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Rule for Recognizing Uses of Methyl Bromide as Official Quarantine Use as Defined in the Proposed Rule Implementing Section 419 of the Plant Protection Act

Environmental Assessment

June 2004

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Table of Contents

I. Introduction

A. Why has this environmental assessment been prepared?

This environmental assessment (EA) examines under the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. § 4321 *et seq*.) a statutory requirement involving recognition by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), for the use of methyl bromide as official control.[1] The Farm Security and Rural Investment Act of 2002 (2002 Farm Bill) (Public Law 107–171, Section 7504) amended the Plant Protection Act of 2000 (PPA) (7 U.S.C. § 7701 *et seq*.) by adding a new section requiring the Secretary to determine whether methyl bromide treatments or applications required by State, local, or tribal authorities to prevent the introduction, establishment or spread of plant pests or noxious weeds should be recognized as an official control or official requirement in the absence of other registered, effective, and economically feasible alternatives. The new section of the PPA reads as follows:

> **Sec. 419. Methyl Bromide** .
> "(a) In General.—The Secretary, upon request of State, local, or tribal authorities, shall determine whether methyl bromide treatments or applications required by State, local, or tribal authorities to prevent the introduction, establishment, or spread of plant pests (including diseases) or noxious weeds should be authorized as an official control or official requirement. The Secretary shall not authorize such treatments or applications unless the Secretary finds there is no other registered, effective, and economically feasible alternative available.
> "(b) Methyl Bromide Alternative.—The Secretary, in conjunction with State, local and tribal authorities, shall establish a program to identify alternatives to methyl bromide treatment and control of plant pests and weeds. For uses where no registered, effective, economically feasible

[1]For the purposes of this EA, the words "official quarantine use" will be used instead of the words "official control." The proposed rule defines "official quarantine use" as "a methyl bromide treatment or application that the Administrator determines to be an official control or official requirement, based on information that the treatment or application is required by a State, local, or tribal authority for either of the following reasons: (i) For the management of pests or noxious weeds of potential importance to the area endangered thereby and not yet present there, or present but not widely distributed; or (ii) to meet official quarantine requirements for the management of economic plant pests in plant material intended for propagation."

alternatives available can currently be identified, the Secretary shall initiate research programs to develop alternative methods of control and treatment.

"(c) Registry.—Not later than 180 days after the date of enactment of this section, the Secretary shall publish, and thereafter maintain, a registry of State, local, and tribal requirements authorized by the Secretary under this section.

"(d) Administration.—

"(1) Timeline for Determination.—Upon the promulgation of regulations to carry out this section, the Secretary shall make the determination required by subsection (a) not later than 90 days after receiving the request for such a determination.

"(2) Construction.—Nothing in this section shall be construed to alter or modify the authority of the Administrator of the Environmental Protection Agency or to provide any authority to the Secretary of Agriculture under the Clean Air Act or regulations promulgated under the Clean Air Act."

B. Does the implementation of this statutory mandate require NEPA documentation?

Implementing a statutory mandate may be viewed as a "ministerial act," not subject to NEPA where, as in this case, the implementing agency's discretion is extremely limited; however, the Council on Environmental Quality's NEPA implementing regulations provide that an EA may be prepared to "[a]id an agency's compliance with the Act when no environmental impact statement is necessary" (40 Code of Federal Regulations (CFR) § 1508.9(a)(2)). An important directive of the Act requires, in part, Federal agencies to "lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment" (42 U.S.C. § 4332(2)(F)), a component of which is the ozone layer that could be affected by implementation and administration of § 419. This analysis also represents a follow-up—one of many—in our ongoing effort to gauge and monitor cumulative effects of methyl bromide use that began with the "Rule for the Importation of Unmanufactured Wood Articles From Mexico, With Consideration for Cumulative Impact of Methyl Bromide Use, Final Environmental Impact Statement" (Mexican Wood EIS) (USDA, APHIS, 2002) and continued with the rule for "Importation of Solid Wood Packing Material, Final Environmental Impact Statement" (USDA, APHIS, 2003). This document will address the change in the cumulative environmental effect that may arise from recognizing any uses of methyl bromide that would result from implementation and administration of § 419. It is also

designed to satisfy the requirements of Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, to the extent applicable.

C. What is APHIS' authority for plant protection?

The Plant Protection Act (PPA) authorizes USDA, APHIS, as delegated by the Secretary of Agriculture, to take actions to prevent the entry and establishment of harmful plant pest species; provide for their control; and minimize the economic, ecological, and human health impacts that harmful pests can cause. APHIS actions authorized by this law serve to protect U.S. agricultural, forestry, and other natural resources from devastation that could occur from the unintended introduction of nonnative pest species.

Under the authority of the PPA, APHIS uses the best available and efficacious treatments to prevent the entry and/or establishment of nonindigenous pests that could be carried in or on imported commodities. The imported commodities that must be treated are detailed, along with their corresponding quarantine pests, in 7 CFR parts 300–399. Pest prevention treatments for imported commodities may incorporate the use of hot water immersion, steam or vapor heat, forced hot air, refrigeration, irradiation, or chemicals such as methyl bromide, phosphine, and sulfuryl fluoride. Methyl bromide is used when other types of treatments are inappropriate for efficacious treatment of the commodity and/or the target pests.

D. What is methyl bromide and how is it used in U.S. agriculture?

Methyl bromide, a colorless and odorless gas, is a broad-spectrum biocide capable of effectively disinfesting commodities, structures, and soil from plant pests, including insects, plant pathogens, weeds, and nematodes. It is commonly used by APHIS as a quarantine fumigation treatment to eliminate exotic, nonindigenous plant pests in or on imported commodities (such as Mediterranean fruit fly in imported fruit) prior to their entering the chain of commerce. APHIS also uses methyl bromide to fumigate structures infested with federally regulated quarantine pests such as Khapra beetle or the brown tree snake.

Soil fumigation comprises the bulk of the current uses of methyl bromide in the United States where commercial growers use it to prepare soil beds for nursery seedlings, and to prepare fruit, vegetable, and landscape production fields for

transplants. Such use permits the newly planted crop to thrive without stress or competition from plant pests and contributes to substantial crop increases in production fields, orchards, and nurseries. The majority of soil fumigations are not Federal quarantine treatments; however, a small percentage of soil fumigation uses are Federal or country quarantine requirements. For example, APHIS will release witchweed contaminated fields from Federal quarantine upon fumigation of the soil. In addition, some countries require pest-free soil to grow transplants intended for export; fumigation with methyl bromide will render the soil virtually pest-free.

Methyl bromide is also a valuable tool in controlling stored product pests, which would otherwise proliferate in food processing plants, food storage facilities, and in stored food products such as dried hams, dried fruits, nuts, spices, beans, and grains.

1. Why is there concern about methyl bromide use?

Methyl bromide is one of a broad range of chemicals, including halons, chlorofluorocarbons, hydrochlorofluorocarbons, carbon tetrachloride, and methyl chloroform, that have been identified as contributing to the depletion of the ozone layer. In 1992, methyl bromide was identified as a significant ozone-depleting compound at the fourth meeting of the Parties to the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), an international agreement to which the United States is a signatory party. That same year, the U.S. Environmental Protection Agency (EPA) issued a final rule (57 FR 33754; July 30, 1992) implementing section 604 of the Clean Air Act (CAA) amendments of 1990 (42 U.S.C. § 7401 *et seq*.); this section limits the production and consumption of a list of chemicals known to deplete the ozone layer. In 1995, methyl bromide was added to this list of chemicals that were scheduled to be phased out. In accordance with the Montreal Protocol and the CAA, those quantities of methyl bromide needed to comply with APHIS quarantine treatment requirements are exempt from the phaseout. Further actions have been taken to comply with the phaseout of methyl bromide; additional discussion about these actions can be found in Appendix A (Supplemental Information About Methyl Bromide and the Montreal Protocol.)

