

**State of California
AIR RESOURCES BOARD**

**Final Statement of Reasons for Rulemaking,
Including Summary of Comments and Agency Responses**

**PUBLIC HEARING TO CONSIDER ADOPTION OF AN
AIRBORNE TOXIC CONTROL MEASURE
TO REDUCE EMISSIONS OF TOXIC AIR CONTAMINANTS FROM
OUTDOOR RESIDENTIAL WASTE BURNING**

**Public Hearing Date: February 21, 2002
Agenda Item No: 02-1-03**

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I. GENERAL

The Initial Statement of Reasons for the Proposed Airborne Toxic Control Measure to Reduce Emissions of Toxic Air Contaminants from Outdoor Residential Waste Burning (ISOR, also referred to as the Staff Report) was released January 4, 2002, and made available to the public for at least 45 days prior to the public hearing. The Staff Report, which is incorporated by reference herein, provided a description of the rationale and necessity for the action proposed. The proposed action consisted of the adoption of an Airborne Toxic Control Measure (ATCM) as new section 93113 of title 17, California Code of Regulations (CCR), as authorized by section 39666 of the Health and Safety Code.

On February 21, 2002, the Air Resources Board (ARB or Board) held a public hearing at which it received written and oral comments on the proposed regulation. At that time, the Board considered revised language that staff recommended to address issues raised during the preceding public comment period. At the conclusion of the public hearing, the Board adopted Resolution 02-2 and approved the regulation with the proposed staff modifications. Resolution 02-2 is incorporated by reference herein. On May 15, 2002, the ARB released a Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, which provided the revised regulatory language for the required 15-day public comment period. The public comment period ended on May 31, 2002.

As approved by the Board, the ATCM prohibits the outdoor burning of household waste, other than vegetation grown on the property, at one- and two-family residences in California (burning at larger residences is already prohibited by statute.) The ATCM also prohibits the use of burn barrels or incinerators for the combustion of waste at residences. Exemptions are included for the burning of paper and cardboard and for the use of burn barrels in very low population density

areas. The purpose of the ATCM is to reduce individual and community health risks from exposure to toxic air contaminants (TACs) produced during uncontrolled combustion of materials found in the household waste stream. The main focus of the ATCM is to address public exposure to polychlorinated dibenzo-p-dioxins and dibenzofurans (collectively referred to as dioxins) and other TACs including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), benzene, and 1,3-butadiene. Particulate matter from the smoke and resuspended ash will also be reduced by limiting the types and amount of material burned.

II. MODIFICATIONS TO THE REGULATION AS ORIGINALLY PROPOSED

A. Update of Information Contained in the Initial Statement of Reasons: Summary of Modifications to the Initial Regulatory Proposal

Prior to the Board's hearing to approve the ATCM, the public was provided a 45-day comment period to review and submit comments on the proposed regulation. During this period, 88 letters or emails were received. The Board also heard testimony from 26 witnesses at the February 21, 2002 public hearing. Comments in the 45-day comment period letters and by the witnesses at the hearing raised issues regarding:

- scope and applicability of the regulation;
- definitions;
- implementation date;
- exemption criteria;
- materials and methods to be prohibited;
- public education needs;
- compliance and enforcement;
- local versus statewide control;
- emissions test results and risk assessment;
- ambient air monitoring for TACs;
- comparisons with other emissions sources;
- fire safety;
- potential emissions from additional waste hauling;
- economic and physical hardship in rural areas;
- landfill and transfer station capacity and diversion rates;
- access to waste collection and recycling services;
- reducing junk mail and excess packaging;
- illegal waste storage and illegal dumping;
- indoor waste combustion; and
- individual health concerns.

As a result of the comments received during the 45-day comment period, staff developed revised language for several provisions of the proposed regulation.

While many of the comments were accommodated in the modifications to the proposed regulation, others were not, and the reasons are provided herein.

In addition to the evaluation of significant adverse environmental impacts contained in Chapter VIII of the Staff Report, staff also considered the potential impacts resulting from recommended staff modifications to the rule. These evaluations are contained in the Notice of Decision and Response to Significant Environmental Issues (NODR), which is incorporated by reference herein.

The proposed regulation, as modified, was brought before the Board at the public hearing. After hearing the public comments and deliberating the issues at the hearing, the Board approved the regulation with the modifications proposed by staff. A detailed explanation of ARB staff modifications is contained in Attachment B of the Board Resolution 02-2, circulated during the 15-day public comment period in late May 2002. The changes to the initial proposal in 17 CCR section 93113 can be summarized as follows:

1. In subsection (b), "Definitions," definitions for *"approved transfer station or disposal facility," "available regular waste pickup service," "communal or community dumpster," "mandatory regular waste pickup service,"* and *"voluntary regular waste pickup service"* were deleted and definitions for census zip code, chief fire official, incorporated place, and population density were added to reflect terminology used to enunciate the exemption criteria in the modified regulation.
2. In subsection (d), "Compliance Schedule," the effective date of the prohibitions was changed to January 1, 2004. Also, a provision was added for ARB to conduct a public education and outreach program, beginning no later than January 1, 2003. This schedule allows additional time for outreach and education before the prohibitions become effective.
3. Subsection (e), "Exemptions," was modified to provide specific exemption criteria based upon population density within census zip code areas, in response to a concern that the initial exemption criteria lacked certainty. The modified exemption criteria are:
 - Census zip codes with a population density less than 3.0 people per square mile receive an automatic exemption. In these areas, dry, non-glossy paper and cardboard may be burned, and burn barrels may be used.
 - Census zip codes with a population density between 3.0 and 10.0 people per square mile may be exempted to allow the burning of dry, non-glossy paper and cardboard at the direction of the air district Board, and burn barrels may be used based upon overriding fire safety concerns at the request of the ranking local fire official. However, the air district may delineate sub-areas of the census zip code where the prohibitions would still apply.

- No exemptions will be provided in census zip codes with a population density greater than 10.0 people per square mile, and in all incorporated places. However, in this highest density tier, the air district may delineate sub-areas of the census zip code to be exempted, if the population density is less than or equal to 3.0 people per square mile in the sub-area. In these sub-areas, dry, non-glossy paper and cardboard may be burned, and burn barrels may be used.
4. The process for designating exemption areas in subsection (e) was modified such that:
 - ARB will provide the air districts a listing of incorporated places and population density in each census zip code area within each air district by May 1, 2003, and every ten years thereafter.
 - Air districts must submit their Requests for Exemption to ARB, with appropriate documentation, by August 1, 2003.
 - ARB will review the Requests for Exemption for completeness and approve the exemption areas with a written confirmation by January 1, 2004.
 - ARB will make available a listing of all exemption areas by January 1, 2004.
 - The exemption area designation process will be repeated every 10 years thereafter, rather than every five years, until there are no areas qualifying for the exemption pursuant to the exemption criteria.
 - Air districts must re-evaluate the exempted sub-areas every five years to confirm that they still meet the population density criteria for exemption.
 5. The requirements for Requests for Exemption were modified in the following ways:
 - The air district must hold a public meeting on the Request for Exemption and adopt it using an enforceable mechanism.
 - To prevent backsliding, the air district must submit an analysis of local controls regarding bans on, or requirements for, the use of burn barrels or incinerators and for bans on burning of paper or cardboard in the exemption areas. Burn barrels may continue to be used in any jurisdiction where a local ordinance or other enforceable mechanism requiring their use is in effect as of January 1, 2002, unless it is subsequently rescinded or revoked. Conversely, an air district may not seek an exemption for the use of burn barrels in any jurisdiction that bans their use through air district rules, local ordinances, or other enforceable mechanisms in effect on January 1, 2002, or thereafter. Air districts may not request exemptions for burning paper and cardboard if it is already prohibited under air district rules in effect as of January 1, 2002, nor request an exemption for any jurisdiction where a local ordinance or other enforceable mechanism already prohibits burning these materials.

- Air districts must include a written commitment to public education on minimizing hazards from residential burning, through a permit program or equivalent mechanism.
- The Request for Exemption must include written documentation from the chief fire official with primary jurisdiction over fire safety within the medium population density exemption area that burn barrels or incinerators must be used to avoid unacceptable fire risk.

Staff also added to the rulemaking record the following additional documents and information that support the proposed action:

ARB (2000). Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Air Resources Board, Stationary Source Division, Mobile Source Control Division. Sacramento, California. (Diesel Risk Reduction Plan)

Nakao, T., Aozasa, O., Ohta, S., Miyata, H. (2000). "Formation of Dioxin Analogues on Combustion Process with Unregulated Small Incinerator." Submitted paper in Organohalogen Compounds. 46:205-208. (Nakao paper)

B. Availability of Modified Text and Additional Documents and Information

Pursuant to the Board's direction, the staff prepared modified regulatory language reflecting the changes the Board approved. The modified regulation, with the changes to the originally proposed text clearly indicated, as required by Government Code section 11346.7(a), was mailed in accordance with 1 CCR, section 44, on or before May 15, 2002. In accordance with Government Code section 11347.1, the additional documents added to the rulemaking record were listed in the notice mailed with the modified regulation. Pursuant to Government Code 11347.1(b), these additional documents and all other documentation relied upon in the regulatory action were made available for inspection at the ARB's Public Information Office, Environmental Services Center, 1001 "I" Street, 1st Floor, Sacramento, California 95814. The comment period ended May 31, 2002.

Sixteen comment letters or emails were received during this period. Comments on the modifications are discussed further in the sections containing responses to comments received prior to and at the public hearing (Section III.B) and during the 15-day comment period (Section III.C).

After considering the comments received, the Executive Officer made several nonsubstantive changes, i.e. changes without regulatory effect. These changes included: 1) modifying the definition of "air pollution control district" in

subsection (b)(1) by removing the reference to Governing Board, 2) adding a citation for the definition of FIPs code in the definition of “incorporated place” in subsection (b)(14), 3) adding clarifying language to the definition of “population density” in subsection (b)(18), affirming that it be calculated as people per square mile, and 4) adding language to subsections (e)(2), (e)(3), and (e)(5) further clarifying that the population density calculations apply to the unincorporated areas or sub-areas of the census zip code. The Executive Officer determined that Board reconsideration of the approved regulatory changes with the clarifying language was not necessary. The Executive Officer issued Executive Order G-02-69 adopting the regulation, which is incorporated by reference herein.

C. Costs to Local Agencies, School Districts, and to Businesses and Persons Affected

As defined in Government Code section 11346.5(a)(6), the Board determined that this regulatory action will not create costs or savings in federal funding to the State, or costs or mandates to any school district whether or not reimbursable by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other non-discretionary savings to State or local agencies.

The Board determined that the regulatory action may create costs, as defined in Government Code section 11346.5(a)(6), to State and local agencies. The California Integrated Waste Management Board (CIWMB) may incur small, but unquantifiable, costs to address potential impacts on waste diversion rates. The California Department of Forestry and Fire Protection may incur small, but unquantifiable costs for enforcement. The regulatory action may also result in non-mandatory costs to local agencies responsible for waste management to the extent they choose to provide expanded waste disposal services and address waste diversion impacts. Air districts and local fire agencies may incur small, but unquantifiable, costs for enforcement, administration, and public education and outreach. However, ARB is preparing materials for public education and outreach which should substantially reduce these costs. Most air districts have existing enforcement programs addressing the burning of residential waste. The regulatory action will be enforced within the context of these existing programs.

The regulatory action will also have some impact on the requirement to divert 50 percent of waste from landfills by January 1, 2000, pursuant to sections 41780 through 41786 of the Public Resources Code. Some local jurisdictions may also incur costs if they choose to revise their baseline year for the purpose of determining waste diversion rates. However, it is possible that an increase in materials sent to recycling centers could offset increases in materials sent to landfills, thereby minimizing the impact on diversion rates. Additional illegal disposal on public lands is expected to be minimal, but could marginally impact

public maintenance and clean-up costs. Requirements for public education and outreach in the regulation will be targeted to deter illegal actions.

In developing the regulation, the Board also evaluated the potential economic impacts and/or benefits on representative private persons and businesses. The Board determined that the regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or businesses directly affected. The regulatory action may provide increased business opportunities for businesses associated with the collection, transfer, and disposal of municipal waste.

The Board also determined that the regulatory action will impose additional costs on representative private persons. The regulatory action will require households who are currently burning some or all of their waste to use alternative disposal methods, such as contracting for curbside pickup or self-hauling their waste to a disposal or recycling facility. These costs are expected to range from \$100 to \$600 per year per household. A detailed discussion of these costs is provided in Chapter VII of the Staff Report.

D. Consideration of Alternatives

A detailed discussion of alternatives to the initial regulatory proposal is found in Chapter VI of the Staff Report. These included the “no action” alternative and an option to allow burning of non-garbage wastes only. The staff determined that no reasonable alternative considered by the agency or otherwise identified and brought to the attention of the agency would be more effective in carrying out the purpose of public health protection for which the action is proposed or which would be as effective and less burdensome to affected private persons or businesses, than the adopted regulation. However, to facilitate implementation of the regulation, the Board, in Resolution 02-2, directed staff to work with the California Air Pollution Control Officers Association (CAPCOA), the Regional Council of Rural Counties (RCRC), federal, State, and local fire agencies, and public health organizations to initiate a public education and outreach program to assist the air districts, and to work with the CIWMB in its efforts to address local landfill diversion issues and to promote recycling and waste reduction through local educational programs. The Executive Officer was also directed to work with CAPCOA to provide local maps clearly identifying areas qualifying for exemptions, where only non-garbage wastes could be burned, and to assist the air districts in filing requests for exemptions where appropriate.

III. SUMMARY OF COMMENTS AND AGENCY RESPONSE

A. Comments Received during the 45-Day Comment Period and Hearing

The Board received 88 written letter or email comments and heard oral testimony from 26 individuals in connection with the February 21, 2002 hearing. The list below includes the date of all comments, along with the names of persons who commented, whether as individuals or as representatives of organizations. The comment reference table below is used to link the comment to the source for the comment-and-response section that follows in this document. A commentor may have also raised different issues, whether in writing during the 45-day comment period before the hearing (WC), or in a written submission (WS) at the hearing, or as oral testimony (OT) during the hearing. The numbers represent the order in which the comments were received.

Following the table is a summary of each objection or recommendation made regarding the proposal with an explanation of how the proposed action has been changed to accommodate the objection or recommendation, or the reasons for making no change. Frequently, several persons commented on the same issue. A representative comment or a paraphrase of the comment(s) is used for each issue requiring a response. There are also a number of comments regarding the regulatory process, residential burning in general, and other issues initially discussed in the Staff Report. We responded to these comments by topic in section III B. Several commentors expressed general support for the ATCM. These comments have also been included to provide additional information or perspective.

Comment Reference	Commentor	Organization	Date
Ackley-WC54	Kathy Ackley	Citizen	2/18/02
Amaro-WS5	Alfonso Amaro	Yuba County Board of Supervisors	2/13/02
Barkhouse-OT14	Bob Barkhouse	Feather River Air Quality Management District	2/21/02
Barkhouse-WC52	Bob Barkhouse	Feather River Air Quality Management District	2/6/02
Battagin-WC46	Bill Battagin	Feather River Stove Works	2/14/02
Beedon-WC44	Barbara Beedon	American Lung Association of California	2/11/02
Bennett-WC19	Helen Bennett	Citizen	1/24/02
Betts-WC20	William Betts	Citizen	1/22/02
Birdsall-WS11	Lauri Birdsall	Citizen	2/19/02
Bissett-WC37	Elizabeth Bissett	Citizen	2/02/02
Brown-WC39	Lisa A. Brown	Citizen	2/05/02

Comment Reference	Commentor	Organization	Date
Callegari-WC41	Lino Callegari	County of Lassen Department of Agriculture	2/12/02
Cantrall-OT1	Patricia Cantrall	Modoc County Board of Supervisors	2/21/02
Carr-WC10	Sherry Carr & Family	Citizen	1/18/02
Caseri-OT20	Gary Caseri	Tuolumne County Air Pollution Control District	2/21/02
Caseri-WS10	Gary Caseri	Tuolumne County Air Pollution Control District	2/21/02
Chapman-WC63	June Chapman	Citizen	2/15/02
Colombini-WC42	Richard Colombini	Citizen	11/9/99 received 2/14/02
Conway-OT12	David Conway	Mariposa County Air Pollution Control District	2/21/02
Cory-OT10	Cynthia L. Cory	California Farm Bureau Federation, Governmental Affairs Division	2/21/02
Cory-WC61	Cynthia L. Cory	California Farm Bureau Federation, Governmental Affairs Division	2/19/02
Council-WC64	Members of the Council	The Yuba Watershed Protection and Fire Safe Council	2/14/02
Covell-OT16	Norm Covell	Sacramento Metro Air Quality Management District	2/21/02
Cox-WC33.1	Fred Cox	Crescent Fire Protection District (letter submitted as attachment to Kravitz-WC33)	1/22/02
Cozzalio-WC34	Rex Cozzalio	Citizen	2/9/02
Crompton-WC22	Greg Crompton	Dobbins/Oregon House Action Committee	1/28/02
Cullins-WC70	Vaudine Cullins	Citizen	2/18/02
Dado-WC12	Vernon Dado	Orland Fire Dept	1/23/02
Dahms-WC25	Dick Dahms	Lake Francis Grange #745	1/29/02
Davis-OT9	Richard Davis	Citizen	2/21/02
Davis-WC48	Richard Davis	Citizen	1/18/02

Davis-WC49	Richard Davis	Citizen	1/21/02
Davis-WC50	Richard Davis	Citizen	2/15/02
Davis-WC51	Richard Davis	Citizen	2/16/02

Comment Reference	Commentor	Organization	Date
DelBiaggio-WC57	Dennis DelBiaggio	Ferndale Volunteer Fire Department	2/20/02
Faust-WC1	Robert Faust	Citizen	1/7/02
Forester-OT4	Richard Forester	Amador County Board of Supervisors	2/21/02
Foster-WC5	Mr. & Mrs. Duke Foster	Jandu Enterprises	1/14/02
Foster-WS1	Steven J. Foster	Elk Grove Community Services District Fire Department	2/20/02
Frederick-WS9	John and Joanie Frederick	Citizen	2/6/02
Frost-WC21	Helen Frost	Citizen	1/22/02
Garvey-WC68	Ellen Garvey	Bay Area Air Quality Management District	2/19/02
Goings-WC62	K.R. "Dick" Goings	Department of Forestry and Fire Protection, Humboldt – Del Norte Unit	2/12/02
Greene-OT11	Larry Greene	Yolo-Solano Air Quality Management District	2/21/02
Hemminger-OT21	James A. Hemminger	Regional Council of Rural Counties	2/21/02
Hemminger-WC41.1	James A. Hemminger	Regional Council of Rural Counties (letter submitted as attachment to Callegari-WC41)	12/17/01
Hemminger-WS7	James A. Hemminger	Regional Council of Rural Counties	2/20/02
Hendry-WC14	Renee Hendry	Citizen	1/25/02
Hirschinger-OT8	James R. Hirschinger	Citizen	2/21/02
Hirschinger-WC9	James R. & Imgard Hirschinger	Citizen	1/7/02
Holmes-Gen-OT7	Bonnie Holmes-Gen	American Lung Association	2/21/02
Hunkins-WC29	Martha Hunkins	Citizen	2/1/02

Huss-WC58	Karen Huss	Amador Air District	2/19/02
Johnson-WC54.1	Kevin K. Johnson	Citizen	2/7/02
Jones-OT26	David A. Jones	Robinson Rancheria of Pomo Indians	2/21/02
Kahler-WC60	Thomas & Janet C. Kahler	Citizen	2/17/02

Comment Reference	Commentor	Organization	Date
Kehoe-WC67	David A. Kehoe	Shasta County Air Pollution Control Board	2/19/02
Kelly-WC47	Scott Kelly	Citizen	1/24/02
Kersey-WS8	Jim and Karen Kersey	Citizen	2/6/02
Klemm-WC16	Arno A. Klemm	Citizen	1/25/02
Knauer-WC8	Siegfried Knauer	Citizen	1/17/02
Kravitz-WC33	Joseph Kravitz	Crescent Fire Protection District	2/1/02
Leary-OT3	Mark Leary	California Integrated Waste Management Board	2/21/02
Lee-OT5	Barbara Lee	Northern Sonoma Air Pollution Control District	2/21/02
Linzy-WC45	Marna, Clyde, & Ron Linzy	Citizen	2/12/02
Lovelace-WC11	Bill Lovelace	Citizen	1/14/02
Mackinney-WC26	Ross Mackinney	Citizen	1/24/02
Matthews-OT17	Dewayne Matthews	Modoc Fire Chiefs Association	2/21/02
Mohlenbrok-WC15	Gerald K. Mohlenbrok	Citizen	1/22/02
Moreo-OT18	Joseph A. Moreo	Modoc County Department of Agriculture	2/21/02
Moreo-WC69	Joseph A. Moreo	Modoc County Department of Agriculture	1/4/02
Morgan-OT25	Wayne Morgan	North Coast Unified Air Quality Management District	2/21/02
Munger-WC13	Larry Munger	Sutter County Board of Supervisors	1/22/02
Munger-WC6	Richard A. Munger	Citizen	1/13/02
Neilsen-WC55.1	Tim Neilsen	El Dorado County Farm Bureau, Land Use Committee	2/19/02

Nishikawa-OT24	Todd K. Nishikawa	Placer County Air Pollution Control District	2/21/02
Nishikawa-WC71	Todd K. Nishikawa	Placer County Air Pollution Control District	2/20/02
Parks-WC53	Buck Parks	Lassen County Farm Bureau	2/15/02
Pazdra-WC36	Elizabeth Pazdra	Citizen	2/7/02
Pearson-OT2	B. J. Pearson	Plumas County Board of Supervisors	2/21/02

