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Importation of Solid Wood Packing Material

**Draft Supplement to the Final
Environmental Impact
Statement—February 2007**

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Executive Summary

The United States has faced an ongoing and increasing threat from harmful invasive alien species (pests and pathogens) found in the solid wood packaging material (WPM) that accompanies shipments in international trade. Coping with the risks posed by these pest and disease organisms has become an increasingly important issue for most countries as international trade expands. The dynamic nature of international trade and our increasing knowledge of the pest and pathogen risks associated with WPM make it important for the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) to continue to review and consider additional changes to the regulations, as needed. The final environmental impact statement (FEIS) was prepared in August 2003 for the present WPM regulations. This supplement to the WPM FEIS refines APHIS' previous quantitative analysis of the expected environmental impact associated with international compliance with APHIS' current WPM regulations.

The final rule for importation of wood packaging material (September 16, 2004, 69 *Federal Register* (FR) 55719, Docket No. 02-032-3) was promulgated to provide APHIS with a means to lower the pest risk associated with WPM worldwide in a timely manner. The rule was developed within the framework of international agreements to which the United States is a party. Although interceptions of invasive species in WPM from China and Hong Kong decreased subsequent to the promulgation of the China Interim Rule (September 18, 1998, 63 FR 50099, Docket No. 98-087-1; amended December 17, 1998, 63 FR 69539, Docket No. 98-087-4), interceptions from other parts of the world continued to rise. Serious environmental and economic threats posed from untreated WPM imparted a degree of urgency to the rulemaking process. The mitigation strategy provided by the International Plant Protection Convention's (IPPC) "Guidelines for Regulating Wood Packaging Material in International Trade" (International Standards for Phytosanitary Measures Number 15 (ISPM 15)) set an effective standard that was uniform and equitable to all nations.

The draft environmental impact statement (DEIS) and FEIS for WPM were published in October 2002 and August 2003, respectively. One concern voiced during the comment process was over environmental risks associated with the usage of the fumigant, methyl bromide, as a treatment to mitigate pest risks. Of particular concern was the potential of methyl bromide to deplete the atmosphere's ozone layer. Since no countries were yet obligated to comply with ISPM 15 guidelines at the time of

preparation of the WPM FEIS, APHIS lacked quantitative data about actual worldwide usage of methyl bromide for this purpose.

Regulations promulgated by the Council on Environmental Quality pursuant to the National Environmental Policy Act of 1969 (NEPA) provide that agencies may prepare supplements to a final EIS whenever “the agency determines that the purposes of the Act will be furthered by doing so.” This supplement to the WPM FEIS focuses on preparing a more accurate methyl bromide estimate to ensure that the NEPA documentation adequately informs the public about the anticipated environmental impact of the WPM regulation. Since the promulgation of WPM regulations by many countries to meet the ISPM 15 guidelines, actual information is now available about how exporters in many countries comply with these regulations. The specific information now available regarding how exporters in different countries actually comply with ISPM 15 is new information that is relevant to environmental concerns and bears upon the analysis of potential impacts of the actions associated with APHIS’ wood packaging rule. Therefore, this specific information is used in this supplement to the WPM FEIS to refine the methyl bromide use estimates provided in the FEIS. This supplementation will allow our analysis to more completely and accurately reflect the compliance that is occurring and the potential environmental impacts associated with that compliance.

The quantitative range for the refined methyl bromide use estimate (744 to 2,110 metric tons (MT) per year) is more narrow than the range determined in the WPM FEIS (384 to 4,630 MT per year), but it is encompassed within the range of the WPM FEIS. Although the refined estimates determined for this supplement more accurately portray the range of methyl bromide used for ISPM 15 compliance, the dynamic nature of trade and compliance with trade-related regulations result in the ongoing need for review because this information reflects only the most recent information received. The availability of information about compliance by exporters in some countries is still lacking, and for these countries, this supplement applies conservative assumptions designed to err in favor of overestimating their methyl bromide usage. Through agreement with the provisions of the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, many countries are gradually phasing out uses of methyl bromide for which alternatives exist, including those uses for WPM. However, methyl bromide for quarantine and pre-shipment (QPS) and critical uses is expected to be needed for an extended period of time, such that review of the use of WPM is anticipated to continue at APHIS to ensure that future allotments do not exceed present projections.

Any future selection of alternatives, other than those presently enforced by APHIS, will depend upon changes in world trade and those international agreements related to world trade within which the agency must work. The scientific, economic, and logistical data are not yet adequate to support a comprehensive risk reduction program or a phaseout of WPM to substitute packaging material, but the dynamic nature of trade and phytosanitary regulations may influence further development of the risk-reducing strategies involved in these alternatives. It is conceivable that future phytosanitary guidelines negotiated under the IPPC could provide the framework for mitigating some pest or pathogen risk through packaging materials. In the meantime, APHIS must continue to address the phytosanitary risks by reducing the threat of invasive species in a manner that promotes the harmonization of international regulatory efforts and the facilitation of trade.

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I. Introduction

A. Background

With the continual increase of worldwide trade, there has been a concern for an increasing threat from harmful invasive alien species (pests and pathogens) detected on materials used for trade. Specifically, these harmful invasive alien species have been detected on solid wood packaging material (WPM) that accompanies shipments in international trade. Wooden pallets, crating, and dunnage can harbor environmentally and economically harmful species that use the wood as host material, feed upon it, or hitch a ride on it. It is the role of the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) to protect against harmful invasive alien species and to safely facilitate trade. The regulations in 7 Code of Federal Regulations (CFR) 319.40–1 through 319.40–11 contain provisions to mitigate plant pest risks presented by the importation of logs, lumber, or other unmanufactured wood articles.

The regulations restrict the importation of many types of wood articles including wood packaging material such as pallets, crates, boxes, and pieces of wood used to support or brace cargo. On September 16, 2005, a rule was implemented to enforce the USDA–APHIS import regulation for WPM (see appendix C). The 2004 final rulemaking requires WPM, such as pallets, crates, and boxes, used in international trade to support or brace cargo, to be treated to prevent the introduction of harmful insects to U.S. agriculture and to natural, cultivated, and urban forest resources.

WPM is often reused, recycled, or remanufactured. The implementation of the final rule published on September 16, 2004, enabled companies to use WPM that complies with ISPM 15 guidelines promulgated by the International Plant Protection Convention (IPPC) for import and export purposes. Using WPM that has been treated and marked, in accordance with the International Standards for Phytosanitary Measures Number 15 (ISPM 15) guidelines, assures the receiving country that the WPM present within a shipment has been treated.

B. Historical Perspective

Forest ecosystem diversity, function, and productivity have been dramatically altered by the introduction of exotic insects and pathogens. Historically, outbreaks of the Asian longhorned beetle, (*Anoplophora glabripennis* (Motschulsky)), pine shoot beetle, (*Tomicus piniperda* (L.)), and the emerald ash borer, (*Agrilus planipennis* (Fairmaire)) have been

traced to importations of WPM. The brief history of introduction into the United States for Asian longhorned beetle, pine shoot beetle, and emerald ash borer follows below.

- Asian longhorned beetle (ALB) is a native of China and was first found in the United States 1996 in New York City and Amityville, NY (on Long Island). Since then it has been found in Chicago, Summit, and Addison, Illinois. Scientists believe that the beetle entered the United States via wooden crates and pallets used in shipping cargo from China. The only way to get rid of ALB is to cut down, chip, and burn the infested trees. Since 1996, more than 3,000 trees have been destroyed to eradicate this pest in New York and Illinois (USDA, APHIS, 2006a).
- Pine shoot beetle (PSB) was discovered at a Christmas tree farm near Cleveland, Ohio, in July 1992. The only previous U.S. infestation of PSB occurred in New Jersey in 1913. It is believed that PSB was probably introduced into the United States in 1992 by foreign ships carrying PSB-infested wood as dunnage (USDA, APHIS, 2002c). Since the 1992 introduction, PSB has been detected in 16 States. Quarantines have been established in those States to restrict the movement of regulated articles in order to prevent the artificial spread of PSB.
- Emerald ash borer (EAB) was identified as the causative agent in ash tree mortality and decline in Detroit, Michigan. EAB was unknown in North America until June 2002. Since 2002, EAB has established infestations in Michigan, Ohio, Indiana, Illinois, and Maryland. Quarantines have been established in those States which have become infested with EAB. Under the quarantine, ash trees, branches, logs, and firewood are prohibited from movement from affected counties (USDA, APHIS, 2006b).

Following APHIS' confirmation of these and other pest risks associated with WPM, mitigating measures, risk analyses, and environmental analyses were developed to assist decisionmakers about how best to protect U.S. forests from such pest risks. Environmental analyses for those rulemakings were necessary to address the potential environmental impacts associated with the implementation of each rulemaking. The treatment of WPM, specifically, the options of heat treatment and methyl bromide fumigation, were assessed to consider potential impacts to the human environment, including public health. Of importance in regard to methyl bromide fumigations is its capacity to damage the atmosphere's ozone layer.

The WPM FEIS assessed the methyl bromide treatments for WPM and the potential environmental impacts of such compliance. In addition, the FEIS and supplemental environmental impact statement (SEIS) entitled “Importation of Logs, Lumber, and Other Unmanufactured Wood Articles,” (USDA, APHIS, 1998a), the environmental assessment (EA) for the China Interim Rule (USDA, APHIS, 1998b), and the FEIS entitled, “Rule for the Importation of Unmanufactured Wood Articles From Mexico, With Consideration for Cumulative Impact of Methyl Bromide Use” (USDA, APHIS, 2002a), also thoroughly analyzed methyl bromide usage and its impact to the environment.

C. Relationship to the Rulemaking Process

This supplement to the WPM FEIS provides additional information to the decisionmaker to determine whether the previous decision to amend the regulations regarding importation of WPM should remain in force as is or whether further changes should be promulgated through the rulemaking process. This determination will be published in a Record of Decision (ROD) in the *Federal Register* after completion of the final SEIS. APHIS will seek public comments on the draft SEIS and address those substantive comments in the final SEIS. Any substantive comments on the final SEIS received by APHIS up to 30 days after publication by the U.S. Environmental Protection Agency (EPA) of the notice of availability in the *Federal Register* will be considered before publication of the ROD (40 CFR 1506.10(b)(2)).

1. History of Rulemaking and NEPA Documentation for SWPM

Although there have been treatments for wood pests for many years, there was no programmatic effort to mitigate the associated pest risks until the China Interim Rule in 1998. This rule consisted of two separate notices (September 18, 1998, 63 FR 50099, Docket No. 98–087–1 and an amendment on December 17, 1998, 63 FR 69539, Docket No. 98–087–4). The rule was promulgated to readily respond to the rapidly increasing pest risks to wood traced to importations of WPM from China and Hong Kong. The interim rule provided very little phase-in time due to the serious nature of the pest risks and the immediate need for mitigation of those risks. The EA for the China Interim Rule (USDA, APHIS, 1998b) was published in September 1998. The lack of a phase-in period was recognized in this EA prepared for the rule by applying the presumption that all imported WPM from China and Hong Kong would be fumigated after loading. Although this approach for estimation of methyl bromide usage was known to be conservatively high, initially it was not considered to be outside the possible range of application. It was recognized that some heat treatment and more conservative usage of methyl bromide (treatment of WPM before loading) were anticipated in, at least, the long-term, but the lack of historical data about actual compliance prevented

calculation of a refined estimate of methyl bromide usage in the treatment of WPM to be imported from China and Hong Kong to the United States.

Although the interceptions of invasive species in WPM from China and Hong Kong decreased subsequent to promulgation of the China Interim Rule, interceptions on WPM from other parts of the world continued to rise. It was clear that the pest risk from these locations would also need to be mitigated. Concurrent with APHIS' deliberations on potential regulatory options to address the pest risk from WPM from other countries, the international community, through the IPPC, became aware of the pests associated with WPM and began to consider comparable approaches to alleviate pest risks associated with international trade. This international effort to address pest risks ultimately resulted in the guidelines negotiated for regulating WPM in international trade that were published by the IPPC Secretariat (2002) in ISPM 15. The international negotiations and revisions of these guidelines are expected to continue. APHIS recognized that the ISPM 15 guidelines provided a firm basis for amendments to our regulations and, consequently, APHIS promulgated a final rule that established regulations for importation of WPM that were consistent with those guidelines negotiated in ISPM 15. APHIS' final rule on Importation of Wood Packaging Material was published on September 16, 2004 (69 FR 55719, Docket No. 02-032-3), and was designed to provide mitigations for the potential pest risks from importation of WPM worldwide. The regulations established by this final rule replaced those regulations promulgated under the China Interim Rule.

Unlike the regulations imposed by the China Interim Rule, those countries whose WPM was subject to importation requirements under the final WPM rule were aware of the pending change in regulations and were provided a phase-in period for compliance with those changes. This phase-in period ensured that importers had time to prepare for the regulatory treatments of WPM. Concurrent to this phase-in period, there were decreases in methyl bromide (phaseout) for many usages that were regulated under the Montreal Protocol. Although quarantine treatments (including those for WPM) were not directly subject to phaseout under this international agreement, many countries began to work on alternate treatments for fumigation with methyl bromide (such as heat treatment of WPM) and some were permitting only heat treatment for WPM. Although there were many factors that contributed to the estimates of methyl bromide usage in the FEIS, the presumption that methyl bromide treatments of WPM would always be applied after the WPM was loaded with cargo did not realistically reflect actual usage. The estimates of methyl bromide usage for alternatives presented in the FEIS for Importation of Solid Wood Packing Material (USDA, APHIS, 2003)

sought to make allowance for methods such as heat treatment and fumigation of methyl bromide prior to loading with cargo. The characterization of compliance was, however, incomplete in that most countries, at that time, had not yet established their requirements for compliance with regulations of transported WPM. Much of this supplement to the FEIS examines how countries have actually complied with WPM regulations since and, based on that examination, seeks to refine APHIS' early estimates of methyl bromide usage to more accurately reflect actual release from fumigation treatments of WPM.

2. Changes in Methyl Bromide Usage Relative to APHIS Rulemaking

The overall worldwide usage of methyl bromide continues to decline as the phaseout requirements of the Montreal Protocol are met by those countries that are signatories to this international agreement. It is known that some countries (most notably China) have increased their overall usage of methyl bromide, but the increases by individual countries have not changed the overall trends towards reduction in usage of methyl bromide. Even China has committed to reduce emissions of methyl bromide from fumigations (United Nations Environment Programme (UNEP), 2003; Beijing Times, 2003; Mercado, 1999). The impetus for permitting fumigation of WPM with methyl bromide in the final WPM rule was to provide an economical means of compliance for those developing countries with limited resources to ensure their ability to export products loaded on WPM to the United States. This approach also ensured that other countries would accept product shipments from the United States that meet the ISPM 15 guidelines.

In accordance with applicable international agreements, APHIS does consider changes in its regulations governing phytosanitary issues in trade if those measures are transparent, technically justified, and no more restrictive of trade than necessary to achieve an appropriate level of phytosanitary protection. This ensures that any changes in our regulations adhere to principles of the IPPC. Should it become evident that the usage of methyl bromide fumigation in the treatment of WPM is no longer needed by developing countries in order to meet phytosanitary requirements (due to increased availability of other treatment measures), and that the elimination of methyl bromide fumigation is "not more trade restrictive than required to achieve [an] appropriate level of sanitary or phytosanitary protection," as is specified by provisions of the Sanitary and Phytosanitary Agreements of the World Trade Organization, then APHIS will consider further rulemaking for WPM. Presently, the usage of heat treatment of WPM is the only equivalent to fumigation with methyl bromide for shippers who depend upon WPM. The continuing phaseout of methyl bromide favors expanded heat treatment of WPM. It is also possible over time that market forces may favor expanded use of substitute packaging materials such that methyl bromide fumigation of WPM may

not be needed to ensure the unrestricted flow of trade. However, present trade heavily depends upon WPM, and fumigation with methyl bromide remains important enough for the shipping industry of some countries that circumstances do not justify immediate elimination of this treatment measure. Therefore, APHIS will continue to monitor and review trade conditions to determine if there is any need for further rulemaking.

International guidelines, such as ISPM 15, are subject to ongoing review and negotiation among the countries that are party to the IPPC. Changes to those guidelines do not necessarily require APHIS to promulgate rule changes, but any changes in phytosanitary requirements that APHIS intends to enforce on the shipping industry would require revisions to the present regulations. Various negotiations to amend certain aspects of the ISPM 15 guidelines are in the process of review by IPPC contracting parties. APHIS monitors these negotiations for potential substantive changes that could result in the need for further rulemaking. Changes to the IPPC guidelines could also require environmental documentation to address NEPA issues associated with those anticipated rule changes. In particular, there has been some concern by IPPC contracting parties that the initial methyl bromide treatment schedule for WPM did not achieve the desired reduction in pest risk. Any changes in application rate would certainly require supplemental environmental documentation. Other potential treatment changes would need to be reviewed to determine whether they would result in any changes in environmental effects.

Since the initial methyl bromide fumigation treatment schedule of Annex I of ISPM 15 (IPPC, 2006), there has been one revision approved by the IPPC (FAO, 2006). This revision does not propose any changes in the dosage for specific temperatures, but the proposed minimum concentrations of methyl bromide within the fumigation enclosure need to remain elevated for longer durations of time. The lack of change in dosage or rate indicates that methyl bromide usage would not increase. The revised treatment schedules are designed to eliminate pest risk without the need for additional usage of methyl bromide. Although the revised schedule does not require more usage and adjustments to our methyl bromide usage estimates, APHIS will continue to keep track of such revisions to ISPM 15 and review their potential environmental impact.

D. Summary of the Final Environmental Impact Statement

The WPM FEIS (USDA, APHIS, 2003) was prepared in order to consider the potential environmental impacts of the proposal and alternatives, in

accordance with NEPA and the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. The findings of that document are incorporated by reference in this SEIS and are summarized below. Alternatives considered within the FEIS included (1) No Action (no change in the current regulation), (2) extend the treatments in the China Interim Rule to all countries, (3) adoption of the IPPC "Guidelines for Regulating Wood Packaging Material in International Trade" (the proposed alternative), (4) a comprehensive risk reduction program, and (5) substitute packaging materials only. Each alternative contains an array of component control methods.

Although each alternative (excluding No Action) was determined to have the potential to lower pest risk associated with WPM, each alternative (including No Action) has the potential for adverse environmental consequences. Under NEPA, those consequences are the aggregate of their individual effectivenesses (efficacies) and the direct and indirect impacts (including cumulative impacts) of their component control methods. The No Action alternative would result in the greatest degree of risk from invasive species, with impacts from component control methods that would be expected to increase as international trade increases.

Extension of the treatments in the China Interim Rule to all countries would substantially reduce the pest risk from invasive species, but would have the greatest potential for adverse environmental impact from its component control methods. Adoption of the IPPC guidelines also would provide substantial reduction of pest risk, with substantial environmental impact from its component control methods.

A comprehensive risk reduction program could provide substantial reduction of pest risk, with variable impact from its component control methods, depending upon which methods were selected. It is not feasible to design different combinations of methods for compliance of various countries at present. Further, based upon the prevalence of pests within those countries, a determinative process to support such a practice would not be scientifically or economically practical. For the comprehensive risk reduction program alternative to be practical and worthy of detailed consideration by APHIS, the array of approved treatments for this alternative would have to be universally applicable and available equally to all countries.

Substitute packaging materials only (prohibition of WPM), as suggested in the FEIS, would achieve the greatest reduction of pest risk with the least environmental impact from its component control methods, but would generate some impacts from the manufacturing process. The capability of

industry to tool up to manufacture and switch to substitute packaging materials for such a shipping volume would limit the feasibility or implementation of a switch over. Further, the increased cost of substitute packaging materials relative to WPM and limited application of substitute packaging materials to niche markets do not provide the flexibility needed to fulfill the global trade needs at present.

The potentially affected environment for the proposed action, as discussed in the FEIS, includes the United States (confronted with threats to its agricultural and environmental ecosystems), the other nations (which would sustain environmental impacts because of measures required by United States import requirements), and the Global Commons (which also could sustain environmental impacts because of measures required by United States import requirements). Of particular concern is the potential effect of increased use of the fumigant methyl bromide, a chemical that has the capacity to damage the atmosphere's ozone layer. The stratospheric ozone layer shields life on our planet from the harmful effects of ultraviolet radiation. The potential impact from increased usage of methyl bromide is mitigated by the availability of other treatments for WPM and the phaseout of other ozone-depleting chemicals, as well as the phaseout of some uses of methyl bromide other than those critical uses and quarantine and preshipment (QPS) uses that are presently exempted.

