estimated based on the erosion of contaminated soils from sawmill sites in a river or stream basin and subsequent dilution of contaminant levels by the erosion of uncontaminated soils from the corresponding drainage basin.

The projected risk levels increase as the size of the drainage area decreases, due to the relatively lower amounts of uncontaminated soil in smaller drainage basins. EPA performed an analysis which shows that, even with all exposure parameters set at values which would maximize the overall estimate of exposure, in order to reach a risk level of 10^{-6}, the drainage area would need to be 8,000 hectares or less, which is smaller than the smallest drainage area in the country. The average drainage area is 440,000 hectares, and the lower fifth percentile of the size distribution is 109,000 hectares.

With regard to the fish/shellfish ingestion scenario, one commenter maintained that the fish/shellfish ingestion scenario should have been performed on a site-specific basis (*i.e.* EPA should have used parameters seen at individual sites), because not all sawmills are located on streams with commercial fisheries. The EPA chose the fish/shellfish ingestion scenario to be protective of the recreational fisher persons and the general population. The risk analysis was structured so that the hydrologic cataloguing unit (or watershed) was the basic unit of analysis to ensure that the contaminated sediment would be associated with a body of water large enough to support

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fish hatcheries and recreational fisher persons. When these assumptions were used in the fish/shellfish ingestion scenario using corrected values for dioxin found in formulation for PCDDs and PCDFs, the incremental risk to individuals with high-end exposures remains well below 1×10^{-6}.

With regard to the Universal Soil Loss Equation (USLE), one commenter asserted that the equation is overly conservative for estimating soil erosion from surface protection sites. This equation models the amount of soil which is dumped into a drainage area containing fish. For a more detailed description of the model, the reader is referred to background document of the proposed rule. The EPA believes that, although this may be a conservative approach, it is the best method currently available. It has been used to support other EPA rulemakings and guidance documents. The most notable example being the Assessment of Risks from Exposure of Humans, Terrestrial and Avian Wildlife, and Aquatic Life to Dioxins and Furans, from Disposal and Use of Sludge from Bleached Kraft and Sulfite Pulp and Paper Mills.[1] Even using these conservative assumptions, the incremental risks from cross-contamination at these sites are not at a level of concern.

One commenter suggested that the population risks attributable to the contaminated fish/shellfish ingestion scenario were too high because the entire U.S. population was considered to be exposed. EPA disagrees and believes it is appropriate to consider the consumption rate of the entire population in estimating risk to the general population from this exposure pathway. However, an adjustment of 0.4 was made to the diet fraction to account for the fact that not all fish are contaminated. Thus, only some percentage of the population would be affected by the contaminated fish. As discussed in the Risk Assessment Background Document for the proposed rule, the 0.4 diet fraction was derived by estimating the percentage of rivers and streams (i.e., cataloguing units) that have at least one sawmill. A second adjustment was made in the calculation of population risk to account for the percentage of sawmills that operate surface protection processes (about 30% of the entire number of sawmills nationally). Population risk for the fish/shellfish ingestion scenario has been recalculated for the final rule using the corrected incremental storage yard soil TCDD-TEQ concentrations. The corrected estimate of incremental population risk from cross-contamination is three orders of magnitude lower than the risk originally stated in the proposed rule. The corrected number of cancer cases expected in 70 years is now 0.0002.

One commenter asserted that the soil ingestion scenario was overly conservative because all of the soil consumption was attributed to contaminated storage yard soil and no consumption of "indoor dust" was considered. EPA considered only the consumption of storage yard soil in order to be protective of human health. The range of soil ingestion rates for average children aged 1 through 6 is presented in the EPA's Exposure Factors Handbook (1990) as 0.2 to 0.8 grams per day. These estimated values were determined from the clay content of fecal samples taken from children in this age group and thus represent consumption of soil. However, the percent of this consumption that is attributed to house dust is unknown, as is the contaminant concentration in the house dust. The EPA has recalculated the soil ingestion scenario using the corrected incremental TCDD-TEQ concentrations obtained from the formulation sample. The incremental risk estimated is below 1E–6, using the conservative assumptions. The Agency's risk levels are particularly protective with the use of these conservative assumptions, thereby further lending support to the Agency's decision not to list these wastes.

One commenter stated that children are unlikely to consume sediment at the same rate that they consume soil. The Agency agrees, but notes that sediment consumption by children was not considered as an exposure pathway in the proposed rule. The Agency does not feel that this exposure pathway is a significant one in making a determination whether or not to list chlorophenolic wastes since the exposure areas of concern are relatively small and any land conversion which could take place would most likely require soil testing prior to land development.