2. Are there uses of methyl bromide that are not regulated by APHIS?

Many States have regulations that indirectly call for the use of methyl bromide. Such regulations prohibit intrastate and interstate movement of specific

commodities without proper certification that Federal or State-regulated pests are not present. A certificate verifying fumigation with methyl bromide is often sufficient for obtaining a "pest free" determination from a State or Federal inspector.

Methyl bromide also is commonly used to fumigate stored products, such as beans, dried fruit, nuts, and grains, to remove endemic pests that often thrive in these commodities. These uses, which fall under the authority of the Food and Drug Administration (FDA) (for food sanitation regulations) and the EPA (for pesticide labeling), generally occur following harvest and before storage or shipment of the commodity to other countries. APHIS does not regulate or keep records pertaining to the quantities of methyl bromide used to protect stored products prior to shipping or domestic storage. Other countries may require methyl bromide treatments of U.S. commodities prior to export. These would be considered as quarantine treatments because there is a risk that they might carry plant pests that are endemic to the United States but are not present or widely distributed in the importing country. Few of these treatments are under APHIS authority; consequently, APHIS keeps no records of such uses. As quarantine treatments for other countries, however, the quantity used to treat the exportable commodity is exempt from the phaseout.

3. What is the ozone depletion potential of methyl bromide and what is its expected lifetime in the atmosphere?

Chemicals suspected of affecting ozone layer are assigned a number reflecting the relative influence that chemical may have on the ozone layer; this number is called an ozone depletion potential (ODP).[2] Under the CAA, any substance with an ODP of 0.2 or greater must be placed on a list of substances for which production must be phased out.[3] The ODP for methyl bromide *per se* is estimated to be 0.4 (UNEP, WMO, 1998). Methyl bromide has a short atmospheric lifetime of 0.7 years. A substance with a large ODP has more potential to destroy ozone during its lifetime in the atmosphere (see Table 1, Appendix A). A more detailed discussion on the science and regulation of

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[2]The ODP is the ratio of the impact on ozone of a chemical compared to the impact of a similar mass of a CFC-11, a significant ozone-depleting chemical. Thus, the ODP of CFC-11 is defined to be 1.0. Other known ozone-depleting chemicals have ODPs ranging from 0.01 to 12.

[3]The Administrator shall, pursuant to subsection (c) add to such list [*i.e.*, list of Class I substances] all substances that the Administrator determines have an ozone depletion potential of 0.2 or greater." CAA, sec. 602(a).

methyl bromide can be found in Appendix A (Supplemental Information About Methyl Bromide and the Montreal Protocol.)

II. Purpose and Need for Action

Given the statutory requirement involving recognition by the USDA of official quarantine uses of methyl bromide, APHIS has a need to comply with a statutory mandate (§ 419 of the Plant Protection Act, 7 United States Code § 7701 *et seq*.). This EA addresses the effect that this statutory mandate and its implementation might have on the recovery of the ozone layer. This EA considers the potential for change in the cumulative environmental effect that may arise from recognizing any uses of methyl bromide that would result from implementation and administration of § 419; as such, it represents an addition to that already discussed in previous APHIS environmental documents.[4] The overarching goal of this study is to support initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of the environment.

An issue regarding NEPA in this situation is whether an EA should be prepared for each individual request to APHIS for recognition of methyl bromide use as official quarantine use. Consistent with NEPA implementing regulations and APHIS NEPA implementing procedures (7 CFR 372.5(c)(1)), the preparation of an EA for each request to APHIS for recognition of methyl bromide use as official quarantine use is neither necessary nor appropriate. Individual requests would fit within a categorical exclusion under APHIS NEPA implementing procedures. The Council on Environmental Quality regulations state that "proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single . . . statement." (40 CFR 1502.4). The potential impact as a whole of connected actions like the individual requests expected for the registry may be considered cumulatively rather than independently. Cumulative methyl bromide effects have been the subject of a recent environmental impact statement and will continue to be analyzed in documents such as this one.

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[4]"Rule for the Importation of Unmanufactured Wood Articles From Mexico, With Consideration for Cumulative Impact of Methyl Bromide Use, Final Environmental Impact Statement – September 2002" and "Importation of Solid Wood Packing Material, Final Environmental Impact Statement – August 2003."

The principal impact-producing phenomenon of methyl bromide use is the release of methyl bromide into the atmosphere and its potential cumulative contribution towards the delay in recovery of the ozone layer. Therefore, the real issue regarding the use of methyl bromide relates to global cumulative effects. Treating individual requests under NEPA, apart from being unnecessary, would be both burdensome and inefficient without accomplishing the overarching purpose of this particular EA, namely, for APHIS to "recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment" (42 U.S.C. § 4332(2)(F)).

III. Alternatives

According to the Council on Environmental Quality implementing regulations under NEPA, when preparing an environmental document an agency must identify and discuss the proposed action and any reasonable alternatives to the action (40 CFR 1502.14; Council on Environmental Quality, 1981). The alternatives considered in this EA are based upon the ways in which APHIS could implement and administer § 419 of the Plant Protection Act of 2000 (7 U.S.C. § 7701 *et seq*.). Implementation and administration of this mandate are potentially subject to change over time, depending on unintended effects it may have upon U.S. agriculture and industry, as well as other factors. While it is not entirely clear how the decisionmaker may approach its responsibilities under § 419 over time, APHIS has indicated that it 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. The three scenarios developed below represent a reasonable range of "alternatives," relative to ways in which that section may be implemented and administered over time; they are intended to portray (necessarily in broad-brush strokes because precise predictions regarding future use of methyl bromide cannot be made) how recovery of the ozone layer might be affected under three basic implementation and administration strategies.

A. Alternative A

This alternative anticipates that APHIS will implement and administer § 419 in such a way as to recognize virtually all requests from State, local, or tribal authorities, whether they are embedded in legislation, rules, or some other prescriptive measure issued by an appropriate authority. Such requests may be based on prescriptive measures that (1) require methyl bromide treatments, or (2) require adherence to broad performance-based standards (*e.g.*, phytosanitary certifications declaring "pest free" commodities) that allow for the use of methyl bromide to attain such certification. Pests of concern may or may not be APHIS-regulated pests (*i.e.*, they may be State-regulated pests that are not subject to Federal regulation). Under this alternative, it is expected that a large number of requests would be filed initially and that the amount of requests would increase over time, eventually to the point where the amount of methyl bromide used to fulfill such recognized uses reaches and perhaps even surpasses the pre-phaseout levels of 1996.[5]

B. Alternative B

This alternative anticipates that APHIS will implement and administer § 419 in such a way as to achieve methyl bromide phaseout restrictions reasonably consistent with expectations of the Montreal Protocol and the Clean Air Act. Under this alternative the methyl bromide registry would consist mainly of legislatively derived requirements for methyl bromide use; *i.e.*, APHIS would approve submissions required by State, local, or tribal laws, regulations, or mandatory procedure (referred to hereafter as "requirements"). Such legislation might include broad, performance-based standards such as phytosanitary certification. Pests of concern may or may not be APHIS-regulated pests; *i.e.*, they may be State-regulated pests that are not subject to Federal regulation.