The rationale to adopt the IPPC guidelines, rather than selecting one of the other alternatives, involved a number of factors. First, the serious environmental and economic threats imparted a degree of urgency to the WPM rulemaking process. Although APHIS continues to work on a long-term resolution to the pest-risk problems associated with WPM, the agency needed an effective mitigation strategy capable of being implemented over the short term. Data were available to support the effectiveness of the treatments approved under the IPPC guidelines against many pests of concern to APHIS, but efficacy data for other treatment options were lacking. There were substantial logistical and operational barriers associated with some of the alternatives, even though they may present lesser environmental impact.

APHIS remains committed to developing regulations that reduce the threat of invasive species, yet which promote the harmonization of international mitigation efforts and the facilitation of trade. The development of new regulations, therefore, depends upon technological progress and international negotiations to provide an efficient mechanism for addressing phytosanitary risks associated with WPM. Thus, the FEIS considered environmental, economic, scientific, and social factors in an effort to derive an appropriate and effective strategy for the regulation of imported WPM.

II. Purpose and Need

The purpose of this SEIS is to reevaluate and refine estimates of methyl bromide usage in the treatment of WPM. This document is consistent with APHIS' intent to further review WPM issues as more data and information are now available. At the time that the methyl bromide estimate in the WPM FEIS was prepared, there was uncertainty due to the limited information available about compliance (see FEIS on pages A-7 to A-9). Regulations promulgated by CEQ pursuant to NEPA provide that agencies may prepare supplements to a final EIS whenever "the agency determines that the purposes of the Act will be furthered by doing so." This SEIS has been prepared to refine the information provided in the FEIS in light of new information available and intended to provide the decisionmaker and the public with the most current information associated with APHIS' WPM rulemaking. The refined methyl bromide estimates presented in this SEIS will be provided to the decisionmaker. The decisionmaker has the authority and responsibility of assessing the refined information and determining if and how this information will impact the current rule. The refined information may have any number of impacts to the current WPM rule including further deliberation, amendments to the current rule, or no changes to the current rule.

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III. Environmental Impact Analysis

The focus of this SEIS is the refinement of methyl bromide estimates from compliance with APHIS WPM regulations. The limited available data provided a rough predictive estimate in the FEIS. More reliable information and more data on actual compliance have since been sought to improve the previous estimates to more accurately reflect actual methyl bromide usage in the treatment of WPM. Although information continues to be collected about the treatment methods used by different countries to comply with ISPM 15, some data gaps continue to exist and some uncertainty remains. Quality information does exist for the compliance treatments in some countries, but reporting in other countries is often limited, lacking, or compiled for overall consumption purposes (not solely for WPM treatment). There are a number of different ways that one can quantitatively calculate the release of methyl bromide to the atmosphere from compliance with ISPM 15. These calculations can continue to be refined as more accurate and more complete information is received.

Reporting of overall methyl bromide usage by many countries is sparse. The annual reporting requirements of the UNEP Secretariat for methyl bromide have increased the overall reporting and those requirements include a followup for data quality assurance. Such reporting was reviewed for relative consistency with our findings, but it was not relied upon for actual calculations. All international reporting requirements relate to total methyl bromide production or consumption including both usage for QPS and usage for non-QPS purposes. There is no formal reporting for more specific applications such as treatment of WPM.

An attempt was made in this SEIS to gather the best available information for the majority of WPM treatments. This involved looking primarily at compliance of those countries that are most heavily involved in world trade. For those countries with reliable compliance data, quantitative analysis was the most direct. For those countries lacking compliance data, methyl bromide estimates were based upon projections of the highest likely usage. For many of the larger trading countries, their compliance data was available in a form that permitted accurate estimations. Most of these countries provided a percentage of the number of units of WPM that were fumigated. The annual estimates in this SEIS assess only a given point in time. Trying to account for increases in world trade and other external factors would be speculative, and no attempt has been made to factor this into this analysis. In addition, there are a wide range of chamber and tarpaulin enclosures that are used in methyl bromide fumigations. Limited data are available about the relative frequency of use of each type of fumigation enclosure, so representative fumigation

methods were applied to each treatment scenario based upon the compliance data provided by the phytosanitary authorities contacted in each country.

Cumulative methyl bromide usage data includes those WPM treatments associated with ISPM 15 compliance by the United States and other WPM treatments in world trade not directly related to the WPM rule. This issue is considered separately from other methyl bromide usage for QPS and non-QPS purposes.

A. Early Methyl Bromide Estimates for Wood and the China Interim Rule

Estimates of the quantities of methyl bromide released from fumigation of wood products were first made for the EIS for the Importation of Logs, Lumber, and other Unmanufactured Wood Articles (USDA, APHIS, 1998a). The methods developed for that EIS were adjusted for use in estimation of methyl bromide usage in the EA for China Interim Rule. A large part of the quantitative analysis in the China Interim Rule EA (USDA, APHIS, 1998b) was tied to the presumption that the lack of phase-in time for Chinese exporters to prepare for compliance with the rule would result in most, if not all, WPM being fumigated with methyl bromide and all fumigations being conducted to WPM that was already loaded with cargo. The capability of shippers to apply heat treatment, wood preservative treatments, or to treat WPM by fumigation with methyl bromide prior to cargo loading on such short notice was unknown. Thus, the quantitative estimate for methyl bromide used in fumigation resulting from this rule was an intentionally high projection that presumed only fumigation of already loaded WPM.

Although it was recognized that the shipping industry in China would gradually use other available methods, the rough estimate for methyl bromide usage calculated for the China Interim Rule was considered appropriate as an initial estimate with the recognition that the projected usage per unit of WPM would diminish as the industry compliance strategies developed. Those early estimates disregarded issues such as treatment availability, reuse of WPM, lack of tolerances for methyl bromide of some agricultural commodities, lack of compatibility of some commodities (e.g., leather goods and electronic parts) with methyl bromide, and unique fumigation practices; the estimates also did not consider the rapidly increasing trade with China in any projections. The result was an estimate that was higher than initial actual usage by China, but not necessarily unreasonable given the increasing trade (eightfold increase from 1997 to 2005) that has occurred since that time. The

potential quantity of methyl bromide determined in the EA for the China Interim Rule was estimated to range from 1,040 to 12,565 MT annually. However, the total methyl bromide produced in China in 2002 for all uses, including not only use on WPM but all QPS and non-QPS usage, amounted only to 3,175 MT (BeijingTimes, 2003; UNEP, 2003), so the upper tail of this early estimate is clearly higher than the actual consumption that occurred in China.

Another assumption in the EA was that the fumigations would occur primarily within containers covered by tarps, as is normally done for treatments of loaded cargo, to comply with APHIS regulations. However, rather than tarping containers, many of those Chinese shippers who were fumigating containers with already loaded cargo were generally testing those containers for airtightness, releasing methyl bromide directly into the closed containers, and often sealing those containers for shipment prior to complete aeration. There were some initial human health concerns expressed by inspectors and workers about the lingering residues of methyl bromide in these containers from this practice. The aeration of such containers has increased since that time to ensure the safety of those working with such containers. This direct treatment of sealed containers did result in less use of methyl bromide than had been projected for fumigation of containers covered by tarps.

The actual application rates analyzed for the China Interim Rule were based upon those in the APHIS treatment manual (USDA, APHIS, 1998d) at that time. The application rates ranged from 3 to 5 pounds per 1,000 cubic feet of space for a 16-hour period of time. Subsequent analyses were based upon the application rates cited in ISPM 15, that is, 3 to 4 pounds per 1,000 cubic feet of space for a 16-hour period of time. Although this usage rate of 5 pounds per 1,000 cubic feet contributed to a conservatively high methyl bromide estimate in the analysis of the EA for the China Interim Rule, the changes in trade and compliance by China and Hong Kong since that time are encompassed within that projected methyl bromide estimate.

B. Application of Early Estimates to Assess Cumulative Impacts

Shortly after completion of the EA for the China Interim Rule, a draft EA was completed for the Proposed Rule for the Importation of Wood Articles from Mexico (USDA, APHIS, 1998c). EPA, in its comments on this document, suggested the agency analyze potential cumulative impacts of methyl bromide for the quarantine uses required by APHIS. This cumulative issue was then addressed through the preparation of an FEIS entitled “Rule for the Importation of Unmanufactured Wood Articles

From Mexico, With Consideration for Cumulative Impact of Methyl Bromide Use” (USDA, APHIS, 2002a). Most anticipated pending quarantine uses of methyl bromide, when added to the present usage, were considered to pose negligible cumulative risk; however, the pending worldwide regulation of WPM was considered to require closer review. This FEIS applied the conservative, quantitative methodology used in the China Interim Rule EA to project methyl bromide estimates for a global wood packaging rule that was first being analyzed in the DEIS for importation of unmanufactured wood articles from Mexico. The quantitative methyl bromide estimate using that methodology gave a potential range of 8,536 to 102,893 MT per year. However, the same paragraph discussed the conservative nature of this estimate and indicated that the actual increase of methyl bromide usage would be closer to one-twentieth of those projected quantities. This was the first recognition of the need to refine WPM methyl bromide estimates for methyl bromide usage to provide more realistic data for pending agency decisions.

The Mexican Unmanufactured Wood DEIS also acknowledged the limited information about compliance with WPM treatment. The DEIS recognized that fumigations are generally directed at the pest risks in the cargo being treated and there was no particular reason for treating cargo when the target organism was in the WPM. However, the lack of available compliance data for WPM treatments made it difficult to project actual methyl bromide usage, and the decision was made to consider this issue more closely in the EIS for importation of WPM that was being worked on during and after completion of this Mexican Unmanufactured Wood EIS.

C. Estimates From the Final Environmental Impact Statement

The methyl bromide estimates prepared for the draft and final EIS for Importation of Solid Wood Packing Material (USDA, APHIS, 2002b; USDA, APHIS, 2003) involved a systematic review of potential usage to provide more realistic data for program decisions. The limited data available did not provide a clear methodology that could be readily applied to worldwide compliance with WPM regulations. The analysis did consider the influence of certain factors on likely compliance. The factors included the size of a U.S. Customs entry, the presence of WPM within a U.S. Customs entry, the likely method of treatment (methyl bromide fumigation vs. heat treatment), the manner of methyl bromide application, the application rate, the amount of methyl bromide vented from the treatment stack by fumigation, the compatibility of methyl bromide with associated cargo, logistics and cost factors for shippers from

other countries, the potential reuse of treated WPM, and implications of compliance method on international agreements.

D. Refined Methyl Bromide Estimation Based Upon Compliance Data

We now have information about how many IPPC countries actually comply with ISPM 15 and the APHIS WPM rule, so previous model assumptions are refined in this analysis to more accurately and completely assess potential methyl bromide release from compliance with the rule. This analysis reflects information regarding compliance for calendar year 2005 which includes more than twice as many U.S. Customs entries as in the previous analysis (based on 1997 data) due to recent increases in world trade. This increase in world trade would normally be expected to result in at least a doubling in the estimated usage of methyl bromide to comply with ISPM 15 if compliance were consistent with earlier methyl bromide usage model assumptions. However, the information about actual compliance indicates greater usage of heat treatment than methyl bromide fumigation by most major trading countries. In addition, regular treatment of WPM after cargo loading, which requires more extensive methyl bromide usage, has been verified to occur only for some U.S. Customs entries originating in China (USDA, APHIS, 1999).

This treatment of WPM after cargo loading involves fumigation of up to 20-fold more space than for treatment of WPM before cargo loading, so the usage of methyl bromide is commensurately greater for fumigations of WPM after cargo loading. Although such methyl bromide fumigation of loaded cargo from China does increase the overall release of methyl bromide and associated concerns about potential impacts to stratospheric ozone, this usage is considerably less than the worldwide reductions of methyl bromide already made in compliance with the phaseout of methyl bromide required under the Montreal Protocol, and the impact of this usage of methyl bromide on ozone depletion is dwarfed by the effects of chlorofluorocarbons and other compounds with ozone-depleting potentials that exceed methyl bromide. When one considers that all anthropogenic usage of methyl bromide prior to enforcement of the phaseout provisions under the Montreal Protocol (in 1996) contributed to no more than a total of 1 percent depletion of the stratospheric ozone layer each year (UNEP, 1998; NOAA et al., 1998), the potential amount of ozone depletion from the decreased anthropogenic usage of methyl bromide, at present, is considerably less and would not be the primary factor limiting the recovery of the ozone layer (unlike the chlorofluorocarbons). This potential impact on stratospheric ozone from anthropogenic usage of methyl bromide, however, does justify continuing efforts to seek

economical and efficacious alternatives to methyl bromide for phytosanitary treatment purposes, including those related to packaging material regulations.

The refinements to the methyl bromide calculations in this supplement include a closer analysis of the manner in which individual countries actually comply with wood packaging regulations. This involves more comprehensive analyses of information on how exporters in individual countries select their method of treatment (methyl bromide fumigation vs. heat treatment), the manner of methyl bromide application, the amount of methyl bromide vented from the fumigation, the potential reuse of treated WPM, and any implications of compliance method on international agreements. The mathematical equation and calculations are described in detail in appendix D. Each of these issues influence the amount of methyl bromide fumigation of WPM used in compliance with ISPM 15 and are used in the SEIS to refine the methyl bromide estimates to the extent possible.

Most calculations used to determine the estimates of methyl bromide usage resulting from compliance with APHIS' WPM regulations in this SEIS rely upon U.S. Customs data related to import entries. None of the phytosanitary authorities in the various countries provided any data about the actual quantity of WPM relative to other packaging materials for their exports, so the previous estimate (30 percent) used to determine the number of U.S Customs entries with WPM in the FEIS was applied to the present calculations when information about actual numbers of treated units or the total amount of methyl bromide were unavailable. There is some variability in the types of packaging material used worldwide, but the earlier review of U.S. Customs entries investigated the packaging materials over a broad range of commodity import groups to ensure that the percentage accurately reflected the proportion of U.S. Customs import entries that use WPM.

The descriptions of treatment methods of exporters in a given country were determined primarily from the information provided by the phytosanitary authorities of various countries about how they comply with ISPM 15. The effort to seek compliance data focused on those countries with larger trade to the United States, but information was sought for all major trading markets. The questions posed to these authorities were designed to ascertain the amount of methyl bromide fumigation in compliance with ISPM 15. Information was sought from the responding authorities regarding their usage of methyl bromide relative to their usage of heat treatment for compliance with ISPM 15, the manner in which such treatments are conducted, total methyl bromide usage where available, and

any information about the quantity of WPM relative to other packaging materials. The phytosanitary authorities contacted by APHIS responded as part of their ongoing cooperation with APHIS to facilitate common trade interests. Previous information about phytosanitary trade issues from these sources has been reliable. Although some phytosanitary authorities were unable to provide the desired information for their respective country, the responses were sufficient for a thorough refinement of the earlier methyl bromide estimates.

1. Usage of Heat Treatment for WPM

Certain countries have specific requirements that limit their exporters to heat treatment or substitute packaging materials. This includes a number of countries in the European Union and closely associated countries. The European Union has indicated their intent to eliminate all methyl bromide fumigation where other alternatives or substitutes are available and acceptable from the standpoint of environment and health (Regulation of the European Parliament and Council, 2000). Some other countries treat WPM for export solely by heat treatment, most notably Thailand (Unahawutti, 2006). In recent years, the United States and Canada have been routinely treating WPM by heat treatment to eliminate pine wood nematode risk to meet phytosanitary requirements of the European Union and China. This practice of heat treatment of softwoods used in packaging materials has continued and has expanded to cover most WPM for foreign destinations. There is still, however, some fumigation of hardwoods with methyl bromide in the United States for use as WPM, but it is a relatively limited practice.

Specific country authorities provided information about their use of heat treatment in compliance with ISPM 15. The phytosanitary authority in Japan indicates that 90 to 95 percent of their WPM for export is heat treated (Kani, 2006). Although most WPM for export from Korea is heat treated, exports to Norway and Russia are usually fumigated with methyl bromide according to the phytosanitary authorities in those countries (Kim, 2006). The phytosanitary authority in Chile, Marcos Beeche, states that 80 to 85 percent of their WPM for export is heat treated (Cohen, 2006). The phytosanitary authority in Taiwan indicates that almost all of their WPM for export is heat treated and use of methyl bromide, for this purpose, is expected to be totally phased out in 2010 or 2015 (Chen, 2006). Canada has no certification system for methyl bromide for exports of WPM, however, they do provide exporters with a phytosanitary certificate if fumigation with methyl bromide is the only alternative in specific situations (Thomas, 2006). Thus, Canada complies with ISPM 15 primarily through the use of heat treatment with limited fumigation allowed, as needed. The authority from the Mexican Forestry Health Office indicates that 92 percent of the WPM for export from Mexico is heat treated (Ramos, 2006).

As is evident from the responses received, those countries whose phytosanitary authorities responded to our recent request for information about compliance with ISPM 15 overwhelmingly indicated that heat treatment is the predominant treatment method used. There were several countries that lacked adequate data to respond to our questions about ISPM 15 compliance. In particular, Brazil only has data about overall methyl bromide usage, but not specific data for ISPM 15 compliance (Franz, 2006). China lacks data about overall compliance with ISPM 15 (Chou, 2006). The refinement of methyl bromide estimates for China in this SEIS relies upon data from a previous agency trip report (USDA, APHIS, 1999) that included visits to specific port and other treatment facilities of WPM in China. There is an ongoing agency effort to continue to get accurate information about the compliance of other countries with ISPM 15, however, meaningful responses from the official phytosanitary authorities of those countries for documentation have not yet been received. Nonetheless, relevant information has been received for compliance from our most important trading partners. As other authorities respond to our request for information, the quantitative value of the methyl bromide estimates can be refined accordingly.

2. Usage of Methyl Bromide Fumigation

Although most calculations used to determine the estimates of methyl bromide usage resulting from compliance with APHIS' WPM regulations in this SEIS are based upon U.S. Customs data related to import entries, one country (Nicaragua) provided information specific to WPM. The response from the phytosanitary authority for the country of Nicaragua provided actual data that showed annual usage of 1,010.5 pounds for the first year of compliance with ISPM 15 regulations (Hernandez, 2006). Thus, the estimate for Nicaragua is based upon actual usage data.

The data for methyl bromide treatment of WPM for export from the United States is maintained by the National Wooden Pallet and Container Association (NWPACA). NWPACA tracks the number of WPM units that are fumigated each year. In calendar year 2005, the United States fumigated 855,047 WPM units for this purpose (Deomano, 2006a). This NWPACA information is used in the determination of the cumulative methyl bromide estimates for the United States' compliance with ISPM 15. Unlike the available export data from MWPACA, comparable data about the number of WPM units fumigated with methyl bromide annually are not available for import entries to the United States so estimates for all countries other than Nicaragua are calculated using U.S. Customs entry data.

Although China has committed to eventually reduce their usage of methyl bromide (UNEP, 2003; Beijing Times, 2003, Mercado, 1999), the rate of

reduction of this usage for treatment of WPM over time is likely to be tied to their propensity to continue to promote export trade. The original estimate for the China Interim Rule was based upon analysis of already loaded WPM and projected an estimate ranging from 1,040 to 12,565 MT per year. The comparable estimate for China from the FEIS was based upon analysis of WPM not already loaded and projected a range of 52 to 628 MT per year. Subsequent review of the information from a trip report (USDA, APHIS, 1999) to China suggests that some ports are complying exactly as the FEIS suggests and other ports are continuing to treat containers of WPM with already loaded cargo as had been projected in the analysis for the China Interim Rule. For example, the port at Tianjin requires the exporter to heat treat or fumigate WPM prior to loading of cargo. On the other hand, Shanghai permits fumigation either before or after cargo loading. At the ports of Guangzhou and Shenzhen, most of the WPM is fumigated prior to cargo loading, however, occasional fumigation of containers with loaded cargo occurs due to vessel departure constraints. Most fumigations in Shenzhen are conducted at company sites rather than at port facilities. There was no survey conducted at these company sites to determine the method of compliance with WPM regulations, so no information is available about how they fumigate packing material.

While data on overall production and consumption of methyl bromide have been reported, it is unclear how much is applied to fumigation of WPM. The total methyl bromide production capacity of China's three producers was 7,620 MT in 2002, but only 3,175 MT were produced that year (BeijingTimes, 2003; UNEP, 2003). Recent response from phytosanitary authorities in China indicates their lack of any recent data compiled for the ongoing compliance with ISPM 15 (Chou, 2006). Based upon the information obtained from the 1999 trip report and more recent contacts, this supplement conservatively refines the methyl bromide estimates based upon treatment directly into already loaded containers. The methyl bromide resulting from China compliance with APHIS' WPM rule using this conservative approach in this SEIS ranges from 2,027 to 6,188 MT per year. Relative to the 3,175 MT of methyl bromide produced by China in 2002 for all uses (Beijing Times, 2003; UNEP, 2003), this projected range for the methyl bromide estimate is clearly elevated. In the absence of more definitive information from phytosanitary authorities in China, the methyl bromide estimates in our documentation for China will remain uncertain and conservatively high.