One commenter stated that the assumptions used to estimate the exposed population in the soil ingestion population risk scenario greatly overestimate the number of exposed children. EPA believes that the scenario may be conservative, but not implausible. The scenario assumes that all sawmill sites are converted to rural residential land use, that the children's play areas are located on the site of the former storage yards, and that the homes are resold to new families with young children every 25 years. These assumptions include a low population density in these areas. It would take only a limited number of sites to be converted to suburban housing or to daycare or school facilities to cause a substantial increase in the exposed population. The incremental population risk estimated using the corrected incremental value for the storage yard soil TCDD-TEQ concentration is 4E–7 cases in 70 years, three orders of magnitude lower than that in the proposed rule.

One commenter maintained that the soil ingestion scenario was questionable because Superfund liabilities, state laws, and lender requirements make land use changes unlikely without site cleanup activities. The EPA agrees that, in some states, land transfers and subsequent land use changes would be unlikely to occur without cleanup. However, not all states are equally diligent in requiring site investigations at the time of property transfer, making the types of land use changes described in the soil ingestion scenario plausible. Because of this, EPA believes it is entirely appropriate to assess risk via the soil ingestion pathway, notwithstanding any risk management decisions that may be made at some future time to address the risk.

Two commenters believed that some of the values used as input parameters to the ground-water model (*i.e.*-recharge rate, regional conductivity, and average depth to water) were too conservative and that more appropriate input parameters should be used in this MULTIMED model. One commenter believed that the Agency had used DRASTIC (a name given to a modelling program used to evaluate the potential which may exist resulting from groundwater pollution) to perform its groundwater modeling. First, the EPA did not use the DRASTIC model in this rulemaking effort; it used the MULTIMED model developed by the Agency to perform groundwater models. The Agency did, however, use some soil and hydrogeologic information (on hydrogeologic regions and subregions collected by Aller *et al.* (1988)) which is used when applying the DRASTIC model. With regard to the parameters felt by the commenter to be too conservative, the EPA supports the values used in the proposed rule (58 FR at 25706 of April 27, 1993). This hydrogeologic information includes

[1] Environmental Protection Agency, 1990. Assessment of Risks from Exposure of Humans, Terrestrial and Avian Wildlife to Dioxins and Furans, from Disposal and Use of Sludge from Bleached Kraft and Sulfite Pulp and Paper Mills. Prepared for the Office of Toxic Substances. Washington, DC by Abt Association, Inc. under contract nos. 68–02–4283, Task 3–02, and 68–D9–0169, Task 1–15. EPA 560/5–90–13. July, 1990.

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many of the input parameters required to run the MULTIMED model, and includes such parameters as depth to water, soil type and hydraulic conductivity, net recharge, aquifer hydraulic conductivity. The EPA selected hydrogeologic subregions in the northwest and southeast United States, excluding subregions where sawmills were not likely to be sited (*e.g.*, mountain slopes or flanks). Since the parameter value ranges presented in Aller *et al.* (1988) are based on compilations of literature values and expert opinion, the values should be viewed as bounding ranges, and are not sufficiently statistically rigorous to estimate true means or parameter distributions. For the average case, "typical" parameter values were obtained by examining the ranges of values in Aller *et al.* (1988) for the selected subregions only and selecting values representing the central tendency of the reported ranges. Similarly, high-end values were selected to represent the high end of the exposure distribution, using the higher end of the range of parameter values deemed likely to occur by Aller *et al.* (1988). EPA recognizes that there are limitations to this approach, largely associated with the non-statistical nature of the data. The Agency believes, however, that this data source is the best available at this time for regional and subregional estimates of the hydrogeologic properties necessary to estimate exposures through the ground-water pathway.

Two commenters felt that the Agency's use of input parameter values used for well location and well intake point were too conservative. EPA derived the horizontal distance to wells from the responses reported in the RCRA's 3007 Industry Questionnaires. Because information was not obtained on the well type or construction, all wells described in the questionnaire were assumed to be possible sources of drinking water and were assumed to be screened to the top of the aquifer, that is, well water was assumed to be drawn off the top of the aquifer where organics are assumed to exist in greater concentrations than when water is drawn from the middle of the aquifer. These assumptions are consistent with similar conservative assumptions used to develop other RCRA regulations, such as the Toxicity Characteristic (55 FR 11798, March 29, 1990).

Two commenters contended that neither biodegradation or chemical degradation rates were considered in the ground-water modeling of pentachlorophenol contamination. These commenters submitted studies showing that biological and chemical degradation of PCP can occur and that adequate biological and chemical degradation rates are available or can be estimated from these studies. EPA has reviewed these studies and agrees that they do indicate that biological and chemical degradation of PCP can occur. The information submitted by the commenters are results from laboratory studies, reporting the results from controlled experiments. However, EPA does not agree that there is sufficient information on unassisted field degradation rates, the geochemical factors that affect degradation, or their spatial variability from site-to-site or region-to-region to model degradation in the field at generic or prototypical sites for regulatory purposes. Moreover, the existence of metabolites that would confirm the occurrence of biodegradation in the field has not been firmly established. Therefore, EPA does not believe the data warrant an assumption that biodegradation does occur at significant rates at most sites. In addition, the toxicities of potential degradation products have not been characterized. Therefore, the EPA does not believe it is appropriate to consider these mechanisms in this rulemaking.