Comment Reference	Commentor	Organization	Date
Quetin-WC65	Douglas Quetin	Monterey Bay Unified Air Pollution Control District	2/7/02
Quetin-WS3	Douglas Quetin	Monterey Bay Unified Air Pollution Control District	2/20/02
Reemelin-WC27	Wally Reemelin	League of Placer County Taxpayers	2/2/02
Reynolds-OT22	Robert L. Reynolds	Lake County Air Quality Management District	2/21/02
Reynolds-WC35	Robert L. Reynolds	Lake County Air Quality Management District	2/12/02
Rumiano-WC38	Kathleen Rumiano	Citizen	undated received 2/13/02
Schram-WC31	James Schram	Small Bunyan Logging	1/16/02
Sherrill-WC3	Roger Sherrill	Rio Alto Water District	1/10/02
Sherrill-WC4	Roger Sherrill	Citizen	1/10/02
Siegel-WC28	Emily Siegel	Citizen	2/1/02
Smith-OT15	Ken Smith	Lassen County Air Pollution Control District	2/21/02
Speckert-OT13	Steven Speckert	Feather River Air Quality Management District	2/21/02
Stephans-OT19	William J. Stephans	County of Siskiyou Air Pollution Control District	2/21/02
Stephans-WC40	William J. Stephans	County of Siskiyou Air Pollution Control District	2/4/02
Stephans-WS6	William J. Stephans	County of Siskiyou Air Pollution Control District	2/20/02
Stewart-WC59	Bob Stewart	Mariposa County Air Pollution Control District	2/19/02

Strickler-WC23	Howard Strickler	Burning Advisory Committee, Lake County Fires Chiefs Association	1/31/02
Todd-WC2	Rick Todd	Georgetown Fire Protection District	1/14/02
Unger-WC30	Arthur D. Unger	Citizen	2/7/02
Unger-WC7	Dan Unger	Citizen	1/17/02
Wagoner-WS2	W. James Wagoner	Butte County Air Quality Management District	2/20/02

Comment Reference	Commentor	Organization	Date
Waite-WC72	William R. Waite	County of Colusa Board of Supervisors	2/19/02
Wallerstein-OT6	Barry R. Wallerstein	CAPCOA	2/21/02
Wallerstein-WC55	Barry R. Wallerstein	CAPCOA	1/30/02
Whitehead/Martinson- WC66	Thomas Whitehead/ Judith Martinson	Citizen	2/20/02
Whitehill-WC56	Bob Whitehill	Citizen	2/19/02
Whitney-WC43	June Whitney	Citizen	1/19/02
Williams-WC24	Delores Williams	Citizen	1/24/02
Wilson-WC18	Colin Wilson	Citizen	1/28/02
Wolbach-OT23	C. Dean Wolbach	Mendocino County Air Quality Management District	2/21/02
Wolbach-WS12	C. Dean Wolbach	Mendocino County Air Quality Management District	2/21/02
Woltering-WC32	S.E. "Lou" Woltering	U.S. Department of Agriculture, Six Rivers National Forest	2/8/02
Woolley-WS4	John Woolley	North Coast Unified Air Quality Management District	2/19/02
Zellmer-WC17	Herman Zellmer	Great Basin Unified Air Pollution Control District	1/23/02

B. Responses to Comments Received during the 45-Day Comment Period and Hearing

1. General Support

1. Comment: What you are facing is a choice between whose rights have more importance: the right to poison your neighborhood by burning garbage in a burn barrel on your property versus the right to breath toxic free air. By now most are aware of the toxic plume that burn barrels create, such as dioxins, PCBs, heavy metals and other cancer causing compounds released by the simple act of burning trash. My neighbors burn their garbage every Saturday and Sunday, with the black smoke sometimes billowing over the neighboring property, into the garage and at times, into the neighboring house. I ask you why their rights should be protected and not mine? (Johnson-WC54.1)

Agency Response: Thank you for your comments. We agree that the ATCM is an appropriate and necessary measure to reduce the public's exposure to the burning of residential waste.

2. Comment: I support the burn barrel ban. One of the main reasons is that we live in a basin in Granite Bay and the air doesn't move out very well. In a residential neighborhood we can't all have our own smoke piles, as the smoke direction from these piles cannot be controlled. So anything we can do to eliminate burning is going to benefit us. Those who think only about their "right to burn" fail to acknowledge what science has found out about toxins coming from barrel burning. (Davis-48WC, Davis-OT9, Davis-WC50)

Agency Response: Thank you for your support.

3. Comment: This letter is in support of a ban on residential burning in Tuolumne County. I have cringed at the stench and danger of breathing the smoke from my neighbors and burn barrels. People have a difficult time believing in the vague connection between toxins and delayed illnesses/deaths. They view restrictions on their activity as inappropriate governmental intrusion into their freedom. They forget we share this space and each person's activity necessarily intrudes into another's freedom, in this case to breathe clean, safe air. It is the right and the role of informed government to protect nature (including humans) from behavior that is harmful and dangerous. Please tolerate the impending criticism and do the correct thing; ban residential garbage burning. (Munger-WC6)

Agency Response: Thank you for your support.

4. Comment: I fully support the proposed ban on the burning of paper trash. Most people who burn their trash burn it in an oxygen starved container which burns

incompletely, often smoking for hours and creating pollution for neighbors. The real point, however, is that it is totally unnecessary. Tuolumne County has a great curbside recycling system. When there is a recycling system in place it makes it doubly ridiculous to allow the burning of paper. (Unger-WC7)

Agency Response: Thank you for your support. We agree that recycling provides a method to dispose of paper in an environmentally sound manner.

5. Comment: The burn barrel is the ultimate secondhand smoke. We have lived in rural Loomis for 17 years and the air pollution created by people using burn barrels has become intolerable. We opened the windows on a nice morning, there's fairly clear air outside, then my neighbor about 100 yards away fires up his burn barrel. Immediately the air comes into our house and we become prisoners in our house. It's affected us. It's affected my wife's health. It's stifling. It's got to be changed. I'd like to support this ATCM. I think it's needed. I would like to urge you to support this and to make sure that we enjoy California and the air that we would like to have healthy for all of us. (Hirschinger-WC9, Hirschinger-OT8)

Agency Response: Thank you for your support.

6. Comment: I am writing to voice support for the proposed ban on residential waste burning (burn barrels). When people burn in their back yards, it often blows right into neighbor's houses. Please add my name to the list of supporters of this proposed policy change. (Kelly-WC47)

Agency Response: Thank you for your support

7. Comment: The position of the American Lung Association of California is that open burning of garbage poses a health hazard and is a practice that must be stopped. We've received many letters and communications from individuals, and we've passed some of them on to your staff and we can certainly pass others on to you. But it is certainly greatly disconcerting to us that people feel like they're prisoners in their own homes because of the toxic effects of these burns. We support the strongest restrictions possible on burn barrels, and the strongest restrictions on any exemptions that are allowed. (Holmes-Gen-OT7, Beedon-WC44)

Agency Response: Thank you for your support. The exemptions are designed to address the most rural areas of the State where alternative waste disposal options may be very limited, while restricting burning in the more populated areas of the State.

8. Comment: I am writing to support and encourage the ban on backyard burning. I care about our quality of life and the health of myself and my family. I appreciate your action in this matter. (Birdsall-WS11)

Agency Response: Thank you for your support.

9. Comment: The State of California is already behind the times on this issue. I encourage you and support you in your consideration of this matter, and look forward to the day when a sunny Saturday is not a day to stay inside to protect oneself from another's bad habit. (Brown-WC39)

Agency Response: Thank you for your support. We agree that California must move forward in reducing the impacts from residential burning. We reviewed programs developed by many other states in developing the proposed regulation.

10. Comment: We fully support the establishment of a regulation banning burning in barrels for the following reasons: 1) many people do not burn just trash; they burn plastics and other toxic items; 2) any burning adds pollution to the air; 3) as people accumulate trash prior to burning it, the accumulated piles create an ugly eyesore; 4) we should all support the local waste disposal businesses and actively recycle all items that are accepted for recycling; and 5) burning poses a proven serious health threat to those with allergies and asthma – especially children when burning is done near a school. The North Coast enjoys such wonderfully clear air – we must do all we can to preserve and improve the air quality. (Frederick-WS9, Kersey-WS8)

Agency Response: Thank you for your support. You raise many important considerations that we also took into account in developing the regulation and discussed in the Staff Report.

11. Comment: I am very much in support of your proposed ban for the following reasons: 1) burn barrels are by their design a poorly drafted, inefficient means of burning waste material. The more ash that accumulates in the receptacle, the more inefficient the process becomes; 2) Most homeowners do not abide by the requirements that only paper and cardboard be incinerated. Owners routinely burn combustible household waste that includes plastic bottles, plastic bags, styrofoam, rubber products, fats and oils, just to name a few; and 3) There is no other reasonable means of protecting the citizens of California that choose to reside in rural areas against such burning. It is the ARB's responsibility to protect California air quality and I believe the proposed ban will go along way toward the success of that endeavor. (Sherrill-WC4)

Agency Response: Thank you for your support. You raise many important considerations we also took into account in developing the regulation.

12. Comment: I am pleased to read that residential waste burning may finally be outlawed. Don't let the proponents of burn barrels give you the argument that they are keeping waste out of the landfills, these people are just too lazy to recycle and

too cheap to either take their trash to a waste disposal facility or subscribe to curbside trash pickup. (Klemm-WC16)

Agency Response: Thank you for your support.

13. Comment: I strongly support your proposal to ban the burning of all residential waste materials other than natural vegetation. Most burnable waste can be recycled and the ARB should work closely with the CIWMB to promote recycling of paper, cardboard, magazines, chipboard, and other paper products. Recycling of plastic products should also be promoted. Most burnable wood products can be chipped and used as mulch or be composted for a soil amendment. (Mackinney-WC26, Hunkins-WC29)

Agency Response: Thank you for your support. We are committed to working with the CIWMB as part of our public education and outreach program to provide households with information on waste disposal alternatives. In addition, we have developed a web site that provides consumers with information on facilities and contractors that accept wood products for firewood, mulch, and energy production as an alternative to burning.

14. Comment: I am strongly in favor of the proposal to ban the burning of residential waste materials other than natural vegetation. (Siegel-WC28)

Agency Response: Thank you for your support.

15. Comment: We urge you to adopt a program that moves the State forward into the twenty-first century benefiting the public health and fire safety, and that ends the practice of general garbage burning and the use of burn barrels which often induce such unlawful practices. (Strickler-WC23, Reynolds-OT22, Whitehead/Martinson-WC66)

Agency Response: Thank you for your support.

16. Comment: The Elk Grove Community Services District Fire Department emphatically supports the elimination of outdoor burning of residential waste materials, including the use of burn barrels. (Foster-WS1)

Agency Response: Thank you for your support.

17. Comment: The Rio Alto Water District is in support of the proposed ban on backyard incineration or burning of household wastes. Improved air quality means improved surface and groundwater. (Sherrill-WC3)

Agency Response: Thank you for your support.

18. Comment: The CIWMB has been actively involved in these proposed regulations. And what I'm up here today to do is to commit our support as you move forward in the implementation of these regulations, to take advantage of the CIWMB's resources, and commit those resources to your implementation. (Leary-OT3)

Agency Response: Thank you for your support. We look forward to working with the CIWMB on implementation of the regulation and providing households with information on waste disposal, recycling, and other waste diversion options.

19. Comment: I am writing to indicate the support of the Bay Area Air Quality Management District for the ARB's proposed ATCM to reduce emissions of TACs from outdoor residential waste burning. We believe the proposed ATCM strikes a reasonable balance between health risk reduction and the costs of control and should be adopted as proposed. (Garvey-WC68)

Agency Response: Thank you for your support.

20. Comment: As the co-chair of the residential burning working group, I'd like to thank you and your staff for the resources dedicated to this very sensitive rural issue. Regarding the proposed regulation, the District supports the exemption criteria presented in the CAPCOA consensus position submitted to your staff. (Huss-WC58)

Agency Response: Thank you for your support. We have appreciated the opportunity to work closely with the residential burning working group and CAPCOA during the development of the ATCM. The modified regulation embodies the main elements presented in the CAPCOA consensus position.

21. Comment: I'm here before you today on behalf of CAPCOA to express our support for reducing public exposure to harmful emissions from garbage burning in burn barrels. Most of the points of our consensus position have been incorporated into the proposed regulation that's before you today. However, I cannot take a position on the changes to the proposal made by ARB staff that goes beyond the consensus position. The regulation provides the time needed for effective implementation, and it allows flexibility for areas that are not currently able to eliminate burn barrel use, while providing a mechanism to educate the public in those areas and to reconsider the circumstances as the population of the area changes. I would like to express our gratitude for the support given to CAPCOA by this Board and by the ARB staff in moving ahead on our request of last June, and the substantial resources you committed to this effort over the last several months. We look forward to working with you and your staff in the future on this effort and other efforts. (Lee-OT5)

Agency Response: Thank you for your support. We appreciate the efforts of

CAPCOA in working with ARB staff to develop modifications to the regulation.

22. Comment: CAPCOA has great concern about the public exposure to toxic air pollutants that result from burning household wastes in barrels. In the past few months we have worked extensively with your staff to identify possible amendments to your proposal that would address our member's concerns, while at the same time reducing public exposure where it is feasible to do so. I would like to express our gratitude for the time and effort your staff has dedicated to resolving this issue. I'm here today to strongly support your approval of the proposal that is before you. I want to point out and emphasize that the proposal that you have before you has a tiered exemption structure. You not only have some of the very rural areas that are automatically exempt, based on the current population statistics, you have an ability for other low population areas to opt in to an exemption. And the opt-in process seems to me to be very fair and not burdensome. (Wallerstein-WC55, Wallerstein-OT6)

Agency Response: Thank you for your support. We appreciate the efforts of CAPCOA in working with ARB staff to develop modifications to the regulation.

23. Comment: I'm here to speak in support of the position that has been developed, a very difficult position, very difficult negotiations for quite a long time, to get to this point. It's been difficult for the air districts to come to a consensus position. And even with that, we did have some people who were willing to come to a consensus position, but still have some concerns for their local residents. The Board should certainly listen and honor those requests, too. As you see today, a lot of people believe it's their God-given right to use their burn barrel. My district bans burn barrels. I've had some really serious discussions with residents in my district who have been impacted with burn barrels. And I wish I could have you listen to a couple of those, because they believe it's their God-given right not to have to deal with the burn barrel and not to have those toxins put in into their bedrooms and into their houses and into their communities. I think this ATCM is a good compromise. I think it truly represents the people out in the rural areas that don't have options, and it gives them a way to deal with the problem. (Greene-OT11)

Agency Response: Thank you for your support. We are committed to working with the air districts as we proceed with the implementation components of the regulation.

24. Comment: I stand before you as the Air Pollution Control Officer (APCO) for the Sacramento Metropolitan Air Quality Management District, one of the six air districts that still has regulations that permit garbage burning in rural areas of the air district. We are prepared to move forward with the implementation of the regulation within our District. The area it affects in our District is the southern Delta area of the southeast portions of our county. I had discussions with the one board member that

would be impacted by this regulation going into effect and he's comfortable with that. So we strongly support the proposal before you today. (Covell-OT16)

Agency Response: Thank you for your support. We look forward to working with the air district to implement the provisions of the regulation.

25. Comment: I am not here in support of this because it is perfect, this ATCM, nor because it won't cause me a lot of heartburn, both me and my air district in enforcing it. But I'm here because it is a step in the right direction and follows in the footsteps of other states that have early on recognized the potential health impacts from these incineration devices and have accordingly implemented bans. As a bureaucrat now enforcing regulations, I always look to the Constitution for my reasons for doing this - promote the general welfare. (Wolbach-OT23, Wolbach-WS12)

Agency Response: Thank you for your support.

26. Comment: The Board of the North Coast Unified Air Quality Management District was supportive based upon the review of the health effects from residential burning. It was very convincing to them that something needs to be done. The APCO was before the California Air Resources Board last June, advocating that the Board direct staff to expedite the process to go forward with an ATCM for the burn barrels and residential burning. That was the result of reviewing and evaluating the data that came out of the United States Environmental Protection Agency (U.S. EPA) New York health study. We recommend that you support your staff by adopting this regulation with recommended modifications. (Morgan-OT25, Woolley-WS4)

Agency Response: Thank you for your support.

27. Comment: The Council for the Robinson Rancheria of Pomo Indians passed an ordinance, much simpler than ARB's proposal, six months ago banning outdoor residential waste burning. But there was a lot of education and outreach that began a long time before the rule. The Rancheria had approximately 20 burn barrels when the education campaign started. By the time the ordinance got passed, there was only one barrel. That individual (household) is still resisting, so the Council has just passed an ordinance for enforcement and a penalty dollar amount. Many of the points raised at the ARB hearing were also considerations encountered by the Council.

We don't have really any costs for education and enforcement. But we found that there was more to it than just the dioxins and the actual chemicals. We found that it was noxious, it was unsightly, and a potential fire hazard. We went through all the same sorts of things that you're discussing. People tend to burn anything and everything in a burn barrel: glass bottles, clean cans, rubber, and clothes. You

name it, it will tend to go in there. They all have to pay to take their garbage to the landfill, sometimes they don't have transportation, sometimes they don't have the money, for whatever reason.

With the banning of the burn barrels, the next step was that people tended to burn in their fireplaces or wood-burning stoves. Pretty soon they got tired of the smell, so they only burned paper and cardboard; everything else went out into the rubbish. We encouraged them to stop by increasing the number of cans they were given for pickup by the local garbage and we do recycling at the Rancheria. And most of the people eventually stopped burning because it was simply easier to just put it out in the trash at curbside pickup. Personally, I'm in favor of banning of burn barrels.
(Jones-OT26)

Agency Response: Thank you for your observations on the changes in attitudes and practices that occur over time with the implementation of a ban on residential waste burning. They are a good illustration of the interaction between the three supporting elements of the effort to reduce toxic emissions from household waste burning: education, infrastructure improvement, and regulatory enforcement.

2. Regulatory Language

a. Subsection a - Applicability

28. Comment: Agricultural waste burning does not include the toxins and particulate matter about which the ARB is concerned. Natural vegetation burning is typical and necessary in vineyard and orchard management and in range clearing for livestock. Adoption of the burn barrel regulation will negatively impact the ability to perform routine and ongoing farming and ranching practices. This regulation is unnecessary; we urge the Board to deny the proposed regulation at your hearing. (Neilsen-WC55.1)

Agency Response: The ATCM does not prohibit agricultural burning and will not affect current practices. The ATCM only addresses outdoor residential waste burning, which is defined in the regulation as "the disposal of the combustible or flammable waste from a single- or two-family dwelling unit or residence by burning outdoors. Residential waste burning is not agricultural, including prescribed, burning." This ATCM is necessary to address the uncontrolled burning of household waste outdoors at residences that produce emissions of dioxins and other TACs significantly affecting public health. However, agricultural burning does produce particulate matter and smaller amounts of TACs and the potential for smoke impacts. Therefore, in order to minimize these impacts, agricultural burning is addressed through California's Smoke Management Program, in accordance with sections 41850 et. seq. of the Health and Safety Code and 17 CCR sections 80100 through 80330.

29. Comment: We understand that ARB is contemplating banning barrel burning and brush burning. Small brush pile burning is needed for hazard reduction. Burn barrels used for vegetation management actually minimize the opportunity for ground flare-ups and wildfires. As many of our communities border federal forest and other public open space, the threat of wildfires is a primary concern. We prefer a safe method of vegetation disposal. Please grant an exemption for our burn barrels and our agriculture (brush and slash) burning. (Neilsen-WC55.1, Chapman-WS63, Williams-WC24)

Agency Response: As discussed in the response to comment 28 above, the ATCM applies to residential burning only and does not prohibit brush pile burning or burning to reduce fire hazards at the instruction of a fire protection official. Unless otherwise prohibited by local ordinance or rule, this ATCM does not prohibit the burning of vegetation at residences, although it does limit the areas where burn barrels can be used in addition to pile burning. Exemptions will be granted for the use of burn barrels in very low-density areas. In census zip code areas with less than 3.0 people per square mile, which usually occurs when adjacent public parks and forestlands are part of a zip code, burn barrels will be allowed. In census zip code areas with 3.0 to 10.0 people per square mile, burn barrels will be allowed if the local fire official documents that they are necessary for fire safety. Moreover, in census zip code areas where the population exceeds 10.0 people per square mile, the air district can designate very low-density sub-areas where burn barrels will be allowed. We believe that a properly tended pile, following all recommended fire

safety precautions, offers the same level of fire safety as a burn barrel. Some fire officials stated that burn barrels may actually result in greater fire danger due to the tendency of burners to walk away from actively burning and smoldering materials in a burn barrel. Therefore, we believe that with the consideration of the exemptions, the ATCM provides an adequate provision for fire safety.

30. Comment: There is a strong visceral feeling that this regulation, no matter how well-intentioned it is, is in essence the “camel’s nose under the tent.” The fear is that this will escalate to a permanent ban of all outdoor burning, and that will put property owners in the foothills (e.g. Grass Valley) in a sticky situation. Those who don’t want to clear cut our properties must periodically harvest and burn dead and dying vegetation. If we aren’t allowed to do this, we’ll have another scenario like 1988 and the “49-er” fire. (Colombini-WC42)

Agency Response: The ATCM applies to residential burning only and allows the continued burning of natural vegetation in piles on residential properties. It also does not affect or prohibit burning to reduce fire hazards at the instruction of a fire protection official. Subsection (a)(3) in the ATCM states that "This regulation shall not apply to persons lighting fires at the direction of a public officer in an emergency situation for public health or fire safety reasons, in accordance with section 41801 of the Health and Safety Code." Moreover, it is not ARB's intent to ban all open burning. However, ARB and the air districts regulate non-residential burning through California's Smoke Management Program, sections 80100 through 80330 of 17 CCR, to minimize smoke impacts. We also encourage the use of non-burning alternatives for disposing of vegetation, such as shredding, composting, and sending wood to waste-to-energy plants or disposal areas.

31. Comment: Eleven communities in Amador County are categorized as high fire threat in the California Fire Plan. The Amador Air District understands and supports the need for outdoor burning of vegetation to reduce fire hazard. It is good that this regulation will allow residences to continue to burn vegetation. (Huss-WC58)

Agency Response: Thank you for your comment.