Under this alternative, it is expected that the rate of requests for recognition from State, local, or tribal requirements initially would be limited to current requirements. Such requests may increase over time because of the creation of new requirements but will eventually peak and then decline because (1) the development and availability of effective and economically feasible alternatives

[5]Under Alternative A, it would be difficult to estimate the total amount of methyl bromide use that could occur as a result of this scenario, thus the pre-phaseout levels for the year 1996 were chosen because of the existence of a large amount of data for U.S. usage during that year and because it reflects standard U.S. usage before the phaseout of methyl bromide began in 1999.

would lead to a reduction in dependence on methyl bromide, and (2) the increased costs of methyl bromide (as a result of the depleted supply) would make its use uneconomical. Recognized State, local, and tribal requirements listed on the registry would be reviewed periodically by APHIS and delisted over time as effective and economically feasible alternatives to methyl bromide become available.

C. Alternative C

This alternative anticipates that APHIS will implement and administer § 419 in such a way as to recognize use of methyl bromide for treatments that target pests already subject to Federal regulation or that may be federally regulated in the future. (APHIS, Plant Protection and Quarantine (PPQ), is authorized by the U.S. Congress to establish the list of quarantine pests and, under international agreement, serves as the National Plant Protection Organization (NPPO) of the U.S. Government.)

Under this alternative, which could also be viewed as the "no action" alternative, APHIS would strictly implement and administer § 419. In essence, the only regulatory requirements acceptable for the registry would pertain to intrastate and interstate movement of commodities that might potentially be carrying APHIS-regulated pests. The quantities of methyl bromide used to carry out Federal quarantine requirements are already exempt from the phaseout. From an environmental perspective, there would be little or no incremental change in the effect on the ozone layer under this alternative.

D. Assumptions for the Alternatives

The Montreal Protocol and the CAA both provide for a special use of methyl bromide called a Critical Use Exemption (CUE). For purposes of this EA, certain assumptions are made regarding the implementation of CUE's for each of these alternatives. The assumptions are as follows:

- For Alternative A there will be no CUE;
- For Alternative B, the CUE's will be between 25 and 50% of the 2005 CUE's (2,235.5 MT and 4,471 MT, respectively); and,
- For Alternative C, the CUE's will be between 50 and 100% of the 2005 CUE's (4,471 MT and 8,942 MT, respectively.)

A discussion of these assumptions is found in Appendix B, Application of Critical Use Exemptions to the Alternatives.

IV. Environmental Consequences

The environmental consequences that might occur as a result of APHIS recognition of an individual request would essentially be so small as to be considered categorically excluded. However, the concern for purposes of NEPA pertains to the collective effect of all recognized requests to be included in the registry over time when considered together with other uses—past, present, and reasonably foreseeable future uses. Under NEPA, such a discussion is defined as a cumulative effect analysis for potential use under this rule.

Cumulative effect analyses for the current and anticipated U.S. uses of methyl bromide are provided in the final environmental impact statement (EIS) for the "Rule for the Importation of Unmanufactured Wood Articles From Mexico, With Consideration for Cumulative Impact From Methyl Bromide" (USDA, APHIS, 2002) and in the final EIS for "Importation of Solid Wood Packing Material" (USDA, APHIS, 2003) and are incorporated by reference into this analysis. This EA will, therefore, address the estimated incremental change in the cumulative environmental effect that may arise from the recognized uses of methyl bromide as official quarantine use and the inclusion of such uses in the registry that would permit those uses under § 419 of the PPA.

The EPA Final Rule, Protection of Stratospheric Ozone: The Process for Exempting Quarantine and Preshipment Applications of Methyl Bromide, states, "In recognizing official state, county, tribal, and local quarantine requirements, EPA's final rulemaking interprets the definition of quarantine applications such that an intra-country quarantine treatment required by state, county, tribal, or local plant, animal, environmental, or health government authorities constitutes an official control" (68 FR 241, January 2, 2003.) Section 419 of the PPA advances and provides a formal structure for this interpretation. In addition, § 419 further addresses EPA's concern,[6] as stated in the final rule, for the need for a quarantine authority to scrutinize such recognitions because it requires assessments pertaining to economy and efficacy as a condition of acceptance for publication in the registry.

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[6]The Parties to the Protocol, in Decision XI/13 request Parties to "review their national plant, animal, environmental, health and stored product regulations with a view to removing the requirement for the use of methyl bromide for quarantine and preshipment where technically and economically feasible alternatives exist"' (68 FR page 247, January 2, 2003). Implementing § 419 would address this concern as it pertains to quarantine issues.

A. Methyl Bromide and Its Potential Uses Under the Rulemaking

This section will address the potential methyl bromide uses that may be recognized as official quarantine use and included in the registry for each alternative. The use of methyl bromide to treat commodities against pests identified in Title 7, Code of Federal Regulations, Parts 300–399 is already authorized under the PPA, and the quantity of methyl bromide used to comply with these regulations is exempt from the phaseout under the CAA and the Protocol. The estimated baseline cumulative effect of APHIS uses of methyl bromide is that which is described in the Mexican Wood EIS (USDA, APHIS, 2002) and the SWPM EIS (USDA, APHIS, 2003).

Determining the estimated incremental cumulative effect of carrying out the proposed action requires an assessment of the number and types of requests that APHIS would receive and recognize for inclusion into the registry. This analysis considers the three different alternatives (previously described) to discuss the range of possible treatments that the registry may include if APHIS recognizes methyl bromide uses as official quarantine use.

Cumulative effects in the two previous APHIS Environmental Impact Statements (Importation of Mexican Wood and the Importation of Solid Wood Packing Material; APHIS, USDA. 2002 and 2003) were calculated based upon projections made in the 1998 Scientific Assessment on Ozone Depletion (UNEP, WMO, 1998). Since that time, the 2002 Scientific Assessment (UNEP, WMO, 2002) was reviewed and accepted by the Parties to the Montreal Protocol. The projected effects over time of the methyl bromide phaseout in the 2002 Scientific Assessment were smaller than the projected effects presented in the 1998 Scientific Assessment. These projections were based upon, among other things, an estimate of the amount of bromine compounds in the troposphere in relation to other ozone-depleting compounds. Subsequent to the acceptance of the 2002 Scientific Assessment, new research was published indicating that, as a result of the production phaseout of methyl bromide, the decrease in the level of bromine in the lower atmosphere is about two times larger than was expected (Montzka *et al.*, 2003). The authors concluded from this information that there has been a 25-30% larger decline in the atmospheric burden of ozone-depleting compounds than noted previously. Since the new research from 2003 demonstrates that there is a much larger decline in the atmospheric burden of ozone-depleting compounds than projected in the 2002 Scientific Assessment, this EA continues to use projections from the 1998 Scientific Assessment on Ozone Depletion to calculate the projections of

cumulative effects of APHIS use of methyl bromide on the atmosphere. Using the 1998 Scientific Assessment will also keep USDA, APHIS projections consistent among environmental documents.