One commenter suggested that it would be more appropriate to calculate the average peak concentration of pentachlorophenate in groundwater used to reflect a 9-year exposure duration by producing a breakthrough curve of annual concentrations at a well using the MULTIMED model and calculate a series of 9-year or 10-year moving averages. The moving averages would be sorted in descending order and a paper plot prepared. A preferred percentile value could then be selected as the concentration of concern. EPA believes the current method of calculating 10-year time-weighted averages by averaging two 5-year concentrations (including the maximum concentration and the highest adjacent 5-year value calculated from each model run) is an appropriate approach for estimating lifetime individual risk and the Agency selected this approach to be conservative and protective of human health. The 30-year exposure duration scenario uses a time-weighted 30-year average concentration that includes the maximum concentration. Population risk estimates aggregated over 70 years were based on a time-weighted 70-year average concentration that includes the maximum concentration.

One commenter believed that the source concentration used by EPA for PCP in the ground-water ingestion scenario was too high because PCP is no longer in use and, thus, the infiltration to ground water would be reduced. The commenter suggested that source reduction also would occur from erosion of surface soil containing PCP, before it is leached and enters the ground water. EPA addressed the fact that PCP is no longer in use at most facilities in its baseline risk estimates in the proposed rule, which have been revised in the final rule based on comments received to reflect source concentrations and pulse durations (estimated time in which pentachlorophenate is expected to be present in substitute wood surface protection product from time of changeover) more representative of the cross-contamination scenario. While surface runoff and erosion may reduce the amount of PCP available for leaching to ground water, EPA has assumed, for the purpose of its analysis, that any reductions are negligible. The EPA adopted this conservative assumption mainly because of lack of data necessary to quantify such a loss and its effects on ground-water concentrations. Furthermore, EPA does not believe that surface water and erosion will significantly reduce source leachate concentrations. As formulation drips onto the soil it will rapidly penetrate the soil until the soil is saturated. Subsequent rain events may wash off contaminated surface soil, but will not erode deeper soil horizons where most of the contaminant mass resides. Thus, EPA does not consider this assumption to be overly conservative.

One commenter noted that the results of the ground-water analysis were not supported by actual resource damage data. The Agency does not expect, nor does it feel that it is needed, that ground water PCP concentrations predicted by MULTIMED would agree precisely with the resource damage data. The resource damage incidents presented in the background document are intended to illustrate that ground-water contamination from PCP does occur at sawmill facilities, and are not intended as validation points for exposure modeling. Resource damage data were obtained from monitoring and other wells that happened to be in place at a facility when the sampling was conducted. There are a number of possible reasons why sampling data from the resource damage incidents may not reflect well-water concentrations predicted by the model, in particular the location of the wells with regard to plume centerline and ground-water flow direction, and the timing of peak plume concentrations at the wells.

The latter point is especially important because, depending on patterns of past PCP use and the well

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location, the peak concentration in the plume may not have reached or may have passed the well(s) sampled. In these resource damage cases, sufficient information was not available to determine the placement and design of these wells with respect to the site's hydrogeology or possible plume locations and travel time. Thus, it is not possible to use these data points for validation of model results. However, it should be noted that the model-estimated ground-water PCP concentrations in the final rule are similar to those reported from resource damage incidents. When the revised average source concentration was used in the ground-water model, the estimated concentrations for PCP in ground water (average = 0 .005 mg/L; high-end = 288 mg/L) are in a reasonable agreement with the values reported in the resource damage accounts (<0.001 to 45 mg/L).

One commenter disagreed with the use of MULTIMED in that it was not as "robust" or well-tested as the Monte Carlo-based EPACML model used for the TC rule. Another commenter recommends the use of the Monte Carlo approach for all input parameters in the modeling effort. First, it is important to note that the MULTIMED ground-water model is the same model as used in EPACML except for the manner in which input parameters are specified. EPACML can only be run in a probabilistic, Monte Carlo mode, while MULTIMED allows Monte Carlo runs as well as for individual input parameters to be specified and fixed. The ground-water flow and transport model components are the same for MULTIMED and EPACML. Second, the Agency did not pursue a probabilistic, Monte Carlo-based approach when developing input parameters for this modeling effort due to the fact that using this sophisticated technique requires knowledge and proper specification of input parameter distributions, and variable independence or proper specification of joint probability parameter distributions. When these requirements cannot be met, the Monte Carlo approach will not provide better estimates than a scenario-based approach.