32. Comment: I support this ban; I just think that perhaps you don't go far enough. The burn barrel is only the tip of the iceberg. There need to be new restrictions on open burning also. Open burning is becoming intolerable. It's going to affect the health of the children, it has a psychological impact on people living there, and it will ultimately affect the economy. We favor banning all open burning, including vegetation. Smoke from one outdoor residential fire can affect homes even in rural and suburban areas. Include all open burning in California, especially in residential areas. (Carr-WC10, Davis-WC48, Davis-OT9, Hendry-WC14, Hirschinger-OT8)

Agency Response: While the burning of natural vegetation produces some dioxins, the emissions are much lower and the dioxin isomers produced are less toxic than from the burning of anthropogenic or human-made materials. Therefore, the ATCM focuses on

reduction of dioxins and other TACs from the burning of human-made materials. However, the ATCM does require that the burning of vegetation be limited to permissive burn days, when conditions are conducive to dispersal of smoke, thereby minimizing the potential for smoke impacts. The ATCM also specifies that an allowable combustible means dry vegetation that is reasonably free of dirt, soil, and visible moisture, in order to reduce the amount of smoke generated from the burning of this material. In addition, through the public education and outreach program, we will encourage the use of non-burning alternatives for disposing of vegetation such as composting and chipping as well as encourage local jurisdictions to implement greenwaste pickup.

33. Comment: The Elk Grove Community Services District Fire Department would like to request that the Board and staff consider developing regulations to address the influx of “chimineas” (portable terra cotta furnaces) and portable fire pits, sold at many home improvement stores, into the subdivisions throughout Sacramento County. Within our jurisdiction, we have already responded to several citizen complaints related to such equipment ranging from questions about whether household trash was being burned in them to concerns that escaping embers would ignite adjacent fences and/or wood shake roofs. Currently, there are no established guidelines or regulations to address the use of this equipment within residential areas. (Foster-WS1)

Agency Response: Health and Safety Code section 41806 permits the use of open outdoor fires for cooking food for human beings or for recreational purposes. We are not addressing these uses of open fires in this regulation, though we may in the future. As such, the ATCM does not apply to the use of chimineas for these purposes. However, the ATCM prohibits the disposal of non-vegetation waste by burning it outdoors at residences, thereby limiting what can be burned in a chiminea. Therefore, the ATCM does provide an enforcement mechanism (albeit difficult to observe) in situations where households illegally burn residential waste outdoors in these devices.

34. Comment: I can tell you that your efforts to reduce the air quality impacts of residential burning of garbage will be minimal unless you include a ban on burning garbage in woodstoves. The improvements in the “U.S. EPA-approved” woodstove technology for reducing particulate emissions from wood-burning surely have no bearing on reducing the production of toxins from burning trash/plastics in these or any stoves. Anyone who has lived in any rural town for any length of time can tell you that some of their neighbors use their woodstoves as incinerators all year round. Some people do not even have a trash can because they use their wood stove and thus the air and my lungs as their trash can. Please include woodstoves as a point source for toxics from burning trash. (Battagin-WC46)

Agency Response: We agree that the burning of household waste indoors is not appropriate or healthy. Although the ATCM addresses only the outdoor burning of residential waste, to discourage the practice of burning waste indoors, our public education and outreach program will also include information on the adverse health impacts of burning garbage both indoors and outdoors. Air districts also have the authority

to regulate and enforce against indoor waste burning under the public nuisance code. Various air districts have adopted specific rules and report that complaint-driven inspections, citations, fines and other penalties have been used to deter this practice.

35. Comment: I see that residential and agricultural burning are next on the list to be banned. Most all of us with ranches or access to firewood use woodstoves for heating. Due to the years of growth, there is an excess of dry wood and the ranchers utilize the slash and clean up the fire hazard. Few can afford electricity or propane for heat. Propane causes greater pollution and many of us are allergic to propane. (Chapman-WC63)

Agency Response: This ATCM does not address indoor residential burning or agricultural burning (see responses to comments 28 and 34.) The burning of firewood in woodstoves is still allowed subject to individual air district and local jurisdiction rules.

b. Subsection b - Definitions

36. Comment: The Board has created the same injury with its requirements that slash be dried prior to burning, sometimes requiring a six-week drying requirement. Yet the California Department of Forestry imposes a draconian \$7,000 fine on anyone who cuts trees for harvest and fails to dispose of the slash within 45 days of the trees' removal. So, if we burn the slash we are fined and if we fail to burn the slash we are absolutely crucified.

It will be a greater fire danger if you wait until the vegetation dries. Reason says burn vegetation the day it is cut because it is a slower and cooler fire. Give the public a break as well by dropping this unreasonable regulation. (Schram-WC31)

Agency Response: The types of vegetation burning described in this comment include slash burning after commercial timber harvests; irrigation or drainage ditch clearing; agricultural burning, which includes prescribed burning; and clearing for land development.

This ATCM is not applicable to any of these types of burning. Residential burning is generally a much smaller operation, although occurring more frequently during the year. For residential burning of vegetation, this ATCM and the air districts continue to require that the vegetation be "dry" prior to burning so as to minimize the amount of smoke generated by excessive moisture in the vegetation. Due to the differences in vegetation and moisture regimes during the year throughout the State, the amount of drying time needed is left to the individual air districts to determine in their rules or regulatory practice guidelines. A slower and cooler fire is less desirable because the production of dioxins is enhanced under low-temperature, oxygen-starved conditions.

37. Comment: The biggest problem with the term "natural vegetation" is that people burn green natural vegetation for quick yard clean up. With so little enforcement, I am afraid people will still burn freshly cut or cleared vegetation immediately under the pretense that it is natural vegetation. Smoke conditions creating air pollution may not change all that much from the problems we have now. Would your department consider revising the language by dropping "natural vegetation?" It could make a vast difference in air pollution in residential areas. (Davis-WC51)

Agency Response: We agree that burning green vegetation can create greater smoke impacts. While we have continued use of the term "natural vegetation," the ATCM defines "allowable combustibles" as "dry natural vegetation waste, reasonably free of dirt, soil, and visible surface moisture" in order to minimize the amount of smoke that could be generated from the burning of this vegetation. Most air district rules on open burning of vegetation already specify that it must be dry before burning.

c. Subsection c - Prohibitions

1) Subsection (c)(1) - Materials Prohibition

38. Comment: In Placer County, we do currently allow paper and cardboard to be burned, and we agree that the prohibition of burning that material is something that needs to be done. (Nishikawa-OT24)

Agency Response: Thank you for your support.

39. Comment: Ban all garbage burning, but continue to allow paper and cardboard burning in light of the lack of material-specific emissions data. (Caseri-WS10, Caseri-OT20, Stephans-WS6)

Agency Response: We agree that greater health risks are posed by the burning of plastics and other synthetic materials; therefore, the ATCM has been modified to prohibit the burning of garbage statewide. However, the study by Nakao et al. (2000) provides evidence that even a mix of newspapers, paper and cardboard burned under conditions similar to those found in a burn barrel results in uncontrolled release of dioxins. Therefore, while some exemptions are provided for the burning of paper and cardboard, they are limited to the most rural areas of the State where the potential for community health impacts are minimized and alternative waste disposal options are least likely to be readily available.

40. Comment: We support the banning of garbage burning and the tiered approach to exemptions, although we suggest modifications to the thresholds. (Hemming-OT21)

Agency Response: We have modified the ATCM to prohibit the burning of garbage statewide, limiting the materials burned in exemption areas to only clean, dry, non-glossy paper and cardboard. We have also included a tiered approach for exemptions. However, as explained in the responses to comments 80, 87 88 and 92 below, we believe the exemptions thresholds have been set at appropriate levels.

41. Comment: Several air districts have, for some time now, prohibited most of the disallowed combustibles proposed in this document. Some rural air districts will be allowed to continue burning garbage, yet an air district which has banned garbage burning

would be prohibited from burning paper and cardboard in most areas of the air district despite the exemption process. The current “exemptions” based on zip codes fail to address concerns for most areas of the county where paper and cardboard are currently burned pursuant to air district rules. (Caseri-WS10, Caseri-OT20)

Agency Response: Under the modified ATCM, the burning of garbage will be prohibited statewide. Exemptions will be allowed only for the burning of paper and cardboard. See also the response to comment 39 above.

42. Comment: The Yuba Watershed Protection and Fire Safe Council would like to take this opportunity to state opposition to your proposed regulation to restrict residential burns and prohibit the use of burn barrel. The burning of plastics and materials treated with chemicals is already banned in Yuba County per current residential burn regulations. (Council-WC64)

Agency Response: Please see the response to comment 39 and 41 above and the response to comment 50 below.

43. Comment: The Mendocino County Air Quality Management District policy currently prohibits the burning of anything other than vegetative matter grown on the subject property, which creates something of a hardship for residents here. In any event, limited burning of some household waste products in rural areas should be allowed. The majority of our county and many other rural California counties do not have any form of garbage or recycling pickup. All materials must be transported several miles (32 miles round trip in my case) to transfer stations which will accept most recycling materials free of charge. The problem for us is the storage and transportation of these items (particularly in the wet season) and the fact that a significant amount of these materials (processed wood) go into a landfill eventually. Therefore, it should be legal to burn limited amounts of household paper products, cardboard and processed untreated wood products. It would greatly reduce the amount of material that must be transported to a transfer station or dumpsite and would reduce the volume of material going to a landfill. In a rural area with a very low population density the quantity of smoke generated and associated problems would be minimal. (Wilson-WC18)

Agency Response: The ATCM has been structured to provide limited exemptions in very rural areas to allow the burning of paper and cardboard where the potential for health impacts are minimized. However, the ATCM does not override prohibitions already in place. In Mendocino County, since the burning of paper and cardboard is already prohibited, no exemptions to burn these materials will be allowed. In areas where these materials are already prohibited, residents are currently using alternative methods to dispose of their waste. Therefore, it is not appropriate to reverse the additional public health protection already afforded residents in these areas, despite any perceived inconvenience. See also the response to comment 183 below regarding landfill impacts.

44. Comment: Garbage, cloth, processed wood and wet material should not be burned, but do not ban the use of burn barrels. With the proper use of a burn barrel, dry paper and cardboard burning should be allowed. All burn barrels should have several small openings near the bottom that allows air to enter and the burn should be monitored and stirred when necessary to maintain a hot (nearly smokeless fire.) Better information should be supplied by fire departments on burn barrel design. (Betts-WC20)

Agency Response: See response to comment 39 above regarding the need for limitations on the burning of paper and cardboard. See also the response to comment 143 regarding burn barrel design and production of TACs from the burning of residential waste in burn barrels. While fire departments do provide information on proper use of burn barrels, this information is designed only to prevent fire hazards.

2) Subsection (c)(2) – Methods Prohibition

45. Comment: ARB should ban burn barrels. The science indicates they are poorly designed devices that result in inefficient burning of materials. As long as burn barrel use occurs, you should expect barrel fires to include appreciable garbage and significant non-compliance with restrictions on burning illegal materials such as plastics and other household wastes, adversely impacting public health. This point is especially important because large areas of California restrict what can legally be burned, but do not prohibit burn barrel use. (Brown-WC39, Jones-OT26, Reynolds-OT22, Reynolds-WC35, Sherrill-WC4, Strickler-WC23)

Agency Response: We agree that burn barrels promote inefficient burning of materials because they result in oxygen starved, low-temperature combustion. Data obtained from the U.S. EPA (1997a, 2001a) and our own risk assessment analysis shows that the burning of residential waste in burn barrels is a substantial source of dioxins and other TACs that can adversely impact public health. Also, data obtained from air districts and presented in the Staff Report indicate that burn barrels make it easier to conceal the burning of illegal materials. We believe the ATCM will result in an effective reduction in outdoor residential waste burning and the use of burn barrels.

46. Comment: The Lake County Air Quality Management District ban on burn barrel use has been well accepted, but does require an ongoing effort to assure compliance. It is the opinion of air and fire agency staff that the effort is small compared to that saved by avoiding escaped fires, false alarms, and public complaints associated with burn barrel use. (Reynolds-OT22, Reynolds-WC35).

Agency Response: Thank you for your comment. We agree than the elimination of burn barrels will have many benefits.

47. Comment: Fortunately Mendocino County Air Pollution Control District already has regulations banning the burning of garbage. But time and time again we find it in burn

barrels upon inspection. People think that if they have a burn barrel, it's to burn garbage. We are still trying to stop those who use burn barrels when they're not supposed to, during the six months of the year when the fire ban is on. If we don't start now to put these bans into effect and get people used to not using burn barrels, it will be just that much more difficult as the population grows. (Wolbach-OT23)

Agency Response: We agree. Implementing the ATCM will mean that air districts can use Notices to Comply and Notices of Violation as additional enforcement tools.

48. Comment: Use of burn barrels is a violation of the Uniform Fire Code (Code) and Lake County Fire Code. Safe disposal practices dictate that any burning device should be fitted with a permanent screen, not be easily moved next to combustibles, or capable of spilling accidentally. (Strickler-WC23)

Agency Response: The Code is a model fire safety guidance developed by the Uniform Fire Code Association and updated every few years. While it is not a regulation, the Code is used by states, counties, and local fire protection agencies to provide background and suggestions for development and implementation of state and local fire protection codes. The section of the Code referred to by the commentor is section 1102.2.2, which reads as follows: "Construction: Free standing incinerators shall be constructed of concrete or masonry and shall have a completely enclosed combustion chamber. Incinerators shall be equipped with a permanently attached spark arrester." The State of California has not adopted this portion of the Code into the California Fire Code; however, as the commentor points out, Lake County has incorporated it into the Lake County Fire Code. We agree that the Code would effectively prohibit the use of burn barrels because they would not meet the definition of an acceptable incinerator.

49. Comment: Residential garbage burning results in escaped fires. Escaped fires are caused by carelessness and failure to supervise or properly extinguish fires. Historically, burn barrels were a cause of escaped fires and false house alarms within our community. Banning their use in Lake County has been well accepted by the public and has saved valuable public resources and greatly reduced fire and health complaints. Burn barrels were often abused by burning without supervision and burning of toxics-releasing illegal material, causing public complaints and animosity between neighbors. (Strickler-WC23)

Agency Response: Thank you for your comment. We agree that burn barrels often contain illegal materials, and, if not properly tended, pose a potential fire hazard.

50. Comment: It's not the burn barrel, it's the type of material burned in the burn barrel that causes a health concern. Burn barrels can be used safely to burn vegetative materials; therefore, ban the burning of non-vegetative materials such as plastics, not the burn barrel. (Kahler-WC60, Moreo-OT18, Nishikawa-OT24, Nishikawa-WC71)

Agency Response: Based on information collected from air district and fire management agency staff, we found that burn barrels frequently contain prohibited materials, and that

unless enforcement staff look directly in a barrel, these materials cannot be easily spotted. In a September 2001 ARB survey of the 21 air districts in California which allow the burning of residential waste materials other than garbage, 15 air districts responded that greater than 50 percent of burn barrels inspected in their air district have illegal materials burned in them (see Staff Report IV-7.) Because it is difficult for air district enforcement staff to determine whether prohibited materials are being burned in burn barrels without looking into the barrel, the use of open piles on the ground for the burning of natural vegetation will facilitate improved air district enforcement efforts.

The ATCM does have an exemption provision for areas with very low population density that allows the use of burn barrels for vegetation burning and dry non-glossy paper and cardboard if this practice is deemed necessary by the local fire agency.

51. Comment: It doesn't make sense to ban burn barrels in Lassen County. Collectively, they emit a thousand times less than what is emitted from the four wood-fired co-generation plants in Lassen County. (Callegari-WC41, Smith-OT15)

Agency Response: We disagree with the calculations the commentors used to generate their emission estimates for both burn barrels and the wood-fired co-generation plants. To estimate Lassen County burn barrel dioxin emissions, they used the emission factor for dioxins adjusted for toxic equivalents (TD-TEQ), which is about 65 times less than the emission factor for total dioxins (TD.) Conversely, they used TD emissions (non-TEQ adjusted) for their estimates of wood-fired co-generation plant emissions. This results in dioxin emission estimates for the co-generation plants that are about 65 times greater than TEQ adjusted values. Simply stated, they were comparing apples to oranges by using different emissions factors for the burn barrels and the co-generation plants. In addition, they used what we consider to be unrealistic assumptions about how many burn barrels are used in Lassen County (400 versus 2500.) If burn barrel and wood-fired co-generation plant emissions are estimated in the same units, with the same number of burn barrels, we determined TEQ-adjusted dioxin emissions from burn barrels in Lassen County are about 20 times greater than TEQ-adjusted emissions from the four wood-fired co-generation plants in Lassen County.

Total emissions calculations aside, dioxins are a potential human carcinogen for which no safe level of exposure has been identified. Very minute amounts may be carcinogenic, and the dioxins emitted from the burning of residential waste materials can have substantial near-source impacts on both the individuals of a household conducting burning and on nearby neighbors. The risk assessment we conducted to assess the potential health impacts from residential waste burning from a single household indicated potential cancer risks ranging from less than 10 to about 2,300 chances in a million at the near-source location (a minimum modeled distance of 20 meters from the burning activity.) The impacts on young children are of special concern. In addition, there is also a broader community impact from the dioxins generated from any source. Dioxins are ubiquitous throughout the environment, with cumulative emission impacts from many sources -- including wood-fired co-generation plants and uncontrolled residential waste burning.

52. Comment: Provisions should be made in the regulation to allow burn barrels for vegetation burning if they are needed. From a fire safety standpoint, burn barrels prevent materials from blowing away when they are being burned. (Cox-WC33.1, Hemminger-WC41.1, Kahler-WC60, Linzy-WC45, Matthews-OT17, Moreo-WC69, Neilsen-WC55.1, Pazdra-WC36, Pearson-OT2, Quetin-WC65, Reemelin-WC27, Stephans OT19, Waite-WC21, Williams-WC24, Whitehill-WC56)

Agency Response: In the most rural portions of the State the ATCM has been modified to include an exemption provision. Census zip codes where the population density is less than or equal to 3.0 people per square mile receive an automatic exemption, and households will be allowed to use burn barrels. For census zip codes with a population density of more than 3.0 and up to 10.0 people per square mile, burn barrels may be used if the ranking local fire official requests their use for fire safety purposes. In the more populated areas of the State that do not qualify for an exemption, there will be less of a fire danger threat to residents due to a quicker response time from fire safety agencies. Further, we believe that a properly tended pile, following all recommended fire safety precautions, offers the same level of fire safety as a burn barrel. In fact, some fire officials stated that burn barrels may actually result in greater fire danger due to the tendency of burners to walk away from actively burning and smoldering materials in a burn barrel.

53. Comment: Continue to allow the use of burn barrels if the air district Board adopts a resolution in a duly noticed public hearing that the banning of the use of burn barrels will impose additional serious fire safety concerns on the air district. (Stephans-WS6, Stephans-OT19)

Agency Response: As discussed in the response to comment 52 above, we agree that there are some areas where fire safety concerns may warrant an allowance for the use of burn barrels. Burn barrels will be allowed automatically in census zip codes with a population density less than 3.0 people per square mile but only to burn paper, cardboard and vegetation. For census zip codes with a population density of more than 3.0 and up to 10.0 people per square mile, burn barrels may be used if the ranking local fire official requests their use for fire safety purposes. The Request for Exemption for this tier must be approved through a formal public meeting.

54. Comment: The Rio Alta Water District urges you to move forward with the proposed ban and further encourages you to incorporate language in proposed 17 CCR section 93113 that will prevent homeowners from circumventing the ban on the burning of residential waste materials and the use of burn barrels by incorporating their household waste with outside piles of natural vegetation material. (Sherrill-WC3)

Agency Response: We agree that household waste materials other than natural vegetation should not be burned in either burn barrels or piles. The ATCM language in subsection (c)(1) specifically prohibits the combustion of “disallowed combustibles” whether in piles or in burn barrels. Disallowed combustibles, as defined in

subsection (b)(11), include any non-vegetation materials. Restricting the burning of vegetation to piles will assist enforcement efforts by making it easier for enforcement personnel to spot prohibited materials.

55. Comment: If burn barrels are banned, people will burn their trash in open piles, which will result in an increased risk of wildfires. (Crompton-WC22, Cox-WC33.1, Dahms-WC25, Matthews-OT17, Moreo-WC69, Moreo-OT18, Parks-WC53, Woltering-WC32)

Agency Response: As discussed in the response to comment 54 above, the ATCM prohibits the burning of any materials other than natural vegetation. Therefore, the burning of trash in piles will not be allowed. If households do illegally burn trash in a pile, it will be easier for air district enforcement officials to detect this and enforce the prohibitions against it. However, in the exemption areas where the burning of paper and cardboard is allowed, and where concerns for escaped fires and fire response times may be greater, the ATCM has a provision that allows the use of burn barrels if this practice is deemed necessary by the local fire agency.

56. Comment: Burn barrels result in more efficient burning, resulting in less smoke than without a burn barrel. (Kahler-WC60, Knauer-WC8, Lovelace-WC11)

Agency Response: We disagree. Available scientific evidence referenced in the Staff Report - U.S. EPA (1997a) and Lemieux (2000) - indicate that burn barrels are an inefficient means of burning materials because they result in oxygen starved, low-temperature combustion which can lead to significant smoke production. Air district enforcement personnel have reported instances of burn barrel contents smoldering for days. Temperatures in both burn barrels and piles are well below the temperature of 1000^oC needed to effectively eliminate the production of dioxins and PCBs.

57. Comment: Misuse of burn barrels is not a sufficient justification for banning them. There is already too much government regulation. Existing enforcement measures can be taken if they are used illegally. (Neilsen-WC55.1, Nishikawa-WC71)

Agency Response: As described in the previous response to comment 50 above, in a survey of 21 air districts in California which allow the burning of residential waste other than garbage, 15 air districts reported that greater than 50 percent of the burn barrels inspected in their air district have illegal materials burned in them (see Staff Report page VI-7.) It is often difficult for air district enforcement staff to determine whether prohibited materials are being burned in burn barrels. The prohibition of burn barrels and the use of open piles on the ground for the burning of natural vegetation will therefore facilitate improved air district enforcement efforts.

58. Comment: If people are going to burn garbage, they will burn it whether it's done in a burn barrel or not. It is more a matter of enforcement. (Lovelace-WC11)

Agency Response: Information provided by numerous air district enforcement officials

indicates it is easier to enforce prohibitions against garbage burning if burn barrels are not allowed because it is not as easy to hide the burning of prohibited materials.