The 1998 Scientific Assessment projects the effects of the methyl bromide phaseout as follows: ". . . the equivalent effective chlorine loading above the 1980 level, integrated from now until the 1980 level is re-attained could be decreased by . . . about 1% by eliminating the global production of methyl bromide beginning in 2004."[7] The Mexican Wood EIS (USDA, APHIS, 2002, page 67) and the subsequent SWPM EIS (USDA, APHIS, 2003) use this statement in an analysis which develop an estimate of how APHIS program uses of methyl bromide and how all uses of methyl bromide may cumulatively affect ozone depletion. Further analyses in these USDA, APHIS documents estimate how the methyl bromide uses may delay the recovery of the ozone layer. These estimates were obtained using information provided by an EPA website that indicated that a 1% effect on stratospheric ozone corresponds to a 5 to 15% effect on the restoration of the ozone layer (EPA, 1999). At the time of the preparation of this EA, the EPA website that presented this statement had been removed from the world wide web; consequently, APHIS can no longer use this website to support estimates of how methyl bromide use may delay the recovery of the ozone layer. APHIS has since been unable to determine a way to estimate how methyl bromide use would affect the recovery of the ozone layer. In light of this new situation, APHIS invites comments, including reliable, authoritative sources that may be used for this analysis.

This EA is consistent with the Mexican Wood and SWPM EIS in its use of the 1998 UNEP, WMO estimate of the impact on ozone depletion from a cessation of all anthropogenic sources of methyl bromide. The UNEP, WMO document projects a decrease of "about 1%" in the total amount of ozone depletion should a cessation of all anthropogenic sources occur. Unlike the Mexican Wood EIS and the SWPM EIS, this EA does not estimate the effect of methyl bromide use or ozone depletion on the restoration of the ozone layer.

The environmental consequences of each alternative are estimated based upon the relationship between methyl bromide usage and ozone depletion as established in the 1998 UNEP, WMO document.[7]

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[7]All three alternatives are based on a "worst-case" emissions estimate of 100%. That is, the assumption in all cases is that 100% of the amount of methyl bromide used is released into the atmosphere. In actuality, some methyl bromide is absorbed into the commodity or soil.

1. What is the estimated contribution of Alternative A to the total global ozone depletion?

If implementation of this regulation results in use patterns similar to U.S. use patterns during 1996 (pre-phaseout levels), this alternative may affect the total global (including manmade and natural) stratospheric ozone depletion by "about 0.28%."[8] [9]

Under this alternative, we assume that the global production of methyl bromide is moved forward from 2005 to 2004 (a scenario described in the Scientific Assessment; UNEP, WMO, 1998) with the exception that U.S. uses are retained as described in Alternative A. Using data from 1996 as detailed in the Mexican Wood EIS (USDA, APHIS, 2002) (reflecting a standard use of methyl bromide prior to the onset of any phaseout activity), the global consumption of methyl bromide was estimated to be 63,960 metric tons (MT) (USDA, APHIS, 2002, page 53). North America accounted for 38% of the 1996 global use and the United States accounted for 87% of the North American use. This resulted in the United States using 33.06%, or 21,145 MT, of the 1996 global methyl bromide (USDA, APHIS, 2002, page 56.)

U.S. use of methyl bromide in 1996
(North America's global use multiplied by the U.S. proportion of North American use)
38% x 0.87 = 33.06%
0.3306 x 63,960 MT = 21,145 MT

How much of the U.S. use would be attributable to Alternative A? Under this alternative, the assumption is that uses other than quarantine, preshipment, and chemical intermediate uses[10] would approximate the amount used in 1996, before the phaseout began. This amounts to 79% for preplant uses and 5% for structural uses of the total methyl bromide uses in the United States during 1996

[8]Ozone depletion is a natural process, which occurs simultaneously with natural ozone production. This process is not to be confused with the depletion of the ozone layer.

[9]The consistent phaseout of long-lived ozone-depleting substances, if done according to EPA's schedule, would render the effect of using methyl bromide under this alternative virtually insignificant.

[10]The amount used by the United States as chemical intermediates (also identified as "process chemistry" in the Mexican Wood EIS (USDA, APHIS, 2002) is not included (not regulated) according to EPA's Allowance and Post-Tracking System (EPA, 2001); nevertheless, it is a part of the global contribution.

(USDA, APHIS, 2002). In other words, a total of 84% of the 1996 uses would be attributable to Alternative A. The United States used 21,145 MT in 1996; thus, this alternative could possibly comprise 84% of 21,145 MT, or 17,761.8 MT.

Estimated U.S. contribution to methyl bromide use under Alternative A

79% + 5% = 84%

0.84 x 21,145 MT = 17,761.8 MT

How much is this in relation to the amount of methyl bromide used on a global scale? As stated previously, the global manmade contribution of methyl bromide in 1996, prior to the initiation of the phaseout, was 63,960 MT. Accordingly, the portion of the global contribution of methyl bromide attributable to the projected U.S. uses of methyl bromide under Alternative A is as follows:

Proportion of U.S. contribution to global use of methyl bromide under Alternative A

17,761.8 MT ÷ 63,960 MT = 0.278, or 28% of the 1996 global use

Using the estimate of "about 1%" (representing the amount that anthropogenic sources of methyl bromide affect stratospheric ozone depletion, as discussed in the UNEP, WMO, Scientific Assessment of 1998), the effect of Alternative A on the global contribution to ozone depletion is estimated to be as follows:

Estimated effect of Alternative A on the global contribution to ozone depletion

28% of (about) 1% = about 0.28%

Therefore, the U.S. contribution to global ozone depletion under Alternative A would comprise about 0.28% of the global contribution (natural and anthropogenic) to stratospheric ozone depletion.

2. What is the estimated contribution of Alternative B to total global ozone depletion?

This alternative may contribute about 0.06% to about 0.11% of the total global ozone depletion occurring in the stratosphere.[11] Under this alternative, the assumption is that current uses of methyl bromide are retained and may even slightly increase for the short term as new State and local legislation is created for these purposes; however, such uses will eventually decrease overall as effective, economical alternatives replace standard methyl bromide treatments.

By January 2005, the phaseout schedules under the Montreal Protocol and CAA call for a complete phaseout of methyl production except for amounts needed to fill quarantine, preshipment, and critical uses. Concurrent to this process, legitimate quarantine uses of methyl bromide by States, localities, and tribes may be identified and given recognition by APHIS as official quarantine use, producing a counterbalancing effect against this complete phaseout. Interstate and intrastate requirements may play a significant role in this counterbalance. It is likely that interstate and intrastate quarantine requirements pertaining to the movement of commodities may have accounted for a substantial quantity of methyl bromide used in 1996. Refer to Appendix C for a detailed discussion of the possible interstate and intrastate movement of commodities that could apply to this alternative.

Since uses of methyl bromide will change over time due to a variety of factors, we will estimate a range of values to reflect the effect of Alternative B on total global ozone depletion. The U.S. 2005 Critical Use Exemption for the United States has been set at 8,942 MT of methyl bromide. For the high end of the range, we will assume that 50% of the 2005 CUEs (4,471 MT) plus an additional 10% of the 1991 baseline allotment (2,550 MT[12]), or a total of 7,021 MT, may be approved for the registry. For the low end, we will assume that the usage of methyl bromide will be cut in half, to 3,511 MT, as regulations are scrutinized and delisted from the registry as effective and economical alternatives are developed.

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[11]Ozone depletion is a natural process, not to be confused with the depletion of the ozone layer.

[12] The baseline allotment of 25,500 MT can be found at 40 CFR 82.6.