EPA has adopted a scenario-based regional modeling approach that uses input parameters developed for regions of the U.S. where sawmills are more prevalent. In this approach, EPA uses average and high-end values for estimating model input parameters on a regional basis because information does not exist on the actual means and distributions of these parameters for the regions modeled. The Agency believes that this approach is an appropriate one and, furthermore, that the resulting model estimates bracket or bound the uncertainty associated with the model input parameters.

Two commenters questioned the use of cancer as the endpoint of concern for 2,3,7,8-TCDD. EPA disagrees. The cancer endpoint for TCDD was selected because it is the most sensitive endpoint for which qualitative dose response data are available. 2,3,7,8-TCDD has been demonstrated to be a potent carcinogen in animals and has been classified as a B2 (potential human) carcinogen. Recently published epidemiological studies of occupationally exposed individuals report significant increases in cancer mortality. 2,3,7,8-TCDD also has potent reproductive and teratogenic endpoints and enough data exist to estimate a reference dose (RfD) based on these alternative short-term effects. (For a detailed discussion of this information, and for references to studies supporting these conclusions, the reader is referred to the background document of the proposed rule.) However, if health-based levels (HBLs) are calculated using the reproductive effect RfD, the exposure level is an order of magnitude higher than the level calculated using the carcinogen slope factor (CSF). Thus, if the cancer endpoint is used as the basis for calculating a permissible exposure level, it also will be protective against short-term exposures such as those associated with reproductive effects.

The issue of 2,3,7,8-TCDD toxicity is being reassessed by EPA (outside the framework of this rulemaking) and all endpoints are being considered. TCDD has been observed to express a wide variety of effects including teratogenesis, reproductive effects, and suppression of the immune system function in many species. Mechanistic approaches to understanding and identifying toxic effects levels are also being considered. Until the reassessment process has been completed, the EPA will continue to use the current carcinogenicity endpoint CSF value that has been accepted as the basis for the MCL.

Two commenters noted limitations associated with the use of the Toxicity Equivalence Factors (TEF's) methodology. They argued that the TEF methodology should not be used to justify the addition of appendix VIII in the absence of valid toxicological studies that demonstrate actual health effects associated with exposure to these compounds. One commenter questioned the proposal to add Octachlorodibenzo-p-dioxin (OCDD) and Octachlorodibenzofuran (OCDF) to 40 CFR part 261, appendix VIII. The commenters stated that neither compound has been shown to produce toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. The Agency has decided not to add, at this time, OCDD and OCDF to appendix VIII of 40 CFR part 261. Although the original basis for including these congeners on appendix VIII remains valid (details of which can be found in the background document supporting this final rulemaking), the Agency is investigating further the information submitted by the commenters regarding the effects of OCDD and OCDF reported in the Couture, Elwell, and Birnbaum study used to support the decisions made in the "Interim Procedures for Estimating Risks Associated with Exposures of Mixtures of Chlorinated Dibenzo-p-dioxins and Dibenzofurans and the 1989 Update". OCDD and OCDF are the most prevalent of the PCDD and PCDF congeners accounting for approximately 85 percent of the total CDD and CDF present in five of the six storage yard soil samples. OCDD has been shown to exhibit "dioxin-like" toxicity in male rats when administered in small doses in a sub-chronic toxicity study.[2] These findings have been confirmed by a second sub-chronic study conducted in female rats.[3] OCDD and OCDF have not exhibited toxicity in short term studies; however, acute exposure is not the only concern of EPA. The Agency is currently re-evaluating its original assessment of risks from dioxin. At this point, the Agency wishes to conclude its on-going reassessment before adding OCDD and OCDF to appendix VIII of 40 CFR part 261.

One commenter questioned the conclusion that soil contamination presents no risk to wildlife. The EPA recognizes that concentrations that are protective of human health may not necessarily always be protective of wildlife. However, in view of the relatively small areas occupied by sawmills and the low concentration of TCDD–TEQ in storage yard soil from cross contamination, the EPA believes the incremental risks to wildlife will be below a level of concern.

[2] Couture, L.A., M. R. Elwell, and L. S. Birnbaum. Dioxin-like effects observed in male rats following exposure to octachlorodibenzo-p-dioxin (OCDD) during a 13-week study. Toxicology and Applied Pharmacology, Vol. 93, pp 31–46, 1988.

[3] Hermelinger, N., N. Poiger, and C. Schlatter. Results of a 9-month feeding study with OCDD and OCDF in rats, Organohalogen Compounds, Vol. 1, 1990, pp. 221–224.

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V. Overview of the Final Rule

This final rule makes final the Agency's hazardous waste listing determination for chlorophenolic wastes generated at wood surface protection plants. EPA believes that listing as hazardous chlorophenolic wastes from surface protection operations is unnecessary for reasons described in Part A of this preamble.

This document also amends SW-846 (Test Methods For Evaluating Solid Waste, Physical/Chemical Methods) by adding Method 4010 (Immunoassay Test for the Presence of Pentachlorophenol). This action is discussed in Section VI of this preamble.