59. Comment: The ATCM will be difficult to enforce because it will be difficult to explain why you can't burn vegetation in a burn barrel when there are no illegal materials such as paper being burned. (Nishikawa-OT24)

Agency Response: As described in the response to comment 50 above, a survey of 21 air districts in California which allow residential waste burning, but not garbage burning, found that greater than 50 percent of burn barrels in their air district have illegal materials burned in them (see Staff Report VI-7). It is often difficult for air district enforcement staff to determine whether prohibited materials are being burned in burn barrels. The prohibition of burn barrels and the use of open piles on the ground for the burning of natural vegetation will therefore facilitate improved air district enforcement efforts. We will work with air districts and fire safety enforcement agencies to help educate the public about the need for the prohibition on burn barrels. A strong public education and outreach campaign to alert the public to the potential health impacts of residential waste burning and the availability of alternative waste disposal options will assist enforcement agencies with compliance efforts and minimize the incidence of illegal burning.

60. Comment: Our experience tells us that far fewer fires occur from burning activities conducted in burn barrels versus pile burning. However, the reduction of the overall amount of burning activities may lead to a decrease in fire occurrences. In addition, the reduction in burning will allow for more focused fire prevention and education on the remaining activity. (Goings-WC62)

Agency Response: We believe that the incidence of a properly managed pile burn escaping is no greater than with the use of a burn barrel. We agree that with the overall reduction in backyard burning, the occurrence of escaped fires will be reduced.

3) Subsection (c)(3) - Ignition Devices

No comments were received on this portion of the regulation.

4) Subsection (c)(4) - Burn Days

61. Comment: Require residential burning on burn days only. However, if the danger of escaped fires is sufficiently high, residential burning of all types, including in a barrel, should be banned. High fire hazard conditions occur about one half of the year in most of California. The fire hazard season closely follows the photochemical smog season, hence both improved air quality and fire safety are benefits from avoiding residential burning. (Stephans-WS6, Strickler-WC23, Betts-WC20)

Agency Response: We agree. Subsection (c)(4) of the ATCM limits residential burning to

permissive burn days. Air districts may be more stringent. In addition, the fire agencies have the authority to stop burning at times when the threat to fire safety warrants. A no burning declaration by either the air district or the fire agency prohibits residential burning, whether for air quality benefit or for fire safety.

62. Comment: Until you can do this [ban all open burning including burn barrels] at least put some severe restrictions on the hours, days and months allotted to burning in residential areas, and require a greenwaste pickup service to get started. (Davis-WC48)

Agency Response: The ATCM specifies that residential burning can only be conducted on permissive burn days. This will reduce the amount of greenwaste burning in residential areas because burn days do not always fall on weekends, when residents are more likely to be at home to conduct burning. Residents will be forced to look at other options, such as composting and chipping or curbside service. The ARB does not have the authority to require greenwaste service but we will be working with State and local waste agencies that are exploring various waste disposal alternatives to burning.

63. Comment: Even legal burning can cause a nuisance to neighbors. Over the past two years, 57 percent of the complaints received at the air district office were related to outdoor fires. (Huss-WC58)

Agency Response: To help minimize potential smoke impacts from the burning of allowable materials, the ATCM requires that burning occur only on permissive burn days. In addition, neighbors who previously registered nuisance complaints will also have a basis for action through the provisions of the ATCM.

64. Comment: In 1998, the Butte County Air Pollution Control District's Governing Board adopted comprehensive amendments to the residential open burning regulations which included residential burn day determinations based on specified smoke management zones, and a requirement to burn only on a permissive burn day. The burn day status would not be available until after 8:30 a.m. for the Sacramento Valley Air Districts under the Smoke Management Program for the Sacramento Valley Air Basin, although the air district determines burn day status for residential burning at 3:00 p.m. the day before and posts it on a call-in number. Since the local fire agency allows residential burning to commence at 6:00 a.m., the proposed regulation would limit the District's ability to satisfy local fire agency safety concerns. (Wagoner-WS2)

Agency Response: The ATCM specifies that residential burning can only occur "on a permissive burn day in the air district where residential burning is to take place." Burn day decisions must be announced by 3:00 p.m. for the next day for all air districts throughout the State, although if conditions preclude a forecast until the next day, the decision must be announced by 7:45 a.m., in accordance with 17 CCR section 80110(c). However, in the Sacramento Valley during the intensive fall rice burning season, morning updates are provided to allocate the acreage for agricultural burning that is allowed for that day.

Infrequently, burn day status may change as a result of this morning update. The California Department of Forestry and Fire Protection may also infrequently change a burn day status for emergency fire safety purposes. Because these changes are infrequent, we do not see any conflict with the air district's current procedure based on the use of forecasted burn day status the day prior to burning.

d. Subsection d - Compliance Schedule

1) Subsection (d)(1) - Adoption Date

No comments were received on this portion of the regulation.

2) Subsection (d)(2) - Effective Date

65. Comment: We think putting the implementation date out to January 2004 will give us a good 18 months to work with our common stakeholders, the jurisdictions who are affected by this regulation. This will allow us time to assist them in not only waste disposal alternatives, as the staff portrayed it, but alternatives to disposal for those rural jurisdictions. That's mainly what the CIWMB is all about, finding alternatives to disposal and finding productive uses for those materials in the recycling environment. (Leary-OT3)

Agency Response: Thank you for your comment. We agree and have modified the effective date of the prohibitions to January 1, 2004 to allow the ARB to conduct one year of outreach and public education.

66. Comment: We support the ARB effort to reduce toxic air contaminants with this measure, but strongly urge you to add provisions to the measure to delay full implementation of this ATCM until adequate public education efforts have been conducted at the local level. We also believe that adequate analyses have not been completed on potential negative impacts such as increased waste volumes and illegal disposal and that there is insufficient data on need for waste service or disposal facilities, actual emissions, social impacts and physical hardships. Implementation should be extended to allow these issues and the impacts of fire safety without burn barrels to be fully evaluated. The ARB should delay this proposal and conduct a thorough and further study of the negative effects we have outlined. (Hemminger-WS7, Kehoe-WC67, Reemelin-WC27)

Agency Response: The modified regulation postpones the implementation of the prohibitions of the ATCM at subsection (c)(2) to January 1, 2004. In addition, a new subsection (c)(3) has been added to require ARB to conduct one year of outreach and public education prior to January 1, 2004. We believe the impacts to individual and community health outweigh the potential for other negative impacts you have described. Fire safety impacts are recognized in the modifications approved at the public hearing and are discussed in the responses to comments 29 and 52 above. The exemptions as structured in the modified regulation will allow burning in those areas where the potential for adverse environmental impacts are most likely. Further discussion of potential economic

impacts are discussed in the responses in the Economic Impacts Section III.B.5 of this document. Further discussion of potential impacts on waste infrastructure, fire safety, and other potential environmental impacts can be found in the responses in the Environmental Impacts Section III.B.6.

67. Comment: The proposed implementation date of July 1, 2003 is much too soon. Lack of data showing the need for this ATCM as presently proposed is one factor, but another is that there are many areas of our State where there are few viable alternatives for disposal of these wastes. While some exemptions are proposed, given the widely varying availability of commercial or municipal waste/refuse agencies, there will not be a suitable alternative way of disposing of residential wastes for the majority of those households who would be affected by this ATCM. Implementation of the proposed ATCM should be delayed until such facilities are reasonably available. (Mohlenbrok-WC15, Quetin-WS3)

Agency Response: As discussed in the response to comment 66 above, the modified regulation postpones the implementation of the prohibitions of the ATCM in subsection (c)(2) to January 1, 2004 in order to provide additional time for public education and outreach. In addition, the Board directed staff to work with the CIWMB in its efforts to address local landfill diversion issues and to promote recycling and waste reduction through local educational programs. As part of the outreach efforts, we will examine the methods used for waste collection and disposal in rural air districts which already ban burn barrels for techniques that can be employed in other rural areas affected by the ATCM. We believe the exemptions will target those areas where alternative waste disposal options are least likely to be available. In addition, since the burning of garbage is already prohibited in all but six air districts in the State, most residents are already disposing of some portion of their waste through non-burning alternatives. Therefore, for most households, the implementation of the ATCM would mean increased utilization of already existing waste disposal alternatives.

68. Comment: If there is to be an exemption only for the burning of paper and cardboard, the effective date of the ATCM should be pushed back until January 1, 2007. This would allow adequate time for the ARB outreach program to become effective; affected residents to prepare for the change; and local waste management districts, fire agencies, and air districts to prepare for the change. (Quetin-WS3)

Agency Response: See response to comments 66 and 67 above. We believe the January 1, 2004 implementation date, with the accompanying one year of public education and outreach, provides adequate time for public education and needed changes in waste disposal habits. In addition, we are committed to assisting the air districts with implementation of the ATCM. We will also prepare briefing, educational, and outreach materials suitable for use by the fire and waste agencies.

69. Comment: The rule should give the air districts the option of petitioning the ARB for a four-year extension, if they provide some findings about the environmental impacts and perhaps some commitment to do some mitigating measures within that four-year period.

Allowing air districts to selectively request time extensions would provide an opportunity for staff to perform additional emission studies and the air districts to look at burn data. In addition, it would provide local governments time to expand existing infrastructure and to enhance public education efforts, as needed, in order to offset at least some of the adverse incidental consequences of the proposed regulations. Because of the complexities of solid waste service agreements and the elaborate regulatory requirements for any new solid waste collection facilities, the proposed January 1, 2004 implementation may, in some cases, not be sufficient to allow for adequate mitigation of the unintended adverse impacts (i.e. illegal disposal of waste, stockpiling of waste materials, vehicle emissions for trips to legal disposal sites, indoor burning of waste materials, vector propagation, increased fire danger, costly fees on fixed/low-income households, hardships for those unable to self-haul.) A health-based risk analysis would show that the long term consequences of a short term delay in regulatory implementation would be minimal compared with the potential adverse consequences of prematurely imposing residential burning prohibitions in many of the more remote zip code areas. Even in the denser areas, there may be pockets where the infrastructure for alternatives is lacking. (Hemminger-WS7, Hemminger-OT21, Stephans-WS6, Stephans-OT19)

Agency Response: See responses to comments 66 through 68 above. We believe the emissions data and risk assessment analysis provide sufficient certainty on the potential public health risks posed by the burning of residential waste materials that further research is not needed. As discussed in the responses to previous comments, the exemptions as structured in the modified regulation will allow burning in those areas where the potential for adverse environmental impacts would be most likely, and where alternative waste disposal options would be most limited. Therefore, we do not believe public health would be served by further delaying implementation of the regulation through a four-year transition period. Further discussion of the impacts raised in this comment is set forth in the responses contained in the Environmental Impacts Section III.B.6 of this document.

70. Comment: This rule needs to be implemented now. The original implementation dates are preferable, but if the effective dates are delayed to allow for public education, then the effective date of the bans described in the ATCM shall be no sooner than January 1, 2004. (Hirschinger-OT8, Holmes-Gen-OT7, Huss-WC58, Wallerstein-WC55)

Agency Response: We agree. The prohibitions in the ATCM become effective on January 1, 2004.

3) Subsection (d)(3) - Education and Outreach

71. Comment: An effective education program is needed for this ATCM to work. For instance, the local fire agency can provide information, supplied by the air district or the ARB, to residential burners when issuing permits. The implementation of this regulation,

the reasons for it, the health effect of burning prohibited materials, and alternatives to burning need to be communicated to the affected communities. Compliance will only occur if the public understands the need for the regulation. (Barkhouse-OT14, Betts-WC20, Callegari-WC41, Conway-OT12, Council-WC64, Covell-OT16, Goings-WC62, Hemminger-WS7, Hemminger-WC41.1, Holmes-Gen-OT7, Huss-WC58, Jones-OT26, Kehoe-WC67, Morgan-OT25, Munger-WC13, Nishikawa-OT24, Pazdra-WC36, Quetin-WS3, Reynolds-OT22, Rumiano-WC38, Schram-WC31, Stephans-OT19, Stephans-WS6, Stewart-WC59, Wallerstein-WC55, Whitney-WC43, Woltering-WC32, Woolley-WS4)

Agency Response: We agree. We have modified the ATCM to include a public education and outreach component. As specified in subsection (d)(3) of the ATCM, we will begin this campaign no later than January 1, 2003. We are committed to working with the air districts, fire agencies, and communities to develop and implement this education and outreach program. The program will help educate the public regarding the regulation, the potential public health impacts of residential waste burning, and available alternatives to burning.

Additionally, where air districts are granted exemption areas for the ATCM, the air district will be required to provide information on the hazards associated with residential waste burning and ways to minimize these hazards to all persons conducting residential waste burning. The air district can provide this information by using either an air district or appropriate fire protection agency permit program for residential waste burning, or other equivalent mechanism.

72. Comment: Require a permit to be issued which would allow disbursement of educational materials with a strong message describing the health impacts of open burning and allow the collection of residential burning data for further study. (Beedon-WC44, Stephans-WS6, Stephans-OT19, Holmes-Gen-OT7)

Agency Response: Subsection (d)(3) of the ATCM specifies that ARB conduct an education and outreach program for one year beginning no later than January 1, 2003. In addition, the modified ATCM at subsection (e)(10)(B) includes a provision for the air districts to establish a permit program or an equivalent program for public education for exemption areas where the population density is between 3.0 and 10.0 people per square mile. We will work with the air districts, the fire agencies and other interested parties to develop an education and outreach program to assist the air districts in this effort.

73. Comment: Education needs to be a part of this process. I recommend that ARB promote and support the expansion of the alternative disposal programs. (Hirschinger-OT8, Hirschinger-WC9)

Agency Response: We agree. The Board directed staff to work with the CIWMB in its efforts to address local landfill diversion issues and to promote recycling and waste reduction through local educational programs.

74. Comment: You're going to need to better educate the people that ultimately have to administer this program. (Barkhouse-OT14, Huss-WC58, Wallerstein-WC55)

Agency Response: We agree, and the regulation requires a one year public education and outreach program prior to implementation. As part of the educational outreach program, we will work with the air districts and fire agencies to ensure that they have the most current and up-to-date information available. The Board also directed staff to work with CAPCOA to provide local maps clearly identifying exempt areas and to assist air districts in filing requests for exemptions where appropriate.

75. Comment: An active enforcement and educational program is more appropriate and fair to the public than is an outright ban on burn barrels. (Amaro-WS5, Barkhouse-WC52, Caseri-OT20, Caseri-WS10, Cory-OT10, Cory-WC61, Forester-OT4)

Agency Response: We believe that education and enforcement must go hand in hand. A strong public education program will alert the public to the dangers of burning prohibited materials, thereby reducing the likelihood that prohibited materials will be burned, and thus reduce need for enforcement efforts. Where enforcement efforts are needed, prohibiting the use of burn barrels will aid field inspectors in their determination of whether prohibited materials are being incinerated. See also the response to comment 59 above.

76. Comment: Instead of banning the burn barrel, I think the better thing to do is to warn the people of the danger of burning toxic materials. I suggest a big education campaign explaining about the toxics given off when certain things are burned. Why would someone burn toxic trash and run the risk of breathing the toxics in order to save money on dumping trash? (Pazdra-WC36)

Agency Response: We agree that providing information of the potential health risks of burning residential waste will be an effective deterrent for many households. The potential health risks of burning residential waste materials will be a key component of our education and outreach efforts. However, as described in the response to comment 75 above, education and regulation must go hand in hand to provide air districts with an enforcement mechanism to protect public health in cases where households continue to burn prohibited materials.

77. Comment: It would be more efficacious, from a public health perspective, to first work with rural air districts to discourage the burning of plastics and other synthetic materials that are the most significant source of dioxin emissions. Then, instead of over-regulation and enforcement, consideration should be given to public education programs and related outreach efforts to further reduce public health exposures in rural areas of the State. The ARB may wish to consider requiring air districts to undertake a public health-based education program as a condition for granting of exclusions or exemptions to selected jurisdictions. (Hemminger-WC41.1)

Agency Response: See responses to comments 72, 75, and 76 above.

78. Comment: Education is difficult in a rural county. We would like to request that the final regulatory package include specific provisions to ensure the effectiveness of the proposed public outreach campaign. I would suggest at some point we have an opportunity to come before you and assess the effectiveness of that public education program. We would also like your consideration for including a provision to extend the regulatory implementation date if the proposed public education campaign falls short of its intended objectives. (Hemminger-OT21, Hemminger-WS7)

Agency Response: We recognize the challenges of providing educational materials in rural areas. Therefore, we will work with the affected communities, including RCRC, to develop an effective education and outreach program. We believe the combination of requirements for ARB and subsequent air district public education in the modified regulation will result in an effective outreach program and we are committed to working with a broad cross-section of stakeholders to ensure that appropriate materials are developed and effective dissemination is achieved. Therefore, we do not believe that specific performance measures are needed in the regulation. As part of the ATCM implementation, we will report back to the Air Resources Board in January of 2005 to present an evaluation of the implementation of the ATCM. Public comment will be solicited prior to the meeting, and you are always welcome to communicate with staff regarding any issue including your view of the effectiveness of the educational campaign. We will also work with the affected communities to develop this evaluation. See also responses to comments 66 and 69 above regarding the appropriateness of the current implementation date.

e. Subsection (e) Exemptions

1) Exemption Criteria

79. Comment: On January 24, 2002, the Board of Directors of CAPCOA approved a consensus position to recommend an alternative approach to banning burn barrels and the burning of non-vegetative materials. This alternative approach exempts areas that would experience a de minimis risk because of low population density. The Board of Directors stressed that they reached consensus on recommending these modifications but requested that ARB recognize the dissenting opinions of the CAPCOA member air districts because they address valid considerations unique to the various situations of individual air districts. Following is a summary of the CAPCOA Board's recommendations:

- Burn barrels, and the combustion of any material other than appropriately dried vegetation, should be banned in all zip codes within the State with a population density of more than 3 people per square mile, and in all incorporated towns and cities.
- The effective date of the ATCM shall be no sooner than January 1, 2004.

- The ARB Board should direct the Executive Officer and his staff to conduct outreach on burn barrels, the health effects of using them, and the requirements of the regulation, beginning January 1, 2003, in all affected areas of the State.
- The APCO may petition the ARB for exemption from the ban of burn barrels, and/or the ban of paper and cloth combustion, if all of the following criteria (1-6) apply:
 1. The population density in any zip code area for which exemption is sought is less than or equal to 10 people per square mile; and
 2. Any incorporated area is excluded from the exemption request (i.e., burn barrels are banned in all incorporated areas); and
 3. Either (a) or (b) is true:
 - (a) The chief fire protection official in each zip code area to be exempted has provided a written finding, including references to fire codes (where applicable), that an unacceptable fire risk would occur if the burn barrel is banned; or
 - (b) The distance to the nearest waste disposal site, from the furthest point in each zip code area to be exempted, exceeds 15 miles.
 4. A written permit to use the burn barrel, and/or burn clean paper, cardboard, and/or cloth, will be issued by either the air pollution control district or the fire protection district or there is an equivalent mechanism to distribute the information required in 5, below; and
 5. Information on risks associated with burn barrel use, and instructions to minimize risks is provided to the burn barrel user; and
 6. The Board of Directors of the air pollution control district holds a public hearing on the request for exemption from the ATCM, including presentation and discussion of the risks of burn barrel use, and finds the need to continue such use outweighs those risks, and therefore directs the APCO to request the exemption.
- The calculation of population density shall be made using the most recent approved U.S. Census data.
- The applicability of the regulation shall be reviewed every 10 years.
- The ARB shall identify zip code areas with a population density of 3 or fewer people per square mile, and with a population density greater than 3 and less than or equal to 10 people per square mile at least six months before the effective date of the regulation, and every 10 years thereafter, until the Board determines it is no longer necessary.
- At least two months prior to the effective date (and/or the 10 year review date) of the regulation, any air district seeking exemption from the ATCM shall submit the findings of the air district Board of Directors, as outlined in the exemption criteria 1 through 6, to the Executive Officer of the ARB.
- If the Executive Officer finds that the criteria 1 through 6 have been met, the exemption shall be granted.
- At least one month prior to the effective date (and/or the 10 year review date) of the ATCM, the Executive Officer of the ARB shall notify each air district seeking exemption whether or not the exemption has been granted or denied.
- At the earliest possible date after the effective date (and/or the 10 year review date) of the ATCM, the Executive Officer shall hold a public hearing to formally identify the areas exempted from the ATCM, and shall do the same at each 10 year review period, until the Board determines it is no longer necessary.

- The ATCM shall not preclude the ability of the air pollution control district to be more stringent.
- No area where burn barrels and/or residential burning are already banned, or where there are existing restrictions on the types of material that may be burned, at the time of adoption of the ATCM, may allow such burning after the effective date of the ATCM (i.e., no backsliding.) (Lee-OT5, Wallerstein-WC55)

Agency Response: The CAPCOA proposal formed the basis for the modified ATCM approved by the Board at the public hearing. The CAPCOA proposal was incorporated in its entirety with the following exceptions:

1. Due to the greater health risks posed by the burning of garbage and plastic, the modified ATCM allows only the burning of paper and cardboard in exemption areas.
2. In recognition of the very low population density and minimized community health risk in census zip codes with a population density less than 3.0 people per square mile, this population density tier is provided an automatic exemption. Households in this tier will be allowed to burn clean, dry, non-glossy paper and cardboard and use burn barrels.
3. The criteria for exemptions in the 3.0 to 10.0 people per square mile exemption tier was modified such that APCOs are provided with the discretion to determine whether the burning of clean, dry, non-glossy paper and cardboard should be allowed, while the ranking local fire official is provided the discretion to request the use of burn barrels.
4. A provision is included in the ATCM to allow census zip codes to be subdivided to accommodate population density distribution differences throughout potentially large census zip codes. Further exemption areas can be designated in a sub-area of the census zip code if the population density in the sub-area is less than or equal to 3.0 people per square mile. Air districts may also designate sub-areas where additional prohibitions apply.
5. The requirement for an ARB public hearing on the exemption area identification was not included, as the public hearings at the air district level were considered sufficient. However, the modified ATCM does include a requirement to publish a listing of all exemption areas by January 1, 2004, and every 10 years thereafter.