Estimated high range of Alternative B
(50% of 8,942) + (10% of 25,500 MT) = 7,021 MT

Estimated low range of Alternative B
½ of 7,021 MT = 3,511 MT

How much is this in relation to the amount of methyl bromide used on a global scale? As stated previously, the global manmade contribution of methyl bromide in 1996, prior to the initiation of the phaseout, was 63,960 MT. Accordingly, the portion of the global contribution of methyl bromide attributable to the projected U.S. uses of methyl bromide under Alternative B ranges from 6 to 11%, as follows:

Proportion of U.S. contribution to global use of methyl bromide under Alternative B
Low end: 3,511 MT ÷ 63,960 MT = 0.055, or 6% of the 1996 global use

High end: 7,021 MT ÷ 63,960 MT = 0.109, or 11% of the 1996 global use

Again, this EA uses the scenario described in the 1998 Scientific Assessment (UNEP, WMO, 1998) where calculations are performed assuming a global cessation of methyl bromide emissions beginning in 2004; however, the exception for the purposes of this scenario is that U.S. uses are retained as described in Alternative B. Using the UNEP, WMO estimate of about 1% (representing the amount that anthropogenic sources of methyl bromide contribute towards stratospheric ozone depletion under the hypothetical cessation of all emissions in 2004 (UNEP, WMO, 1998)), the effect of Alternative B on the global contribution to ozone-depleting substances would be as follows:

Estimated effect of Alternative B on the global contribution to ozone depletion
Low end: 6% of (about) 1% = about 0.06%
High end: 11% of (about) 1% = about 0.11%

Therefore, the U.S. contribution to global ozone depletion under Alternative B would comprise about 0.06 to 0.11% of the total global contribution to ozone depletion occurring in the stratosphere.

3. What is the estimated contribution of Alternative C to total global ozone depletion?

This alternative may contribute "about 0.05%" to the total global ozone depletion occurring in the stratosphere.[13] Alternative C assumes that only federally designated quarantine treatments using methyl bromide against quarantine pests will be recognized as official quarantine use. Essentially, this could be considered a "no action" alternative. Federal quarantine treatments against federally designated quarantine pests are currently considered official control whether they are carried out by APHIS, a State Department of Agriculture, or private applicator. Quantities of methyl bromide used to control or eradicate federally designated quarantine pests are already exempt from the phaseout under Article H of the Montreal Protocol. Therefore, no additional uses of methyl bromide would be recognized as official quarantine use. Uses of methyl bromide other than that for quarantine and preshipment would be phased out with the exception of those designated as critical use exemptions.

According to the Mexican Wood EIS (USDA, APHIS, 2002), quantities of methyl bromide used in 1996 for quarantine and preshipment (9% of U.S. uses) as well as produced as a chemical intermediate via process chemistry[14] (7% of U.S. uses) accounted for 16 % (9% + 7%) of the total uses in 1996. This amounts to:

U.S. use of methyl bromide under Alternative C
16% x 21,145 MT = 3,383.2 MT

How much is this in relation to the amount of methyl bromide used on a global scale? As stated previously, the global manmade contribution of methyl bromide in 1996, prior to the initiation of the phaseout, was 63,960 MT. Accordingly, the portion of the global contribution of methyl bromide attributable to the projected U.S. uses of methyl bromide under Alternative C is as follows:

[13]Ozone depletion is a natural process, not to be confused with the depletion of the ozone layer.

[14]Methyl bromide produced as a result of process chemistry is not regulated but contributes towards ozone depletion.

Proportion of U.S. contribution to global use of methyl bromide under Alternative C
(16% of total 1996 U.S. levels):

3,383.2 MT ÷ 63,960 MT = 0.053, or 5% of the global use

Again, this EA assumes that the global production of methyl bromide is moved forward from 2005 to 2004 (a scenario described in the Scientific Assessment; UNEP, WMO, 1998) with the exception that U.S. uses are retained as described in Alternative B. Using the UNEP, WMO estimate of about 1% (representing the amount that anthropogenic sources of methyl bromide contribute towards stratospheric ozone depletion if all emissions were to hypothetically cease in 2004; UNEP, WMO, 1998), the effect of Alternative C on the global contribution to ozone-depleting substances would be as follows:

Estimated Effect of Alternative C on the global contribution to ozone depletion
5% of (about) 1% = about 0.05%

Therefore, the U.S. contribution to global ozone depletion under Alternative C would comprise about 0.05% of the total global contribution to stratospheric ozone depletion.

B. Cumulative Effects Analysis

1. What are cumulative effects?

The Council on Environmental Quality (CEQ) NEPA implementing regulations (40 CFR 1508.7) define cumulative effects as:

> " . . . 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Thus, individual actions occurring at separate times and locations and occurring over a period of time can contribute collectively to result in cumulative effects on the environment (CEQ, 1997).

2. What is the potential cumulative effect issue associated with the rulemaking?

The primary environmental quality issue related to the potential increase in use of methyl bromide that may occur as a result of APHIS' recognition of official uses of methyl bromide as they relate to state, local, and tribal requirements, is the incremental contribution from any additional use of methyl bromide as a result of the proposed action, and its resultant incremental effect on the recovery of the ozone layer as compared to that discussed in the Mexican Wood EIS (USDA, APHIS, 2002) and the SWPM EIS (USDA, APHIS, 2003).

3. Are there geographic concerns related to cumulative effects from methyl bromide uses?

We refer to the Mexican Wood EIS (USDA, APHIS, 2002) for a discussion regarding geographic boundaries. As stated in the EIS, there are no definitive geographic boundaries when assessing the cumulative impact of methyl bromide use since the ozone depletion affects the environment globally.

4. What are the difficulties in determining cumulative effects?

Estimating the cumulative effects that a proposed rule might have on the restoration of the ozone layer presents an enormous challenge not only because it is difficult to obtain good use data (see discussion on same topic in Mexican Wood EIS, USDA, APHIS, 2002) but also because APHIS cannot determine a proper way to use the data to project an effect of usage on the restoration of the ozone layer. As stated in Section A, APHIS has been unable to determine a way to estimate how methyl bromide use would affect the recovery of the ozone layer and invites comments, including reliable, authoritative sources that may be used for this analysis.

Estimating the cumulative effects for this rulemaking is even more challenging because the implementation and administration could change over time depending upon the circumstances. There are few, if any, current state, local, and tribal statutory requirements that specifically call for the use of methyl bromide, although some may exist that call for for pest-free certification. Over time, the number of statutory requirements may increase, although it cannot be determined to what extent. For each alternative, this document assesses the cumulative future impacts in the event that APHIS implements other rules that it is currently working on. These rules include the Importation of Unmanufactured Wood Articles From Mexico rule and the Adoption of the International Plant

Protection Convention (IPPC) Guidelines for SWPM rule. The amount of methyl bromide used for quarantine and preshipment uses and for process chemistry is considered to be the baseline amount, as these uses would occur regardless of the alternative chosen. Finally, a range of potential critical use exemptions are added to this scenario.

5. What is the estimated cumulative impact on total global ozone depletion?

Alternative A

The cumulative effect of Alternative A may contribute about 0.41% to ozone depletion.