This final rule also adds four chemicals to the list of hazardous constituents at 40 CFR part 261, appendix VIII. These four chemicals are: (1) Sodium pentachlorophenate, (2) potassium pentachlorophenate, (3) sodium tetrachlorophenate, and (4) potassium tetrachlorophenate. A discussion of this action is found in part C of this section.

A. Basis for the Determination Not To List as Hazardous Wastes From Wood Surface Protection Operations

As discussed in the proposed rule, in making a hazardous waste listing determination, the Agency applies a "weight-of-evidence" approach. In doing this, the Agency examines the risks associated with all potential human health and environmental exposure pathways, analyzes trends in the current industry, researches past damage incidents, as well as other factors found in 40 CFR 261.11.

Upon reviewing and responding to comments received on the proposed rule, the Agency has decided not to list as hazardous wastes from the use of chlorophenolic formulations in the wood surface protection industry for several reasons.

First, chlorophenolic formulations are no longer being produced in the United States and the Agency believes it is very unlikely they will be produced in the future. The only remaining producer of chlorophenolics in the U.S., Chapman Chemicals, stopped production in January of 1992 and sometime later applied for voluntary cancellation of its FIFRA product registration. A notice describing this action was published in the **Federal Register** on June 3, 1992 (57 FR 23401), and a final cancellation order was sent to Chapman Chemicals with an effective date of September 14, 1992. This cancellation notice applies to the following products produced by Chapman Chemicals: Permatox 181, 10S, and 101, and Mitrol G-ST. Any manufacturer wishing to resume production of chlorophenolics would have to obtain a new FIFRA registration before these chemicals could be re-introduced and made available for use in wood surface protection. Currently, there remains only one known user of chlorophenolics in the U.S. out of an estimated 1000 previous users and the remaining plant's existing stock is believed to be very limited. A major element in the decision not to list as hazardous chlorophenolic wastes generated from the surface protection industry is the fact that use of chlorophenolic formulations has ceased. EPA believes it is highly unlikely that a manufacturer will seek reregistration for this product for many reasons, including the availability of effective substitute products and the potentially high financial and administrative burdens imposed by the FIFRA registration process. Additional justification to support non-future production is the fact that European countries do not want to accept dioxin-containing wood products which have affected large export mills who will not use chlorophenolic formulations in the future in part for this reason. Use of chlorophenolics for surface protection has declined steadily (even without the influence of RCRA) from over 1,000 users to one user over the past decade. Should a new registration of this product be sought, EPA will consider this surface protection risk analysis for full strength application when determining whether a new listing determination under RCRA should be initiated. Currently, the Agency is aware of nine available substitute products currently being used by surface protectors in place of chlorophenolics. The substitute products are for a large part satisfactory to their users (as mentioned on various site trips), and the Agency does not feel as though a switch back to chlorophenolics is likely.

A second reason why the Agency has decided not to list these wastes is because the risk to human health and the environment from on-going operations which previously used chlorophenolics is shown to tail off quickly because chlorophenolic concentrations diminish to a near zero concentration within a short period of time following switchover to an alternate product. The Agency has determined that the use of full-strength chlorophenolic formulations generates wastes that result in unacceptable risk to human health and the environment. As before mentioned, should the use of chlorophenolics for surface protection applications resume, for any reason, the Agency will most likely re-evaluate its current position. However, dealing with the current situation, there remains only one known user of chlorophenolics with a limited supply remaining.

Although the Agency believes the use of full-strength chlorophenolics will be phased out in the very near future, there was concern at the time of proposal that there may be unacceptable risks posed by the use of substitute products that become cross-contaminated from previous chlorophenolic use. Particularly, the proposal cited possible ground water risks of 2×10^{-4} for individuals and a broad but very low potential exposure risk due to surface run-off contributing to dioxin levels in fish. The Agency received several comments addressing these potential impacts. In response to these comments, the Agency conducted additional ground-water modeling using new pulse assumptions developed from commenter-submitted information. The Agency developed what it believed to be better pulse assumptions in an effort to determine how long pentachlorophenate will be present in on-going operations which have switched over from its past use. This new data was obtained from performing mass balance iterations using typical tank volumes found at both large and small facilities. These mathematical calculations showed that cross-contamination from previous use of chlorophenolics will be present in a substitute products for only two to six years from the time a plant stops using chlorophenolics. The Agency found that the highest estimated risk to an individual from drinking ground water for nine years at peak concentrations in the two- or six-year pulse resulting from cross contamination, is significantly diminished and the broad effect on dioxin levels in fish is reduced by several orders of magnitude. This new analysis shows that the risks associated with cross-contamination do not justify a hazardous waste listing to capture cross-contaminated wastes. In the proposed rule, EPA addressed the fact that PCP is no longer in use at most facilities in its baseline risk estimates, which have been revised in the final rule to reflect source concentrations and pulse durations more representative of the cross-contamination, incremental-risk scenario. Chart 1 below compares the incremental risks from cross-contaminated wastes as calculated for the proposed rule to the values obtained using the new approach.