80. Comment: We think that a tiered exemption structure and the parceling out of a zip code map is an excellent opportunity, but the suggested three people per square mile seems unnecessarily restrictive. Given the uncertainty of available health risk analyses and the variability of land use within a zip code area, the criteria for setting a population limit of 10 people per square mile is necessarily somewhat ambiguous. Based on a review of the color-coded zip code maps, we would request that the density threshold be increased from 10 to 20 people per square mile (about one household per 80 acres.) Those zip codes areas with a population density of between 10 and 20 people per square mile are limited in number and generally may be characterized as remote, extremely rural, and without significant clustering of residential structures. Enforcement in these areas would be difficult and extremely costly. Not everyone in the rural counties even uses a burn barrel. In Siskiyou County, maybe one in six households do. Therefore, we would suggest as a reasonable balance between risk, cost of enforcement, and other environmental factors, that you consider a higher threshold. (Hemminging-WS7, Hemminging-OT21)

Agency Response: The tiers are not arbitrary or ambiguous but rather were developed in consideration of several factors including potential health risks from exposure to dioxins and other TACs; the potential for adverse environmental impacts in very rural areas; and the more limited availability of alternative waste services in the least populated areas of the State.

The risks shown in Tables B-1 through B-5 in Appendix B of the Staff Report were used for the exposure analysis. Further discussion of the procedures used in the risk assessment is provided in the response to comment 150. A density of 3.0 people per square mile is equivalent to one household burning waste at the center of a property where the potential cancer risk drops below one additional cancer in a million at the property line. As the distance between residences burning waste decreases, the risk increases. A density of ten people per square mile translates to the distance where the potential cancer risk drops below approximately two additional cases in a million. At twenty people per square mile the potential cancer risk increases to approximately five additional cases per million. As the distance between residences decreases, households are affected more and more by emissions from their neighbors' waste-burning activities, in addition to the risk posed by their own actions. Therefore, in consideration of the increasing health risks at higher population densities, as well as the potential for lack of alternatives in areas with the lowest population density, we believe the selected tiers represent appropriate cut-points. See also the responses to comments 209 through 211 below regarding balancing impacts.

81. Comment: There is no question residential burning can create an air quality problem, especially in an area with higher population density. The proposed regulation should focus on higher population density areas where exposure to emissions is greatest. Whereas the use of burn barrels for the incineration of waste may pose an acceptable risk in very low density populated areas, especially if garbage burning is prohibited, it should not be acceptable in areas of increasing population. (Huss-WC58, Forester-OT4, Wolbach-WS12)

Agency Response: We agree. The modified ATCM considers the potential health impacts and other factors by using population density as the criteria for exemptions. No exemptions will be provided in areas where the population density exceeds 10.0 people per square mile, and in all incorporated areas.

82. Comment: I oppose the spottiness of this map, because people on either side of a street could be subject to different restrictions. As an alternative, you could allow incorporated areas with populations above a certain number to make their own regulation and let the air districts administer a permit program. The regulated area would have to include the fringe or "urban moat." The problem we have is with the urban moats around almost every town. Burning in this fringe is a problem to those living inside the incorporated boundary where burning is not allowed. Including the town and its moat in a regulatory program would place 80 percent of the people that are involved in the problem under some kind of control. (Barkhouse-OT14)

Agency Response: The calculations for determining population density do consider the “urban moat” effect. The population density in a zip code is determined after the population and the area of all incorporated places within the zip code have been subtracted. Therefore, if there is a sizeable population outside the city limits, the population density in the remaining portion of the zip code will reflect this and the remaining portion of the zip code will not be eligible for an exemption. Exemptions are only provided in the most rural areas, where residences are separated from each other by a considerable distance. Thus, it is unlikely that neighbors across the street from each other would be subject to different prohibitions. In the case where small, unincorporated population centers are located within a zip code that would otherwise be exempt, air districts have the discretion to create sub-areas containing the population center where prohibitions would apply.

83. Comment: One of the concerns I have is with the new criteria for population density per zip code as it relates to population centers within a larger zip code. In Alturas in Modoc County, for example, the city is going to have more than 10 people per square mile, but you have outlying rural areas within this large zip code. (Cory-OT10)

Agency Response: As described in the response to comment 82 above, the population and area of incorporated places is subtracted before calculating the population of the remaining portion of the zip code. Therefore, the high population density of a city does not affect the population density of the remaining portion of the zip code. In the case of Alturas, the population is concentrated within the city boundaries. Therefore, the area outside of Alturas falls below 10.0 people per square mile and qualifies for an exemption.

84. Comment: We assume that the February 8th “ARB Staff Proposal for Changes” was meant to provide flexibility. Unfortunately, it will not accommodate a number of unique areas in the State. The 3 to 10 population density parameter will be hard to implement in certain counties that have small population centers in unincorporated areas, but still have no waste service or available landfills. Only six air districts allow the burning of household garbage. The decision to possibly discontinue household garbage burning should be evaluated and dealt with at a local level. These air districts are not burning household garbage because they have alternatives, they are continuing to burn because of lack of landfill and waste service availability. (Cory-WC61)

Agency Response: The February 8th proposal referenced in the comment was not the official modified regulatory language presented to the Board at the February 21, 2002, public hearing. It is likely a summary of the CAPCOA Board of Director’s proposed modifications to the ATCM, which was shared with their members and ARB prior to the public hearing. CAPCOA’s proposal was submitted to the Board during the 45-day comment period in a letter dated January 30, 2002. This proposal however, provided the basis for ARB’s modified regulatory language.

Testing conducted by U.S. EPA and Nakao has demonstrated that the burning of household garbage and plastics produces the greatest amount of dioxins. Because of the

greater potential health risk posed by the burning of these substances, and because prohibitions against burning these materials have not been implemented consistently, despite the uniform potential health risk, a statewide, rather than local approach is needed. Many of the areas where the burning of garbage is still allowed do have other waste disposal options. However, exemptions to burn paper and cardboard will be allowed in the most rural areas where alternative waste disposal may be most difficult. It should also be noted that there are many rural areas where the population density is between 3.0 and 10.0 people per square mile in air districts where the burning of all residential waste materials other than natural vegetation has already been prohibited. Agencies and households in these areas have met the challenge of finding alternative waste disposal methods. Experience gained in these areas can help other rural areas address this issue while adequately protecting public health.

85. Comment: The proposed use of “zip code areas” for regulatory control has certain advantages over other approaches. However, because of the vagaries of land use within any one zip code, some significant areas of land may be inappropriately categorized into the highest regulatory tier. Recognizing the difficulty in trying to address this on a statewide basis, we would suggest that air districts be given authority to receive exemptions for specified low density areas within a zip code that may otherwise fall into the highest regulatory tier. With this proposal, air districts would have the responsibility for clear definition and mapping of these exempted areas. (Hemminger-WS7)

Agency Response: We agree. The modified ATCM contains a provision under subsection (e)(5) to allow air districts to request an exemption for sub-areas of a high population density census zip code if they can demonstrate that the population density in the sub-areas is less than or equal to 3.0 people per square mile.

86. Comment: For most areas, defining the population density through this zip code method will work very well. We had shown ARB some scenarios where low population density zip codes could cover a large land area while the bulk of population is centered in one community or along a corridor. The solution is to give the air districts the flexibility to split zip codes so that concentrated communities are not exempted from the ATCM and sparsely, remote areas can be exempted. If the ARB staff or Board is concerned about allowing flexibility that may lead to a dilution of the ATCM, a procedure could be established requiring air districts wishing to create sub-boundaries within a zip code to apply, with accompanying justification, to ARB for approval. Procedurally, this could follow the same process being proposed for exemption of areas where the population density is 3 to 10 people per square mile. (Morgan-OT25, Woolley-WS4)

Agency Response: We agree. Under subsection (e)(4) of the modified ATCM, an air district may specify sub-areas within a low population density zip code (exemption area) where the ATCM prohibitions against burning residential waste and the use of burn barrels still apply. In addition, as discussed in the response to comment 85 above, under subsection (e)(5) air districts may also request exemptions for sub-areas within higher population density zip codes.

87. Comment: The Mariposa County Air Pollution Control District Board understands this issue of dioxin generation and the need to control airborne toxics, but also knows that we're a small rural county with very large open spaces. There are some small pockets of population centers within those open areas that are within the same zip code. The Board would like to be able to define the boundaries of relatively dense population pockets exceeding 10.0 people per square mile, where the regulatory prohibitions would be applied, within those sparsely populated zip codes that would otherwise be exempt from the prohibitions. However, for the converse, where low density areas within the prohibited zip codes could be defined for exemptions, the Board requests a change to modified subsection (e)(5) to make the last word read "ten" versus "three." We think there will be situations where those in a zoning category that equates to 3 to 10 people per square mile in a prohibited zip code could be right across the street from those in the same zoning category in a discretionary exemption area. Two households on the same size lots would be treated differently. In addition most of the zip codes with large expanses of unpopulated area rendering them eligible for exemption, are only populated in the areas with zoning for 20, 40, 160-acre minimum parcels. (Conway-OT12, Stewart-WC59)

Agency Response: As described in the response to comments 85 and 86 above above, the modified ATCM does include provisions for designating sub-areas of census zip codes, both for additional prohibitions, as well as for exemptions. A density cut-point of 3.0 rather than 10.0 people per square mile was selected as the criterion for obtaining exemptions in sub-areas within a census zip code with a population density greater than 10.0 people per square mile in order to ensure that the sub-area was separated from the more densely populated portion of the census zip code with an adequate buffer zone in consideration of the distribution of the population within the region. Requiring the lower population density cut-point, with the coincident greater spacing between households, minimizes the potential for some households in a sub-area to be located right at the border between the exempt and non-exempt portions of the census zip code. In this manner, it ensures that the sub-area is truly remote and that burning will not cause health impacts in the remaining more densely populated portion of the census zip code.

88. Comment: Even though I live in a small town (Willows, population 5000), there are a few residents that utilize burn barrels. Town regulations call for cessation of burning by 2 p.m. and no burning of plastic and garbage. However, the smoke is still an irritant. At times burning continues past 2 p.m. and the fire department needs to be called to get the burners to cease. The town has commercial garbage service at a reasonable price. I see no need for residents in established cities/towns to have burn barrels. Residents in rural areas should be allowed burn barrels, but restricted to type of refuse burned, hours of burning, and no burning within 100 yards of another residence. The latter is the distance in which smoke would be dispersed. (Faust-WC1)

Agency Response: We agree that the burning of residential waste materials other than natural vegetation should be prohibited in cities and towns. We have modified the

regulation to specify that no exemptions will be allowed in incorporated areas, as well as within census zip codes where the population density exceeds 10.0 people per square mile, due to the greater potential health risk posed by residential burning in these high density areas. The modified regulation does allow the burning of paper and cardboard, and the use of burn barrels, in rural areas where the population density is less than 10.0 people per square mile. This is equivalent to a property line distance of approximately 500 meters from the burning waste. A distance of 100 yards (approximately 91 meters) between households results in a significantly greater potential cancer risk at the property line of the household burning waste, i.e. greater than 30 cases per million. Therefore, in consideration of the increasing potential health risks at higher population densities, as well as the potential for lack of alternatives in the most remote areas of the State, we believe the selected tiers represent appropriate cut-points. We have also limited the burning of allowable residential waste materials to permissive burn days to facilitate smoke dispersion.

89. Comment: The exemption for areas where waste pick-up is not available should be limited to houses where driving to a disposal facility would generate almost as much emissions as burning the waste. (Unger-WC30)

Agency Response: Although the modified ATCM no longer uses distance from a waste disposal facility as an exemption criteria, we did evaluate the emissions that would be generated from additional trips as compared to the emissions from a burn barrel. In the Staff Report on page VIII-3, we calculated that emissions from a single burn barrel, burning waste about four hours a week throughout the year, can produce 25 pounds of particulate matter. A household self-hauling in a light duty truck produces annual particulate matter emissions that are 500 times lower than the annual emissions from one burn barrel. Burn barrels also produce air toxics at a much higher level than vehicles, in part because the vehicles have emission control systems which reduce or eliminate toxics. Therefore, driving waste to an approved facility does not generate as much air toxics and particulate matter as uncontrolled waste burning. In the modified ATCM, we focused exemptions on population density rather than on distance to a waste facility or availability of waste service.

90. Comment: It appears from the list on page A-7 of the Staff Report that all of the criteria (and possibly more) must be met in order to exempt certain geographic areas. All of our adjacent and interior communities have low populations, with a small subset of communities having local trash pickup, and a larger subset having local transfer stations. By requiring all of the criteria to be met, some of our communities may not be exempted. We recommend that the subsection (e)(5) be changed to state: "The exempted geographic areas must meet criteria including, but not limited to, any of the following." This would seem to more adequately balance the tradeoff in rural areas between potential air quality health impacts and fire hazard and illegal dumping concerns. (Woltering-WC32)

Agency Response: Rather than have exemptions meet three criteria, the modified ATCM uses a single, population density-based approach, which considers the potential health impacts from exposure to air toxics generated during residential waste burning, as well as

the potential for adverse environmental impacts and the reduced availability of alternative waste disposal methods in the most rural areas of the State. Exemptions will only be allowed in very low population density areas, which can easily be mapped based on population in census zip codes. In these exemption areas, the local fire protection official would be able to require burn barrels if deemed necessary for fire safety. As explained in the responses to comments in Section III.B.6 of this document addressing Environmental Impacts, we believe that applying the population density criterion, with provisions for fire protection official input and a public education and outreach program, will protect public health while addressing fire hazard and illegal dumping concerns.

91. Comment: We support the three exemption criteria as stated in the January 4, 2002 release of the proposed regulation. If the ARB chooses to add the more detailed expression of these criteria proposed by the CAPCOA, they should be added as benchmarks or guidance in the regulation. The ARB should be prepared to supply air districts with maps of population density that may be used in their exemption submittals. (Quetin-WC65)

Agency Response: As described in the response to comment 90 above, the modified ATCM uses a population density approach for determining exemptions. While the approved ATCM does not use waste service availability and proximity to waste disposal facilities as criteria, the air districts could take these into consideration if they choose to designate sub-areas for exemptions or further prohibitions. We completed a preliminary mapping of population density by census zip code to illustrate the areas potentially eligible for exemptions for the public hearing on February 21, 2002. We will continue to work with air districts to finalize the list of census zip codes eligible for exemptions by May 1, 2003. Air districts will have until August 1, 2003 to submit their Requests for Exemption.

92. Comment: Rural areas with low population densities should be considered for exemption from the ATCM. Using a housing density of one residence per five acres would allow rural residents to continue burning, while reducing the bulk of the burning in populated areas. (Goings-WC62)

Agency Response: We agree that housing density should be the primary determinant of exemption thresholds in order to protect public health. However a threshold of one residence in five acres corresponds to a density of approximately 120 households per square mile. At this density, households could be exposed to an additional cancer risk from one burn barrel of approximately 100 cases per million. At this density, the potential for exposure from several households burning waste is also greater, resulting in greater cumulative risk as well. Therefore, in consideration of the increasing potential health risks at higher population densities, as well as the potential for lack of waste disposal alternatives in areas where the population density drops below 10.0 people per square mile, we believe the selected tiers represent appropriate cut-points.

93. Comment: The regulation allows exemptions without clearly specifying the criteria that must be met to qualify for exemptions. Terms such as “reasonable cost and frequency

of service,” “greater than reasonable distance,” and “low population density” are open to widely different interpretations by the air districts. Each air district seeking an exemption will have to assign a numerical value to those criteria and prepare maps of the areas that meet those criteria without any indication of what will be acceptable to ARB. After a few exchanges, ARB will decide the areas to be exempted. Since ARB will decide on the interpretation of the exemption criteria, it would save the air districts time and effort if the regulation included default values for the criteria that would be automatically approved or exempted. Air districts wishing to use other values could present their case to ARB for negotiation according to the procedures in subsection (e). (Zellmer-WC17)

Agency Response: Concerns were raised by many air districts about the lack of specific exemption criteria in the original ATCM language and the difficulty of implementation of the original proposal. Therefore, the modified ATCM includes new subsections (e)(1) through (e)(5), which base the exemption criteria on specific population density. The modified exemption criteria consider potential health risks, as well as the more limited availability of alternative waste disposal options, and potential for adverse environmental impacts in the most rural portions of the State. Under new subsection (e)(9), we will provide air districts with a listing of all incorporated places and the population density within the boundaries of each census zip code contained within each air district. Using these data, each air district can be certain which areas cannot be exempted and which areas are eligible for exemption. With regard to the low-population density sub-areas within a more populous zip code area, we feel it is appropriate to give discretion in implementing the regulation to the APCOs, given their expertise in local air pollution control and their familiarity with local situations.

2) Exemption Review Process

94. Comment: The RCRC was pleased to hear that the ARB is considering making “geographic exemptions” and, possibly, countywide “exclusions” available to air districts. We look forward to reviewing the final regulatory proposal in this regard. The RCRC feels strongly that the air districts provide the most appropriate venue for regulation of residential burning. As such, RCRC would encourage allowing air districts discretionary authority to process exemptions based on specified “findings” in consideration of local conditions. The RCRC believes that this process can be effectively accomplished without the need for formal processing through the ARB. While we have been assured by ARB staff that “exemption requests” would not be unreasonably denied, there is no regulatory guarantee that such requests would be thoughtfully considered and processed in future years. (Callegari-WC41, Hemminger-W41.1)

Agency Response: See response to comment 93 above. The exemption criteria take local population density into account, while providing specific criteria as a benchmark. Air districts are provided with discretionary authority in determining the need for exemptions in the areas meeting the criteria and in electing to subdivide zip codes. Requests for Exemption must be submitted to the ARB for review and approval by August 1, 2003. Since the APCOs are the experts in controlling local air pollution as well as being familiar

with the local conditions, the ARB intends to defer to the judgment of the APCO to the extent it is reasonable, while also ensuring that each exemption request is complete. The air district submittals also provide the information needed by ARB to provide a final map of exemption areas by January 1, 2004, as specified in subsection (e)(13). We believe this provides a reasonable balance between certainty and the exercise of discretion at the air district level on the criteria for the exemptions, while also providing an appropriate level of State oversight.

95. Comment: The proposed regulations undermine local control. To categorically prohibit all residential burning and the use of burn barrels goes completely against the concept of local control. While the proposed regulations offer some exemptions to the prohibition of residential burning, they appear to be so broad that no one can determine at this point whether a given geographical area would be exempt. Since the ARB has the ultimate authority to grant or deny these exemptions, the local air districts are completely at its mercy. (Munger-WC13)

Agency Response: The comment refers to the original exemption criteria which included lack of available service, unreasonable distance to an approved disposal facility and low population density. As discussed in the responses to comments 93 and 94, the regulation has been modified to use specific criteria defined by population density for the exemption areas. As further discussed in the response to comment 94, local control is not undermined. The air districts are given the discretion to designate additional exemption areas beyond those automatically allowed by the ATCM to burn paper and cardboard and use burn barrels. Since the APCOs are the experts in controlling local air pollution as well as being familiar with the local conditions, the ARB intends to defer to the judgment of the APCO to the extent it is reasonable, while also ensuring that each exemption request is complete.

3) Exemption Review Period

96. Comment: We support the strongest restrictions possible on any exemptions allowed, as well as a review of those exemptions every four years, instead of five. (Beedon-WC44)

Agency Response: The modified exemption criteria are designed to provide the most stringent level of health protection in more populated areas, while addressing the more limited potential for community health impacts and the lack of waste disposal alternatives and resources in the most rural areas of the State. The exemption renewal period was modified to 10 years to match availability of updated U.S. Census data. In these more rural areas, population growth is less likely to cause changes in exemption status over a shorter time period. Nevertheless, exemptions must be renewed every five years in any sub-areas designated by air districts. Because these sub-areas are carved out of more densely populated regions, where population growth may be more likely to influence the region, we

agree that a shorter review time frame is appropriate. However, we selected five rather than four years to synchronize with the main 10 year exemption timeframe.

97. Comment: We are concerned about the recent revision to revisit exemptions every 10 years. We think that's too much time. We would encourage you to go back to a four- or five-year time period to revisit those exemptions. (Holmes-Gen-OT7)

Agency Response: See response to comment 96 above.

98. Comment: The exemption period of five years (or whatever time is eventually chosen) should be the maximum allowed, and not automatic. Shorter exemption periods should be allowed if an air district so desires. (Quetin-WC65)

Agency Response: As discussed in the response to comment 96 above, when population density was selected as the exemption criteria, the renewable exemption period was extended to 10 years to match the availability of updates to the U.S. Census by zip code, on which population density is based. We will confirm the eligible areas every 10 years in time for air districts to renew or re-designate exemption areas as appropriate. The air districts are also provided the discretion to designate sub-areas within the census zip codes for additional exemption or prohibition areas, which must be renewed every five years with a demonstration that the criteria for the sub-area is still valid. However, the air districts can always be more stringent than the ATCM by instituting a more restrictive exemption review period, and the ARB staff is prepared to cooperate with the districts in any way feasible.

3. Regulatory Process

a. Required Procedures

99. Comment: Pursuant to the Health and Safety Code section 39665(c), the Staff Report and relevant comments received during consultation with the air districts, affected sources, and the public are required to be made available for public review and comment at least 45 days prior to the public hearing required by section 39666. The ARB held meetings, scoping sessions and workshops as part of the rulemaking process; the last public workshop consultation was held on January 23, 2002. In the workshops, it appeared that no one took the comments down, and there is no evidence that workshop comments were taken at other locations. The California Environmental Quality Act (CEQA) (in Public Resources Code section S21091) requires that all relevant comments must be published and addressed in the Environmental Impact Report (EIR), and failure to comply with this requirement can lead to the disapproval of a project. I'm concerned that there might be issues that have been brought up that have not been addressed, that not everyone is aware of because they were raised in some workshop someplace else. The public must be assured that each comment is given careful consideration in the final document. Without relevant comments being made available, how are the public and affected sources able to be sure their voices were heard? It is the air district's understanding that regulatory departments cannot interpret a statute differently than what the plain language says. The Staff Report (dated January 4, 2002 and released with the public notice of the hearing), did not contain relevant comments received or prepared by the ARB staff during these consultations. (Stephans-WC40, Stephans-OT19, Stephans-WS6)

Agency Response: The basic purpose of the workshops and meetings was to collect information and comments to assist in preparing the proposal and the Staff Report and in development of the regulatory language. Notes were taken by the ARB staff conducting the workshops. Although these notes were not formally transcribed, they provided extensive input to preparation of the regulation and to the Staff Report. The Staff Report, also called the Initial Statement of Reasons for Rulemaking, reflects not only the rationale for proposing the regulation but also addresses all the environmental, economic, health, and other impacts identified by staff and all stakeholders who may be affected by the regulatory proposal, after consultation with those parties.