Alternative A:

• Uses under Alternative A	17,761.8 MT
• Uses under Alternative C (baseline)	3,383.2 MT
• Importation of Mexican unmanufactured wood articles	21.0 MT
• Importation of solid wood packing materials from all countries	4,630.0 MT[15]
• CUE (none; see Appendix B)	+ 0 MT
	25,795.0 MT

Estimated cumulative effect of Alternative A on the global contribution to ozone depletion

26,310 MT ÷ 63,960 MT = 41% (of 1996 usage)

41% of (about) 1% = about 0.41%

The Scientific Assessment of Ozone Depletion (UNEP WMO, 1998) states, "The current vulnerability to ozone depletion over the next few decades is primarily due to past use and emissions of the long-lived ozone-depleting substances." It also states, "The atmospheric abundances of global and Antarctic ozone will start to slowly recover within coming decades toward their pre-1980 levels once the stratospheric abundances of ozone-depleting (halogen) gases start to decrease." Thus, despite the potential delay that Alternative A might have on the recovery of the ozone layer, the continuing phaseout of long-

[15]The value used for this EA reflects the estimate of the amount of methyl bromide that might be used according to Alternative 3 in the SWPM EIS (USDA, APHIS, 2003). This theoretical estimate is conservative in that it assumes that all imported SWPM would be fumigated and not heat-treated.

lived ozone-depleting substances would render the effect of methyl bromide (a "short-lived" substance) virtually insignificant.

Alternative B

The estimated cumulative effect of Alternative B may contribute 0.22-0.31% towards ozone depletion.

Alternative B (high end):

• Uses under Alternative B (high end)	7,021 MT
• Uses under Alternative C (baseline)	3,382 MT
• Importation of Mexican unmanufactured wood articles	21 MT
• Importation of solid wood packing materials from all countries	4,630 MT
• Critical Use Exemption (see Appendix B)	+ 4,471 MT
	19,525 MT

Alternative B (low end):

• Uses under Alternative B (low end)	3,511 MT
• Uses under Alternative C (baseline)	3,382 MT
• Importation of Mexican unmanufactured wood articles	21 MT
• Importation of solid wood packing materials from all countries	4,630 MT
• Critical Use Exemption (see Appendix B)	+ 2,236 MT
	13,780 MT

Estimated cumulative effect of Alternative B on the global contribution to ozone depletion

(high end) 19,525.5 MT ÷ 63,960 MT = 31%
31% of (about) 1% = about 0.31%

(low end) 13,780 MT ÷ 63,960 MT = 22%
22% of (about) 1% = 0.22%

Alternative C

The estimated cumulative effect of Alternative C may contribute 0.20-0.26 % towards ozone depletion.

Alternative C (high end):

• Uses under Alternative C	3,382 MT
• Importation of Mexican unmanufactured wood articles	21 MT
• Importation of solid wood packing materials from all countries	4,630 MT
• Critical Use Exemption (high end; see Appendix B)	+ 8,942 MT
	16,975 MT

Alternative C (low end):

• Uses under Alternative C	3,382 MT
• Importation of Mexican unmanufactured wood articles	21 MT
• Importation of solid wood packing materials from all countries	4,630 MT
• Critical Use Exemption (low end; see Appendix B)	+ 4,471 MT
	12,504 MT

Estimated cumulative effect of Alternative C on the global contribution to ozone depletion

(low end) 12,504 MT ÷ 63,960 MT (total U.S. use in 1996) = 20%
20% of (about) 1% = about 0.20%

(high end) 16,975 MT ÷ 63,960 MT (total U.S. use in 1996) = 26%
26% of (about) 1% = about 0.26%

6. How would the recovery of the ozone layer affect the risks associated with human health and the environment?

The recovery of the stratospheric ozone layer is associated with reducing the effects from ultraviolet radiation on human health and the human environment. Such effects are discussed in detail in the Mexican Wood EIS, which, for purposes of the proposed action is incorporated by reference (USDA, APHIS, 2002).

Of the alternatives considered in this EA, APHIS regulation of methyl bromide use under Alternative A is estimated to contribute the largest percentage towards total global ozone depletion, followed by Alternatives B and C, respectively.

The estimated cumulative contribution of each alternative towards global ozone depletion is as follows:

Alternative A = 0.41%
Alternative B = 0.20–0.26%
Alternative C = 0.16–0.20%

In the past, the global uses of methyl bromide have been attributed to as much as 1% of all ozone depletion. Based upon the cumulative estimates of ozone depletion for each alternative, there may be some contribution to delay in recovery of the ozone layer from recognition of requests for methyl bromide under the § 419 amendment to the Plant Protection Act, although the amount

and significance of the contribution remains to be determined. Adoption, implementation, and administration of any of the foregoing alternatives does not appear to be inconsistent with the intent of the Montreal Protocol or the Clean Air Act and would not in a cumulative sense contribute to degradation of the quality of the human environment.

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Appendix A. Supplemental Information About Methyl Bromide and the Montreal Protocol

1. What actions have been taken to comply with the phaseout of methyl bromide?

At their 1997 meeting, the Parties to the Montreal Protocol agreed to establish a phaseout schedule for methyl bromide. Thereafter, in 1998 the U.S. Congress amended the Clean Air Act (CAA), directing the EPA to develop regulations under the CAA reflecting the methyl bromide phaseout schedule of the Protocol. The CAA was amended by section 764 of the 1999 Omnibus Consolidated and Emergency Supplemental Appropriations Act (Public Law 105-277, October 21, 1998) (section 604(d)(5) of the Clean Air Act) in order to further conform with Article 2H paragraph 6 of the Montreal Protocol[1] by allowing those quantities of methyl bromide used for quarantine and preshipment applications to be exempt from the phaseout as follows:

> ''(5) SANITATION AND FOOD PROTECTION.—To the extent consistent with the Montreal Protocol's quarantine and preshipment provisions, the Administrator shall exempt the production, importation, and consumption of methyl bromide to fumigate commodities entering or leaving the United States or any State (or political subdivision thereof) for purposes of compliance with Animal and Plant Health Inspection Service requirements or with any international, Federal, State, or local sanitation or food protection standard."

Accordingly, under the authority of section 604(d)(5) of the Clean Air Act (CAA) (42 U.S.C. § 7401 *et seq*.), the quantity of methyl bromide used to perform APHIS-regulated quarantine treatments against quarantine pests, as detailed in 7 CFR parts 300–399, is exempt from being phased out under the CAA and the 1987 Montreal Protocol.

Subsequently, EPA conformed the phaseout schedule of methyl bromide in its November 28, 2000, final rulemaking (65 FR 70795), as follows:

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[1] "Article 2H: Methyl Bromide" of the Montreal Protocol states in paragraph 6, "The calculated levels of consumption and production under this Article shall not include the amounts used by the party for quarantine and pre-shipment applications."

- 1999—Production and imports limited to 75% of the 1991 baseline of production;
- 2001—Production and imports limited to 50% of the 1991 baseline;
- 2003—Production and imports limited to 30% of 1991 baseline;
- 2005—Complete phaseout of production and imports of methyl bromide except for limited critical use exemptions.

This schedule is for those uses of methyl bromide that are not exempt from the phaseout. Production and imports of those quantities of methyl bromide necessary for quarantine and preshipment purposes are exempt from the phaseout.