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CHART 1.—INCREMENTAL RISKS [1] DUE TO CROSS CONTAMINATED WASTES

	Constituent	Significant threat pathway	Central tendency	High end	Population risk
Proposed in NPRM ..	Pentachlorophenate (assumed 30 year pulse).	Ground water	5×10^{-7}	2×10^{-4}	.005
	Dioxin fish and shellfish consumption (general population and recreational fisher).	Soil	18×10^{-10} (general population).	4×10^{-7}, rec fisher.	0.2
	Dioxin soil ingestion	Soil	7×10^{-7}	2×10^{-5}	.0004
Revised	Pentachlorophenate (2 year pulse, for large facilities).	Ground water	6×10^{-7}	2×10^{-5}	.007
	Pentachlorophenate (6 year pulse, for small facilities).	Ground water	2×10^{-6}	6×10^{-5}	0.02
	Dioxin fish & shellfish consumption (recreational fisher).	Soil	2×10^{-12}	3×10^{-11}	NR
	Dioxin fish & shellfish consumption (general pop.).	Soil	8×10^{-13}	1×10^{-11}	.0002
	Dioxin soil ingestion	Soil	7×10^{-10}	2×10^{-9}	4×10^{-7}

[1] Excess lifetime cancer risk.

As shown in Chart 1, population risk is lower than that presented in the proposal for both fish/shellfish consumption and the soil ingestion pathway, due to a unit conversion error in expressing dioxin concentration. The dioxin concentrations in the formulation at one of the affected facilities (Aquasco, MD) were reported using incorrect units, causing a 1,000-fold error to be incorporated into the risk estimates for the fish and shellfish ingestion and soil ingestion scenarios. When this error was corrected, the TCDD-TEQ levels used as the source concentration for affected facilities (cross-contamination from past use of chlorophenolic formulations) and used in the lifetime individual risk estimates for the soil/fish and shellfish ingestion scenarios also were reduced 1,000-fold.

The incremental population risk was revised for the ground-water scenario from an original 0.005 value to between 0.007 and 0.02 cancer cases. This range of 0.007 to 0.02 cancer cases was obtained because two different modelling scenarios were run to generate the extremes of this range. One model run used input parameters which would simulate decay for a small production plant. The input information was obtained from a mass balance iteration which showed that it would take a small plant approximately 6 years to decrease cross-contamination levels to near zero; likewise, the second model used input parameters for large facilities which predicted a two year decline to near zero levels of cross-contamination. The details of the mass balance approach and the resulting change in population risk can be found in the background document for this final rule. The Agency believes that these revised risk levels do not warrant a hazardous waste listing.

Based on the above two main factors (*i.e.* (1) chlorophenolic production stoppage and subsequent chlorophenolic use decline and (2) revised risk due to cross contamination), the Agency looked closely at any potential environmental benefits that may accrue from a hazardous waste listing. Given the market trend, the Agency cannot identify any tangible benefits to be gained from listing wastes generated from the use of chlorophenolic formulations for wood surface protection. Environmental damages caused by previous use of chlorophenolics have already occurred. A listing of these wastes cannot mitigate past damages nor can it force the clean-up of these damages. Such potential jurisdiction exists under current programs. Authority under CERCLA and RCRA 3007 exists even if a decision is made not to list as is the case for this final rule.

Damage to the environment of this magnitude from previous use of chlorophenolic formulations within this industry are not expected to occur in the future unless use of full-strength chlorophenolics resumes. Furthermore, sampling data collected at surface protection sites indicate that dioxin concentrations in storage yards (the largest area of a plant) are below 1 ppb. The heavier contamination that occurs in the process area is confined to a small area and likely will not migrate off-site to environmental receptors. Therefore, the Agency finds that the risks posed by this residual contamination are limited and that a hazardous waste listing would likely simply result in these limited areas of contamination being left in place and not produce an environmental benefit. Thus the effect on past contamination does not justify a hazardous waste listing.

B. Operating Requirements for Surface Protection Plants

Because the Agency is not listing F033 wastes, the operating standards for surface protection plants proposed in the April 27, 1993 notice are not applicable and, thus, are not being finalized. Furthermore, surface protection plants are not required to follow any specific waste management requirements regarding previous use of chlorophenolics as a result of this rule.