The Staff Report also invites further written comment and oral testimony at the public hearing. The Staff Report addressed in summary form all the relevant comments made during staff consultations. Although workshops continued after release of the Staff Report, the comments received were similar to those from earlier workshops; thus no significant new issues were identified. In addition, written comments received by ARB prior to the issuance of the 45-day notice were available to anyone who requested them, as discussed in the public notice. All written comments and oral testimony from the public hearing are responded to in detail in this Final Statement of Reasons for Rulemaking (FSOR.) Therefore, ARB has complied with Health and Safety Code section 39665(c). See also the letter dated February 19, 2002, from Kathleen Walsh, ARB General Counsel, to Mr.

Stephans, incorporated by reference herein.

100. Comment: The Staff Report was released at least 45 days prior to the hearing. However consultation continued until the hearing date. If the last public workshop was held on January 23, 2002, and even if the relevant comments were available the next day, the earliest this hearing should have taken place, is March 11, 2002 so that relevant comments would be available for 45 days. (Stephans-OT19, Stephans-WS6)

Agency Response: We disagree. Health and Safety Code section 39665(c) does not require that all public contact be stopped during the 45-day comment period. Rather, it is during the 45-day public notice and comment period before the hearing when a regulatory agency should step up contact with the public in order to bring the comments to bear in its final recommendations to the Board. In practice, the ARB does this on a regular basis, not only with this ATCM, but with all ATCMs and other regulations. Written comments received at this time are also available to the public upon request. Oftentimes, at the hearing, staff brings to the Board recommendations for modifying the original proposal set forth in the 45-day notice, based on comments received and consultations during the 45-day public notice period. These are discussed at the hearing. In addition, if modifications made at the hearing are substantive, a subsequent 15-day public comment period is noticed. The 15-day post-hearing public comment period for this ATCM was opened from May 15 through May 31, 2002, and all comments received are responded to in this FSOR. See also response to comment 99 above.

101. Comment: In a letter dated February 4, 2002, the APCO of Siskiyou County Air Pollution Control District requested a compilation of comments received by the ARB staff during these consultations, as well as a copy of ARB's CEQA equivalency document that was filed with the Secretary of Resources. If such compilation or relevant comments did not exist, then the APCO further requested a written explanation, prior to the public hearing, of ARB's legal reasoning and authority for not complying with Section 39665(c). The air district believes that the plain language of the section means that comments received during these consultations include all relevant comments and not just those received on letterhead. (Stephans-WS6, Stephans-OT19)

Agency Response: A written reply from Ms. Kathleen Walsh, General Counsel of ARB, responding to the request was sent by facsimile and by mail to the APCO of Siskiyou County on February 19, 2002. The letter (which is part of the rulemaking record in this proceeding) included copies of all written comment letters received by ARB prior to January 4, 2002, the publication date of the public notice and the Staff Report, as well as a copy of ARB's CEQA equivalency document. A discussion of the public availability of comments from workshops and consultations, as well as ARB's procedures in complying with Health and Safety Code section 39665(c), is provided in the responses to comments 99 and 100 above, as well as in Ms. Walsh's letter.

102. Comment: We are concerned that the regulatory language for these proposed changes has not been published for public review and comment. Further, should the ARB

Board adopt staff's proposal, we believe that the public interest would be best served by conducting an extensive comment period of 90 days rather than 15 days, as the February 8 proposal differs significantly from that which was extensively publicized and workshopped throughout the State. (Quetin-WS3)

Agency Response: The February 8th proposal referenced in the comment was not the modified regulatory language that ARB staff presented to the Board at the February 21, 2002, public hearing. It is likely a summary of the CAPCOA Board of Director's proposed modifications to the ATCM, which was shared with their members and ARB prior to the public hearing. The CAPCOA proposal was submitted to the Board during the 45-day comment period in a letter dated January 30, 2002. This proposal, which represented the majority position of those officials who would be charged with implementing the regulation, provided the basis for ARB's modified regulatory language.

A copy of ARB staff's modified regulatory proposal was provided at the public hearing. Prior to the 15-day public notice required for modifications made at the hearing, materials from the hearing were available on the ARB website. We also responded to routine requests for information regarding the map of potential exemption areas presented at the public hearing. As required by Government Code section 11346.8, the public comment period on the modifications was opened for at least 15 days, from May 15 through May 31, 2002. However, this official comment period began almost three months after the February 21, 2002 public hearing. Therefore, we believe that interested parties had almost 90 days to review the changes in addition to the required minimum of 15 days to submit comments for consideration by the agency prior to formal adoption of the regulation. Thus, the ARB complied with all statutory requirements and was extremely responsive to the comments received by CAPCOA.

103. Comment: Pursuant to Health and Safety Code section 39665(b)(5), the Staff Report must contain the approximate cost of each ATCM, the magnitude of the risks posed by the substances as reflected by the amount of emissions from the source or category of sources, and the reduction in risk which can be attributed to each ATCM. What is the total cost of the ATCM? (Stephans-WS6, Stephans-OT19)

Agency Response: The numbers, the sources from which they were derived, and the rationale for their calculation were all included in the Staff Report available January 4, 2002. In Chapter VII of the Staff Report, we identified potential costs of the ATCM and gave a range for those costs. The total cost of the ATCM will vary depending upon decisions the air districts make about requesting exemption areas, as well as upon choices individual households make regarding use of different alternative waste disposal practices. Because of this variability, we chose to present a range of costs on a per household level. For local agencies, as discussed in the Staff Report, there may be small, but unquantifiable, costs for public education, enforcement, and implementation. However, we will develop and provide educational materials for use by local agencies as well as support for implementation issues such as exemption area mapping. In addition, the

regulation will be enforced within the context of existing air district programs addressing residential burning.

Chapters IV and V of the Staff Report discuss the emissions and risk associated with residential burning. Emissions are shown on a per household basis, and an estimate of the number of households potentially burning residential waste is also provided. The magnitude of the risks posed by the substances is expressed through the risk assessment. A risk assessment provides an estimate of the probability (or chance) of a person developing cancer assuming a lifetime of exposure at various distances from the single pollutant source: a burn barrel in which mixed residential waste is burned under the scenario described. This is explained in Chapter V of the Staff Report as well as in the Appendices. The ATCM will result in a substantial reduction of dioxins and other TACs from residential waste burning. As discussed in Chapter V of the Staff Report, dioxins from residential waste burning can affect not only individuals located near the source of the burning, but also the broader population due to their transport and deposition onto soil, water, and vegetation. Dioxin emissions from residential waste burning contribute to the global accumulation of dioxins in the environment. Emissions of dioxins from other large sources such as municipal and medical waste incinerators have been controlled. The U.S. EPA estimates that residential waste burning is the largest source of uncontrolled emissions of dioxins (U.S. EPA, 2001b.) Therefore, reductions in the emissions from residential waste burning will reduce the environmental loading of dioxins and further reduce public exposure to dioxins and resultant potential health impacts.

104. Comment: The CEQA requires transparency; therefore, I believe ARB's CEQA equivalency process also requires staff to divulge the numbers they used in all of their calculations. My staff has asked repeatedly for the numbers used in the calculations so that we could estimate our risk, since the District's "Hot Spot Prioritization Threshold" is 10 excess cancer cases per million, not the one excess cancer case as stated in the report to justify the 3.0 people per square mile population density. Although we did receive the information late yesterday afternoon, air district staff hasn't had time to do the risk assessment. I also don't know yet if the information my staff received was sufficient to answer our questions. Since the emission numbers attained during various tests appear to have a low confidence rating based on the large variation in numbers, I request that this Board direct staff to release all calculations, including the numbers used in those calculations, so that the public truly knows the risk and the cost of reducing that risk. (Stephans-WS6, Stephans-OT19)

Agency Response: The data used in the risk assessment calculation includes information on emission factors, burning practices, and potential exposure scenarios. This information is presented in the Staff Report that was made available on January 4, 2002. Chapter IX of the Staff Report contains the literature references used for the report, including the U.S. EPA studies on emissions for burn barrels. Participants in the Residential Burning Working Group, which included the staff of the Siskiyou County Air Pollution Control District, had been advised of the studies and had access since the fall of 2001 to the ARB website, which provides a link to the studies used in the risk assessment. Further

discussion of the U.S. EPA emission factors is provided in Chapter IV of the Staff Report. As discussed in the responses to comments 156 and 218 below, although there was variability in the emission factors for dioxins, all test results demonstrated that there is significant production of dioxins and other TACs when residential waste is burned. Moreover, we used the lower emission factor for dioxins in the risk assessment.

The risk assessment is explained in Chapter V of the Staff Report. The Appendices of the Staff Report contain the input to the dispersion modeling and additional risk assessment results for locations up to 1000 meters from a single burn barrel. The methodology followed the CAPCOA Risk Assessment Guidelines. We used a generalized burning practice scenario and evaluated risk under four different meteorological conditions in four counties with no restrictions on the types of materials burned. These four locations represented meteorologically different parts of the State: Modoc, Monterey, Inyo, and San Diego counties. All of these areas currently allow the burning of household garbage in all or part of the area. The results are similar, despite the meteorological variations, and all scenarios demonstrate the potential for significant health impacts. Further discussion of typical burning practices is found in the response to comment 154 below.

The potential costs are discussed in the response to comment 103 above. The benefit of that cost is reduced potential cancer incidence. There is also a secondary benefit from reducing particulate matter.

105. Comment: Please review your staff's work carefully; have they complied with all of the requirements of the Health and Safety Code? Does the scientific evidence truly warrant the adoption of this ATCM or is it premature?" (Stephans-WS6)

Agency Response: By approving the regulation at the public hearing, it is presumed that the Board has reviewed the work of staff and believes that this ATCM is necessary and not premature. The findings made by the Board in Resolution 02-2 provide support for this conclusion. See also responses to comments 99, 100, 103, and 104 above. We followed the regulatory procedures, provided sufficient information, and demonstrated significant potential health impacts that will be minimized or avoided through implementation of the control measure.

106. Comment: I have more concerns with the risk assessments but time will not permit me to go into greater detail. I would like to reserve the right to add additional comments concerning this subject if the comment period is extended another 15 days. (Stephans-WS6)

Agency Response: Because the modified language for the exemption process considered potential public health impacts as indicated by the risk assessment, comments on the risk assessment are considered germane. The commentor did have additional time to review the risk assessments in the almost three months following the hearing and to comment on them during the 15-day public comment period in May 2002. The modified regulatory language approved by the Board at the February 21, 2002 public hearing was released for

a 15-day public comment period on May 15, 2002 and held open until the close of business on May 31, 2002. The comments and their responses are found in Section III.C of this document. The commentor did not submit further comments during the 15-day comment period.

b. General Approach to Regulation

107. Comment: This is yet another of a multitude of detrimental proposals elicited to justify an agency's existence. Please consider carefully if it is worth breaking yet another thread in the fabric of freedom and common sense for the purpose of promoting the political agenda of the ARB. I request this proposal be rescinded. (Cozzalio-WC34)

Agency Response: The regulation was developed pursuant to the authority of the California Toxic Air Contaminant Identification and Control Program, established under California law by Assembly Bill 1807 and set forth in Health and Safety Code sections 39650 through 39675. The Health and Safety Code contains specific language that requires the development of measures to protect public health from substances that have been identified by the ARB as toxic air contaminants. The Board identified dioxins as a TAC and potential human carcinogen in 1986; benzene, 1,3-butadiene, and PAHs and PCBs were identified as TACs by the Board in 1984, 1992, and 1993, respectively. The development of the ATCM was based upon a scientific assessment of the potential health impacts posed by residential burning and was in accordance with the procedures outlined in the Health and Safety Code. The regulation, as with all regulations, balances respect for personal freedom with the need to provide clean air for all of California's citizens, including those who do not burn, but whose health may be affected by this practice.

108. Comment: I feel your desire to stop all trash barrel burning is infringing upon our rights as Americans. To do so would be to turn our State into even more of a police state than it is now. Are you going to send airplanes up to watch us? People don't like cigarette smoke but you can't take cigarettes out of people's mouths. Do we not even have a right to vote on this matter? (Rumiano-WC38)

Agency Response: See response to comment 107 above regarding the process and responsibility required of, and followed by, the ARB in developing ATCMs.

The Staff Report and the risk assessment modeling provide evidence of the potential health hazards of uncontrolled burning of residential waste. Personal property rights do not override the effects of adverse health impacts on the surrounding individuals and community. Alternatives to burning, both with and without burn barrels, were carefully and publicly discussed and considered. Use of a burn barrel and the outdoor burning of paper, cardboard, and vegetation will be allowed in exemption areas where the potential cancer risk to others is minimized, although we believe it remains a high risk for the household that chooses to burn. However, even in these areas, we will provide public education materials

regarding the potential adverse health impacts of burning residential waste materials. As for surveillance, ARB and the air districts will continue routine enforcement procedures for all illegal outdoor burning. The air districts will also continue to respond to citizen complaints of burning as a public nuisance under Health and Safety Code section 41700.

109. Comment: What has happened to democracy? Why should the ARB have the authority to make the decisions on our burn barrels? This should be voted on by the people. Our rights are gradually being taken away and we are slowly becoming a police state. It's beginning to be a dictatorship with authorities telling everyone what to do. (Linzy-WC45)

Agency Response: See response to comment 108 above.

110. Comment: If this is a democracy inform us of the issues and studies and offer some reasonable alternative options and then let us vote on the prescription. (Schram-WC31)

Agency Response: See response to comment 108 above.

111. Comment: Some law abiding citizens take a dim view of laws that produce no additional benefit to society while infringing on rights and causing unnecessary inconvenience. (Crompton-WC22)

Agency Response: The ATCM is designed to reduce emissions of dioxins and other TACs from residential burning. The ATCM provides a public benefit by reducing exposure to these emissions for those communities and individuals currently allowed to burn residential waste. Reducing children's exposure to dioxins is particularly important, as the Office of Environmental Health and Hazard Assessment (OEHHA) has recently identified dioxins and PAHs as two of the initial five TACs that may cause children to be especially susceptible to illness. In developing the regulation, we considered the availability and cost of alternative methods of waste disposal, and the economic and environmental impacts of the regulation. The goal of the exemptions is to allow limited waste burning to continue in those areas where population density is low and where feasible alternatives for waste disposal are least likely to exist. These exemptions are expected to mitigate the potential for some adverse environmental and economic impacts in areas where they would be most likely to occur, while still reducing public health impacts. The regulation also includes a strong public outreach component to educate the public about the potential health hazards of burning. Helping the public understand the problem encourages respect for and compliance with the regulation.

112. Comment: A law that increases fire hazard, is perceived as having no additional beneficial effect, and inflicts considerable inconvenience will not be well received in communities like ours and tends to arouse feelings of disrespect from otherwise law abiding citizens. (Dahms-WC25)

Agency Response: See response to comment 111 above regarding the need for and benefits of the regulation. In addition, as discussed in the response to comment 52 above, burn barrels will be allowed in exemption areas if the ranking local fire official determines they are needed for fire safety.

113. Comment: Freedom is not easily come by, nor is it easy to keep, and so we have to come to these meetings, we have to appear in front of this body, and we have to allow you to know that we cannot live with this regulation. The vast majority of the people in Plumas County don't want this regulation and won't abide by it. Plumas County should be added to the list of categorical exemptions. We've got 1.6 million acres and only 20,000 people; we don't pose a problem to anybody. I ask you to exercise some common sense and back away from trying to force the rural counties, who cannot afford it, to comply with this regulation. They don't want it. They won't live by it. (Pearson-OT2)

Agency Response: See responses to comments 107, 108, and 111 above. As an air quality agency, it is the ARB's responsibility to be protective of public health based upon sound science and in consideration of the economic impacts of the regulation. There is no provision to exempt an entire county because the population centers within the county would not be equally protected as further explained in the response to comment 126 below. Exemptions to burn paper and cardboard and to use a burn barrel will be automatic in the most sparsely populated areas of Plumas County and can be designated by the air district in other low population density areas.

114. Comment: Compliance will not be practical unless rural, low population density areas are exempted as determined by the local air district. While the concept of improving air quality is certainly an admirable objective, effective implementation requires the cooperation and support of the majority of our citizens. In rural communities, there currently appears to be little support for this measure. The primary reason is a lack of understanding for the need for additional regulation and the inability of the local air district to enforce current regulations, much less create additional unenforceable regulations. It has been our experience that an aggressive information and education program combined with reasonable enforcement can lead to effective compliance. Currently the proposal does not address these issues. (Goings-WC62)

Agency Response: The modified regulation does provide air districts the ability to designate exemption areas in the most sparsely populated regions of their jurisdictions. We agree on the importance of education bolstered by enforcement. Therefore, in the modified regulation, an educational outreach program will precede the implementation of the prohibitions in the ATCM, initially conducted by ARB, and then continued through local programs. The outreach program will be linked to the activities of waste and fire agencies. Helping the public understand the problem encourages respect for and compliance with the regulation. Alternative disposal methods will be stressed along with information on how to contact local service providers. See also the responses to comments 108 through 113 above, as well as the response to comment 115 below.

115. Comment: We don't know how we're going to enforce this regulation, and we don't know what the penalties are going to be. I have no idea who's going to come up to Plumas County as the burn barrel cop and try to enforce this rule. (Pearson-OT2)

Agency Response: The ATCM does not contain any specific enforcement or inspection requirements. Existing inspection and enforcement programs address compliance with residential burning and smoke management programs. The new provisions of the ATCM will be enforced within the context of these existing programs and within existing air district resources and capabilities. Air districts are provided State funding through the subvention process and have discretion in using this funding for enforcement purposes and can apportion funding based on program needs. Air district permits and penalty programs for violations are also possible enforcement and revenue options. Health and Safety Code section 41512 et. seq. authorizes air districts to collect fees for activities related to non-vehicular sources, while Health and Safety Code section 42400 et. seq. provides for civil and criminal penalties for violations of air quality rules and regulations. In addition, as the number of households burning residential waste declines due to the prohibitions of the regulation, we expect that the need for enforcement activities will also decline. See also the response to comment 174 below.

116. Comment: Has anyone given any thought to how a burn barrel ban will be enforced? (Pazdra-WC36)

Agency Response: See response to comment 115 above.

117. Comment: A ban such as this is likely to be unenforceable in our community. (Crompton-WC22, Dahms-WC25)

Agency Response: See responses to comments 111 and 115 above.

118. Comment: In Siskiyou County, the proposed regulations will create undue hardship, adding to already overwhelming waste management regulations that have contributed to a degrading of conditions prior to such regulations being put in place. All this to promote a "concept" that is admittedly unsubstantiated and particularly in this area, probably unmeasurable. (Cozzalio-WC34)

Agency Response: The basis for the ATCM is provided in the Staff Report and discussed in the responses to comments in the Basis for Regulation – Risk Assessment Section III.B.4.a of this document. Reductions in the emissions from residential burning will reduce the environmental loading of dioxins and further reduce public exposure to dioxins and their resultant health impacts. While a reduction in the environmental concentrations of dioxins directly attributed to a reduction in residential burning cannot be quantified, no threshold has been established below which exposure to dioxins is considered safe. Because residential waste burning has been estimated to be the largest uncontrolled source of dioxins, it is appropriate to reduce public exposure to this source.

119. Comment: I compliment you for your patience and graciousness with us, the irate public, at the January 2002 public workshop in Jamestown. We the public want to do the right thing, and to do so as co-participants with our government agencies. We have given you the financial resources to do the tests and give us the facts. If you will not do that how can we co-operate? By failing to give us a say in the issue we are reduced to subjects of a demeaning elitist paternalism. The resentment against which was palpable in the forum. (Schram-WC31)

Agency Response: The purpose of the community meetings was to provide an opportunity for affected residents to learn about the proposed regulation and its basis and to share their concerns and suggest alternatives. We conducted extensive public outreach to obtain input on the form of the measure and solicit residents' concerns. Over twenty public workshops were conducted throughout the State in December 2001 and January 2002. The Staff Report provides the detailed information for developing the risk assessment and the references for the studies of air toxic emissions from test burn barrels performed by the U.S. EPA, which provide the basis for the ATCM. The Staff Report was available at the workshops in January, and was discussed and offered in the public notice that provided information on how to provide public comment. The Staff Report and public notice were also provided to all participants at the December workshops who requested one. Further opportunity for public comment was provided at the February 21, 2002, public hearing, as well as during the 15-day comment period on the modified regulation.

120. Comment: Please recognize that at the community meeting [in Jamestown] there was not one, not even one voice that expressed support for the Board's proposed restrictions. (Schram-WC31)

Agency Response: As discussed in the response to comment 119 above, the purpose of the community meetings was to provide an opportunity for affected residents to learn about the proposed regulation and share their concerns. Efforts were made to reach out to as much of the community as possible. For example, advertisements were placed in local newspapers to alert the public to the meetings. However, attendance at the meetings may not always reflect the full spectrum of community interest and concerns. Although they were not present at the community workshop in Tuolumne County, we have heard from several residents of Tuolumne County who are very concerned about the potential health impacts of residential burning and support the regulation. Please see comments 3 and 4 in the Support Section III.B.1 of this document. Other examples of support for the regulation are also provided in this section. While we would like unanimous support for our regulations, the ARB must sometimes adopt controversial and health protective measures.

121. Comment: Government regulators continue to erode private property owner rights and local controls. We are concerned that the State is providing additional interference in private property rights that should be decided by the local communities. We can foresee a day when not only residential burning, but legitimate, agricultural burning will be restricted or eliminated. (Neilsen-WC55.1)

Agency Response: As explained in the responses to comments 107 through 111 above, governing agencies have the responsibility to take actions to protect public health by regulating private activities that affect the surrounding community. The ATCM for residential waste burning begins at the State level and then is carried out at the local level by the air districts. The Legislature gave ARB the primary responsibility for controlling emissions of air toxics from stationary sources, while sharing the responsibilities for rule implementation with the air districts. See Health and Safety Code sections 39650 through 39675.