2. What is methyl bromide's status among other ozone-depleting substances?

As the understanding of atmospheric dynamics increased over time, the value of the methyl bromide ozone depletion potential has decreased. In 1992, methyl bromide was identified as a significant ozone depleting substance with an ODP of 0.7 (http://www.epa.gov/ozone/title6/phaseout/accfact.html); this value was subsequently adopted by the Parties to the Montreal Protocol. In 1995, based on updated science, the Parties to the Protocol reduced the ODP to 0.6, and in 1998 the ODP was revised downward again, to 0.4 as a result of UNEP's 1998 Scientific Assessment of Ozone Depletion (UNEP, WMO, 1998). A substance with a large ODP has more potential to destroy ozone during its lifetime in the atmosphere. The atmospheric lifetime of methyl bromide, categorized as a short-lived ozone depleting compound, is 0.7 years. Short-lived gases are significantly destroyed in the troposphere (lower atmosphere); therefore, only a fraction of the emitted gas contributes to ozone depletion in the stratosphere (UNEP, WMO 2002; page Q11.) Ozone depletion potentials and lifetimes of regulated gases are presented in Table A-1.

Table A-1. Atmospheric lifetimes, emissions, and ozone depletion potentials of selected gases regulated under the Clean Air Act[2]

Gas	Lifetime (years)	Global Emmissions in 2000 (gigagrams per year)[a]	Ozone Depletion Potential (ODP)
CFC-12	100.0	130-160	1
CFC-113	85.0	10-25	1
CFC-11	45.0	70-110	1
Carbon tetrachloride	26.0	70-90	0.73
Hydrochloro-fluorocarbons	1-26	340-370	0.02-0.12
Methyl chloride	5.0	3000-4000	0.02
Halon-1301	65.0	~3	12
Halon-1211	16.0	~10	6
Methyl bromide	0.7	160-200	0.38

[a]1 gigagram - 1,000 Metric Tons.

In 1998, UNEP's World Meteorological Organization (WMO) published a Scientific Assessment of Ozone Depletion (UNEP, WMO, 1998) which provided the following information:

- The quantity of ozone-depleting substances that exceed the 1980 levels (representing the levels that existed prior to the onset of ozone depletion due to anthropogenic contribution) would be decreased by "about 1%" if global production (*i.e.*, all man- made contributions) of methyl bromide were to cease in 2004.

- Assuming compliance with the Montreal Protocol proceeds as expected, the scheduled "recovery" of the ozone layer is on target for the year 2050.

- Methyl bromide is categorized as a short-lived ozone depleting substance.

[2]Includes both human activities and natural sources. (UNEP, WMO, 2002. "Twenty Questions and Answers About the Ozone Layer",Table Q7-1, page Q11)

- The current vulnerability to ozone depletion over the next few decades is primarily due to past use and emissions of the long-lived ozone-depleting substances (*i.e.*, substances other than methyl bromide).

- The science of methyl bromide's effect on the ozone layer is not clearly understood.

In 2002, a subsequent Scientific Assessment of Ozone Depletion (UNEP, WMO, 2002) noted the following:

- The total amount of ozone-depleting halogens in the atmosphere has significantly declined.

- Vast natural sources of atmospheric bromines exist (*e.g.*, oceans and forest fires).

- The fraction of the observed increases in atmospheric methyl bromide throughout the 20th century that may be attributed to industrial uses cannot be clearly defined. That fraction is estimated to be between 10 and 40% of the observed increases in atmospheric methyl bromide.

- The average lifetime of methyl bromide, categorized as a short-lived gas, was determined to be 0.7 years.

In 2003, nearly 5 years after the methyl bromide phaseout began and nearly 8 years after the complete phaseout of chlorofluorocarbons, methyl chloride, halons, and carbon tetrachloride, the National Oceanic and Atmospheric Administration determined that the Antarctic Ozone 'hole' was near record size, the second largest ever observed. The increase in size was attributable to year-to-year changes in temperature across the Antarctic continent and not to an increase in ozone-depleting substances (NOAA, 2003.) That same year, NOAA scientists discovered that the decrease in the global amount of bromine in the lower atmosphere was about two times larger than expected. The reduction was attributed to the decline in industrial production due the phaseout (Montzka *et al.*, 2003).

Appendix B. Application of Critical Use Exemptions to the Alternatives

Beginning in 2005, exempt quantities of methyl bromide may be produced to fulfill special uses, referred to as a Critical Use Exemption (CUE). This exemption, authorized under the Montreal Protocol to prevent significant disruptions to the market, has been incorporated into amendments to the Clean Air Act (CAA). Applications for CUEs are made to the U.S. Environmental Protection Agency (EPA) and must be submitted each year in order to be able to retain the use of methyl bromide for a particular commodity. EPA considers information on the efficacy and economic feasibility of alternatives, as well as the effect on the market in the event that methyl bromide is not available. EPA-approved applications are submitted to the Parties to the Protocol who authorize the CUE.

In 2003, EPA received 54 applications for CUEs for 2005, totaling 39% of the 1991 baseline production of 25,500 MT. The applications included requests for structural treatments, preplant soil treatments, and postharvest treatments for commodities including grains, beans, dried meat, processed food and processed food facilities, honey, dried fruits and nuts, solanaceous crops, brassica and cucurbit crops, ginger, small fruit crops, tree fruit crops, cut flowers, bulbs and seeds, strawberries, root crops, tobacco, citrus and avocado, forest tree seedlings, nursery crops, and turf grass. The majority of the applicants were consortia, grower associations, and private industry.

At the November 2003 Meeting of the Parties to the Montreal Protocol, the Parties could not agree on the allowance for the U.S. Critical Use Exemptions. Subsequently, an Extraordinary Meeting of the Parties was held in March of 2004 to resolve the issue. As a result of this meeting, the United States was granted a critical use exemption to produce the equivalent of 30% of the 1991 baseline amount (7,659 MT), and to use an additional 5% of the baseline amount which could be obtained from existing stocks of methyl bromide.[1] In essence, methyl bromide production, scheduled to be reduced to 0% of the

[1] The Parties to the Montreal Protocol designated an amount of methyl bromide that may be obtained from existing stocks, thereby suggesting that an amount of the chemical to be sold is subject to regulation. The Montreal Protocol and the Clean Air Act purport to regulate only the amount of methyl bromide that a company may manufacture, import, and export, and it is doubtful that manufacturers have much, if any, inventory. While a "draw-down" allotment could be factored into the gross amount, we are uncertain that any such allotment exists.

1991 baseline amount by 2005, was extended for an additional year through the use of the CUE to fulfill the critical needs by the agricultural industry.
The 2005 Critical Use Exemptions granted to the United States permit the following agricultural uses: chrysanthemum cuttings–rose plants; cucurbits; dried fruit, beans, and nuts; eggplant; forest nursery seedlings; fruit tree nurseries; ginger production; mills and processors; orchard replant; peppers; smokehouse ham; strawberry fruit; strawberry runners; sweet potato; tomatoes; and turfgrass (UNEP, 2004).

The critical use exemptions are included in the context of this environmental assessment using the following assumptions:

Assumption for Alternative A: Regional consortia, grower associations, or private industry may request from State, local, or tribal authorities a quarantine requirement on their behalf. Under this scenario, all requests would be honored, and because of the ease by which the uses may be included in the registry, there would be no need to apply for a CUE.