3. Methyl Bromide Fumigation Methods

Information about the manner in which methyl bromide fumigation treatments are conducted in given countries was received from responses by most of the phytosanitary authorities in those countries contacted by APHIS. The majority of fumigation of WPM in Japan is applied to lumber before actual assembly of the wood packaging unit (Kani, 2006).

The majority of the countries that responded and permit fumigation of methyl bromide in compliance with ISPM 15 report that those fumigations occur to the WPM prior to cargo loading. This includes responses from Canada, Chile, the Dominican Republic, Korea, Mexico, and Taiwan (Kim, 2006; Morales, 2006; Cohen, 2006; Chen, 2006; Thomas, 2006; Ramos, 2006). China is the only country where methyl bromide fumigation of loaded cargo is known to occur regularly. The predominant manner of methyl bromide fumigation for other countries that permit its usage occurs prior to loading of cargo. This is to be expected based upon the multiple factors discussed in the FEIS. However, for calculation purposes, in this SEIS, the application of analysis based upon fumigation of WPM prior to cargo loading is restricted to only those countries for which adequate compliance information are available. For conservative purposes, calculations for those other countries from which compliance data are lacking are subject to analysis based upon fumigation of already loaded cargo. In that our inquiries to phytosanitary authorities of other countries focused on those countries with the greatest trade with the United States (those countries with the most U.S. Customs entries), a considerable proportion (greater than 71 percent) of those entries from countries who permit methyl bromide fumigation are subject to analysis under the scenario for treatment of unloaded cargo.

In addition to the issue of treatment of WPM before or after cargo loading, the manner of fumigation does influence the quantity of methyl bromide needed for treatment. Although both chamber and tarp fumigations are used in the treatment of WPM, the decision was made to apply only tarp fumigations to the methyl bromide estimate calculations in the FEIS in the absence of complete data about the relative frequency of each type of fumigation. This does result in more conservatively high projections, but it was considered to provide a reasonable approximation for the variability in methods. Since that time, we have learned that many Chinese exporters are using a unique and specific fumigation procedure that differs from the chamber and tarp fumigations used elsewhere. This procedure was discussed in section III.A. regarding the estimates for the China Interim Rule. Rather than tarping containers, many of those Chinese shippers who were fumigating containers with already loaded cargo were conducting tests of those containers for airtightness, releasing methyl bromide directly into the closed containers, and sealing the entrance to those containers for fumigations.

The practice of fumigating containers with already loaded cargo results in considerably less usage of methyl bromide than occurs if those containers are tarped for fumigation. For example, the amount of methyl bromide required for fumigation of a sealed 40 foot container in China amounts to

only 9.6 to 12.8 pounds as compared to 16.2 to 21.6 pounds for the standard tarp fumigation of the same container. Likewise, the amount of methyl bromide required for fumigation of a sealed 20-foot container in China amounts to only 4.8 to 6.4 pounds as compared to 9 to 12 pounds for the standard tarp fumigation of the same container. Although previous methyl bromide estimate calculations had not considered this factor, the refined assessment, in this SEIS, of the cumulative methyl bromide estimate for China applies their unique manner of fumigation for all methyl bromide projections.

The methyl bromide estimates for countries where data are lacking use those values for the standard tarp fumigation with already loaded cargo for 20 to 40 foot containers, as cited above. The amount of methyl bromide used to treat WPM prior to loading varies with the amount of WPM. The previous estimate in the FEIS considered that the quantity of methyl bromide required for treatment of a given WPM unit before cargo loading would amount to about one-twentieth of that for loaded cargo. This amounts to a range of 0.45 to 1.08 pounds of methyl bromide per WPM unit for standard tarp fumigations of unloaded WPM. This approach is used to project methyl bromide estimates for those countries who indicate treatment of WPM occurs prior to cargo loading. Likewise, some exporters from China and Hong Kong have been fumigating unloaded WPM in chambers or containers. This amounts to a range of 0.24 to 0.64 pounds of methyl bromide per WPM unit for container fumigations of unloaded WPM.

Although we know that China does fumigate unloaded WPM at certain ports, such as Tianjin (USDA, APHIS, 1999), our estimates for China are based upon fumigation of already loaded cargo, as previously mentioned. On the other hand, the estimates for Hong Kong are based upon fumigation of unloaded WPM using the above method. Based upon records of U.S. Customs import entries, much of the cargo shipped from Hong Kong comes from southern parts of China, such as Guangzhou. These locations often move products by truck and WPM treatment at Guangzhou occurs prior to loading for most shipments (USDA, APHIS, 1999). This manner of fumigation is more representative of the treatments applied to WPM from Hong Kong and more accurately estimates actual usage.

In addition to the above approaches to methyl bromide fumigation of WPM, some WPM is constructed from wood that is fumigated prior to assembly. This is the manner of treatment that occurs in Japan (Kani, 2006). Although it is known that this approach uses less methyl bromide, the quantity used in construction of the WPM varies. Based upon review of methyl bromide treatments of other unmanufactured wood products, it

is estimated that the methyl bromide usage for one container-sized treatment would cover 50 WPM units. This amounts to a range of 0.18 to 0.43 pounds of methyl bromide per WPM unit.

4. Other Fumigation Issues

The total quantity of methyl bromide emitted from a given fumigation is dependent upon the commodity being treated. In the absence of good studies on sorption, the calculations in the draft and final WPM EIS applied an estimated 80 to 100 percent release of methyl bromide from the fumigation enclosure during venting after a treatment was completed. An actual study has been done by UNEP to analyze the amount of methyl bromide sorbed to various commodities (UNEP, MBTOC, 1998). This study found that durable commodities, like WPM, adsorb greater quantities of fumigant than some other commodities. This study determined that the actual methyl bromide emitted from WPM and related commodities in fumigations amounts to a range of 69 to 79 percent of the total amount applied. This information was used in refining the methyl bromide estimates to more closely determine potential impact to ozone from fumigations of WPM.

The potential reuse of treated WPM is known to influence the amount of treatment of WPM for trade. There are no hard figures for how much WPM is reused worldwide after cargo has been unloaded. We know from life-cycle studies that some WPM can be reused for 8 to 10 separate shipments before the wood is no longer durable enough to handle the loaded cargo (Deomano, 2006b). The United States does reuse treated pallets that meet ISPM 15 criteria and data are collected on how much WPM is reused. Review of the present rate of reuse in the United States indicates that one of every two WPM units is recycled and reused for shipping another load of cargo (Deomano, 2006b). Some countries are known to recycle more WPM than the United States. However, information about the actual rates of reuse by other countries is not readily available. Accordingly, we did not apply this information to any refinements of the methyl bromide release model. By disregarding this issue in the quantitative analysis, our calculated figures overestimate the number of WPM units treated by 50 percent or more. The lower usage of methyl bromide associated with less frequent need to treat WPM is, therefore, not reflected in the present estimates of methyl bromide released or in any previous estimates in the FEIS or earlier documents. As information related to this topic becomes available, continuing refinements of the methyl bromide estimates may be made in the future to more closely reflect actual usage.

Implications of the compliance methods required by individual countries on international agreements and changes to international agreements affect

the pest risks and the usage of methyl bromide. Australia and New Zealand require all WPM to be debarked. This requirement increases the effective control of pests from methyl bromide and heat treatments (Biosecurity Australia, 2006), and lowers pest risk from WPM that is not completely debarked. The more rapid penetration of debarked wood, as compared to wood with bark, has not yet been suggested to justify changes to lower methyl bromide application rates, however, this topic may influence future regulations of WPM and other countries may require debarking of WPM to lower associated pest risks. It is also unclear how debarking affects emissions of methyl bromide upon venting.

Although U.S. trade with Australia and New Zealand is relatively limited, as compared to the global trade, this issue could be important if other countries choose to require debarking of WPM from foreign origins to meet their phytosanitary needs as well. ISPM guidelines are subject to ongoing changes as various countries negotiate to ensure phytosanitary regulations meet their need to protect plant resources. The present treatment schedule for methyl bromide fumigation, under ISPM 15, ranges from 3 to 4 lbs per 1000 cubic feet for 24 hours (FAO, 2006; IPPC Secretariat, 2005). Future changes to the treatment schedule may not increase the application rate or necessitate the need for more usage of methyl bromide; however, APHIS continues to track proposed revisions to ensure that the potential impacts of all revisions to the international guidelines are considered.

Some commodities are not marketable if fumigated with methyl bromide; some agricultural commodities lack a tolerance for bromine residues; some commodities, such as leather, react with methyl bromide such that strong odors are imparted to the product; and, some commodities, such as electronics, may be damaged by reaction with methyl bromide and, therefore, methyl bromide fumigation of such commodities is not permitted due to the loss of product. This restriction on methyl bromide treatment limits fumigation of already loaded cargo to those commodities that can tolerate the chemical and residual effects of the treatment.

When the assumption is made that treatment of loaded cargo is the predominant method of fumigation in China, it is expected that the calculations from this assumption will overstate the methyl bromide estimate. This was clearly true for the early estimates made for the China Interim Rule, and is true for the present analysis where this assumption was applied to China and to other countries lacking information regarding the manner of their treatment methodology for ISPM 15 compliance. Although there is no detailed data available to support a precise estimate of methyl bromide usage in our model, this approach does ensure that

underestimation of potential release of methyl bromide from fumigations for China and these other countries does not occur for these estimates.

World trade strongly influenced how various countries comply with ISPM 15 guidelines. China continues to use methyl bromide fumigation of loaded cargo to help facilitate more rapid export of their cargo for trading purposes. The eightfold increase in U.S. Customs cargo entries from China from 1998 to 2005 shows their commitment to the promotion of trade with the United States. Although other countries are also increasing their world trade, the overall increase in U.S. Customs entries is 2.45-fold over the same time period. As is clear from those responses received by APHIS from phytosanitary authorities of these other large trading partners, their countries are relying on heat treatment rather than methyl bromide fumigation for compliance with ISPM 15, and their changes in trade are not dramatically affecting their usage of methyl bromide. Most countries have indicated that they plan to continue to decrease their usage of methyl bromide, particularly when there are effective alternate treatments available.

E. Impact Assessment of Refined Methyl Bromide Estimates

1. Adoption of the IPPC Guidelines (Proposed Alternative)

Refined methyl bromide estimates have been calculated using the methods described in appendix D and section III.D of this SEIS to more accurately reflect actual compliance with ISPM 15 and APHIS' Wood Packaging Rule. The findings presented in table 3-1 show the estimated methyl bromide associated with direct compliance with APHIS' rule to range from 744 to 2,110 MT annually. This estimate excludes the ongoing compliance by China and Hong Kong with the China Interim Rule, which is included in the comparison of aggregate consequences in part 3 of this section. Since the implementation of this alternative on September 16, 2005, data for the compliance, under the IPPC alternative, have been collected and reviewed. These values are comparable to those presented on pages 67-68 of the FEIS (384 to 4,630 MT annually); however, as would be expected with better data, the range for the estimate is projected to be narrower. The broad range presented in the FEIS encompasses the more refined estimate in this supplement. That indicates that the initial projections in the FEIS were representative of the potential methyl bromide usage that has actually occurred for those countries in compliance with APHIS' wood packaging rule.

The effect on the stratospheric ozone of the estimated 744 to 2,100 MT of methyl bromide released annually from fumigations of WPM can be estimated by using the same methodology applied in previous documents.

This is based upon the finding that there was a 1-percent effect on stratospheric ozone from overall global methyl bromide usage in 1996 (NOAA et al., 1998). The annual global consumption of methyl bromide in 1996 was 63,960 MT (UNEP, 1998).

Table 3–1. Summary of Estimated Methyl Bromide Released by Country/Region From Fumigations in Compliance With U.S. Wood Packaging Regulations Related to ISPM 15

Country	Total WPM Entries/Year	Estimated Methyl Bromide/Year (metric tons released)
Australia/New Zealand	67,656	0.95–5.2
Japan	742,134	2.1–12
Korea	219,699	1.5–8.5
Latin American Countries (excluding Nicaragua and Mercosur nations)	195,479	11–38
Mercosur Countries of South America	193,122	2.7–13.8
Nicaragua	9,369	0.32–0.36
Taiwan	377,858	5.3–29
Other SE Asian Countries	591,456	8.3–46
Other Countries*	3,399,539	712–1,958
Total	5,796,312	744–2,110

* Includes those countries for which compliance data are lacking and those countries strictly complying by heat treatment of wood packaging material.

Based upon this finding, the effect of methyl bromide usage in compliance with APHIS’ wood packaging rule is projected to pose a potential increase of 0.012 to 0.033 percent in annual depletion of stratospheric ozone. The implementation of this alternative, as demonstrated in this risk analysis, is causing depletion of the ozone layer commensurate to that anticipated in the FEIS. Therefore, no substantial changes to impacts on human health or to the environment are anticipated as a result of continuing implementation of this alternative. With the ongoing phaseout of most usage of methyl bromide (that has contributed up to only a 1-percent effect on stratospheric ozone), the continuing usage from compliance with APHIS’s WPM rule (which is less than one-thirtieth of total methyl bromide usage) is more than compensated by the dramatic overall reductions in usage that are continuing to occur.

2. Comparison of Methyl Bromide Estimates Among Alternatives

Alternatives considered in the EIS include (1) No Action (no change in the current regulation), (2) extend the treatments in the China Interim Rule to all countries, (3) adoption of the International Plant Protection Convention's (IPPC) "Guidelines for Regulating Wood Packaging Material in International Trade," (the preferred alternative), (4) a comprehensive risk reduction program, and (5) substitute packing materials only. This section compares these alternatives based on the refined methyl bromide estimates generated from quantitative analyses in this WPM SEIS.

There would be no new mandatory methyl bromide usage under the No Action alternative for WPM so this alternative involves no direct effects on methyl bromide usage per se. Therefore, the direct effects of the No Action alternative involve no immediate increase in effects on stratospheric ozone. However, those treatments associated with the China Interim Rule would continue. This continuing usage is part of the aggregate impacts of all methyl bromide usage. Under the No Action alternative, and based on the refined methyl bromide estimates, it is estimated that the potential usage of methyl bromide in China and Hong Kong would continue to range from 2,257 to 6,891 MT annually. This estimate poses a continuing potential annual depletion of 0.035 to 0.108 percent of stratospheric ozone. This issue is discussed further in the comparison of aggregate impacts in part 3 of this section.

Refined estimates were made for the alternative to extend those treatments used in the China Interim Rule worldwide. The estimated methyl bromide associated with compliance with this alternative ranges from 826 to 2,345 MT annually. This refined estimate is encompassed by the broader range determined in the FEIS (see page 62 of the FEIS) for the methyl bromide estimate (427 to 5,145 MT annually). The effect on stratospheric ozone from the estimated 826 to 2,345 MT of methyl bromide released annually from fumigations using rates applicable to the China Interim Rule is projected to pose a potential increase of 0.013 to 0.037 percent in annual depletion of stratospheric ozone. This represents a slightly greater effect on the stratospheric ozone layer than was projected for the preferred alternative using APHIS' wood packaging rule, however, not a substantially greater impact. It is, nonetheless, best to select effective treatments that pose the least adverse environmental impacts and APHIS' wood packaging rule poses less damage to ozone than worldwide application of the China Interim Rule.

The comprehensive risk reduction program provides the maximum flexibility to select methods and treatments that are the most effective at eliminating all potential pest risks. Since a comprehensive risk reduction

program uses a combination of methods, and it is unclear exactly how frequently specific methods will be selected, the potential environmental consequences vary considerably with the frequency of methods employed. It is not reasonable to speculate on the methyl bromide estimate with such potential variability. The potential human health and environmental consequences from this alternative are expected to be comparable to those described in the WPM FEIS.

Substitute packaging material that poses no potential risk of ozone depletion was considered in the FEIS as a possible alternative to WPM. This alternative would not require the use of heat treatment or fumigation with methyl bromide; therefore, any potential human health and environmental consequences as a result of heat treatments or treatment with methyl bromide are not associated with this alternative. The worldwide implementation of this alternative would lower the release of methyl bromide from packaging material used in international trade.

3. Comparison of Aggregate Consequences of the Alternatives

The WPM FEIS did a qualitative review of aggregate consequences of each alternative. The aggregate consequences of methyl bromide usage in compliance with ISPM 15 relate to the cumulative impact of all usage associated with the guidelines. Cumulative impact, as defined in NEPA (40 CFR 1508.7), is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” Most of the potential cumulative impacts associated with ongoing methyl bromide usage for quarantine and other purposes were discussed in detail in the FEIS for the Importation of Mexican Unmanufactured Wood (USDA, APHIS, 2002a). That document determined that most anticipated future quarantine treatments are not expected to pose significant effects to the stratospheric ozone layer, but it did analyze the more substantial usage of methyl bromide from the pending regulations being contemplated for the regulation of WPM worldwide. The Mexican Unmanufactured Wood FEIS roughly analyzed this issue based upon the set manner of compliance as was initially anticipated for the China Interim Rule. The lack of compliance data resulted in a projected estimate that was intentionally conservatively high. We now have data about how countries are complying with ISPM 15, and a more refined aggregate assessment of methyl bromide estimates and impacts associated with global WPM regulations is presented here.

The cumulative usage of methyl bromide associated with regulations designed to meet the guidelines in ISPM 15 consists of methyl bromide usage from countries in compliance with APHIS’ wood packaging rule, countries’ compliance with the comparable regulations of other countries, and compliance of the United States with the regulations of these other countries. The previous section compares methyl bromide estimates for

alternatives in regard to the direct compliance of other countries with APHIS' wood packaging rule. Comparable estimates have been prepared for those countries that were already subject to APHIS regulations under the China Interim Rule (China and Hong Kong), and methyl bromide estimates are made for those countries (including the United States) that are not subject to APHIS' regulations but must comply with the wood packaging regulations of other countries. These estimates for compliance with ISPM 15 guidelines are provided below in table 3–2.

Table 3–2. Summary of Estimated Methyl Bromide Released by Country/Region From Fumigations in Compliance With Wood Packaging Regulations Related to ISPM 15 that are Part of the Aggregate Usage

Country	Total WPM Entries/Year	Estimated Methyl Bromide/Year (metric tons released)
Canada	3,526,952	25–68
China	2,698,237	2,027–6,188
Hong Kong	115,640	4.3–13.3
Mexico	1,942,521	13.7–37.6
U.S.A.	855,047 units fumigated in 2005	120–331
Total	9,138,397	2,190–6,638

The only country with considerable usage of methyl bromide is China. The original China estimate for the China Interim Rule projected a methyl bromide estimate ranging from 1,040 to 12,565 MT annually (USDA, APHIS, 1998b). The reported 2002 total methyl bromide production capacity of China's three producers was 7,620 MT, however, their actual production was only 3,175 MT for all uses (Beijing Times, 2003; UNEP, 2003). Although fumigation of WPM uses substantial amounts of methyl bromide, much of the usage reported in 2002 was for other uses, including pre-shipment and other quarantine treatments. Although some increased consumption has probably occurred between 2002 and 2005, the methyl bromide estimates (2,027 to 6,188 MT per year) determined in this SEIS for China are within the range of possible usage, but the upper tail of the distribution is probably high. This projected estimate poses a potential increase of 0.032 to 0.097 percent in annual depletion of stratospheric ozone. The methyl bromide estimates for compliance of other countries with ISPM 15 are associated with considerably lower effects to stratospheric ozone than results from the compliance of China.

In assessing the overall cumulative impact, it is important to add all contributing sources of methyl bromide to those determined as direct impacts from the imposed regulations. The data for the United States estimate are based upon actual units fumigated with methyl bromide in 2005 and, thereby, provide a relatively accurate cumulative estimate. Estimates for the other countries are determined by using U.S. Customs entries. The data regarding methyl bromide estimates for Canada and Mexico pertain to their usage for export to other countries based upon information about their manner of compliance with ISPM 15.

The methyl bromide estimates presented in the previous section comparing alternatives (section III.D.2.) provide numerical estimates for compliance with APHIS' regulations and the China Interim Rule alternative. However, all these countries must comply with ISPM regulations of countries other than the United States as well as APHIS' WPM rule. The lack of reliable data about the amount of world trade among countries other than the United States and associated WPM with that trade makes any cumulative analysis speculative and therefore, the aggregate methyl bromide estimates and effects for each alternatives in this SEIS are limited to the relative effects of imports to and exports from the United States.