The Legislature also gave ARB the primary responsibility to regulate agricultural burning through Health and Safety Code sections 41850 et seq. It is a cooperative State and local program, with federal involvement where land management agencies have fire protection responsibilities. Health and Safety Code section 41850 specifies that ARB can regulate but not prohibit agricultural burning, taking into account local factors and recognizing the importance of a viable agricultural economy in the State. However, because the air is a shared resource, it is necessary to manage the burning that does occur to minimize smoke impacts and ensure public health protection.

122. Comment: I would like to express my opposition to a statewide ban on burn barrels. While there may be a need to prohibit burning in heavily populated counties, Modoc is not one of them. The idea that a "one size fits all" policy should be forced on the entire State is another example of government intrusion into the lives of private property owners. Safe burning is a common practice in Modoc County, and over a century later we still have the best air quality in the State. (Cullins-WC70)

Agency Response: Our risk assessment indicated that a risk of greater than one excess cancer per million exists as far as 800 meters away from a burn barrel. Even in rural Modoc, there are situations where households regularly using burn barrels are located within this distance of each other, thereby creating a potential health risk for their neighbors. While the ATCM establishes a uniform framework to ensure adequate protection statewide, rather than being a "one-size fits all" rule, it also considers potential health risk in relation to population density and allows air districts to designate exemption areas in less dense communities within their jurisdiction. When implemented in Modoc, the ATCM will only prohibit burning within the incorporated boundaries of Alturas. The ATCM gives the air district discretion to prohibit or allow the burning of paper and cardboard elsewhere in the county. In addition, it is important to note that while many areas may indeed demonstrate clean air from a criteria pollutant perspective, dioxins are a toxic air contaminant, and no threshold has been determined below which exposure has been deemed safe.

123. Comment: The risk assessments done for different locations point out that residential burning regulation is not "one size fits all." Local control and input are necessary for the proper implementation of this or any other regulation, especially if implementing the regulation is as complex as this ATCM appears to be. (Stephans-WS6)

Agency Response: There is some variation in the risk assessments due to meteorological factors in different parts of the State. However, the resulting cancer risk numbers are in reasonable range of each other and all scenarios demonstrate the potential for significant health impacts. Air districts are provided with local control and input by determining whether to apply for exemptions or specify prohibitions for additional areas that meet the population density criteria. They also maintain discretion in implementing the regulation. Hence, we believe that the provisions of the ATCM, as approved, balance the need for statewide consistency in protecting public health and local desires for control in decision-making. We will also work with the air districts and other parties to develop an effective public outreach and education campaign prior to the implementation date for the prohibitions and the exemptions described in the ATCM, as well as support air district implementation efforts.

124. Comment: The State Boards make laws regarding northern California that apply to a people they don't know and a land most have never truly toured. Doesn't that come under the heading of "domestic enemy", when you "slit the throats" of the people of the northern part of the State just to make us look like Los Angeles County or San Francisco or Sacramento? The politicians of Sacramento and the United States government should start changing their ways. (Cantrall-OT1)

Agency Response: A Residential Burning Working Group, consisting of representatives from over 25 air districts, both urban and rural, as well as other agencies throughout the State, participated in developing this ATCM. The participants made it clear that the regulation needed to be flexible enough to protect public health yet take into consideration the demographics and natural conditions present at the local level. We held workshops in rural communities throughout the State, and met with waste officials in several of the areas most likely to be impacted by the regulation to better understand local conditions. The risk assessment modeling was also conducted using meteorological data from several different rural areas of the State.

Many air districts throughout the State, both urban and rural, have already taken actions to eliminate residential burning in their jurisdiction. While the ATCM establishes a basic statewide framework to ensure adequate protection for all citizens of the State, it also establishes an exemption process to accommodate differences and challenges in very rural areas.

125. Comment: The ATCM restrictions on open burning are simply not practical in sparsely populated counties. The ATCM will place an unnecessary burden on the counties and their residents; it will do little other than expend county resources to track down a minority of people burning household waste not currently prohibited. Residential burning is a local enforcement issue that can be addressed with a good long-term education program, not additional regulations that the local district will have to somehow enforce. (Stephans-WS6, Waite-WC72)

Agency Response: The ATCM does contain a provision for exemptions in the most sparsely populated portions of the State. However, the prohibitions against burning of residential waste other than natural vegetation are needed to adequately protect public health in the more densely populated areas. The ATCM is a statewide measure designed to provide a common framework for public health protection, while providing air districts the ability to designate exemption areas in their most sparsely populated regions. We believe that education and enforcement go hand in hand. The regulation provides for one year of public education and outreach prior to implementation. It further requires air districts to provide educational materials on the potential health risks of burning to households in exemption areas. A sound education program will help reduce the likelihood that prohibited materials will be burned, reducing the need for enforcement efforts.

126. Comment: I would like to ask you to totally exempt Modoc, Lassen, and Siskiyou. We are grateful that you have given us some leeway in every 10 years, but the way things are going our population is not going to grow. We have no mills left, no business of any kind in those counties and I can't see us growing. So why don't you just totally exempt us. (Cantrall-OT1)

Agency Response: The regulation is structured to provide a reasonable approach for exemptions to provide citizens throughout the State an adequate level of health protection. There are densely populated areas and incorporated places within the three counties the commentor mentions for which the ATCM provides public health benefits. Therefore, it is not appropriate to exempt an entire air district if portions of the air district do not meet the health-based exemption criteria. While the ATCM will not exclude any area from regulation, it does provide exemptions for the use of burn barrels and for the burning of paper and cardboard. The areas eligible for exemption do cover broad portions of these counties where the population is very sparse.

127. Comment: I can understand some restriction on the more populated areas, but have not a clue why the new ruling should pertain to the whole State. Please use some common sense instead of threats, or money, or misunderstanding in this decision. (Ackley-WC54).

Agency Response: See the responses to comments 122 above and 134 below.

128. Comment: At the January 21, 2002 Crescent Fire Protection Board of Directors meeting, the Board of Directors voted unanimously to oppose banning of burn barrels in Del Norte County. It was further stated that because of the remote location and sparse populations, burning should continue to be allowed. Allowing burn barrels and burning in Del Norte County would not cause problems for the remainder of California. From another viewpoint, your regulations also permit exceptions to the proposed ban - i.e. sparsely populated areas, or very remote locations. Therefore, the Crescent Fire Protection District Director's and staff respectfully request that Del Norte County be exempted from this ban and that household trash, etc., continue to be permitted to be burned in a barrel. (Kravitz-WC33, Cox-WC33.1)

Agency Response: See responses to comments 50, 125, and 126 above and 134 below. It should also be noted that air district regulations in Del Norte County already prohibit the burning of household garbage; paper and cardboard are the only materials currently allowed.

129. Comment: Please exempt Lassen County from this regulation. We do not have the air quality problems that many more urban areas have where this ATCM may be more effective. Lassen County already prohibits the burning of plastics, which create many of the substances you are concerned about. Current county regulations allow us to burn only wood and paper products and to use burn barrels. Please consider allowing the air districts the discretion to make exemptions in geographic areas based on specified findings in consideration of local conditions without formal processing through the ARB. Considerations would include population density, what is already banned from burning, and the presence of an educational program regarding potential health impacts from the emissions from household waste burning. (Parks-WC53, Callegari-WC41)

Agency Response: See responses to comments 125 and 126 above. Although county regulations currently allow wood burning, the ATCM would restrict that further to natural, untreated wood. The modified ATCM exemption structure is based on population density and potential health risk and contains a provision to require air districts to provide information on the potential health impacts of residential burning in the 3.0 to 10.0 people per square mile population density exemption areas. In the exemption areas, if the local fire official requires their use, burn barrels can be used.

130. Comment: The Colusa County Air Pollution Control District only becomes involved in residential burning in the event of a complaint, which normally ranges between one and two per year. These complaints occur when items are burned that are prohibited, in accordance with the District's rules and regulations. Any additional restrictions on Colusa County's current allowable waste, which includes cardboard and paper, will result in insignificant reductions in dioxins and other TACs in comparison to the costs that will be associated to the County and its residents. The burning of cardboard, paper, household garbage (free of rubber, plastic, and metals) do not create a nuisance and as a result do not generate the complaints. Additional State regulation is unnecessary in Colusa. (Waite-WC72)

Agency Response: See responses to comments 125 and 126 above. Whether or not perceived as a public nuisance, the burning of residential waste constitutes a significant potential health risk. Paper and cardboard do produce dioxins when burned without pollution control devices. Therefore, there will be a reduction in dioxin production if paper and cardboard are prohibited from combustion in the more densely populated areas of Colusa County, where the risk of exposure to air toxics is highest. Since residents already are not allowed to burn their other household wastes, the prohibitions in the ATCM will only result in adding paper and cardboard to the alternative waste disposal stream. Residents outside the exemption areas will have to use the same alternatives for disposing of these

materials that they use now for the other household waste. Paper and cardboard can also be recycled, shredded and used for composting and animal bedding, thereby reducing potential waste impacts and costs.

131. Comment: You have not conducted any studies of burning in Placer County. Many rural and semi-rural residents do not have reasonable alternatives for waste disposal, and we use burn barrels as a safety measure when we burn vegetation. Therefore, the League of Placer County Taxpayers requests that the rural and semi-rural areas of Placer County be exempted from any future ban on outdoor burning of household waste. (Reemelin-WC27)

Agency Response: See responses to comments 125 and 126 above. The rural areas may be eligible for exemptions to use burn barrels and to burn paper and cardboard, as occurs now, depending on population density within the census zip codes, and in consideration of the public nuisance provisions of Health and Safety Code section 41700. The air district also has the discretion to carve out sub-areas within more populated zip codes for those geographic sub-regions where population is sparse. Placer County currently prohibits the burning of materials other than paper and cardboard; therefore, residents are already using alternative disposal methods for a portion of their residential waste. The alternatives for waste disposal were discussed in the responses to comments in the Environmental Impacts and Economic Impacts Sections of this document, while fire safety issues are discussed in the response to comment 52 above.

132. Comment: The ARB should consult with local, State, and federal fire suppression agencies concerning the potential adverse effects of the ATCM before approving the ATCM and the subsequent burn barrel prohibition. To date this concern has not been adequately addressed by the ARB staff. (Moreo-WC69, Moreo-OT18)

Agency Response: During the development of the ATCM, we conducted an extensive outreach program that involved State and local regulatory agencies, waste management agencies and service providers, fire protection agencies, and other interested parties. These entities participated in the development and review of the necessary surveys and draft reports, meetings and conference calls, workshops, and the proposed regulation through participation in the Residential Burning Working Group. Other information gathering efforts included: 1) a survey of all the air districts in the State to assess existing regulations and practices regarding residential waste burning and burn barrel use; 2) meetings with the CIWMB and numerous local waste management managers to assess existing waste management services across the State and the potential for expanding service; and 3) discussions with fire management agencies within the State to identify potential fire safety and resource management issues. To address fire safety concerns that were raised by some fire agencies, we established a provision in the ATCM that allows fire agencies and air districts to apply for an exemption to use burn barrels when they are deemed necessary. These are more rural areas where population density is less than 10.0 people per square mile and where fire response times may be a concern.

133. Comment: The bottom line is that ARB does have some testimony from the fire chiefs, including a letter from the Lake County Fire Chiefs Association attached to Lake County's letter from the APCO in support of the regulation. The air district very much involves the fire chiefs as well as the community in any kind of rulemaking. (Reynolds-OT22)

Agency Response: The comments of the Lake County Fire Chiefs Association are included in the rulemaking record and are responded to in this document. The air district is commended for its efforts to link the activities of the various regulatory and enforcement authorities.

134. Comment: Counties and air pollution districts have taken adequate action to reduce emissions of air contaminants found to be toxic. The air districts have measures in place to eradicate the burning of the majority of substances found to be toxic. Current local ordinances govern residential waste burning by banning household burning in the densely populated areas. Adding another level of regulation is redundant and ineffective when controls are already in place, including necessary enforcement activities. By piling additional State regulations on top of local regulations, what do you expect to gain? (Neilsen-WC55.1, Stephans-WS6, Wagoner-WS2, Waite-WC72)

Agency Response: The ATCM was designed to afford all of the citizens in the State the same measure of protection from exposure to air toxics from uncontrolled burning of residential waste. It removes the inconsistencies statewide in materials burned, by restricting them to those producing fewer air toxics. While some air districts and local jurisdictions (both urban and rural) had quite stringent provisions, others did not, despite common potential health risks. Unincorporated communities and areas that do not have rulemaking authority will now have equal protection from the public health impacts and nuisance, because the ATCM considers population density and potential exposure risk on a uniform statewide basis.

135. Comment: Because each air district is unique, burn regulations should be left to local control and be based on full scientific and geographic data for those air districts. We urge you to vote against the proposed regulation or, at a minimum, allow air districts the full discretion to adopt and enforce the local regulations. Such regulation should be left to local agencies' authority, for rulemaking based on actual need, in the best interest of the people. The variety of opinions makes the case for local control. (Crompton-WC22, Dahms-WC25, Moreo-WC69, Moreo-OT18, Munger-WC13, Speckert-OT13)

Agency Response: As discussed in the response to comment 134 above, air districts were not consistent in how they addressed residential burning and the types of materials that were prohibited. The ATCM is designed to reduce potential health risks across the State by prohibiting combustion of materials that produce TACs. However, we agree that fire safety issues may vary throughout the State. The ATCM does include an opportunity for fire officials to request the use of burn barrels in exemption areas, where fire response times and fire safety may be of concern. The modified ATCM also allows local discretion

in allowing air districts to determine whether to request an exemption for the burning of paper and cardboard in exemption areas.

136. Comment: The proposed ATCM is extremely broad as currently proposed, and does not adequately address the different conditions in suburban, rural, and remote areas of our State. I feel that each of ARB's regions must be evaluated individually, and that any proposed regulation should consider the unique characteristics of each one. (Mohlenbrok-WC15)

Agency Response: As described in the responses to comments 122, 123, 125, 126, and 135 above, residential burning poses a common health risk statewide. However, the designation of exemption areas responds to local conditions, recognizing differences in population density, and the potential lack of alternative waste disposal options in very low population density areas.

137. Comment: The California Farm Bureau Federation is opposed to the ATCM. We believe that continuing to allow each air district to make its own determination on how to handle residential waste burning is the best option. Why not allow each air district to undertake a review of its outdoor burning rules every five years to determine if there is a public need for prohibitions on household waste burning and the use of burn barrels? This would apply to every air district that allows more than vegetation to be burned at residences. This would allow the people that apparently are scared to come outdoors an opportunity to come to the governing boards of their air districts and make a lot of noise. But in the meantime, these decisions about outdoor burning should be based on landfill capacities and risk analyses that are done right there in that area based on that population. Local criteria could also include waste service availability and any parameter that would be important in that area. It's going to be different for each air district but the local rule would be based on local information and on decision criteria for bans or exemptions that are made locally. (Cory-WC61, Cory-OT10)

Agency Response: See responses to comments 134 and 135 above. As discussed in these comments, air districts have not been consistent in addressing residential burning despite uniform potential health risks. Continuing a process of local review and control every five years does not provide adequate protection across all areas of the State. However, in consideration of the reduced community impacts and more limited availability of waste service in the most rural parts of the State, the ATCM does provide an exemption process that provides air districts with local discretion in determining whether these exemptions are needed. In the higher population density tier of 3.0 to 10.0 people per square mile, we agree that local citizens who are concerned about the health impacts of residential burning should have the opportunity to express these concerns in a public forum. Therefore, exemption requests for this tier must be approved through a formal air district public meeting. We also agree that a periodic review process is beneficial as population density and waste service availability change. Therefore, the ATCM specifies that exemptions must be renewed every ten years, with sub-area exemptions reviewed every five years.

138. Comment: Air districts should maintain local control over the ATCM implementation. They could charge fees associated with a burn permit and use the money to support public education and implementation of the program. (Barkhouse-OT14)

Agency Response: See responses to comments 134 through 136 above. We agree that fees associated with a burn permit could be used to support public education and program implementation. However, a permit program alone does not resolve the issues associated with the burning of illegal materials in a burn barrel, nor reduce the potential health risk associated with the burning of these materials.

139. Comment: The current local regulations for backyard burning are not being adhered to; where burn barrels are allowed, it's too easy to burn the wrong things. It is the responsibility of the ARB to protect the health and vitality of this region, one that is already subject to far too much PM10 emissions from the abundant burning of logging slash and the high incidence of natural forest fires, not to mention the more common automobile and industrial emissions, all much farther from our control. (Brown-WC39)

Agency Response: We agree that a statewide approach is needed. The ATCM initiates a statewide effort to control an emissions source for TACs that has not been consistently regulated throughout the State, despite the potential public health impacts. In addition, we are working in concert with air districts to reduce emissions of all criteria pollutants, including PM10. As described in the responses to previous comments, agricultural and prescribed burning is addressed through ARB's Smoke Management Program. We also have a strong mobile source control program and work cooperatively with the air districts to develop controls for industrial emission sources.

140. Comment: Language should be included in the ATCM that provides for penalties or fines as a means of enforcement. (Sherrill-WC3)

Agency Response: The Health and Safety Code, section 42400 et seq., already provides for civil and criminal penalties for violations of air quality rules and regulations. Therefore, additional language is not needed in the regulation. The regulation will be implemented and enforced by the air districts, and penalties imposed where appropriate.

c. Alternatives to the ATCM

141. Comment: I have provided a copy of the State of New Mexico's open burning regulation for you as it is an excellent example of a well thought out and documented regulation. While this document doesn't ban backyard burning outright, it does list conditions which render it illegal, as in the availability of garbage, recycling and compost services and facilities. There is no reason to burn garbage and recyclables in areas with these services. (Brown-WC39)

Agency Response: While a copy of the regulation was not included with the correspondence from the commentor, we did review the regulations for New Mexico and other states in developing the ATCM. The original ATCM contained an exemption structure similar to the New Mexico approach, which links exemptions to the availability of waste service and to the size of population centers. However, concerns were raised by many air districts about the lack of certainty in interpreting "availability" of waste service and "reasonable" distance to approved disposal facilities. Therefore, under the modified proposal, we considered potential health impacts in populated areas, as well as the likely availability of alternative waste disposal methods in remote rural areas, and the potential for adverse environmental impacts in setting population-based exemption criteria. Implementation of the ATCM may create situations where economies of scale for voluntary or mandatory service can be achieved in communities that previously could not support regular waste service because too many households chose to burn instead of recycling, contracting for curbside service, or self-hauling.

142. Comment: There are many things that are not good for us and yet we all participate in doing them because after studying the alternatives we have decided that they are necessary evils. Tradeoffs must also be considered when it comes to outdoor burning. The question for us should be framed, "What can be done to make this necessary evil more acceptable?" (Schram-WC31)

Agency Response: We believe that residential waste burning is not necessary in light of the available alternatives and the health-protective requirements of State law. We have evaluated the alternatives available today, such as self-hauling and residential waste service, and determined that the ATCM reflects the best available control technology (BACT) for controlling emissions from residential waste burning. State law (Health and Safety Code section 39666(c)) requires the ARB to adopt regulations to reduce emissions of TACs to the lowest level achievable through the application of BACT. Since no add-on control technologies are available for residential burning, the elimination of residential burning and the use of alternative waste disposal options represent the best available control measure.

143. Comment: Study different kinds of burn barrels and quantify the emission results. There may be a reasonably inexpensive alternative configuration that can produce sufficient combustion temperatures to provide a reasonable level of toxic emissions reduction that could meet the public's need to burn and your mandate to reduce those emissions. That kind of government/public partnership will be well received, as the recycling effort was. We want to participate in the reduction of environmental toxins while retaining our sense of control of our economy. (Schram-WC31)

Agency Response: For major industrial sources such as municipal and medical waste incinerators, combustion conditions can be carefully controlled, and the required high temperature (around 1000° Celsius) and residence time can be achieved to destroy the dioxins produced during combustion at lower temperatures. However, this type of controlled combustion is not feasible for small residential burning sources such as

backyard incinerators, burn barrels, pits, or piles. No external control technologies, or changes in burning practices, are available or achievable to reduce or eliminate dioxin emissions from residential burning. However, we agree that public participation in efforts to reduce environmental toxics is important. The ATCM contains provisions for public education and outreach to alert the public to the potential health risks posed by the burning of residential waste and to engage them in finding alternative waste disposal solutions.

144. Comment: Perhaps a better approach would be to utilize your resources to develop designs and recommendations that individuals may follow to voluntarily improve the ability to efficiently reduce emissions once research has proven the need. (Cozzalio-WC34)

Agency Response: See the response to comment 143 above regarding burn barrel design, and comments 134 through 136 regarding the need for a statewide regulation rather than a voluntary approach. We believe that regulation and education go hand in hand. Many citizens acknowledge the message in voluntary programs, but do not act in response without concomitant regulation.

145. Comment: As an alternative to banning burn barrels, you could require a mandatory burn permit program. A permit program would allow burning only on designated burn days. The permit could be accompanied by educational materials identifying better burn barrel design and what can and can not be burned. Your Board could assist in developing this information. (Betts-WC20)

Agency Response: A permit program alone does not resolve the issues surrounding the illegal burning of prohibited materials in a burn barrel. Burn barrels impede the air district inspector from verifying that only permitted materials are being incinerated. The pervasiveness of burning prohibited materials, as discussed in the Staff Report and in the response to comment 50, provides the impetus to prohibit the use of burn barrels. A mandatory burn permit program is one option that could be used by an air district when implementing their burning restrictions. The ATCM requires a permit program or other equivalent method to distribute educational material in areas where exemptions are granted. In addition, the ATCM does require that all burning occur on designated burn days.