Assumption for Alternative B: Under this scenario, where State, local, or tribal authorities would keep, and perhaps for a short time, add to existing laws, regulations, and mandatory procedures, some of the approved uses may be those that were formerly categorized as critical use exemptions. For purposes of this analysis, we will assume that those uses currently considered by the Parties to be critical for the year 2005 may become partially incorporated into State, local, or tribal regulations and placed on the registry, and the remaining uses that are not recognized for inclusion into the registry by State, local, or tribal authorities would be pursued as a CUE. For the high end estimate, we will assume that 50% of the current 2005 CUE uses would be incorporated into the registry, with the remaining 50% continuing as a CUE. Over time, the assumption is that the CUEs will dwindle downward, as alternatives are discovered and implemented, to comprise approximately 25% of the original 2005 CUEs; an additional 25% of that amount may still be incorporated into the registry. This amounts to $0.5 \times 8{,}942 = 4{,}471$ MT (high end) and $0.25 \times 8{,}942 = 2{,}235.5$ MT (low end).

Assumption for Alternative C: In this, the "no action" scenario, only APHIS-listed federally regulated pests would be considered for the registry; quantities of methyl bromide for use against these pests are currently exempt from the phaseout. All organizations or commodity groups seeking methyl bromide allotments for pests that are not federally regulated by APHIS would have to apply for a CUE if they wish to retain uses of methyl bromide—critical use

applications would account for 35% of the baseline (2005 exemption) with the assumption that these uses would fall to half of that (17.5% of the baseline) some time in the future.

Appendix C. Interstate and Intrastate Regulations

What quarantine pests are the States concerned with?

The pests of concern that States and localities regulate may or may not be APHIS regulated pests. These pests may be weeds; weed seeds; bacterial, viral, or fungal pathogens; nematodes; insects; or animals. Such pests fit the U.S. Environmental Protection Agency's (EPA) definition of quarantine pests as defined in the EPA Final Rule on The Process for Exempting Quarantine and Preshipment Applications of Methyl Bromide:

> " . . . quarantine pests are pests of potential importance to the areas endangered thereby and not yet present there, or present but not widely distributed and being officially controlled." (68 FR 251).

How do States regulate movement of quarantine pests?

The EPA Final Rule "Protection of Stratospheric Ozone: The Process for Exempting Quarantine and Preshipment Applications of Methyl Bromide" (68 FR 238-254, January 2003) recognizes the importance of preventing plant pests from becoming established in new localities by accepting the use of methyl bromide to disinfest commodities being transported from one locality to another. Intrastate and interstate regulations often pertain to the movement of articles (coming from within or from outside of the State) that may contain pests of significant concern to a locality. The pests of concern, commonly referred to as "regulated pests" by both APHIS and the States, may be the same pests that APHIS regulates; however, many of them are not the same pests. States regulate movement of commodities to prevent the introduction of undesirable pests from another State or from a locality within the State into another locality within that State. Examples of localities may include a county, a township, a region occupied by a nursery which provides the source plant material for production crops, or a region occupied by a production crop. The regulation may specifically require fumigation or the regulation may be performance-based, requiring phytosanitary certification that a certain commodity is free, or "apparently free," of regulated pests prior to geographic movement of that commodity. Such movement may pertain to a commodity, such as apples or citrus fruit, being moved from the State of origin to another State to be sold. Likewise, such movement may pertain to transporting propagative plant parts from a nursery (where young plants are started) to a production field (where the commodity is grown for harvest). In addition, food storage structures may need

to be fumigated prior to receiving the commodity in order for the commodity to maintain "pest- free" certification. In all cases, fumigations of soil, structures, and commodities are conducted by private pesticide applicators trained and certified in the use of methyl bromide, as required by the EPA.

The quantity of methyl bromide used to fulfill intrastate and interstate regulations is unknown at this point. The amount of methyl bromide used to comply with intrastate and interstate regulations is not tracked by most State agricultural agencies.

What if the use is not embedded into legislation?

Many uses of methyl bromide in the plant industry may not be a result of State regulation, but rather a result of standard agricultural practices that have been developed over the years to assure that fields are kept free of insects, diseases, weeds, and nematodes that depress production and increase costs. Those standard agricultural practices that are not imbedded into State or local legislation are potential candidates for APHIS recognition for inclusion in the registry under Alternative A, but not under Alternative B.

What about fumigation of soil for production fields?

It is unknown whether regulations requiring soil fumigation of production fields prior to planting of transported rootstock will be recognized as official quarantine use. In this situation, the harvested product is destined for transport rather than the rootstock. As discussed in EPA's Final Rule the definition of quarantine applications "excludes treatments of commodities not entering or leaving the United States or any State (or political subdivision thereof)" (68 FR 251.) It remains to be seen how regulations address fumigations of production fields where the harvested product may not contain the root portion of the crop.

Under Alternative B, which considers methyl bromide treatments only if embedded within legislation, it is conceivable that the standard agricultural practice of fumigating production fields prior to planting might eventually find its way into the regulatory system of States. Soil fumigation of production fields is a standard agricultural practice for eliminating soil borne pathogens, nematodes, and weeds that can weaken the health of young transplants and significantly affect the value of the crop. Many growers, particularly of strawberries, tomatoes, peppers, and cut flowers, commonly prepare production fields for planting by fumigating the soil with methyl bromide, and would incur losses due to depressed production and less desirable produce without its use.

What are examples of intrastate and interstate regulations?

Examples of intrastate and interstate regulations pertaining to APHIS-regulated pests include statutes requiring fumigation of plant material, household goods, and mobile homes prior to transport between or within States to prevent movement of gypsy moth and statutes requiring fumigation of agricultural equipment moving out of areas infested with the golden nematode. The quantities of methyl bromide used to comply with such regulations are already exempt from the phaseout since they pertain to Federal quarantines regarding gypsy moth and golden nematodes, APHIS-regulated pests.

An example of an intrastate or interstate requirement pertaining to non-APHIS regulated pests would be a regulation in California requiring fumigation of fruit originating from Florida or Texas in order to protect California from infestations of blueberry maggot and Mediterranean fruit fly (Schneider *et al.*, 1999). Blueberry maggot is not regulated by APHIS; nevertheless, it is a significant pest of concern to California where it is not yet present but is being officially controlled. Mediterranean fruit fly, an APHIS-regulated pest, is not yet present in the United States and is being officially controlled by both APHIS and the State of California. Both the blueberry maggot and the Mediterranean fruit fly fit EPA's definitions of quarantine pest as it pertains to the State of California.

Food sanitation regulations by Federal, State, local, or tribal food sanitation authorities pertain to stored product pests. Most of these pests are not regulated by APHIS. Phytosanitary certification of stored commodities, such as dried fruit, nuts, and grains, may be necessary prior to transport of these commodities to storage facilities or food processing plants. It is possible that uses of methyl bromide to treat transported stored products or the structures that store these products may be requested for recognition as official quarantine use.

How might State legislation be interpreted under the rule for § 419?

Under Alternative B, it is conceivable that States that do not already regulate movement of plant pests may consider enabling legislation requiring methyl bromide treatments for agricultural commodities that will be shipped to other locations. Upon enactment of such legislation, States might request official quarantine use recognition from APHIS.

An example of a potential situation in which legislation may be beneficial for agricultural commodities is the need for methyl bromide to fumigate soil for propagative material such as forest tree seedlings, prior to transport and planting. Under such legislation, it is possible that a quarantine pest of the propagative material in the area where it is destined may have to be State- or federally-listed before methyl bromide can be considered a permitted use. Alternatively, it is possible under such legislation that methyl bromide use would be allowed for establishing material as pest-free even under a broad performance standard. In either event, such legislation also could require that any permitted methyl bromide uses under the legislation would cease when an economically and technically acceptable alternative can replace methyl bromide.