The aggregate methyl bromide usage associated with the No Action alternative is equal to that of China and Hong Kong in compliance with the China Interim Rule. There would be no other methyl bromide usage in compliance with this alternative. The potential cumulative estimate for WPM treatment associated with the No Action alternative ranges from 2,257 to 6,891 MT annually. This estimate poses a potential increase of 0.035 to 0.108 percent in annual depletion of stratospheric ozone. The elevated estimate is the result of the manner of treatment applied to China compliance (fumigation of sealed containers after cargo loading) and the higher application rate of methyl bromide for the China Interim Rule. The upper end of the projections for all cumulative estimates are not realistic based upon reported production and consumption data from China. It is clear that the upper end of range is conservatively high. The potential aggregate impact of this alternative is lower because it includes only methyl bromide fumigations in China and Hong Kong. Consequently, cumulative human health and environmental consequences from methyl bromide usage under this alternative are slightly lower.

The aggregate projection of all methyl bromide estimates for compliance with ISPM 15 (preferred alternative), based upon the above described analytical reasoning (overall compliance with APHIS' WPM rule and reciprocal compliance by the United States), ranges from 2,895 to 8,642 MT per year. This estimate poses a potential increase of 0.045 to

0.135 percent in annual depletion of stratospheric ozone. The implementation of this alternative, as demonstrated in this risk analysis, shows potential depletion of the ozone layer commensurate to that anticipated in the FEIS. Therefore, no substantial changes to impacts on human health or to the environment are anticipated as a result of continuing implementation of this alternative. With the ongoing phaseout of most usage of methyl bromide (that has contributed up to only a 1-percent effect on stratospheric ozone), the continuing usage from compliance with APHIS' WPM rule (which is about one-tenth of total methyl bromide usage) is more than compensated by the dramatic overall reductions in usage that are continuing to occur.

The comparable aggregate projection for methyl bromide estimates in compliance with worldwide extension of the China Interim Rule, based upon this same analytical reasoning, provides a range of 3,216 to 9,604 MT per year. Similar issues of uncertainty to those expressed about the cumulative China compliance are also applicable here. This estimate poses a potential increase of 0.050 to 0.150 percent in the annual depletion of stratospheric ozone. Although the aggregate impact from methyl bromide usage associated with this alternative is greater than for the preferred alternative, any potential impacts of this alternative would be compensated in similar manner to that of the preferred alternative by the reductions in usage due to the continuing phaseout of other uses.

Aggregate methyl bromide estimates are not prepared for the remaining two alternatives. As discussed in the comparison of alternatives section of this document, it is not reasonable to attempt to project an aggregate methyl bromide estimate for usage under the comprehensive risk reduction program alternative with the wide variability of methods. Further, the alternative use of substitute packaging materials involves no fumigation with methyl bromide.

Appendix A. Preparers

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Background: Biological Scientist in ES with expertise in environmental toxicology, chemical fate, and pesticide research. More than 20 years experience with APHIS including environmental protection, field, and port inspection experience. Experience in preparing environmental documentation for other major APHIS programs, in compliance with Federal statutes.

EIS Responsibility: Project manager for the draft SEIS—wrote parts of the Executive Summary, chapter 1, and chapter 3. Reviewed and contributed to other chapters and to the appendices. Responsible for coordination and team management on final documentation

Elizabeth E. Nelson

Environment Protection Specialist

B.S. Biology

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Background: Environmental Protection Specialist in ES. Six years of service with APHIS. Experience in environmental compliance, especially those associated with the Endangered Species Act, in the context of trade agreements, pest management, and pesticide regulations. Provides assistance on environmental documentation teams and participates in preparing and reviewing written analyses.

EIS Responsibility: EIS Analyst—contributed to the preparation of the draft SEIS. Wrote parts of the three chapters and reviewed other parts of other chapters and the appendices.

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Writer/Editor

B.A. Sociology

Background: Over 16 years of service with APHIS, with administrative and clerical experience with Plant Protection and Quarantine, and Policy and Program Development. Currently serving as Writer/Editor with ES.

EIS Responsibility: EIS Editor—desktop publishing of the EIS (including editing, format, and document security).

Appendix B. Cooperation, Review, and Consultation

The following individuals have cooperated in the development of this draft supplement to the final environmental impact statement (FEIS), were consulted on critical issues that have been addressed in this draft supplement to the FEIS, or reviewed draft sections of this supplement to the FEIS. The expertise and concerns of these individuals were considered during the development of this draft supplement to the FEIS. There may be some aspects of the draft supplement to the FEIS or its incorporated analyses which are not endorsed by all of the cooperators and consultants.

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Appendix C. Final Rule on Importation of Wood Packaging Material

Rules and Regulations

Federal Register

Vol. 69, No. 179

Thursday, September 16, 2004

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

7 CFR Part 319

[Docket No. 02-032-3]

RIN 0579-AB48

Importation of Wood Packaging Material

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Final rule.

SUMMARY: We are amending the regulations for the importation of unmanufactured wood articles to adopt an international standard entitled "Guidelines for Regulating Wood Packaging Material in International Trade" that was approved by the Interim Commission on Phytosanitary Measures of the International Plant Protection Convention on March 15, 2002. The standard calls for wood packaging material to be either heat treated or fumigated with methyl bromide, in accordance with the Guidelines, and marked with an approved international mark certifying treatment. This change will affect all persons using wood packaging material in connection with importing goods into the United States.

EFFECTIVE DATE: September 16, 2005.

FOR FURTHER INFORMATION CONTACT: Mr. William Aley, Senior Import Specialist, Phytosanitary Issues Management Team, PPQ, APHIS, 4700 River Road Unit 140, Riverdale, MD 20737-1236; (301) 734-5057.

SUPPLEMENTARY INFORMATION:

Background

Logs, lumber, and other unmanufactured wood articles imported into the United States pose a significant hazard of introducing plant pests,

including pathogens, detrimental to agriculture and to natural, cultivated, and urban forest resources. The regulations in 7 CFR 319.40-1 through 319.40-11 (referred to below as the regulations) contain provisions to mitigate plant pest risk presented by the importation of logs, lumber, or other unmanufactured wood articles.

The regulations restrict the importation of many types of wood articles, including wooden packaging material such as pallets, crates, boxes, and pieces of wood used to support or brace cargo. The regulations currently refer to these types of wood packaging material as solid wood packing material (SWPM), defined as "[w]ood packing materials other than loose wood packing materials, used or for use with cargo to prevent damage, including, but not limited to, dunnage, crating, pallets, packing blocks, drums, cases, and skids." Introductions into the United States of exotic plant pests such as the pine shoot beetle *Tomicus piniperda* (Scolytidae) and the Asian longhorned beetle *Anaplophora glabripennis* (Cerambycidae) have been linked to the importation of SWPM. These and other plant pests that are carried by some imported SWPM pose a serious threat to U.S. agriculture and to natural, cultivated, and urban forests.

Beyond the threat to the United States, the introduction of pests associated with SWPM is a worldwide problem. Because SWPM is very often reused, recycled or remanufactured, the true origin of any piece of SWPM is difficult to determine and thus its phytosanitary status cannot be ascertained. This often precludes national plant protection organizations from conducting useful specific risk analyses focused on the pests associated with SWPM of a particular type or place of origin, and imposing particular mitigation measures based on the results of such analysis. For this reason, there is a need to develop globally accepted measures that may be applied to SWPM by all countries to practically eliminate the risk for most quarantine pests and significantly reduce the risk from other pests that may be associated with the SWPM. In the case of phytosanitary standards, the international standard-setting organization is the International Plant Protection Convention (IPPC).

In a proposed rule published in the **Federal Register** on May 20, 2003 (68

FR 27480-27491; Docket No. 02-032-2), the Animal and Plant Health Inspection Service (APHIS) proposed to amend the regulations to decrease the risk of SWPM introducing plant pests into the United States by adopting the international phytosanitary standard¹ for wood packaging material (referred to below as the IPPC Guidelines) that was approved by the IPPC on March 15, 2002. We proposed to apply the standard to wood packaging material from all places, including China, and to remove the special provisions for wood packaging material from China in 7 CFR 319.40-5(g) through (k).

The IPPC Guidelines were developed after the IPPC determined that worldwide, the movement of SWPM made of unprocessed raw wood is a pathway for the introduction and spread of a variety of pests (IPPC Guidelines, p. 5). The IPPC Guidelines list the major categories of these pests, and establish a heat treatment and a fumigation treatment determined to be effective against them (IPPC Guidelines, p. 10). We proposed to adopt the IPPC Guidelines because they represent the current international standard determined in 2002 to be necessary and effective for controlling pests in SWPM. The need to adopt the IPPC Guidelines is further supported by analysis of pest interceptions at U.S. ports that show an increase in dangerous pests associated with certain SWPM. This increase in pests was found in SWPM that does not meet the IPPC Guidelines (e.g., SWPM from everywhere except China). There has been a decrease in pests associated with SWPM material from China since we began requiring that material be treated prior to importation.

Another reason to adopt the IPPC Guidelines at this time is that adopting them would simplify and standardize trade requirements. China, Canada, the European Union, and many other countries are preparing to implement the IPPC Guidelines requirements. Given the difficulty of identifying the source of SWPM and the recycling of SWPM in trade, successful reduction of the pest risk posed by SWPM requires

¹ "International Standards for Phytosanitary Measures: Guidelines for Regulating Wood Packaging Material in International Trade," Secretariat of the International Plant Protection Convention, Food and Agriculture Organization of the United Nations, Rome: 2002.

all trading partners to take action on a similar timeline.

Furthermore, adopting a uniform international standard means that U.S. companies will not need to comply with one set of SWPM requirements for goods exported from the United States and another set of requirements for goods imported into the United States. Companies engaged in both import and export would have particular difficulties in ensuring that their SWPM supply chain is sorted and routed to comply with differing requirements for different destinations. After this final rule takes effect, these companies will be able to use SWPM that complies with the Guidelines for both import and export purposes, leveling the trade playing field with regard to SWPM. Using SWPM that has been treated and marked in accordance with the Guidelines will also reduce the practice, common in trade today, of re-treating SWPM immediately prior to its reuse to assure the receiving country that treated SWPM is used with a shipment. This reduction in re-treatment will reduce costs to importers and procedural burdens for national plant protection agencies, and will also reduce unnecessary emissions of methyl bromide associated with such unnecessary re-treatment.

We accepted comments on the proposed rule for 60 days, ending July 21, 2003. We also accepted comments at three public hearings held in Seattle, WA, on June 23, 2003; in Long Beach, CA, on June 25, 2003; and in Washington, DC, on June 27, 2003. During the comment period we received approximately 970 comments on the proposal, including approximately 905 slight variants of a single e-mail form letter. The issues raised in these comments are discussed below.

As a result of our review of comments, we have decided to make the following changes from the proposal in this final rule:

- We are changing the term “solid wood packing material” to “wood packaging material” throughout the regulations; and
- We are excluding from the definition of wood packaging material, and thereby excluding from treatment requirements, pieces of wood that are less than 6 mm (0.24 in) in any dimension, because pieces of wood of this size are too thin to present any significant pest risk.

Comments have also led APHIS to make some changes in our plans and schedule for implementing the final rule. No changes to the text of the rule were necessary in response to these comments. Changes we made to the rule

and to our implementation plans are discussed below in detail.

Summary and Analysis of Comments

More than 95 percent of the comments applauded the intent of APHIS to protect United States forest and agricultural resources against the danger represented by pests associated with wood packaging material. However, the same commenters were concerned that the proposed rule would not adequately protect our forests from plant pests like the Asian longhorned beetle and were concerned that the proposal would cause other harm to the environment, namely increased depletion of the ozone layer due to use of methyl bromide as a fumigant. These commenters urged APHIS not to adopt the proposed rule, but to look for alternatives that will fully protect the United States from wood-borne invasive species while not sacrificing the ozone layer. These commenters suggested that one option would be to phase out the use of wood packaging material and replace it with manufactured wood and plastic crates and pallets, which the commenters suggested would be free of pest dangers and could be reused for a long time.

A number of commenters supported adoption of the IPPC Guidelines, but suggested a variety of exemptions for particular articles, or modifications of import clearance procedures, in order to minimize adverse effects of implementing the IPPC Guidelines. Several commenters also suggested that the regulation should be implemented on a delayed basis, or on a scheduled phase-in with several incremental levels, in order to give importers and other businesses time to adjust to the new requirements.

Several commenters made comments about the effectiveness or availability of the fumigation and heat treatments contained in the IPPC Guidelines, or suggested alternative treatments.

Several commenters addressed the international standard mark that we proposed should be placed on every piece of wood packaging material that has been treated in accordance with the regulations. Some of these commenters suggested that it was not practical to apply the mark to all packaging materials, especially materials such as dunnage that are specially cut to support cargo.

APHIS has carefully considered all the comments, suggestions, requests for clarification, and concerns raised by commenters. Several modifications have been made in this final rule in response to the comments. In the next section we provide detailed responses to the issues

raised by commenters, and explain the modifications made in response to these comments.

Terminology

Comment: APHIS regulations refer to the materials being regulated as solid wood packing materials (SWPM), but the IPPC Guidelines uses the term wood packaging material (WPM). It would be less confusing if APHIS used the term wood packaging material, since this is the preferred term in international commerce and in the IPPC Guidelines that many other countries are adopting.

Response: We agree, and throughout our regulations we are changing the term solid wood packing materials (SWPM) to wood packaging material (WPM).

In the proposal, APHIS did not use the term “wood packaging material” for two reasons. Our existing regulations have used the alternate term “solid wood packing materials” for more than 8 years, and persons applying our regulations are familiar with the term. Also, in the IPPC Guidelines the term wood packaging material is defined as “Wood or wood products (excluding paper products) used in supporting, protecting or carrying a commodity (includes dunnage).” This definition is broader than the APHIS term solid wood packing material. WPM as defined by the IPPC includes manufactured wood such as plywood, veneer, and fiberboard, as well as loose wood materials such as shavings and excelsior. The IPPC Guidelines then distinguish between types of WPM that should be regulated because they present a risk (e.g., raw wood pallets and dunnage), and types that should not be regulated because they present little risk (e.g., manufactured wood and shavings).

We thought this approach was ungainly when used in regulations, and that it would be better to use a different term (SWPM) that applied only to the types of wooden materials used in packing that we wanted to regulate. Upon further consideration, we agree that the benefits of using the term WPM outweigh the advantages of using the term SWPM. However, while the definition of WPM in our regulations will match the definition used in the IPPC Guidelines, we will also add a definition of *regulated wood packaging material*. The definition of this new term includes only the types of WPM we consider to be regulated articles. The new definition of regulated WPM closely resembles our current definition of SWPM, and reads as follows: “Wood packing materials other than manufactured wood materials, loose

wood packing materials, and wood pieces less than 6 mm (0.24 in) thick in any dimension, that are used or that are for use with cargo to prevent damage, including, but not limited to, dunnage, crating, pallets, packing blocks, drums, cases, and skids.” Therefore, in our regulations WPM refers to the type of articles covered by the IPPC Guidelines definition of WPM, and regulated WPM refers to the type of articles that the IPPC Guidelines refer to in their section on “Regulated Wood Packaging Material.”

This definition of regulated WPM differs from the existing definition of SWPM in that it explicitly excludes manufactured wood materials, such as fiber board, plywood, whisky and wine barrels, and veneer. APHIS has never regulated such materials, but the definition of SWPM did not make that clear. The definition of regulated WPM also excludes pieces of wood that are less than 6 mm in any dimension. Pieces of wood of this size are excluded because they are too thin to present any significant pest risk, and because the IPPC Guidelines suggest the 6 mm threshold for excluding wood pieces from regulation. This exclusion will exempt from regulation many types of small boxes used to ship fruit or other articles.

Phasing Out WPM in Favor of Manufactured Materials

Comment: APHIS should look for alternatives that will fully protect the United States from wood-borne invasive species while not sacrificing the ozone layer by encouraging methyl bromide fumigation. One such option would be to phase out the use of WPM and replace it with manufactured wood and plastic crates and pallets, which would be free of pest dangers and could be reused for a long time.

Response: APHIS has considered many alternatives to diminish pest risk from WPM. Many commenters have suggested that APHIS reduce worldwide methyl bromide emissions by relying instead on one of two pest reduction alternatives, either requiring heat treatment of WPM, or banning use of unmanufactured WPM and requiring use of manufactured wood, plastic, metal, or other alternative packing materials.

In keeping with our commitments to the objectives of the Montreal Protocol, APHIS actively cooperates with other agencies and institutions to identify and validate technically and economically feasible alternatives to methyl bromide. Also, as the agency responsible for representing the United States to the International Plant Protection

Convention with respect to the international phytosanitary standards established by the IPPC, APHIS will work closely with current initiatives within the IPPC to develop alternative treatments to methyl bromide and will strive to have any validated treatments incorporated into future revisions of the IPPC Guidelines. APHIS will also be working independently to evaluate and consider treatment alternatives to methyl bromide, and communicate this information through the proper channels in IPPC for technical review and approval. Whenever either APHIS independent evaluations or revisions to IPPC Guidelines make such validated alternatives available, APHIS will make the necessary changes to its quarantine regulations and procedures to provide for their use.

A comprehensive review of the IPPC Guidelines is due to be initiated under the IPPC by 2007. The United States intends to participate in, and bring to bear our technical and research expertise on, this review within the IPPC to ensure alternatives are continually examined and given due consideration. The IPPC Guidelines itself recognizes that phosphine and CPI methods are particularly worth revisiting with respect to the availability of data related to the efficacy of these methods in treating target pests for wood packaging material.

Methyl bromide as a class I ozone-depleting substance has been found to cause or contribute significantly to harmful effects on the stratospheric ozone layer and has adverse atmospheric effects substantially greater than those associated with the alternatives of heat treatment of WPM or use of alternative packing materials. Whenever APHIS advises on treatment alternatives, we encourage use of heat treatment or alternative packing materials in preference to methyl bromide fumigation. At present, it appears that manufacturers in many countries, including the European Union and the United States, prefer to use only heat treatment for the WPM they produce. Trends suggest substitution of heat treatment for methyl bromide will continue to grow. However, during development of the IPPC Guidelines some developing nations advised against allowing only heat treatment and not methyl bromide as an allowed treatment on the grounds that the higher cost of heat treatment makes it economically unfeasible for these countries at this time.

Regarding alternative packing materials, the final environmental impact statement (FEIS) concluded (pp. 79–80) that these would achieve the

greatest possible reduction in risk from the introduction of pests and pathogens associated with WPM. While heat treating or fumigating WPM are also both highly efficacious in controlling risk, use of alternative packing materials reduces risk even more. The manufacture and use of alternative packing materials also generates only minimal amounts of ozone-depleting chemicals. However, fumigation of WPM with methyl bromide and heat treatment of WPM are currently the most economical means of producing safe packing materials. Alternative packing materials cost much more. In addition to a cost that is currently beyond the reach of exporters in many developing countries, recovery and reuse of alternative packing materials requires a more complex infrastructure than is required by reuse of WPM. Finally, there are some costs associated with the durability of alternative materials. While many metal, plastic, and manufactured wood alternatives are very durable and can be used for more shipments than typical WPM, some alternative packing materials, such as particle board, are limited in their ability to withstand the conditions that routinely occur during transport.

It is difficult to quantitatively compare the costs of requiring alternative packing materials to the benefits that would accrue from their use. The FEIS and the economic analysis for this rule do estimate costs to exporters of using substitute packing materials and compare these to the cost of heat treatment or methyl bromide fumigation. However, we are unable to realistically estimate the benefits that could result using substitute materials. None of the commenters suggested methods or provided data to do such analysis.

APHIS will continue to encourage use of alternative packing materials by exporters for whom they are economically feasible. There is incentive for the shipping industry to contain costs of packing material, and by requiring treatment of WPM, this rule will slightly increase the average cost of WPM. This increase in the cost of WPM may actually provide incentive to some exporters to seek cost-effective alternatives such as corrugated board, veneer, oriented strand board, and plywood.

In choosing among alternatives, APHIS looks for choices that are both technically and economically feasible. Since treated WPM does provide an acceptable level of protection against pests, we believe that it is not necessary to exclude unmanufactured wood from use as packaging material for imported

cargo. Properly treated WPM is a safe packaging material that can be reused many times and that causes minimal environmental impacts when disposed of or recycled.

On the other hand, prohibiting the use of unmanufactured wood as a packaging material would have significant negative consequences in economic and environmental arenas. Wood is often the only packaging material readily and cheaply available (either through domestic production or importation) in developing countries that export basic products without elaborate packaging. The major alternative materials for packaging are processed wood, plastic, and metal. Pallets or crates made from these materials cost from two to four times more than WPM.

Comment: The APHIS proposal is of uncertain effectiveness and will result in damage to the stratospheric ozone layer, and APHIS therefore should adopt a regulation that specifies a deadline by which all incoming packaging must be made from materials other than solid wood or boards. These commenters stated that this strategy would achieve all three national goals at stake in this rule: Accommodating rising trade volumes, protecting forests from exotic pests, and protecting the stratospheric ozone layer.

Several commenters also stated that APHIS should require use of manufactured alternatives to WPM because the cost of these alternative materials is easily offset by the reduction of inspection costs and speeding the movement of cargo through our ports. They stated this would also reduce the necessity for expensive government programs to control invasive species that come in as hitchhikers in solid wood built crates and containers.