C. Addition of Chemicals to Appendix VIII of 40 CFR Part 261

Although this final rule does not list any wastes from wood surface protection processes as hazardous, the Agency believes that certain constituents contained in these wastes warrant inclusion in appendix VIII of part 261. 40 CFR 261.11 provides that "[s]ubstances will be listed on appendix VIII only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms." In the April 27 notice, EPA proposed to add six hazardous constituents of concern found in surface protection wastes to appendix VIII of 40 CFR part 261. Based on the information gathered during this listing investigation, the following four are being added to the list: sodium pentachlorophenate, potassium pentachlorophenate, the sodium salt of 2,3,4,6-tetrachlorophenol, and the potassium salt of 2,3,4,6-tetrachlorophenol. The Agency presented information in the proposed rule and supporting background documents on the adverse effects of these compounds. For those reasons, EPA is finalizing the addition of four of these constituents to appendix VIII of part 261. The Agency is not at this time finalizing the addition of OCDD and

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OCDF to Appendix VIII. As mentioned before, the Agency is investigating further the information submitted by the commenters regarding the effects of OCDD and OCDF reported in the Couture, Elwell, and Birnbaum study used to support the decisions made in the "Interim Procedures for Estimating Risks Associated with Exposures of Mixtures of Chlorinated Dibenzo-p-dioxins and Dibenzofurans and the 1989 Update".

VI. Amendment of SW-846 (Test Methods for Evaluating Solid Waste, Physical/Chemical Methods)

In the notice of proposed rulemaking, the Agency proposed to add Method 4010 (Immunoassay Test for the Presence of Pentachlorophenate) to the Second and Third Editions of SW-846. The purpose behind this proposal was to aid owners/operators of wood surface protection plants with the proposed formulation testing requirement.

With respect to requiring the use of SW-846 methods for testing for the presence of pentachlorophenate in wood surface protection "in-process" formulation, the issue is moot since EPA is not listing any wood surface protection wastes as hazardous. Nonetheless, EPA believes that although no comments were received on Method 4010, Method 4010 is an appropriate method, in general, for testing for the presence of pentachlorophenate or pentachlorophenol and can, therefore, be used in other applications other than for wood surface protection formulation testing. The Agency is, therefore, adding Method 4010 to the Third Edition of SW-846 as Update IIA. We are not adding Method 4010 to the Second Edition of SW-846 since the Third Edition has replaced the Second Edition on August 31, 1993 for use in mandatory applications (58 FR 46040). Method 4010, including its protocol and documentation supporting this action can be found in the docket for this rulemaking. See the "For Further Information" Section in front of this preamble for the EPA contact person for further information or with questions on Method 4010.

VII. Pollution Prevention and Waste Minimization

The Agency is preparing a separate guidance manual recommending voluntary pollution prevention and waste minimization techniques for the lumber industry. Since it has studied the surface protection industry in making a listing determination for wastes generated from the use of chlorophenolic formulations, EPA has gained a broad perspective on the best ways to reduce wastes generated by this wood surface protection industry. The ideas gained from the study are presented in this manual. Some recommended strategies for pollution prevention in the surface protection industry are described in this section. Further information can be found in the manual.

The ultimate goal of pollution prevention is to reduce present and future threats to human health and the environment. Pollution prevention (also referred to as source reduction) is the use of materials, processes, or practices that reduce or eliminate the quantity and/or toxicity of wastes at the source of generation. Pollution prevention is the first step in a hierarchy of options for reducing the generation of waste. The first recommended pollution prevention option is to replace chemical treatment with another type of treatment to achieve surface protection. One alternate is to dry the wood to reduce water content (high water content leads to sapstain). The Agency is aware that this option may not be economically viable for a smaller mill. If such a system cannot be feasibly employed, it would be preferable for a user of chlorophenolic-containing formulations to switch to an alternate formulation.

Other pollution prevention strategies for use within the surface protection industry include: (1) Providing local and general ventilation within the cutting process area to reduce dust that can accumulate on wood; (2) blowing wood with air to reduce the amount of sawdust on wood prior to surface protection; and (3) using drainage collection devices like gutters on rooftops to keep precipitation away from process wastes. The pollution prevention practices described here can be critical to reduce the amount of waste generated. Although the Agency is not listing these chlorophenolic wood surface protection wastes, the pollution prevention practices described in the guidance manual are applicable to any waste generating process. For wastes that cannot be reduced at the source, generators may consider recycling as the next best option.

VIII. Analysis of Potential Costs and Benefits

A. Executive Order Requirements

Executive Order 12866

Under Executive Order 12866, (58 FR 51735 (October 4, 1993)) the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is not a "significant regulatory action" under the terms of Executive Order 12866 and is therefore not subject to OMB review. Nevertheless, the Agency prepared an abbreviated RIA or "Economic Assessment" (EA) in order to examine costs and benefits likely to occur as a result of that action.

B. Description of Costs and Benefits of This Rule

Because the Agency has decided not to list wastes generated from the use of chlorophenolic formulations in surface protection operations, no specific action is required under this Rule. Facilities, however, may choose to take some remedial action as a result of publicity surrounding this action. A detailed analysis of work performed is described in the background document for this final rule.