A commenter who disagreed with those advocating that APHIS require manufactured alternatives stated that a preference for using these alternate materials is based on flawed and inaccurate arguments that assume that the IPPC Guidelines will result in an increased demand for wood products and thus translate into negative environmental effects. This commenter stated that overall life-cycle impacts show far greater negative environmental impacts from using nonwood substitute materials. Also, the commenter stated that an outright ban on the use of WPM, in favor of substitute materials, without credible and proven scientific justification would be inconsistent with the World Trade Organization agreements.

Response: Please also see the above response. This rule allows, but does not

require, methyl bromide use, and also allows use of untreated alternative (manufactured) packing materials, and also offers heat treatment as an alternative to fumigation with methyl bromide. Heat treatment does not generate gases that could cause damage to the stratospheric ozone layer.

The commenters who suggested that the cost of using alternative materials would be offset by the reduction of inspection costs and speeding the movement of cargo did not offer data to support that theory. While inspectors do spend somewhat less time clearing manufactured packing materials compared to clearing WPM, APHIS doubts that the savings would come close to offsetting the costs, because many articles besides WPM must be inspected at ports (such as the regulated articles often packed in WPM). While faster cargo clearance would benefit importers, the value of this benefit is uncertain, and in any event, importers are free to use alternative packing materials if they perceive a benefit in doing so. We also note that importers can also achieve faster cargo clearance and fewer inspections by establishing a history of compliance for their shipments; if their WPM is consistently properly treated and marked, and free from pests of concern, their shipments may be cleared faster.

Regarding the commenter who stated that the rule will not result in an increase in the use of WPM versus alternative materials, we agree. As discussed above, the rule may actually act to increase the number of exporters choosing alternative materials, since the additional cost of treating WPM will bring its total cost closer to the cost of some alternative materials. We also agree with the commenter that overall life-cycle impacts show negative environmental impacts from using nonwood substitute materials, but we do not agree that these would be "far greater" than the environmental impacts from using treated WPM. We have not seen any quantitative data that supports the position that the environmental costs of using nonwood substitutes would likely be greater than those for using WPM. We agree that mandating use of alternative materials would not represent the least restrictive necessary action, and would have adverse effects throughout the international trade economy.

Comment: An adequate assessment of any adverse environmental impacts associated with use of WPM must include a comparison of substitute materials that would take the place of wood-based packaging material. On those terms, the results are crystal clear.

By any water quality, air pollution, or energy use environmental measure, wood products are clearly environmental performance leaders. It takes between 33 and 47 percent less energy to produce a wood product than to produce a similar product made from competing materials such as concrete and steel, and producing WPM results in less carbon dioxide emissions.

Response: Alternative packaging materials do have higher production costs than WPM, including greater energy costs. When harvested under careful management, trees can be a replenishable resource, unlike petroleum or metal ores. When WPM has exhausted its useful life, it can be recycled into products like particle board at a lower fiscal and environmental cost than plastic or metal can be recycled. However, the need to treat WPM must be taken into account when assessing the environmental impacts associated with it. While we believe authorizing use of treated WPM is a reasonable balance among pest risk, economic, and environmental concerns, we do not conclude that WPM is the "clear environmental performance leader." For further discussion of this issue, see the section of this document titled "National Environmental Policy Act," and section IV(A)(5) of the FEIS, which states "Wood has certain advantages from the environmental perspective. Renewability gives wood a large advantage over other materials. The manufacture of wood products requires substantially less energy than the production of substitute products. Wood product manufacture results in less greenhouse gas and other air pollutant emissions."

Comment: If WPM were banned in favor of alternative materials, it would not only destroy an industry, it would significantly increase costs to shippers, which would be passed on to consumers. Metal pallets are too expensive and heavy. Plastic pallets, unlike WPM, are not biodegradable, and are a major and toxic fire hazard. More goods are coming into this country than are going out. Most of them are on pallets. Wooden pallets can be disassembled and recycled, if not as pallets then as landscape mulch or wood stove pellets. Pallets made of plastic or metal will begin to pile up in landfills across America. Landfills could expect to realize exponential growth of nonbiodegradable pallets.

Response: We partly agree with this comment, as discussed above. However, a minority of shippers already choose to use alternative pallet materials, which shows that the choice must be economically viable in some

circumstances. We also note that because this rule applies only to articles imported into the United States, neither the rule nor the alternative of requiring alternative materials would destroy the market for WPM produced in the United States. Untreated WPM could still be used in domestic commerce, or in exports to any country that has not implemented the IPPC Guidelines or a similar treatment requirements.

In addition, selection of the available alternate packaging materials does include the continuing use of processed wood. This includes plywood, corrugated packaging materials, etc. These are products of the wood industry that pose comparable disposal and recycling capability to that of WPM. Some are cost-competitive with WPM, and required treatment costs under adoption of the IPPC Guidelines could make the selection of some of these alternate packing materials more favorable to the shipping industry.

Treatment Effectiveness

Comment: The proposed treatment measures, especially methyl bromide fumigation, have not been proven effective against pathogens. While APHIS says that few pathogens are detected on wood packaging, the agency concedes in its draft environmental impact statement (DEIS) and other publications that inspectors have great difficulty detecting pathogens; therefore, it has not been proved that pathogens represent as minor a threat as APHIS now implies. Furthermore, the DEIS associated with this rulemaking states that some deep wood-borers also might not be killed by the proposed treatments. Our concerns about efficacy are heightened by the fact that the IPPC standard does not require debarking the wood before further treatment. Debarking is key to improving the already questionable ability of methyl bromide to penetrate the wood to kill deep wood pests.

Response: The basis for international acceptance of the efficacy provided by the IPPC Guidelines is the review by IPPC member countries of certain reference documents that are now posted in a link from the APHIS Web page at http://www.aphis.usda.gov/ppq/swp/approved_guideline.html. Historically, the pest risks of WPM were manageable by inspection when international trade was more limited. All commenters have acknowledged the need for increased protection of wood resources, but there are differences of opinion about the level of protection needed to mitigate pest risks.

Although some may contend that the regulations are overly protective, others

are not satisfied with this level of protection. The approach taken by APHIS is to regulate according to demonstrated risk level. The adoption of the IPPC Guidelines would dramatically decrease the pest risk of concern to APHIS posed by importation of WPM. Selection of this regulatory approach does not prevent APHIS from further deliberation on more intensive regulation if the protection measures are determined to be inadequate for specific risks from pests of concern. Enforcement of the IPPC Guidelines could provide a baseline for determining any need for further protective measures.

Comment: The two treatment options allowed under the rule—heat treatment and methyl bromide fumigation—have an unacceptably high rate of failure to stop invasive pests traveling in solid wood packaging. In the DEIS, APHIS itself has questioned the efficacy of heat and methyl bromide treatments.

Response: There are differences of opinion among commenters regarding the effectiveness of treatments in the IPPC Guidelines to eliminate invasive pests in WPM. The DEIS does not question the efficacy of these treatment methods per se, but it does indicate the advantages and limitations of each treatment method to eliminate pest risks. The DEIS does not take a position as to whether the treatments in the IPPC Guidelines will be the ultimate solution or part of the ultimate solution, but the development of additional data about efficacy and pest exclusion for all potential pests and pathogens may lead to further consideration of these phytosanitary regulations by APHIS.

Comment: Instead of the proposed treatments, APHIS should require WPM to be subject to the documented effective treatment for wood products, heat treatment with or without moisture reduction as specified under the APHIS universal treatment option: 71 °C at the center of the material for 75 minutes. This treatment would substantially minimize the threat of introduction of injurious organisms. Until other efficacious wood treatments are sufficiently documented, this heat treatment provides the broadest and safest approach to the wood importation issue.

Response: The proposed treatment requirements for WPM would provide much more protection against pest risk than the current requirement of debarking and apparent freedom from pests. The 71.1 °C treatment was not established with SWPM in mind, but rather as a universal treatment option that would be certain to eliminate pests in all wood materials regardless of their

risk level. As the 1995 final rule (60 FR 27666, May 25, 1995) that first established the regulations said, “These universal options employ heat treatment and other conditions for importing logs and lumber not otherwise enterable. These universal options are relatively stringent, because they must eliminate the spectrum of potential plant pests and address risks that have not been characterized. The universal options are designed to give importers a way to import articles that would otherwise be prohibited until detailed plant pest risk assessments are completed. Whenever feasible, importers may choose to employ universal options while plant pest risk assessments and rulemaking are underway to establish less stringent requirements for the articles they wish to import.”

Also, as stated in the August 2000, “Pest Risk Assessment for Importation of Solid Wood Packing Materials into the United States,” APHIS is preparing a pest risk reduction analysis that will evaluate the effectiveness of various available treatments and potential mitigation alternatives for WPM. If information gathered during development of the pest risk reduction analysis suggests that the stringency of existing WPM treatment requirements should be either strengthened or lessened, APHIS will undertake rulemaking to do so.

Comment: Methyl bromide is ineffective against many deep-wood pathogens and pests because it does not penetrate to the center of thick boards or timbers. Its use cannot be verified at a later date, and it does not prevent reinfestation.

Response: While methyl bromide is ineffective against some deep wood pathogens, and a few deep wood pests, these pathogens and pests usually are not significant pests associated with the WPM pathway. Many treatments cannot be verified at a later date by physical analysis or examination at ports. That is one reason this rule requires marking of treated materials. The marking system, coupled with registration and monitoring/auditing of treatment facilities by national governments, is the means for ensuring treatment has occurred. Finally, while reinfestation of fumigated WPM is possible, the risk is low (beyond the level of hitchhiking pests that might attach to any kind of packaging).

Canada and Mexico

Comment: The current exemptions from the regulations for wood articles from Canada and from Mexican border states should be extended to include WPM that is imported into the United

States from the balance of Mexico. This action would be consistent with the North American Free Trade Agreement (NAFTA) and the North America Plant Protection Organization announcement dated April 25, 2003. It would avoid administrative complexities and the cost of a partial exemption from border States only, as well as avoid the production of additional export pallets from Mexico to the United States.

Response: APHIS took final action on this issue in a final rule titled "Importation of Unmanufactured Wood Articles From Mexico" that was published in the **Federal Register** on August 26, 2004 (69 FR 52409–52419, Docket No. 98–054–3). In that final rule, APHIS amended the regulations to remove the exemption for most unmanufactured wood, including WPM, imported into the United States from Mexican States adjacent to the United States/Mexico border. The only exemption that continues for Mexican border States covers firewood, mesquite wood for cooking, and small, noncommercial packages of unmanufactured wood for personal cooking or personal medicinal purposes. The effect of that change was that all WPM from Mexico will be subject to the same requirements in § 319.40–3(b) that apply to WPM from any place except Canada.

Comment: The United States and Canada must work together to curtail the disproportionate numbers of introductions of forest pests that are occurring in the Great Lakes region. They are far out of proportion to the volume of foreign shipping in that region or to the volume of interceptions by Federal inspectors. It is equally important that APHIS quickly complete the separate rulemaking to close the loophole that allows untreated WPM to enter the country from northern Mexican states.

Response: Please see the response above. APHIS is actively working with the Canadian Food Inspection Agency to curtail pest introductions. Most of these introductions are pests not of Canadian origin that arrive via transshipped materials. We expect their level to decrease as Canada implements its own regulations requiring WPM imported into Canada to be treated in accordance with the IPPC Guidelines. Also, APHIS is currently developing a pest risk assessment for wood from Canada, and if we identify any significant risks that have not been addressed by current regulations, we will take appropriate rulemaking action.

Methyl Bromide—Montreal Protocol

Comment: The proposed use of methyl bromide would violate the spirit and intent of the Montreal Protocol. It would exceed the intent of the quarantine exemption. It is inconsistent with Protocol Decisions that were adopted by the Montreal Protocol parties with the consent of the United States. Decision VI/11 of the Meeting of the Parties to the Montreal Protocol, for instance, states that developed country parties "are urged to refrain from use of methyl bromide and to use non-ozone depleting technologies wherever possible." The U.S. Environmental Protection Agency (EPA) wrote in its comment on the proposed rule regarding wood imports from Mexico (June 11, 1999, 64 FR 31512–31518) that because of the need to honor the Montreal Protocol and protect the ozone layer, "allowing the use of methyl bromide in quarantine treatment of Mexican wood articles where other effective treatments exist would be inconsistent" with Protocol Decisions.

Response: APHIS is committed to finding environmentally acceptable alternative treatments to methyl bromide fumigation. At the current time, methyl bromide is an efficacious and economically feasible quarantine treatment to control pests in WPM, and we have determined that allowing it as an alternative treatment for WPM in the context of this rule will provide the necessary level of pest protection while minimizing impact on the environment given the absence, in many cases, of technically and economically feasible alternatives. This determination is supported by the FEIS, as discussed below in the section titled "National Environmental Policy Act."

As discussed above, APHIS actively cooperates with other agencies and to identify and validate technically and economically feasible alternatives to methyl bromide. APHIS will continue to work cooperatively with the IPPC as APHIS explores alternative treatments to methyl bromide and incorporates validated, economically feasible alternatives into our quarantine regulations.

Comment: The U.S. Department of Agriculture (USDA) estimate that methyl bromide emissions will increase by 5,145 metric tons, increasing total world usage by more than 10 percent, is a vast underestimate because it was based on the assumption that WPM would be fumigated before use. From experience in China, fumigation occurs at port facilities, after goods are packed in raw wood materials. USDA even states in the proposal that most wood

packaging fumigation consist of about 35 percent WPM and 65 percent cargo. The USDA FEIS on wood from Mexico predicts a massive increase in methyl bromide use of more than 102,000 tons per year. That would increase current world use for quarantine purposes by 10 times. It would triple total world use of methyl bromide for all purposes. Under these circumstances, USDA has not complied with its obligations to present a rational basis for its proposed action under the National Environmental Policy Act (NEPA), the Plant Protection Act, or the Administrative Procedure Act.

Response: The draft and final EIS projections are based upon ongoing review of actual usage data and observations of activities at Chinese ports by APHIS personnel. The initial usage analyses were based upon the limited available time for exporters and shippers to prepare to treat WPM as required by APHIS in an interim rule published on September 18, 1998 (63 FR 50099–50111, Docket No. 98–087–1). These analyses considered the fumigation of WPM with already loaded cargo rather than fumigation of WPM before loading. Although there was primarily fumigation of WPM with loaded cargo by the exporters and shippers in China initially, this approach to WPM treatments did not continue. Many shippers and exporters from China began fumigating WPM prior to loading, for at least three reasons. The cost savings to the shippers and exporters from less use of methyl bromide in fumigations of WPM prior to loading were substantial. Also, many agricultural commodities lack a tolerance for the bromine residues imparted by fumigation with methyl bromide. Finally, fumigation after loading could make food commodities illegal for human consumption in the United States and could damage certain other commodities (e.g., leather goods and some electronic parts).

Unlike the limited time exporters and shippers in China had to prepare for the September 18, 1998, interim rule, shippers and exporters throughout the world are aware of the IPPC Guidelines and have had time to prepare for these regulations. In addition, the IPPC Guidelines require marking the wood used in WPM, and it is easier and less expensive to treat and mark prior to loading than to unload after treatment to place markings on the treated WPM and then reload. Based upon this, it is reasonable to expect most exporters and shippers to fumigate WPM before loading. The fact that the projection in the FEIS assumes fumigation as the method of treatment for all WPM

indicates that it is actually a high estimate because we know that many developed nations will actually use heat treatment rather than fumigation for compliance with IPPC Guidelines.

We expect fumigation of WPM to decline over time as shippers build a stockpile of treated pallets, which normally can be used for up to 3 years. We also expect heat treatment to substitute for fumigation in some additional locations as more facilities are built.

Comment: The final rule should explain more about the EPA's plans to phase out methyl bromide, particularly its intent to publish a plan and timeline in the **Federal Register** about December 2003.

Response: Since the EPA is continuing to develop its plans and timeline for this issue, APHIS cannot provide conclusive information about them. We suggest that readers interested in the EPA's actions concerning methyl bromide follow EPA publications in the **Federal Register**.

Methyl Bromide—Other Issues

Comment: Methyl bromide fumigation and heat treatment facilities are generally unavailable in many parts of Africa and Indonesia. Rubber exports from these areas have been shipped without risk using WPM treated with Borax as per the Rubber Research Institute of Malaysia No. 122 method, or with a fungicide and insecticide called Xylolit B4.

Response: Neither of these are approved treatments for WPM under APHIS regulations, and neither has been documented to be as effective as methyl bromide and heat treatment against target pests. APHIS is willing to review any scientific data regarding other treatments, and to consider adding treatments that are proven effective. However, when this rule goes into effect we will only accept WPM treated according to the new regulations, which do not authorize borax or insecticide/fungicide treatments. We recognize that some importers may have to make substantial adjustments to their business practices and packing material suppliers to comply with the regulations, but we believe the pest risk associated with WPM justifies the new requirements.

Exempt Certain Articles From Regulation

Comment: The treatment requirements of the proposal should not apply to the WPM containers of imported fresh fruits and vegetables. Specifically, APHIS should exempt typical small fruit and vegetable crates in common use. These crates are made

of mixed plywood and natural wood, and are about 12" × 7" × 4" high, with 1.1" × 1.1" × 4" high natural wood corner supports. WPM used in the international trade of regulated goods, such as fresh fruits and vegetables that are documented by an official phytosanitary certificate of the country of origin, presents a phytosanitary risk significantly lower than WPM in general. Phytosanitary certificates apply to both the commodity being exported and the WPM used in their transportation.

Response: APHIS interceptions records from 1996–2001 show an increasing number of pests associated with WPM, including in containers for fresh fruits and vegetables. Based on interceptions at ports, WPM used for the shipment of fruits and vegetables can pose a significant risk. Importers of these products may be able to avoid having their containers considered to be regulated articles by redesigning them to eliminate the thicker pieces of raw wood often used as corner supports. Containers that use pieces of raw wood less than 6 mm (0.24 in) thick and containers made wholly of manufactured wood would be exempt from regulation. For the specific crates to be exempted, the corner supports would have to be replaced with exempt materials (plywood, particle board, veneer, etc.) or with bundled pieces of raw wood each of which is no more than 6 mm (0.24 in) thick.

Comment: We request that APHIS address compliance requirements for WPM originating in the United States, shipped to a foreign location and then exported back to this country. It seems unlikely that WPM exported from the United States will be marked according to the IPPC Guidelines until all other countries have adopted those Guidelines. Consequently WPM originating in the United States that is exported and then returned would not satisfy the IPPC Guidelines unless an interim marking mechanism is established and used. Will APHIS allow U.S.-origin WPM that is exported and reimported into the United States to be marked according to requirements established by relevant foreign jurisdictions on an interim basis until all other countries adopt the IPPC Guidelines?

Response: We are not adopting the suggested approach because using additional markings to indicate that WPM originated in the United States would require a major regulatory program to ensure the validity of such markings. It would be expensive, inconvenient, and a drain on APHIS resources that can be employed more

usefully elsewhere. It would also be confusing to foreign governments that are just getting used to the markings in the IPPC Guidelines. There are already many sources of treated WPM in the United States, and APHIS, as the national plant protection organization of the United States, is currently developing procedures to meet its responsibilities under the IPPC Guidelines to inspect, monitor, accredit, and audit commercial companies that treat WPM and apply the official mark to it that indicates treatment. There are also many foreign sources of WPM treated in accordance with the regulations, and many U.S. shippers doing business with Canada already obtain their WPM from foreign sources.

Dunnage and Small Wood Pieces

Comment: Does the proposed marking requirement mean that every piece of the 40 to 80 tons of dunnage that may be carried on board a steel transport ship could be subject to inspection prior to discharge? This is a serious problem because dunnage is used under the steel since it is intended to prevent movement of the cargo during the voyage. Long steel products are carried stowed in a fore-and-aft direction in ships' holds. Dunnage is used athwartship. In such a correctly stowed hold there should be little or no dunnage showing on completion of loading, so that marking may not make a difference as far as inspection prior to discharge is concerned. Also, sometimes ships meet with such bad weather during their sea voyage that part of the dunnage is crushed or broken. As a result, there will then be pieces of dunnage unmarked. What measures are then intended?

Response: We recognize the difficulty in ensuring that required treatment marks are present on some dunnage that is custom cut to brace or fill gaps in a particular load. However, dunnage is frequently made from the type of low quality wood that poses the greatest pest risk, and it is therefore necessary that dunnage be treated and marked the same way as any other regulated WPM. The fact that the nature of some cargoes makes it impossible to inspect the associated dunnage aboard ship is not particularly relevant because dunnage inspection is normally done following cargo discharge.

Alternatives to Marking WPM

Comment: To speed port clearance and aid enforcement, we support using very simple self-declarations of compliance to accompany any and all international shipments, even those totally free of solid wood packaging.

The self-declaration would affirm that all packaging in the shipment complies with the provisions of the IPPC Guidelines. This is vital information and therefore should be repeated in key shipping documents such as bills of lading, invoices, and so on.

Response: We welcome the use of electronic records for many port operations purposes, and we are working with the U.S. Department of Homeland Security (DHS) on projects in that area. However, APHIS has decided that the system of authorized WPM markings applied by facilities operating under the supervision of national governments is more reliable than a system where individual invoices and shipping documents affirm compliance. Affirmations in shipping documents about whether or not cargoes contain WPM, and whether or not the WPM has been treated, are frequently unreliable. Our experience clearing shipments from China showed frequent incidents where shipping documents contained an affirmation that no WPM was in the cargo, despite its presence. Under this final rule, inspectors can tell directly from observation of the WPM whether or not it is in compliance (barring fraudulent misuse of the mark, which will be addressed by auditing and monitoring). This process does not need to be significantly slower than using shipping documents. Importers that establish a record of compliance over a number of shipments generally will be subject to less inspection. Clearance time will also decrease as importers and exporting countries gain experience with the new requirements and acquire a history of moving shipments without inspectors finding pests of concern associated with them.

Comment: Clearing WPM at ports based on physical inspection to see if it is marked will cause significant delays in the clearance of imports without commensurate benefits. Containers and air cargo will have to be unloaded individually and each pallet, crate, or other regulated item inspected. This is highly burdensome and costly for both importers and the government, and will cause major disruptions to importers' supply chains, many of which are part of just-in-time inventory management systems. For the government these inspections will divert inspectors of the U.S. Bureau of Customs and Border Protection (CBP), DHS, from their primary cargo security mission.

We urge APHIS to offer an alternative that would be consistent with the best practices being implemented throughout the regulatory realm, which allow for electronic filing of compliance information. In an electronic system,

importers would be allowed to transmit a compliance code to the CBP, by which code they would certify that the WPM is compliant or that there is no WPM contained in the shipment. This is how compliance certifications are presented to other government agencies such as the Federal Communications Commission and the Food and Drug Administration. A paper alternative, such as a stamped statement on a bill of lading or invoice, should be available for situations in which electronic certification is not practical.

Additionally, we recommend that APHIS consider providing for a blanket certification for importers who can assure to the satisfaction of APHIS that their WPM is routinely compliant. In the electronic environment, this would consist of importer information established as part of its CBP account profile. CBP is developing these profiles as part of its Automated Commercial Environment architecture. We urge APHIS to work closely with CBP to implement the necessary interfaces between CBP's system and APHIS. In the interim, we request that APHIS accept blanket paper certificates of compliance by which importers certify that for a designated period of time all imports of WPM into the United States are compliant.

Response: See the response to the previous comment.

Inspection Procedures

Comment: Because not all WPM poses equal risks, APHIS should use risk management to avoid unnecessary shipment delays caused by ineffective random inspections. Take advantage of data from existing importers quality control procedures and compliance programs. Highly compliant importers, as verified by valid statistical sampling of imports, should be subject to a lower rate of physical inspections than unknown or noncompliant importers.

Response: APHIS intends to use risk management techniques and data from a variety of sources to target its inspection activities and its monitoring and auditing activities for facilities conducting treatments.

Delayed Effective Date and Noncompliant Shipments

Comment: Instead of immediately starting to order the reexport of unmarked WPM, we request a 2-year transitional period to phase out old WPM with previously acceptable marking (for example, "HT" without the IPPC symbol) provided the treatment requirements prescribed by the proposed rule are satisfied.

Response: APHIS received a number of comments stating that exporting countries and shippers would need time to adapt to the new requirements of the rule and to change some of their business practices and WPM sources. We agree, and in response we have set the effective date for this final rule at a date 1 year after its publication date. We believe affected parties will be able to prepare for the new requirements during this period. APHIS will also conduct a very active information campaign during this period to ensure that affected parties are aware of the new regulatory requirements. Consistent with parties' commitments under the Montreal Protocol, this campaign will also stress to affected parties that use of alternate packing materials or heat treatment of WPM are environmentally preferable alternatives for meeting the requirements, as documented by the FEIS. As part of this campaign, APHIS inspectors at ports will focus on imported WPM shipments that do not meet the new requirements, and will give the importers official notice explaining what they must do for future shipments (*i.e.*, those arriving after the effective date of this final rule) to comply with the new requirements.

Comment: In case of noncompliance, the proposal would require reexport after separating the cargo, if possible. Why not allow the other measures explained in item 6.1 of the IPPC Guidelines, such as incineration, processing or treatment, etc.?

Response: Reexportation is necessary because we need to achieve compliance (treatment and marking of WPM before arrival) in order to fully protect against the introduction of plant pests. In recent years, several destructive plant pests, including the Asian longhorned beetle and the emerald ash borer, have been introduced into the United States. We believe that these pests have entered the United States in WPM at ports of entry. Therefore, we believe that proper treatment of WPM, prior to importation into the United States, is essential to safeguard our agricultural resources from further pest introductions. We believe requiring the reexportation of noncompliant WPM is the only option that will ensure that WPM is properly treated prior to its arrival in the United States. Also, allowing post-entry treatment is not feasible because space and services at ports are limited and ports cannot be burdened with vast quantities of noncompliant materials awaiting treatment or incineration. Further, allowing post-entry treatment would place an additional burden on already scarce port resources since it would be necessary to track shipments

to ensure proper treatment. Finally, the reexportation requirement is consistent with the approach adopted by other IPPC member countries, such as Canada.

Comment: The requirement to reexport noncompliant imports is too stringent. Some WPM might not be stamped due to simple error. In cases where marking is absent but no pests have been intercepted, the cargo should be accepted. Even if pests are found WPM could be fumigated or treated appropriately at the expense of the importer in the routine manner for other noncompliant goods. Equivalent measures should be explored. The national plant protection organization (NPPO) of the exporting country could then be informed about the non-compliance with the details of the exporter so that the NPPO could monitor that exporter.

Response: Please see the above responses about the 1-year delay in the effective date of this rule, which will give affected parties time to comply with the new requirements. We intend to inform the NPPO's of exporting countries about noncompliance in shipments from their countries, but this is in addition to, not a substitute for, enforcement action by APHIS.

Comment: When imported WPM is not in compliance, APHIS should require both the WPM and cargo to be treated at the port of entry. Separating the cargo from the WPM without treatment could result in the introduction of wood borers into the environment. Similarly, any properly marked WPM that proves infested should be required to be treated at the port of arrival. Fumigators at the ports of entries have years of experience treating cargo upon arrival and have the expertise to ensure that any destructive pests are destroyed and that the free flow of trade is not impeded. Requiring the reexport of WPM and associated cargo will impede international trade and hurt the U.S. economy.

Response: As discussed above, the reexport option will be necessary to achieve compliance (treatment and marking of WPM before arrival), and also because space and services at ports are limited. In some cases, APHIS inspectors at a port of entry may discover signs of pests in a shipment that is apparently in compliance and order treatment in accordance with § 319.40-9. APHIS is committed to protecting U.S. agricultural resources and will ensure that any treatment after arrival is done under safeguards adequate to prevent the spread of pests. Sometimes this will involve treating cargo along with WPM, and sometimes it will not, based on the type of cargo

and the nature of any pests that are identified.

Economic Impacts on WPM Producers

Comment: Forty percent of all hardwood lumber manufactured in the United States, and a goodly portion of the softwood as well, go into the manufacture of WPM like dunnage, crating, pallets, packing blocks, drums, cases, and skids. It is absolutely essential for the hardwood industry and very important to the softwood industry to preserve this huge market for their lowest quality lumber. Also, unloading containers in transit to verify whether the packing material has really been treated would greatly endanger certain products being transported (e.g., fragile wood veneers), in addition to adding more time to the transportation.

Response: The problem is that the use of low grade, untreated wood in international WPM is exactly the practice that must be ended to protect U.S. resources against foreign plant pests. We do not see any alternative that would allow continued use of untreated WPM and also protect against these risks. With regard to unloading cargoes for inspection purposes, CBP inspectors at ports are experienced and well trained and deal professionally with any shipments. APHIS is developing new operational procedures to minimize delays caused by WPM inspections at ports. We also expect that the need for substantial unloading and inspection will decline over time as shippers and exporting countries become familiar with the new requirements and develop a history in which no pests of concern are found associated with their shipments.

Comment: Nearly 7,000 U.S. facilities produce pallets nationwide and are a vital utilizer for low grade wood which would otherwise have to be burned at high temperature for lack of other use. This, in turn, would considerably increase the cost of marketing high quality wood products like veneer, lumber, flooring, plywood, and particle board as well as other engineered wood products.

Response: We recognize that this rule will have some adverse economic effects, as discussed below in the section "Executive Order 12866 and Regulatory Flexibility Act." Such effects are sometimes unavoidable when APHIS takes steps to protect agricultural resources against plant pest risk. There will still be a market for domestically produced pallets because untreated WPM could still be used in domestic commerce or in exports to any country that has not implemented the IPPC

Guidelines or similar treatment requirements.

Economic Impacts on U.S. Fumigators at Ports

Comment: The rule would reduce fumigation at ports of arrival, financially hurting quarantine fumigators that often are small family-owned businesses. These economic losses would be on top of significant revenue losses that fumigators incurred when APHIS implemented its interim rule on WPM from China.

Response: APHIS' main goal is protecting against any possible infestation that might be associated with imported WPM. There is a general trend throughout the world to reduce methyl bromide usage. While this final rule may result in reduced fumigation of wood products at U.S. ports of arrival, the 1-year delay in the effective date should give fumigation businesses time to adjust business plans. Also, as discussed above, APHIS may discover signs of pests in a shipment that is properly marked and may order treatment of either the WPM, the cargo, or both, as appropriate.

Implementation Schedule

Comment: The effective date of the final rule should be at least 1 year after publication, to allow developing countries to implement the necessary means and conditions, including national systems of treatment, inspection, registration or accreditation, and auditing of WPM to be shipped to the United States, thus avoiding an obstacle to international trade.

Response: We agree, as discussed above, and have delayed the effective date for 1 year. In general, APHIS has communicated very well with its trading partners, which should allow them to implement the needed systems within 1 year. After the effective date, we will enforce compliance with the new requirements.

Comment: We seriously doubt that any country outside of North America will be prepared to fully implement the standard by January 2004. We encourage the USDA to adopt the standard but also apply a generous grace period to allow importing countries to get up to speed on the marking systems and underlying audit programs. Otherwise, we will end up seeing a lot of "IPPC symbols" on pallets which may not have been treated to the same degree of quality and control as we would expect in the United States, thereby casting doubt on the efficacy of the whole program.

Response: Please see the responses above about the 1-year delay in the effective date. CBP will audit all

material shipped, as well as records for facilities treating WPM and applying the mark. Shipments from countries with high levels of noncompliance will face higher levels of inspection.

Miscellaneous Comments

Comment: The IPPC Guidelines do not specifically require that WPM be free of bark. Does APHIS intend to specify a bark-free requirement for WPM in the final rule?

Response: No, APHIS will not require the wood to be bark free, as long as it has been properly treated. Currently available data shows that treatment alone will adequately kill the pests of concern.

Comment: There is no provision in the proposed rule describing what mark should be used by non-IPPC member countries. There will be trademark registration on the IPPC mark so non-IPPC member countries may not be entitled to use this marking.

Response: APHIS is not responsible for any country's decision on whether or not to join the IPPC, or for how any country addresses trademark issues. We do note that the IPPC is in the process of registering the mark in many countries at this time for use on materials treated in accordance with the IPPC Guidelines. We also note that, even if a country cannot establish treatment facilities authorized to apply the mark in their own country, they can readily obtain treated and marked WPM from other countries, or they can use alternative materials to WPM.

Miscellaneous Editorial Changes

In addition to the changes discussed above, we are making some minor changes for clarity and consistency. We are removing the definitions of *exporter statement*, *importer statement*, and *solid wood packing material* because these terms are no longer used in the regulations. We are slightly editing the table in § 319.40-3(b)(1)(ii) that provides the methyl bromide treatment schedule so that it provides concentrations in lbs./1,000 c.f., as well as in g/m³. We are also adding a graphic and description of the approved IPPC mark to § 319.40-3(b)(2).

Therefore, for the reasons given in the proposed rule and in this document, we are adopting the proposed rule as a final rule, with the changes discussed.

Executive Order 12866 and Regulatory Flexibility Act

This rule has been reviewed under Executive Order 12866. The rule has been determined to be significant for the purposes of Executive Order 12866 and,

therefore, has been reviewed by the Office of Management and Budget.

Below is a summary of the economic analysis for the changes in WPM import requirements in this document. The economic analysis provides a cost-benefit analysis as required by Executive Order 12866 and an analysis of the potential economic effects on small entities as required by the Regulatory Flexibility Act. A copy of the full economic analysis is available for review at the location listed in the **ADDRESSES** section at the beginning of this document, or on the Internet at <http://www.aphis.usda.gov/ppq/swp/>.

In accordance with 5 U.S.C. 604, we have performed a final regulatory flexibility analysis, which is set out below, regarding the effects of this rule on small entities. The initial regulatory flexibility analysis in our proposed rule stated that we did not have all the data necessary for a comprehensive analysis of the potential effects of this rule on small entities. Therefore, we invited comments concerning potential economic effects, particularly the number and kind of small entities that might incur benefits or costs. We did not receive any comments providing the specific data we requested, but we did receive several comments stating that some small business will be adversely affected by the rule, including importers with substantial inventories of WPM on hand in foreign countries, which they would no longer be able to use for shipments to the United States, and fumigators at U.S. ports that currently treat large volumes of WPM upon arrival and expect to lose much of this business after the rule is implemented. Several commenters also suggested that domestic WPM manufacturers faced indirect effects that could result when other countries adopt the IPPC Guidelines, reducing the demand for untreated WPM.

Under the Plant Protection Act (7 U.S.C. 7701-7772), the Secretary of Agriculture is authorized to regulate the importation of plants, plant products, and other articles to prevent the introduction of injurious plant pests.

This analysis evaluates a final rule adopting the IPPC standards on wood packaging material, the International Standard for Phytosanitary Measures No. 15. This standard contains globally accepted measures that may be applied to WPM to reduce the entry of pests via this pathway. The IPPC Guidelines require WPM to be heat treated at 56 °C for 30 minutes, or fumigated with methyl bromide.

Alternatives considered and rejected included the alternative of taking no action. This alternative was rejected

because recent interceptions of pests at ports of entry show a steady increase in serious pests associated with WPM from everywhere except China, whose WPM must already be treated due to past pest interceptions. If left unchecked, pests introduced by imported WPM have the potential to cause significant economic damage to the agricultural and forest resources of the United States.

We also rejected the alternative of extending the China interim rule to all WPM worldwide, because that would not ensure long-term exclusion of some wood pests of quarantine concern, such as certain deep wood-borers, fungi, rots, and wilts. The adoption of the IPPC treatment standards for all importing countries will address pest threats posed not only by Cerambycidae, which was the primary target of the China interim rule, but nine other pest families as well. Additionally, adoption of the China interim rule requirements would result in the greatest additional use of methyl bromide of all the alternatives.

Another alternative not adopted was a comprehensive risk reduction program allowing differing, circumstance-dependent risk mitigation strategies that include various options for complying with United States import requirements. A comprehensive risk reduction program would consist of an array of mitigation methods (*e.g.*, inspection, various heat treatments, various fumigants and other chemical treatments, irradiation, etc.) that is more extensive than that contained in either the China Interim Rule or the IPPC Guidelines. Many of the treatment methods being considered as components of a comprehensive risk reduction program require more research and development to demonstrate that they could be used effectively and economically to treat the required range of WPM products. Some of the remaining issues include inadequate control, incomplete efficacy data, safety issues, and lack of adequate facilities or supplies. Therefore, while comprehensive risk reduction is still considered a possible future approach for WPM import requirements, it is not practical to adopt it at this time.

Another alternative, substitution of other packing materials, was rejected because it requires use of materials the cost of which exceed the likely costs of SWPM that is either heat treated or fumigated with methyl bromide.

We believe it is appropriate and necessary to adopt the IPPC Guidelines because they were developed as an international standard to control pests associated with WPM. The types of pests the IPPC Guidelines were developed to control have been

intercepted at U.S. ports for many years and pose significant risks to U.S. resources. The damage they cause could be similar in magnitude to the recent introduction of the Asian longhorned beetle (ALB) *Anaplophora glabripennis* (Coleoptera: Cerambycidae). Our regulations have already been changed to prevent further introductions of ALB from China, but adopting the IPPC guidelines could prevent the introduction of ALB or similar wood borers from other parts of the world, as well as prevent the introduction of other types of pests such as woodwasps and bark beetles. Imposing the IPPC Guidelines' treatment and other requirements to prevent these introductions will yield net benefits. The benefits (avoided losses) that can be gained by preventing introduction of these pest types are discussed below. The actual magnitude of the benefits cannot be definitively ascertained, but they are likely to be much larger than the associated costs.

As an indicator of the damage ALB or similar wood borers could cause if introduced again in the future, consider the costs of the ALB introduction from China. The ALB, first discovered in New York, NY, in 1996 and in Chicago, IL, in 1998, was most likely introduced on wood packing material from China. The present value of urban trees at risk in the two affected cities is estimated at \$59 million over some 50 years. About \$6 million of urban trees have been destroyed due to pest infestation and eradication efforts since the introduction of ALB. So far, APHIS and State and local governments have spent over \$59 million in eradicating the pest in the two localities. If only New York City and Chicago were considered, it would appear that the current eradication program has spent an amount equal to the value of the resource being protected. However, the eradication and quarantine activities have slowed the spread within New York and Chicago. Without these activities, the faster spread in these cities would increase the net present value because the resources would be lost in a much shorter amount of time. The eradication and quarantine activities are also the reason the pest has been confined to the two cities where it was initially detected. The potential damages from ALB spread to other areas can be gleaned from the Nowak *et al.* study that estimated losses to seven other cities. The present value of damage to urban trees in Baltimore, MD, alone, not allowing for intervention, was estimated to be \$399 million. Additionally, without governmental

intervention, forest resources would also be at risk.

Wood borers such as ALB could cause the most damage of all types of pests associated with WPM, but we have also projected that other types of pests could cause substantial damage. These include the Sirex woodwasp (Family: Siricidae) and the Eurasian spruce bark beetle *Ips typographus* (Family: Scolytidae). Projections of physical damages that can be caused by these types of pests range up to \$48–\$607 million and \$208 million, respectively. Perhaps the greatest devastation posed by these pests that cannot be fully captured monetarily is their potential to cause irreversible loss to native tree species and consequential alterations to the environment and ecosystem.

The recent introduction of the emerald ash borer (EAB), *Agrilus planipennis* (Coleoptera: Buprestidae), a pest of ash trees, in Michigan and parts of Canada in June 2002 is a reminder of this threat. It is not known how the pest arrived in North America but, as with other exotic beetles, infested WPM from Asia is suspected. The pest may have arrived some 6 years ago, before the interim rule on China was implemented in September 1998 (63 FR 50099–50111, Docket No. 98–087–1). Ironically, many of the large ash trees favored by the pest were originally planted to replace elm trees killed by Dutch elm disease caused by yet another exotic pathogen. A preliminary assessment of the potential impact of the EAB on urban and timberland ash trees in the six counties originally quarantined by Michigan comes to about \$11 billion in replacement costs alone. The nursery stock industry in the affected counties reported a loss in sales so far of \$2 million. These estimates serve to highlight the potential magnitude of damage that could be caused by one outbreak alone of a pest on the targeted list.

The adoption of the IPPC treatment standards for all importing countries will address pest threats posed not only by Cerambycidae, which was the primary target of the China interim rule, but nine other pest families as well. Approximately 95 percent of pests intercepted by APHIS inspectors in shipments worldwide are pests on the IPPC target pest list.

The treatment requirements in this rule are not expected to completely eliminate all pest interceptions related to WPM. As evident from data reported between 2000 and 2001, 2 years following the implementation of the China rule, 7 percent of pest interceptions was still associated with China imports. To the extent that pest

interceptions will be reduced, the risk of an outbreak will also be lower than in the absence of the rule. However, because pests continue to be intercepted albeit at a lower rate, benefits need to be correspondingly adjusted to reflect the risk.

In discussing the costs that might result from adopting this rule, it is essential to recognize that to some degree these costs will accrue when other countries adopt the IPPC Guidelines, whether or not the United States also adopts them. As other countries impose IPPC treatment requirements on imports containing WPM the global WPM market will be greatly affected, likely causing a broader impact on the domestic wood packaging industry than the provisions of this rule.