IX. State Authority

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA program within the State. (See 40 CFR part 271 for the standards and requirements for authorization.) Following authorization, EPA retains enforcement authority under sections 3007, 3008, 3013, and 7003 of RCRA, although authorized States have primary enforcement responsibility.

Before the Hazardous and Solid Waste Amendments of 1984 (HSWA) amended RCRA, a State with final authorization administered its hazardous waste program entirely in lieu of the Federal program in that State. The Federal requirements no longer applied in the authorized State, and EPA could not issue permits for any plants located in the State with permitting authorization. When new, more stringent Federal requirements were promulgated or

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enacted, the State was obligated to enact equivalent authority within specified time frames. New Federal requirements did not take effect in an authorized State until the State adopted the requirements as State law.

By contrast, under section 3006(g) of RCRA, 42 U.S.C. 6926(g), new requirements and prohibitions imposed by the HSWA take effect in authorized States at the same time that they take effect in non-authorized States. EPA is directed to implement those requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so. While States must still adopt HSWA-related provisions as State law to retain final authorization, the Federal HSWA requirements apply in authorized States in the interim.

Although this final rule does not list, as hazardous, chlorophenolic wastes from the wood surface protection industry, it does add four constituents to appendix VIII of 40 CFR part 261. These additions will not be effective in authorized States since the requirements are not being imposed pursuant to HSWA. These requirements will be effective only in those States that do not have final authorization. In authorized States, these requirements will not be applicable until the States revise their programs to adopt equivalent requirements under State law.

Section 271.21(e)(2) of EPA's state authorization regulations (40 CFR part 271) requires that States with final authorization must modify their programs to reflect Federal program changes and submit the modifications to EPA for approval. The deadline by which the States must modify their programs to adopt this proposed regulation, if it is adopted as a final rule, will be determined by the date of promulgation of a final rule in accordance with § 271.21(e)(2). If the proposal is adopted as a final rule, Table 1 at 40 CFR 271.1 will be amended accordingly. Once EPA approves the modification, the State requirements become RCRA Subtitle C requirements.

States with authorized RCRA programs already may have regulations similar to what is being finalized in this rule. These State regulations have not been assessed against the Federal regulations being proposed today to determine whether they meet the tests for authorization. Thus, a State would not be authorized to implement these regulations as RCRA requirements until State program modifications are submitted to EPA and approved, pursuant to 40 CFR 271.21. Of course, States with existing regulations that are not less stringent than current Federal regulations may continue to administer and enforce their regulations as a matter of State law.

It should be noted that authorized States are required to modify their programs only when EPA promulgates Federal standards that are more stringent or broader in scope than existing Federal standards. Section 3009 of RCRA allows States to impose standards more stringent than those in the Federal program. For those Federal program changes that are less stringent or reduce the scope of the Federal program, States are not required to modify their programs. (See 40 CFR 271.1(i).) This proposed rule, if finalized, is neither less stringent than nor a reduction in the scope of the current Federal program and, therefore, states would be required to modify their programs to retain authorization to implement and enforce these regulations.

X. Regulatory Flexibility Analysis

This final rule amends the hazardous waste regulations by adding four chemicals to appendix VIII of 40 CFR part 261 and amending SW–846 by adding Method 4010. These are impacts with negligible effects to small entities. Therefore, there is no need to consider its impacts on small entities by preparing a Regulatory Flexibility Analysis.

XI. Paperwork Reduction Act

This rule does not contain any information collection requirements subject to OMB review under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

List of Subjects

40 CFR Part 260

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous waste.

40 CFR Part 261

Hazardous materials, Waste treatment and disposal, Recycling.

Dated: December 23, 1993.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, chapter I of title 40 of the Code of Federal Regulations is amended as follows:

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

1. The authority citation for part 260 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921–6927, 6930, 6934, 6935, 6937, 6938, 6939, and 6974.

2. Section 260.11 is amended by revising the "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" reference in paragraph (a) to read as follows:

§ 260.11 References.

(a) * * *

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW–846 (Third Edition (November, 1986), as amended by Updates I, II and IIA). The Third Edition of SW–846 and Updates I, II, and IIA (document number 955–001–00000–1) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 783–3238.

* * * * *

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

3. The authority citation for part 261 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, and 6938.

4. Appendix VIII of part 261 is amended by adding the following hazardous constituents in alphabetical order by common name to read as follows:

Appendix VIII to Part 261—Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
*	*	*	*
Potassium pentachlorophenate	Pentachlorophenol, potassium salt	7778736	None

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Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
* * *	* * *	*	*
Sodium pentachlorophenate	Pentachlorophenol, sodium salt	131522	None
* * *	* * *	*	*
2,3,4,6-tetrachlorophenol, potassium salt	same	53535276	None
2,3,4,6-tetrachlorophenol, sodium salt	same	25567559	None
* * *	* * *	*	*

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