Adopting this rule may also cause general societal costs due to human health issues (increases in skin cancer, cataracts, and other conditions) and reduction in crop yields that may result if increased use of methyl bromide as a result of this rule delays recovery of the ozone layer. It is impossible to confirm or estimate such costs at the present time.

The effects of this rule will fall largely on foreign manufacturers of pallets. The increased treatment cost may add to the cost of packaging and transporting of goods which, in turn, will affect importers of commodities transported on pallets and final consumers of those goods are potentially affected by this rule. The required treatments will add to the cost of packaging and transport of goods. Due to the very large number of pallets that are used to assist imported cargo, the overall cost may be substantial. The extent of the impact on U.S. consumers will depend on the ability of importers to pass on the additional costs to respective buyers. It is expected that most of the cost of treating pallets will be borne by foreign pallet manufacturers. Furthermore, given the small value of pallets as compared to the value of trade, increases in pallet prices are not expected to have a measurable effect on domestic consumers or on trade.

We also expect this rule to affect U.S. purchasers of imported pallets, crates and boxes. Between 1999 and 2001, an average of 38 million pallets was imported into the United States, over 80 percent of which came from Canada. Imported WPM was valued at \$150 million during this time period. At approximately \$3.95 per piece, imported pallets are less expensive than domestic pallets where the average price ranges between \$8 and \$12 per pallet. Canadian pallets are primarily used by industries close to the U.S. and

Canadian border. The wood pallet market is highly competitive, and the demand for imported pallets can be characterized as elastic. While pallets made of alternative materials such as plastic, corrugated fiberboard, or processed wood are imperfect substitutes for wood, one wood pallet can easily substitute for another wood pallet.

Assuming a perfectly elastic supply and perfectly inelastic demand for imported pallets, and assuming a treatment cost that adds about \$2 on average to a pallet, U.S. purchasers of imported pallets could lose an estimated \$76 million in higher costs. The true extent of the impact, however, will be lower than this amount because demand is likely to be elastic and foreign importers are expected to share a greater burden of the cost increase. We do not know treatment costs for foreign pallet producers, but given the availability of substitutable domestic wood pallets, we do not expect U.S. purchasers of imported pallets to be significantly affected.

Recent and forthcoming decisions by other countries to adopt the IPPC standard, while not an effect of this rule, represent an associated issue that will indirectly affect manufacturers who sell pallets, crates, and boxes to foreign buyers. There are an estimated 3,000 manufacturers of pallets and containers in the United States. The primary importers of these items are Canada and Mexico. As these two countries prepare to implement the IPPC standard, only treated wood packaging material will likely be in demand for export. The extent of the impact on pallet and container manufacturers will depend on the ability of individual firms to put in place the necessary infrastructure for conducting treatments as required by the international standard. The number of U.S. firms that export WPM and will therefore be affected is unknown. Regardless, the impact on the overall WPM industry is expected to be small as the quantity of total pallets exported, estimated at about 10 million units, comprises only 2.5 percent of the 400 to 500 million pallets in production in the United States each year.

Domestic manufacturers of wood pallets may be indirectly affected in one other way. Because of the increasing trend in recycling of pallets for cost-cutting purposes, manufacturers may be faced with new demands for treated WPM from domestic exporters who reuse pallets and wood containers to ship goods back from foreign countries.

Effects on Small Businesses

The provisions of this rule are not expected to directly affect U.S. manufacturers of wood packaging material. There may be some decrease in the demand for pallets if some exporters decide to use alternate packing materials rather than WPM due to treatment costs for WPM. However, this should be more than balanced by new purchases of treated pallets by exporter/importers, who must now use treated pallets when they reuse pallets used to ship goods overseas to subsequently ship goods back to the United States. This may create an increased demand by exporters for treated pallets. Also, some U.S. pallet makers also make alternative packing materials (plywood, particle board) and could maintain their business levels even if there is a small demand shift from one category to the other.

The pallet industry in the United States is characterized by many small firms and a few larger firms. No one firm is able to dominate the market. U.S. Census data show that there are approximately 3,000 firms in the wood pallet and container industry. Other estimates of the number of firms in the industry range up to 3,500 pallet manufacturers in the United States. Most firms sell their products within a 350 mile radius. The average number of employees in 1997 was 17. Thirty two percent of the firms had fewer than five employees. The average sales were \$1.5 million.

The Small Business Administration (SBA) classifies wood container and pallet manufacturers as small businesses if they have 500 or fewer employees. According to the U.S. Census Bureau, 1997 Economic Census, all pallet manufacturers are considered small businesses.

Fumigation services are currently available at several dozen ports of entry on a permanent or ad hoc basis. In most cases these fumigation services are provided by large businesses that serve a number of ports. Two commenters on the proposed rule stated that several fumigators at ports were small businesses that could be adversely affected if the demand for fumigation upon arrival decreases, but these commenters did not provide any specific data on the number or location of these businesses or the scope of the potential impacts.

While decisions by other countries to adopt the IPPC standard are independent actions not directly resulting from adoption of this rule, those decisions do raise the associated issue that the international WPM market

will adjust as Canada, Mexico, and other countries adopt the IPPC standard. Small businesses such as pallet manufacturers and fumigators at ports may be adversely affected by those countries' decisions if they are unable to adapt to the increased demand for treated pallets. The number of small businesses potentially affected by other countries' decisions to adopt the IPPC standard is unknown. However, the adoption of the treatment standards by IPPC member countries that will then apply to U.S. exports will likely create a broader impact on the domestic wood packaging industry (small and large businesses alike) than the provisions of this rule.

Conclusion

This rule will affect foreign manufacturers of pallets which may, in turn, affect importers and final consumers of goods transported on pallets. Because the cost of a pallet is a very small share of the bundle of goods transported on pallets, cost increases due to the treatment requirements are not expected to significantly affect domestic consumers and thus will not have a measurable impact on the flow of trade. This rule is not expected to reduce the amount of goods shipped internationally as is evident from observing trends in imports from China since implementation of the interim rule in 1999.

This rule will also affect U.S. consumers of imported pallets. Given the substitutability of wood pallets, the impact on consumers is expected to be small due to the availability of wood pallets. Foreign importers are likely to absorb a greater share of the cost increase.

The simultaneous adoption of the treatment standards by IPPC member countries that is directed at U.S. exports will likely create a broader impact on the domestic wood packaging industry than the provisions of this rule.

This rule contains information collection requirements, which have been approved by the Office of Management and Budget (see "Paperwork Reduction Act" below.)

Executive Order 12988

This rule has been reviewed under Executive Order 12988, Civil Justice Reform. Under this rule: (1) All State and local laws and regulations that are inconsistent with this rule will be preempted; (2) no retroactive effect will be given to this rule; and (3) administrative proceedings will not be required before parties may file suit in court challenging this rule.

National Environmental Policy Act

On September 19, 2003, the U.S. Environmental Protection Agency (EPA) published in the **Federal Register** (68 FR 54900–54901) a notice of availability of the final environmental impact statement titled “Importation of Solid Wood Packing Material.” The FEIS considers the environmental impacts from importation of wood packaging material that could result from our adoption of the proposed rule as a final rule.² The FEIS was prepared in accordance with: (1) The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 *et seq.*), (2) regulations of the Council on Environmental Quality for implementing the procedural provisions of NEPA (40 CFR parts 1500–1508), (3) USDA regulations implementing NEPA (7 CFR part 1b), and (4) APHIS’ NEPA Implementing Procedures (7 CFR part 372).

Pursuant to the implementing regulations for NEPA, in cases requiring an EIS, APHIS must prepare a record of decision at the time of its decision. This final rule constitutes the required record of decision for the FEIS.

The NEPA implementing regulations require that a record of decision state what decision is being made; identify alternatives considered in the environmental impact statement process; specify the environmentally preferable alternative; discuss preferences based on relevant factors—economic and technical considerations, as well as national policy considerations, where applicable; and state how all of the factors discussed entered into the decision. In addition, the record of decision must indicate whether the ultimate decision has been designed to avoid or minimize environmental harm and, if not, why not.

The Decision

APHIS has decided, in this final rule, to amend its regulations to provide that wood packaging material imported into the United States from other countries will be subject to the requirements stipulated in the IPPC Guidelines. This includes specific treatment requirements for either heat treatment or

fumigation with methyl bromide of the wood packaging material.

Alternatives Considered in the Impact Statement Process

The FEIS focuses mainly on pest risk issues from the use of wood packaging material, potential impacts from treatments with methyl bromide, and potential impacts from use of substitute packaging made from materials other than unmanufactured solid wood. The FEIS considers a reasonable range of alternatives, including: (1) No action, essentially maintaining the exemption from treatment requirements for importation of wood packaging material from foreign countries except as regulated under the September 18, 1998, interim rule that required treatment of WPM from China (China interim rule, 63 FR 50099–50111, Docket No. 98–087–1), (2) extension to all countries of the treatments in the China interim rule, (3) adoption of the IPPC Guidelines, (4) establishment of a comprehensive risk reduction program, and (5) use of substitute (non-solid wood) packaging material only.

Environmentally Preferable Alternative

The environmentally preferable alternative would be to prohibit importation of wood packaging material, which would virtually eliminate all associated pest risks, as well as the need for quarantine treatments. This regulatory approach (alternative 5 above) would require all commodities that are to be imported to the United States to be transported with only substitute packaging material, which at the current time would be technically and economically infeasible for many exporters, especially in developing countries.

Preferences Among Alternatives

There is a preference for the approach taken in this final rule, which we adopt herein (alternative (3), above). The preference for this alternative is based principally on the determination that it meets the Agency’s obligations under the Plant Protection Act (PPA), and other legislation such as NEPA and the Clean Air Act.

The no action alternative (alternative 1 above) was rejected because recent interceptions of pests at ports of entry show a steady increase in serious pests associated with WPM from everywhere except China, whose WPM must already be treated due to past pest interceptions. If left unchecked, pests introduced by imported WPM have the potential to cause significant economic damage to the agricultural and forest resources of the United States.

The alternative of extending the China interim rule to all WPM worldwide (alternative 2 above) would not ensure long-term exclusion of some wood pests of quarantine concern, such as certain deep wood-borers, fungi, rots, and wilts. The adoption of the IPPC treatment standards for all importing countries will address pest threats posed not only by Cerambycidae, which was the primary target of the China interim rule, but nine other pest families as well. Additionally, adoption of the China interim rule requirements would result in the greatest additional use of methyl bromide of all the alternatives.

The comprehensive risk reduction program (alternative 4 above) would consist of an array of mitigation methods (e.g., inspection, various heat treatments, various fumigants and other chemical treatments, irradiation, etc.) that is more extensive than that contained in either the China Interim Rule or the IPPC Guidelines. Many of the methods are in various phases of research and development that do not provide adequate basis for any final decisions about program usage.

Substitution of other packing materials (alternative 5 above) requires use of materials the cost of which exceed the likely costs of SWPM that is either heat treated or fumigated with methyl bromide.

Please see the FEIS for a full discussion of the reasons why adopting the IPPC standard was considered the preferred alternative.

Factors in the Decision

APHIS’ mission is guided by the PPA, under which the detection, control, eradication, suppression, prevention, and retardation of the spread of plant pests or noxious weeds have been determined by Congress to be necessary and appropriate for the protection of the agriculture, environment, and economy of the United States. The PPA also has been designed to facilitate exports, imports, and interstate commerce in agricultural products and other commodities. In order to achieve these objectives, use of pesticides, including methyl bromide, has often been prescribed.

Methyl bromide is an ozone depleting substance that is strictly regulated under the Montreal Protocol and the Clean Air Act. While the goal of these authorities and agreements is to limit and ultimately phase out all ozone depleting substances, certain exemptions and exclusions are recognized, including an exemption for methyl bromide use for plant quarantine and preshipment purposes, including the purposes provided for in this final rule. The

² Copies of the FEIS are available for public inspection at USDA, room 1141, South Building, 14th Street and Independence Avenue, SW., Washington, DC, between 8 a.m. and 4:30 p.m., Monday through Friday, except holidays. Persons wishing to inspect copies are requested to call ahead on (202) 690–2817 to facilitate entry into the reading room. In addition, the FEIS may be viewed from the APHIS Internet site at <http://www.aphis.usda.gov/ppd/es/swpm.html>, and copies may be obtained by writing to the individual listed under **FOR FURTHER INFORMATION CONTACT**.

exemption is not unconditional, however. The United States, like other signatories to the Montreal Protocol, must review its national plant health regulations with a view to removing the requirement for the use of methyl bromide for quarantine and pre-shipment applications where technically and economically feasible alternatives exist.

This rule authorizes the use of methyl bromide, as well as heat treatment, to treat WPM imported from other countries in order to meet the mandates of the PPA. In addition, the Agency is working to promote environmental quality with ongoing work to identify and add to our regulations valid technically and economically feasible alternatives to methyl bromide.

Avoid or Minimize Environmental Harm

The environment can be harmed by using methyl bromide, in which case recovery of the ozone layer may be delayed, or by not using methyl bromide, in which case agriculture and forested ecosystems, among other aspects of environmental quality, could be devastated unless other equally or more effective alternatives were strictly enforced (*i.e.*, heat treatment or use of substitute packing materials). By assuring that use of methyl bromide is limited, the Agency strikes a proper balance in its efforts to minimize environmental harm. APHIS is committed to monitoring these efforts through the NEPA process, and otherwise. Furthermore, where appropriate, measures—gas recapture technology, for example—to minimize harm to environmental quality caused by methyl bromide emissions have been, and will continue to be, encouraged by APHIS. The prudent use of heat treatment and substitute packaging materials by developed nations is expected to promote this regulatory approach in developing countries as their trade opportunities expand.

Other

Methyl bromide used in quarantine applications prescribed by the United States contributes just a small fraction of total anthropogenic bromine released into the atmosphere. Nevertheless, the Montreal Protocol is action-forcing in the sense that signatories must review their national plant health regulations with a view to finding alternatives to exempted uses of methyl bromide. The EPA has also cautioned that, regardless of the incremental contribution, it is important to recognize that any

additional methyl bromide releases would delay recovery of the ozone layer.

A considerable amount of research and development on methyl bromide alternatives has been conducted within the USDA and continues today. Under the Clean Air Act, EPA has also established a program to identify alternatives to ozone depleting substances, including methyl bromide, but EPA's listing of an acceptable alternative does not always adequately address its suitability for a particular use. We must not put agriculture and ecosystems at risk based on unproven technology.

APHIS is firmly committed to the objectives of the Montreal Protocol to reduce and ultimately eliminate reliance on methyl bromide for quarantine uses, consistent with its responsibilities to safeguard this country's agriculture and ecosystems. Achieving the objectives of both reducing (and ultimately eliminating) methyl bromide emissions as well as safeguarding agriculture and ecosystems in the most expeditious, cost-effective way possible, requires close coordination within the Federal Government of research, development, and testing efforts. APHIS is determined to cooperate actively with the Agricultural Research Service, EPA, the Office of Management and Budget, and others involved in this effort to find effective alternatives to quarantine methyl bromide uses.

In a notice summarizing EPA comments on recent environmental impact statements and proposed regulations that was published in the **Federal Register** on January 17, 2003 (68 FR 2539), EPA expressed no objection to the draft EIS and the APHIS proposed rule.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), the information collection or recordkeeping requirements included in this rule have been approved by the Office of Management and Budget (OMB) under OMB control number 0579-0225.

Government Paperwork Elimination Act Compliance

The Animal and Plant Health Inspection Service is committed to compliance with the Government Paperwork Elimination Act (GPEA), which requires Government agencies in general to provide the public the option of submitting information or transacting business electronically to the maximum extent possible. For information pertinent to GPEA compliance related to this rule, please contact Mrs. Celeste

Sickles, APHIS' Information Collection Coordinator, at (301) 734-7477.

List of Subjects in 7 CFR Part 319

Bees, Coffee, Cotton, Fruits, Honey, Imports, Logs, Nursery stock, Plant diseases and pests, Quarantine, Reporting and recordkeeping requirements, Rice, Vegetables.

■ Accordingly, 7 CFR part 319 is amended as follows:

PART 319—FOREIGN QUARANTINE NOTICES

■ 1. The authority citation for part 319 continues to read as follows:

Authority: 7 U.S.C. 450 and 7701-7772; 21 U.S.C. 136 and 136a; 7 CFR 2.22, 2.80, and 371.3.

■ 2. In § 319.40-1, the definitions for *Exporter statement*, *Importer statement*, and *Solid wood packing material* are removed, and two definitions are added in alphabetical order to read as follows:

§ 319.40-1 Definitions.

* * * * *

Regulated wood packaging material. Wood packaging material other than manufactured wood materials, loose wood packing materials, and wood pieces less than 6 mm thick in any dimension, that are used or for use with cargo to prevent damage, including, but not limited to, dunnage, crating, pallets, packing blocks, drums, cases, and skids.

* * * * *

Wood packaging material. Wood or wood products (excluding paper products) used in supporting, protecting or carrying a commodity (includes dunnage).

■ 3. In § 319.40-3, paragraph (b) is revised to read as follows:

§ 319.40-3 General permits; articles that may be imported without a specific permit; articles that may be imported without either a specific permit or an importer document.

* * * * *

(b) *Regulated wood packaging material.* Regulated wood packaging material, whether in actual use as packing for regulated or nonregulated articles or imported as cargo, may be imported into the United States under a general permit in accordance with the following conditions:

(1) *Treatment.* The wood packaging material must have been:

(i) Heat treated to achieve a minimum wood core temperature of 56 °C for a minimum of 30 minutes. Such treatment may employ kiln-drying, chemical pressure impregnation, or other treatments that achieve this specification through the use of steam, hot water, or dry heat; or,

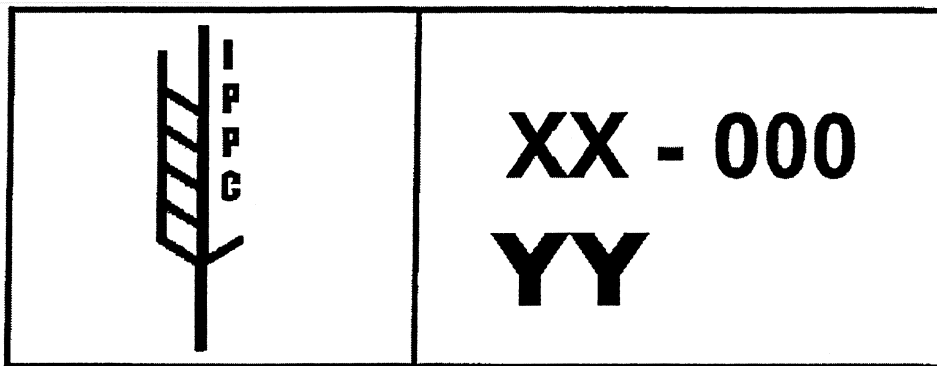
(ii) Fumigated with methyl bromide in an enclosed area for at least 16 hours at the following dosage, stated in terms of grams of methyl bromide per cubic meter or pounds per 1,000 cubic feet of the enclosure being fumigated. Following fumigation, fumigated products must be aerated to reduce the concentration of fumigant below hazardous levels, in accordance with label instructions approved by the U.S. Environmental Protection Agency:

Temperature (°C/°F)	Initial dose g/m ³ and lbs./ 1,000 c.f.)	Minimum required concentration g/m ³ and lbs./1,000 c.f.) after:			
		0.5 hrs	2 hrs.	4 hrs.	16 hrs.
21/70 or above	48/3.0	36/2.25	24/1.5	17/1.06	14/0.875
16/61 or above	56/3.5	42/2.63	28/1.75	20/1.25	17/1.06
11/52 or above	64/4.0	48/3.0	32/2.0	22/1.38	19/1.19

(2) *Marking.* The wood packaging material must be marked in a visible location on each article, preferably on at least two opposite sides of the article, with a legible and permanent mark that indicates that the article meets the requirements of this paragraph. The mark must be approved by the International Plant Protection Convention in its International

Standards for Phytosanitary Measures to certify that wood packaging material has been subjected to an approved measure, and must include a unique graphic symbol, the ISO two-letter country code for the country that produced the wood packaging material, a unique number assigned by the national plant protection agency of that country to the producer of the wood packaging

material, and an abbreviation disclosing the type of treatment (e.g., HT for heat treatment or MB for methyl bromide fumigation). The currently approved format for the mark is as follows, where XX would be replaced by the country code, 000 by the producer number, and YY by the treatment type (HT or MB):



(3) *Immediate reexport of regulated wood packaging material without required mark.* An inspector at the port of first arrival may order the immediate reexport of regulated wood packaging material that is imported without the mark required by paragraph (b)(2) of this section, in addition to or in lieu of any port of first arrival procedures required by § 319.40–9 of this part.

(4) *Exception for Department of Defense.* Regulated wood packaging material used by the Department of Defense (DOD) of the U.S. Government to package nonregulated articles, including commercial shipments pursuant to a DOD contract, may be imported into the United States without the mark required by paragraph (b)(2) of this section.

* * * * *

(Approved by the Office of Management and Budget under control numbers 0579–0049 and 0579–0225.)

§ 319.40–5 [Amended]

■ 3. In § 319.40–5, paragraphs (b)(1)(i)(C), (b)(2), and (b)(2)(i), the words “solid wood packing materials” are removed each time they occur and the words “regulated wood packaging material” are added in their place, and paragraphs (g) through (k) are removed.

§ 319.40–10 [Amended]

■ 4. In § 319.40–10, footnote 6, the words “without a complete certificate or exporter statement” are removed and the words “without meeting the requirements of this subpart” are added in their place.

Done in Washington, DC, this 9th day of September 2004.

Bill Hawks,

Under Secretary for Marketing and Regulatory Programs.

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DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Part 920

[Docket No. FV04–920–2 IFR]

Kiwifruit Grown in California; Decreased Assessment Rate

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Interim final rule with request for comments.

SUMMARY: This rule decreases the assessment rate and changes the assessable unit from \$0.045 per 22-pound, volume-fill container or container equivalent to \$0.002 per pound of kiwifruit established for the Kiwifruit Administrative Committee (committee) for the 2004–05 and subsequent fiscal periods. The assessment rate of \$0.002 per pound of kiwifruit is \$0.000045 per pound less than the assessment rate currently in

Appendix D. Calculations of Methyl Bromide Released From Fumigation of Wood Packing Material

Description of Calculations Used in the Supplemental Environmental Impact Statement for Estimation of Methyl Bromide Released From Fumigation of Wood Packing Material

The quantitative assessment of methyl bromide usage in the treatment of wood packing material (WPM) involves consideration of many factors with variable levels of definition and uncertainty. This appendix is prepared to assist the reader in better understanding the basis for the calculations and those factors that were considered in the development of the equation used to make methyl bromide estimates.

The majority of phytosanitary authorities in the International Plant Protection Convention (IPPC) countries do not compile records for usage of methyl bromide specifically for treatment of WPM in compliance with International Standards for Phytosanitary Measures Number 15 (ISPM 15) guidelines. The most recent year with complete data on U.S. Customs entries of imported articles is 2005, and therefore, all calculations use information for 2005 as the basis for quantification of methyl bromide associated with ISPM 15 compliance. Other than the actual pounds of methyl bromide provided by the phytosanitary authority for the country of Nicaragua (Hernandez, 2006), determinations of methyl bromide quantities in this supplemental environmental impact statement (SEIS) were calculated relative to the number of WPM units treated in 2005. Data on the actual number of WPM units fumigated with methyl bromide in 2005 in the United States for export purposes have been tracked (Deomano, 2006a); however, the phytosanitary authorities of other countries lack data on the exact numbers of WPM units fumigated. As part of the analyses for the China Interim Rule Environmental Assessment (EA), a comprehensive review of all U.S. Customs entries was conducted to ascertain the number of entries containing WPM. The combined effort of reviewing entries by U.S. Customs and APHIS conservatively estimated that 30% of all entries were packed with WPM. Use of this estimated percentage of entries containing WPM has been applied to calculations of the number of WPM units in all documentation since the China Interim Rule EA. It was also recognized that individual U.S. Customs entries may pertain to a single pallet, a single container, or multiple containers. In the absence of detailed information, the average U.S. Customs entry is viewed to pertain to one cargo container, and calculations are based upon fumigation of WPM for that unit size.

The general equation used in this SEIS for calculation of the metric tons (MT) of methyl bromide released from WPM fumigations in 2005 is as follows:

MT of methyl bromide = (# of U.S. Customs entries with WPM) x (fraction of WPM entries fumigated with methyl bromide) x (lbs methyl bromide per entry) x (0.45359237 kg/lb) x (1 MT/1,000 kg) x (fraction of total methyl bromide applied that is vented from fumigation chamber)

The equation consists of two constants used for converting pounds to MT and of four variables:

The derivation of the first variable, # of U.S. Customs Entries with WPM, was described above.

The second variable, fraction of WPM entries fumigated with methyl bromide, is based upon information provided by the phytosanitary authorities of the country/countries being analyzed.

The third variable, pounds of methyl bromide per entry, is dependent upon the manner in which the fumigations are conducted. It is derived partly from information about the conduct of fumigations provided by the phytosanitary authorities of the country/countries being analyzed and from the quantity of methyl bromide required to fumigate WPM in that manner. The mathematical derivation of this variable for different fumigation processes is provided in the next paragraph.

The fourth variable, fraction of the total methyl bromide applied that is vented from the fumigation chamber, relates to the sorption of methyl bromide by WPM. This sorption of methyl bromide precludes its release to the atmosphere and, therefore, poses no risk of damage to the ozone layer. The percentage of methyl bromide vented from fumigations of durable goods, such as WPM, was determined to range from 69 to 79% of the total methyl bromide applied (UNEP, MBTOC, 1998); therefore, the lower estimates apply a fraction of 0.69 and the higher estimates apply a fraction of 0.79.

The mathematical derivation of the third variable, pounds of methyl bromide per entry, is dependent upon how the fumigation of WPM with methyl bromide is conducted. Although all treatments of WPM are conducted with from 3 to 4 pounds of methyl bromide per 1,000 cubic feet of space, the relative methyl bromide usage per unit treated may be increased by fumigating WPM that is already loaded with other cargo, as occurs at some locations in China, or decreased by fumigating the wood pieces prior to assembling the WPM, unit as occurs in Japan. Most shippers neither fumigate the wood pieces prior to assembling WPM units nor load WPM with cargo prior to fumigation, but the methyl bromide estimates in this SEIS consider comprehensively the manner in which the WPM units are fumigated.

There are five different methods of fumigation of WPM that have been commonly used and are considered in this SEIS. If there is no information available about the manner in which WPM is being fumigated in a given country, the fumigation is presumed to occur in tarped containers after cargo is already loaded on the WPM. This provides a conservatively high estimate for those countries where data are lacking. Other methods are applied to countries where reliable information about compliance has been received. The fumigation methods, quantities of methyl bromide associated with each method, and a representative example of calculations used in this SEIS for each method are as follows:

Method 1: Treatment of Assembled WPM in Tarped Containers After Loading of Cargo

For 40-foot Container Tarp Fumigation:

40 ft long x 9 ft wide x 15 ft tall = 5,400 cu ft treated
Range of lbs of methyl bromide/entry = 16.2–21.6 lbs

For 20-foot Container Tarp Fumigation:

20 ft long x 9 ft wide x 15 ft tall = 2,700 cu ft, rounded up to 3,000 cu ft. treated
Range of lbs of methyl bromide/entry = 9–12 lbs

Example of Method 1—Countries lacking information about fumigation of WPM where fumigation is assessed to occur after loading for 50% of WPM that is fumigated.

Variables specific to this calculation:

of U.S. Customs entries with WPM = 505,838 entries
Fraction of WPM entries fumigated with methyl bromide = 0.5
lbs methyl bromide per entry = 9 pounds (low) to 21.6 pounds (high)

Lower estimate = $505,838 \times 0.5 \times 9 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.69 = 712 \text{ MT}$

Upper estimate = $505,838 \times 0.5 \times 21.6 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.79 = 1,958 \text{ MT}$

Method 2: Treatment of Assembled WPM in Sealed Containers After Loading of Cargo

For 40-foot Container Interior Fumigation:

40 ft long x 8 ft wide x 10 ft tall = 3200 cu ft treated
Range of lbs of methyl bromide/entry = 9.6–12.8 lbs

For 20-foot Container Interior Fumigation:

20 ft long x 8 ft wide x 10 ft tall = 1600 cu ft treated
Range of lbs of methyl bromide/entry = 4.8–6.4 lbs

Example of Method 2—China where fumigation occurs after loading for the assessed 50% of WPM that is fumigated (part of aggregate usage calculations).

Variables specific to this calculation:

of U.S. Customs entries with WPM = 2,698,237 entries
Fraction of WPM entries fumigated with methyl bromide = 0.5
lbs methyl bromide per entry = 4.8 pounds (low) to 12.8 pounds (high)

Lower estimate = $2,698,237 \times 0.5 \times 4.8 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.69 = 2,027 \text{ MT}$

Upper estimate = $2,698,237 \times 0.5 \times 12.8 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.79 = 6,188 \text{ MT}$

Method 3: Treatment of Assembled WPM in Tarped Containers Before Loading of Cargo

Packing material for 20 U.S. Customs entries all tarp fumigated in same container (95% less usage of methyl bromide) resulting in range one-twentieth of those values determined in method 1.

Range of lbs of methyl bromide/entry = 0.45–1.08 lbs

Example of Method 3—Australia and New Zealand where fumigation occurs prior to loading for the 10 to 20% of WPM that is fumigated.

Variables specific to this calculation:

of U.S. Customs Entries with WPM = 67,656 entries

Fraction of WPM entries fumigated with methyl bromide = 0.1 (low) to 0.2 (high)

lbs methyl bromide per entry = 0.45 pounds (low) to 1.08 pounds (high)

Lower estimate = $67,656 \times 0.1 \times 0.45 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.69 = 0.95 \text{ MT}$

Upper estimate = $67,656 \times 0.2 \times 1.08 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.79 = 5.2 \text{ MT}$

Method 4: Treatment of Assembled WPM in Sealed Containers Before Loading of Cargo

Packing material for 20 U.S. Customs entries all fumigated in same sealed container (95% less usage of methyl bromide) resulting in range one-twentieth of those values determined in method 2.

Range of lbs of methyl bromide/entry = 0.24–0.64 lbs

Example of Method 4—Hong Kong where fumigation occurs prior to loading for the assessed 50% of WPM that is fumigated (part of aggregate usage calculations).

Variables specific to this calculation:

of U.S. Customs Entries with WPM = 115,640 entries

Fraction of WPM entries fumigated with methyl bromide = 0.5

lbs methyl bromide per entry = 0.24 pounds (low) to 0.64 pounds (high)

Lower estimate = $115,640 \times 0.5 \times 0.24 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.69 = 4.3 \text{ MT}$

Upper estimate = $115,640 \times 0.5 \times 0.64 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.79 = 13.3 \text{ MT}$

Method 5: Treatment of Unassembled WPM in Tarped Containers Before Loading of Cargo

Packing material for 50 U.S. Customs entries all tarped fumigated in same container (98% less usage of methyl bromide) resulting in range one-fiftieth of those values determined in method 1.

Range of lbs of methyl bromide/entry = 0.18–0.432 lbs

Example of Method 5 (Treatment of Unassembled WPM in Tarped Containers Before Loading of Cargo) Japan where fumigation occurs prior to loading for the 5 to 10% of WPM that is fumigated.

Variables specific to this calculation:

of U.S. Customs Entries with WPM = 742,134 entries

Fraction of WPM entries fumigated with methyl bromide = 0.05 (low) to 0.1 (high)

lbs methyl bromide per entry = 0.18 pounds (low) to 0.432 pounds (high)

Lower estimate = $742,134 \times 0.05 \times 0.18 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.69 = 2.1 \text{ MT}$

Upper estimate = $742,134 \times 0.1 \times 0.432 \text{ lbs} \times 0.45359237 \text{ kg/lb} \times 1 \text{ MT}/1,000 \text{ kg} \times 0.79 = 12 \text{ MT}$

Other Factors Considered But Not Applied to Refine the Methyl Bromide Equation

There are no hard figures for how much WPM is reused worldwide after cargo has been unloaded. We know from life cycle studies that some WPM can be reused for 8 to 10 separate shipments before the wood is no longer durable enough to handle the loaded cargo (Deomano, 2006b). The United States does reuse treated pallets that meet ISPM 15 criteria and data are collected about how much WPM is reused. Review of the present rate of reuse in the United States indicates that one of every two WPM units is recycled and reused for shipping another load of cargo (Deomano 2006b). Some countries are known to recycle more WPM than the United States; however, information about the actual rates of reuse by other countries is not readily available. Accordingly, we did not apply this information to any refinements of the methyl bromide release model. By disregarding this issue in the quantitative analysis, our calculated figures overestimate the number of WPM units treated by 50% or more. The lower usage of methyl bromide associated with less frequent need to treat WPM is, therefore, not reflected in the present estimates of methyl bromide released or in previous estimates from the final environmental impact statement. As information related to this topic becomes available, continuing refinements of the methyl bromide estimates may be made in the future to more closely reflect actual usage.

Some commodities are not marketable if fumigated with methyl bromide; some agricultural commodities lack a tolerance for bromine residues; some commodities, such as leather, react with methyl bromide such that strong odors are imparted to the product; and some commodities, such as electronics, may be damaged by reaction with methyl bromide. Treatment of such commodities is precluded from methods, such as methyl bromide fumigation, after loading due to the loss of product. When the assumption is made that this is the predominant method of fumigation in China occurs to WPM with cargo already loaded, it is expected that the calculations from this assumption will overstate the release of methyl bromide. This is clearly true for the early estimates made for the China Interim Rule and for the present analysis in this SEIS where this assumption was applied to China and other countries lacking information regarding their treatment methodology for ISPM 15 compliance. Although there is no detailed data available to support a precise estimate of methyl bromide usage in our model, this approach does ensure that underestimation of potential release of methyl bromide from fumigations for China and these other countries does not occur in this model.

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Appendix G. Acronyms and Glossary

A

ACGIH	American Conference of Governmental Industrial Hygienists
APHIS	Animal and Plant Health Inspection Service, United States Department of Agriculture
ARS	Agricultural Research Service, United States Department of Agriculture

B

Biodiversity	Genetic variability of species and variability of environmental processes within a given geographical area or ecological community.
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C

CEC	Commission for Environmental Cooperation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Chlorofluorocarbons	Organic chemical substances containing chlorine and fluorine.
cm	Centimeters
Controlled atmosphere	Treatment of commodity to asphyxiate (suffocate) parts by displacement of oxygen.
Cumulative impact or effects	“ . . . the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” (40 CFR 1508.7).

D

Debarking The process of removing bark from logs and other regulated wood articles, including dunnage.

DEIS Draft environmental impact statement

E

EA Environmental assessment

Ecosystem A functioning natural unit including the biological species present, the physical environment (soil, water, air), and relationships among the components present.

EEC European Economic Community

EIS Environmental impact statement

Electron beam irradiation A form of radiation that has experimentally been used to treat wood; the radiation is generated by machine rather than from a radioactive isotope.

Entry The physical arrival of a pest organism at a particular port or location.

EO Executive Order

EPA Environmental Protection Agency

Established A permanent infestation of a pest organism in a given area.

Establishment Perpetuation, for the foreseeable future, of a pest within an area after introduction.

EU European Union

F

FAO Food and Agriculture Organization, United Nations

FEIS Final environmental impact statement

Frass	Excretory products from insects.
FS	USDA, Forest Service
Fumigant	The gaseous state of a toxic chemical which, when released and dispersed to a commodity, is designed to kill any pests found on or within the commodity.
Fumigation	The act of releasing or dispersing a gaseous or aerosol compound (fumigant) to eliminate pest risk.
Fumigation chamber	Enclosed structure where commodities are treated with gaseous or aerosol compound to eliminate pest risk.
G	
Gamma irradiation	A nonchemical treatment method that has been used to sterilize or kill certain pest species by exposure to specific wavelengths of light rays and is a method that is most often used to treat commodities other than wood.
GATT	General Agreement on Trade and Tariffs; an international agreement designed to reduce and eliminate barriers to trade, investment, and services among its signatory countries.
Global warming/global climate change	The process by which energy distribution within the atmosphere affects temperature and climate worldwide.
Grams per cubic meter (g/m³)	Measurement of fumigant concentration in air.
Gray	In irradiation treatments, an amount of energy (1 joule or 1,000 ergs) absorbed from a radiation-producing source per kilogram of matter; 1 Gray equals 100 rads.
Greenhouse gases/effect	Any one of several chemicals present in air that store and retain heat and may cause warming of air temperatures (effect).
H	
Harmonization	Process of making Federal regulations consistent and compatible with other Federal regulations, International treaties and agreements, and related trade initiatives.

Heat treatment	Regulatory quarantine action of applying high temperature to a commodity to eliminate pest risk.
Hectare	Unit of area measure equal to 2.471 acres.
I	
Introduction	The intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.
IPM	Integrated Pest Management; an approach to pest control that involves consideration to all practical chemical and nonchemical methods.
IPPC	International Plant Protection Convention
Irradiation	Regulatory treatment which exposes a commodity to light rays resulting in elimination of pest risk.
ISPM	International Standards for Phytosanitary Measures
ITO	International Trade Organization
K	
Kiln drying	A process for heating and drying wood in an enclosed facility. The specific procedures are described in the Dry Kiln Operators Manual.
M	
m³	Cubic meters
MBTOC	Methyl Bromide Technical Options Committee
Microwave treatment	Exposing wood to ultra-high frequency magnetic fields that elevate the temperature of any material containing moisture.
Mitigation	Measures taken to avoid or reduce adverse impacts on the environment; or measures taken to avoid or reduce the likelihood of pest presence or survival in a commodity.
MT	Metric tons

N

NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NOEL	No Observed Effect Level; the highest dose level at which there are no observable differences between the test and control populations.

Nonquarantine pest	An undesirable organism not officially controlled but of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed.
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O

ODP	Ozone depleting potential (under stratospheric ozone layer).
ODS	Ozone depleting substance; literally, a substance which acts to reduce the amount of ozone in the atmosphere.
Ozone	A compound consisting of three connected oxygen atoms found in two layers of the atmosphere, the stratosphere and the troposphere.

P

Phyosanitary measures	Any legislation, regulation, or official procedure having the purpose to prevent the introduction and/or spread of pests.
Phytotoxicity	The ability of a chemical to adversely affect plant growth or survival.
Plant pest	“Any living stage of any insects, mites, nematodes, slugs, snails, protozoa, or other invertebrate animals, bacteria, fungi, other parasitic plants or reproductive parts of parasitic plants, noxious weeds, viruses, or any organism similar to or allied with any of the foregoing, or any infectious substances, which can injure or cause disease or damage in any plants, parts of plants, or any products of plants.” (7 CFR 319.40–1).
PPM	Parts per million
PPQ	Plant Protection and Quarantine, Animal and Plant Health Inspection Service, United States Department of Agriculture

Q

QPS Quarantine and preshipment

Quarantine pest An undesirable organism, officially controlled and of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed.

R

Rad In irradiation treatments, an amount of energy absorbed from a radiation producing source per kilogram of matter; one rad equals 1/100 Gray.

Recapture system The part of fumigation equipment designed to remove methyl bromide when treatment is completed. Equipment consists of an intake from fumigation chamber, an extraction unit, and an outflow for the purified air.

Regeneration facility An industrial plant designed to remove bromine residues from carbon absorption modules to allow future use in recapture systems of methyl bromide.

Regulated article “The following articles, if they are unprocessed or have received only primary processing: logs; lumber; any whole tree; any cut tree or any portion of a tree, not solely consisting of leaves, flowers, fruits, buds, or seeds; bark; cork; laths; hog fuel; sawdust; painted raw wood products; excelsior (wood wool); wood chips; wood mulch; wood shavings; pickets; stakes; shingles; solid wood packing materials; humus; compost; and litter.” (7 CFR 319.40–1).

Regulated non-quarantine pest A nonquarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party.

Regulated pest A quarantine pest and/or a regulated nonquarantine pest

RfC Reference concentration

S

SEIS	Supplemental environmental impact statement
Sessile	Animals that are slow moving or sedentary
Solid wood packing material (WPM)	Wood packaging materials other than loose wood packing materials, used or for use with cargo to prevent damage, including, but not limited to, dunnage, crating, pallets, packing blocks, drums, crating, and skids.
SPS	Sanitary and phytosanitary regulations/standards
Stratosphere	The upper portion of the atmosphere, in which temperature varies very little with changing altitude and clouds are rare.
Substitute packing materials	Cargo packing materials other than SWPM, including, but not limited to plywood, oriented strand board, particle board, corrugated paperboard, plastic and resin composites, plastic, and metal.
SWPM	Solid wood packing materials

T

TEIA	Transboundary environmental impact assessments
Trace gas	An aerosol present at low concentration that is barely detectable.

U

UN	United Nations
UNEP	United Nations Environment Programme
USDA	United States Department of Agriculture
UV	Ultraviolet radiation

V

Volatilizer	Heating unit to convert methyl bromide liquid to a gaseous form.
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W

WHO	World Health Organization
WMO	World Meteorological Organization
Wood preservative treatment	Application of liquid chemicals by surface coating, dipping, or pressure treatment of wood to prevent or eliminate pest infestation.
Wood packaging material	IPPC term that is interchangeable with APHIS' solid wood packing material (SWPM).
WTO	World Trade Organization

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