146. Comment: Regulation of packaging material is probably more manageable than a burn barrel ban, and would achieve the desired result while circumventing most of the problems of the regulation. (Council-WC64, Crompton-WC22, Dahms-WC25, Mohlenbrok-WC15)

Agency Response: The CIWMB is currently working with packaging manufacturers to develop more environmentally friendly packaging. These packaging systems will be more easily recycled, resulting in less landfill space being used. This effort will facilitate disposal of packaging materials in an environmentally benign manner. While these types of materials may become more easily recycled, the health-based reasons to eliminate burning residential waste remain.

4. Basis for Regulation

a. Risk Assessment

147. Comment: The bottom line is, being good public servants, understanding that the Legislature charged ARB with implementing air toxics control measures, you are going through a process that you have to go through, regarding people's health and emphasizing children's health. I think one of the most sinister things about this particular kind of poison is it causes deformed children (teratogenic impacts.) That's well known. It's just not emphasized because no one knows how to quantify it. No one can get enough data or statistics together, to make everyone feel comfortable asserting these effects to you, but it's fairly well accepted. (Reynolds-OT22)

Agency Response: You are correct to point out that there may be other beneficial health effects and health metrics that the ATCM will help achieve. These include reducing the number of people directly exposed to the cancer risks of several airborne toxics, as well as limiting the additional increases of long-lived toxics in the environment created by uncontrolled combustion.

148. Comment: Recent research demonstrates that burn barrels emit ten to two hundred times as much dioxins on a pound per pound basis as a municipal solid waste incinerator. (Wolbach-WS12)

Agency Response: Thank you for your comment. Emissions from municipal waste incinerators are highly controlled. Residential burning results in an uncontrolled emission of dioxins and presents a significant potential health risk.

149. Comment: Most air districts have established 100 additional cancers per million as an unacceptable risk from a single source and require that risk to be reduced within five years. Some districts require risk reduction, and deny permits, at risks of 10 additional cancers per million. Therefore, throughout California, risks above 10 additional cancers per million are considered significant and in some cases unacceptable. Using these criteria, risks associated with dioxin emissions from burn barrels should be reduced. The greater the distance between the burn barrel and breather, the lower the risk, although the person using the burn barrel is highly exposed. Calculations by ARB staff indicate that at a population density of 3.0 people per square mile, the risk associated with burn barrel use drops to one per million and would be considered insignificant by most air districts. But if you compare the near-source risk estimates that your staff has produced with those from large industrial sources in urbanized areas, the risk estimates from a single burn barrel are almost at the same level as the total contribution from stationary sources in the South Coast Air Quality Management District, where outdoor burning of household waste is not allowed. Therefore, these risk levels from the burn barrels mirror, and even potentially exceed, what we find in our most urbanized areas. As a matter of public health and environmental protection, I think it's urgent that the State move forward on this item and approve the ATCM. (Wallerstein-WC55, Wallerstein-OT6)

Agency Response: Thank you for your observations. We agree that the results of the risk assessment modeling demonstrate that significant potential health risks are posed by the burning of residential waste.

150. Comment: The dietary risk pathway described in the report is highly suspect in its assumptions, and in fact can be shown to be in error. For example, the upper range of the dietary risk pathway assumes that a household produces all of its meat, (beef, pork, and chicken), milk, and eggs, within 20 meters of a burn barrel (an area less than 1/3 of an acre.) This is obviously impossible. If you ban burn barrels, you're not doing it because of health effects according to the model, nor from health effects from emissions. You're doing it for an estimate of dioxin deposition on forage crops that are then going to be consumed by people. The implication in the risk assessment is that human health is going to be impacted by dioxins. But we test for dioxins in food, milk, meat, eggs, and we don't find them at anywhere close to health threshold levels. The risk assessment model is seriously flawed. Ninety-four percent of the risk in that model is dietary, not emissions. (Moreo-OT18, Moreo-WC69)

Agency Response: The assumptions that we made regarding 70-year exposure and the dietary intake are standard according to the CAPCOA Risk Assessment Guidelines, including the use of all pathways in estimates of exposure at 20 meters. These risk assessments also provide a relative perspective on risk from different compounds. The risk assessment components are broken down into contributing pathways with the assumptions defined in the Appendices of the Staff Report. An individual household can subtract pathways that do not apply or scale them according to their relative dietary practices and develop the cancer risk based on their practices. However, the first four pathways are minimum required pathways that cannot be eliminated, according to the CAPCOA Risk Assessment Guidelines. They include inhalation, skin exposure, soil ingestion, and mother's milk. The multi-pathway approach for exposure is important for dioxins because they can accumulate in the fat of fish and animals and be passed on to people when they eat this contaminated food. Therefore, it is appropriate to include the effects of deposition from emissions generated from residential burning on these dietary pathways in the risk assessment.

In addition, as explained in Chapter IV of the Staff Report, although there is uncertainty in the emission factors for dioxins, we used the lower of two factors for dioxins for the risk assessment so as not to overestimate emissions. We believe that the inhalation risks alone associated with dioxins and the other TACs, as expressed in the multipathway analysis, are sufficient to justify the actions that we're taking with this ATCM.

Regarding the dietary pathways, as discussed above, the impacts of dioxin ingestion are cumulative. Although dioxins present in an individual serving of food may be "non-detect" for inspection purposes, these dioxins are long-lived, stable compounds that bioaccumulate in human tissue. Researchers are finding measurable levels of dioxins in human tissue, presumably from exposure over long periods to dioxins in foods, in addition

to exposure through other pathways. One benefit of the ATCM is to reduce the production of dioxin through waste combustion thereby reducing its presence in the environment.

151. Comment: I have some problems with the backyard garden and mother's milk provisions of the risk assessment. The lower range of the risk pathways is shown to be below the level of public health concern. Without the dietary portion of the cancer risk model, the cancer risk chances per million drops to levels that are insignificant to protecting public health. We request that the ARB allow for the time and opportunity to further explore this health risk assessment with ARB staff before the approval of the ATCM. (Moreo-WC69, Moreo-OT18)

Agency Response: The four basic pathways include inhalation, soil ingestion, skin exposure and mother's milk and excludes the other dietary pathways (backyard garden, homegrown meat, eggs, and cow's milk.) In every scenario analyzed, the risk for the four basic pathways combined exceeds one additional cancer per million at a distance of 20 meters. In two of the four scenarios, the risk exceeds 10 additional cancers per million, even excluding mother's milk and the other dietary pathways.

The risk scenarios are developed using one burn barrel as a single point source. Burn barrels are usually found within 60 feet (less than 20 meters) of the house. However, in the case where multiple households are burning in proximity to each other within a community, the risk levels at any point would be compounded by cumulative risk from exposure to many burn barrels. Households that do not burn waste are also being put at risk by their neighbors' use of burn barrels, even when the dietary pathways are not considered. If livestock and food are raised or grown on the non-burner's property, it is being contaminated by airborne deposition from waste burning on neighboring properties. This ATCM is designed to lessen the cumulative impact of these emissions. While there may be some variation in the burning practices or dietary pathways in different households, the cumulative risk can still be unacceptable. Our analysis makes a strong case for reducing or eliminating outdoor residential waste burning to protect human health.

152. Comment: One of the risk assessment pathways is based upon individuals eating 15 percent homegrown vegetables. I believe the risk assessment criteria may be invalid because people are not able to burn residential waste in Siskiyou County when homegrown vegetables are harvested (i.e. during the summer months.) (Stephans-WS6)

Agency Response: The fire season in California usually runs from June through October. There are times when residential burning is allowed by permit during the fire season, but generally speaking it is true that fires are very limited during the months when vegetable harvesting peaks. However, dioxins settle on plants, the soil and in waterways. They are long-lived molecules, present and available for plant and animal uptake no matter the timing of the growing season or harvest. The Staff Report presents sensitivity analysis of the emissions generated from a scenario where no waste burning occurs from June 15th through October 15th. We estimated that a reduction in the period of burning of up to four

months could result in no reduction in potential health impacts up to a 20 percent reduction, depending on meteorological conditions. For only eight months of burning, at every location analyzed, the total cancer risk for all pathways remains well above an additional 100 in a million cases for near-source locations.

153. Comment: As stated in the Staff Report, the California Department of Forestry and Fire Protection usually bans all burning from June 15th to October 15th almost every year. Any change in the time period is usually to increase the burn ban time rather than decrease it. Therefore the risk may be overstated. (Stephans-WS6)

Agency Response: See response to comment 152 above.

154. Comment: I think that the estimates are quite high, overestimating the frequency and the duration of the burn. The estimated burning time of two hours twice a week per household is also questionable. I burn paper and cardboard once every other week. I have timed my burning and in no case has it taken more than 17 minutes from ignition to no longer being able to see heat waves emanating from the top of the barrel. That contrasts with the four hours per week used in the risk assessment. Additionally, my neighbor is a family of four. They burn only paper and cardboard every other week as well. We have timed his burning and it averages 33 minutes from ignition to no visible heat waves being emitted. (Stephans-WS6, Stephans-OT19)

Agency Response: The duration and frequency of any burn is determined by many factors, including the type and amount of materials. The scenario developed for the risk assessment was suggested by the typical burn duration and frequencies described to ARB by staff at the various air districts we contacted. As verification, we looked at the weight of waste generated by households in California and the rate of combustion for the U.S. EPA test barrels and determined that approximately four hours of burning per week would be needed for combustion of the waste. While there are variations for individual households, we decided to use the scenario of two hours per burn and two hours per week.

155. Comment: Has anyone done a study on burn barrels? I see lots of rusty old barrels in the Meadow Vista area of Placer County where I live. Very few are even used, and if they are, not on a daily basis. I recycle everything and burn about once a week. (Whitehill-WC56)

Agency Response: An estimate of 108,000 households burning some form of household waste was provided in Chapter IV of the Staff Report. This number was primarily based on estimates provided by the air districts. However, there is variability in the methods used by different air districts to estimate the number of households burning waste. Some of the air districts reported only the number of burn permits issued. Under current rules in many counties, a burn permit is required only if the household burns waste during the “fire season” (generally June 15th through October 15th.) Therefore it is possible that the number of burn barrels reported is underestimated because it does not include burn barrels used only during the “rainy season” when a permit is not required from the local fire

protection agency. The frequency of burning is dependent upon an individual household's practices concerning waste disposal. See also response to comment 154 above.

156. Comment: Something does not ring true with either dioxins emission estimate (shown in Table IV-4, page IV-7 in the Staff Report) because using either number times the estimated 108,200 households able to burn residential waste (according to Table IV-2, page IV-5 of the Staff Report), the total dioxin emissions in California would be estimated to be 16,230 grams or 541 grams, respectively. The range between these two numbers suggests to me that the numbers used throughout the report vary so greatly that it is impossible to correctly estimate the risk. (Stephans-WS6)

Agency Response: The average emission factor for dioxins determined from the U.S. EPA tests run in 1997 is 30 times that determined from tests conducted in 2000. The variability in dioxin emissions was much greater in the 1997 test series, where an outlying test result skewed the series average. The results of the 2000 series of testing were more consistent with each other. Therefore, for the risk assessment and the calculations of dioxin emissions from outdoor residential waste burning, we used the emission factor of 0.005 mg of dioxins produced per kilogram of waste burned, the average from the series of test burns in 2000. Although we did not use the 1997 test series average emission factor (0.16 mg/kg) for risk assessment calculations, we did report an emissions estimate using that factor in Table IV-4 of the Staff Report for the sake of comparison. The emission factors for the other air toxics were consistent over both series of tests, so the replicates were averaged to give the emission factors reported in Table IV-4 of the Staff Report.

157. Comment: Lassen County has effectively reduced the risks from dioxin emissions from burn barrels through existing regulation of open burning. Additionally, Lassen County has adopted the most restrictive health risk policy in California. According to the District's Policy for Review of Carcinogenic Contaminants, the APCO must deny the Authority to Construct to a new, relocated or modified permit if any carcinogenic air contaminant may occur, unless the applicant substantiates that the impact of emissions from the permit unit will not result in a maximum lifetime individual cancer risk greater than one in a million at any receptor location. Therefore Lassen County should be excluded from the ATCM because existing local regulation is sufficient. (Callegari-WC41)

Agency Response: We disagree that Lassen County has effectively reduced dioxin emissions from burn barrels through its existing regulation. While the air district prohibits the burning of garbage and plastic wastes, the air district's current open burning rules still allow the burning of paper, cardboard, cloth, and wood. We considered potential health effects, as well as the availability of waste disposal alternatives and the potential for adverse environmental impacts in remote areas in determining the applicable population density for exemptions for burn barrel usage and burning paper and cardboard. Because there are more densely populated regions within Lassen County that are still allowed to burn materials prohibited by the ATCM, the current air district rule does not provide an adequate level of health protection. Moreover, one receptor location can be in the plume of

several waste-burning barrels or piles, thereby compounding the potential risk. See also the response to comment 126 above.

b. Other Emission Sources

158. Comment: Emissions from burn barrels are minimal compared to the impacts coming from San Francisco, Sacramento, and the more urban areas of the State (i.e. transported air pollutants.) More focus should be put on controlling those sources of pollution. Burn barrels have been a part of life for people in the rural counties. They represent a very minuscule contribution to air pollution. (Chapman-WC63, Forester-OT4, Parks-WC53, Smith-OT15)

Agency Response: It is important to recognize that while the volume of dioxins emitted from residential waste burning appears small, dioxins in even small quantities pose significant potential health hazards. There is no threshold below which exposure to dioxins has been deemed safe. Additionally, while the amount of all pollutants generated in more urbanized areas is larger, the sources of that pollution are already heavily controlled. Just as any single automobile can be considered "not significant" but still warrant control due to cumulative emissions and overall risk, a single dioxins source also warrants control and reduction of toxic emissions. The U.S. EPA, ARB and the air districts have been increasing the emission controls on point, mobile, and area sources of pollution for decades. As part of our effort to achieve clean, healthful air for the entire State, all uncontrolled sources of pollution offer potential emission reductions. Backyard burning is the largest uncontrolled source of dioxin in the U.S., and it is growing as people move into rural areas. This increase makes it important to achieve emission reductions from this source.

159. Comment: There is such an insignificant amount of pollution from a burn barrel when compared to forest fires. How are you going to control the large amount of pollution from forest fires? While it may be true that per annual pounds of emissions a burn barrel may produce more dioxins than a forest fire, it has not been demonstrated that burn barrels produce more pounds of dioxins than a season of forest fires or controlled burns. How can the public judge the reasonableness of the new mandates without some quantifiable statistics that show how many pounds of a given pollutant we are releasing into the environment per fuel source? (Linzy-WC45, Schram-WC31)

Agency Response: Forest fires are a significant source of particulate matter pollution. However, through ARB's Smoke Management Program, we are working with other agencies and the public to reduce the potential for catastrophic wildfires by providing guidelines to manage prescribed burning and through the support of other non-burning alternatives to reduce fuel loading.

In order to reduce the air quality impacts from prescribed or controlled burning activities, each air district is required to adopt and submit a smoke management program to ARB.

The programs outline how the air districts manage prescribed burning within their boundaries, and include requirements for increased planning, communication, and public notification of managed burning activities, through the use of Smoke Management Plans. These burn plans limit burning to days when the meteorological conditions most favor smoke dispersion. These plans may also require burners to evaluate alternatives to burning which can reduce the emissions from their vegetation management activities. See 17 CCR section 80100 et.seq. for more information on this program.

As shown in the Staff Report in Chapter III, according to U.S. EPA estimates, residential burning is the largest uncontrolled source of dioxins in the United States. As noted previously, it is also important to recognize that while the volume of dioxin emitted from residential burning appears small, even in small quantities dioxins pose a significant health hazard. While the burning of natural vegetation does produce some dioxins, the emissions are much lower than the emissions from the burning of anthropogenic or human-made materials. In addition, the burning of natural vegetation produces different dioxin isomers that are less toxic than those produced when burning household waste.

160. Comment: As stated in Table III on page III-4 of the Staff Report, both municipal solid waste incinerators and medical waste incinerators combined produce almost three times as much dioxin as the worst case U.S. EPA estimated emissions from burn barrels. If dioxins are as bad as this report indicates, then why are these sources allowed to continue to operate? (Callegari-WC41, Stephans-WS6, Stephans-OT19)

Agency Response: U.S. EPA, ARB, and the air districts have implemented control strategies to reduce the emissions of dioxin and other pollution associated with municipal and medical waste incinerators. In 1990, ARB adopted a control measure to reduce emissions of dioxins from medical waste incinerators by 99 percent. At that time, medical waste incinerators were one of the largest known sources of dioxins in California. As a result of this regulation, the number of medical waste incinerators in the State dropped sharply from about 150 to less than 15, as have emissions from this source. In 1994, the U.S. EPA adopted a control measure to regulate municipal waste incinerators. There are only three municipal waste incinerators currently operating in California, and these are required to be controlled to the maximum extent technologically feasible. Pound per pound, burn barrels emit far more dioxin and other toxic chemicals than does a well-controlled municipal or medical waste incinerator. In order to reduce the incidence of dioxin release, we feel that all sources must be evaluated for feasible control measures, including uncontrolled emissions from residential waste burning.

c. Sufficiency of Data and Testing

161. Comment: We've known since the early nineteen eighties that burn barrels are a substantial source of dioxin emissions. This work finally got peer reviewed and published in the year 2000. It's been a well-known fact, among people who have specialized in air pollution control, that residential burning is a major uncontrolled source of dioxin emissions. (Reynolds-OT22, Wolbach-OT23)

Agency Response: Thank you for your comment - we agree.

162. Comment: Data related to the deleterious effects of burning trash, including plastics and treated wastes, is based on laboratory testing and may not relate at all to waste streams in sparsely populated rural communities. Our rules currently ban the burning of garbage, except clean paper and vegetative materials. Therefore, we do not believe the U.S. EPA study is representative for our air district. Prior to banning the burning of paper and cardboard, the Board should direct staff to perform additional, representative, emissions tests on paper and cardboard to determine the emission rates of dioxin and other toxic air contaminants. Therefore, the ATCM should provide allowances for the continued burning of paper and cardboard in the light of the lack of reasonable data with respect to these combustibles. (Amaro-WS5, Barkhouse-WC52, Caseri-WS10, Crompton-WC22, Dahms-WC25, Hemminger-WS7, Hemminger-WC41.1, Speckert-OT13, Stephans-OT19, Stephans-WS6)

Agency Response: As explained in Chapter IV of the Staff Report, we compared the waste stream profile from the U.S. EPA testing with that of the typical waste stream profile of California residents. The percentage of different types of materials contained in the California and U.S. EPA waste streams reasonably correlate with each other. As discussed in the response to comment 50 above, although air district rules in some areas may prohibit some the materials included in the U.S. EPA tests, air districts frequently report the presence of these prohibited materials in burn barrels they inspect. In addition, the study by Nakao et al. (2000) provides evidence that burning even a mix of paper products results in uncontrolled release of dioxins. The ATCM does allow the burning of paper and cardboard in low population density areas where community risk is minimized.

163. Comment: The ARB should conduct a study on emissions from burn barrels and burning different waste types to substantiate the U.S. EPA's burn barrel data. A California study may provide additional data to support the need for this regulation. (Cory-OT10, Cory-WC61, Huss-WC58, Schram-WC31)

Agency Response: We believe that the data currently available are sufficiently robust and support the need for the ATCM, without the need for additional testing. As discussed in the Staff Report in Chapter IV, the U.S. EPA conducted 22 tests (U.S EPA 1997a and Lemieux 2000) to develop emission factors for burn barrels. See also the response to comment 162 above.

164. Comment: While ARB has proposed to begin an air quality monitoring and testing program to collect ambient data for dioxins and other emissions, this program (the

California Ambient Dioxin Air Monitoring Program, CADAMP) is scheduled to be done only in the Bay Area and in the South Coast Basin. CADAMP should be expanded to monitor in the areas that will be most affected by this ATCM. (Cory-WC61)

Agency Response: The CADAMP was established to monitor urban areas for industrial releases of dioxin. The U.S. EPA operates a similar program, the National Dioxin Air Monitoring Network (NDAMN), which is designed to monitor dioxin levels in rural areas. California currently has two NDAMN sites, at Fort Cronkhite in Marin County and Rancho Seco in Sacramento County. CADAMP was designed so the data collected can be easily compared to the data collected through the NDAMN program. However, as discussed in the responses to previous comments in this section, dioxins, even in small amounts, pose a health hazard, and no threshold has been established below which levels are deemed safe.

165. Comment: According to ARB's fact sheet, only now is the ARB developing a comprehensive monitoring and testing program to collect ambient data for dioxins in California. If we haven't monitored for dioxins in rural areas, how can we impose restrictions on backyard burning if we don't know what is measured in the air? (Mohlenbrok-WC15)

Agency Response: See response to comment 164 above. Dioxins are a potential human carcinogen for which no safe level of exposure has been identified and very minute amounts may be carcinogenic. The need for regulation is based on the risk assessment discussed in Chapter V of the Staff Report, which demonstrates a significant potential health risk from exposure to the TACs generated from residential waste burning.

5. Economic Impacts

a. Costs for Individuals

166. Comment: The direct costs of the ATCM presented by the ARB staff in the Staff Report are over-estimated. They assume that people living in remote areas cannot use compactors, compost, recycle, or combine the purposes of garbage trips (recycle or disposal). If your Board is to assure fair and equitable protection for all citizens, the reasons for exemptions need to be examined on an individual basis, carefully justified, and when allowed, must ensure proper education on the risks of burning and disposal of ash. It is worth noting that compactors can achieve volume reductions similar to burning. (Reynolds-WC35)

Agency Response: We believe the range of costs associated with the ATCM implementation presented in the Staff Report is a reasonable estimate. We agree other alternative waste reduction techniques such as compactors, composting, recycling, and combining garbage disposal trips with other trips will all help to reduce the associated costs of the ATCM, as well as assist with landfill diversion. We also agree that education about the potential health impacts of residential burning and the use of alternatives is an important component of the ATCM implementation and have included public education requirements for both the ARB and the air districts in the regulatory language contained in subsections (d)(3) and (e)(10)(B).

167. Comment: Adverse socioeconomic impacts of the ARB's proposed ATCM would be considerable. With an aging population in most rural counties, many residents are unable to physically haul waste materials to a collection facility. These folks would then be forced to pay for curbside waste service in areas where it may be available and this added financial burden could be devastating for many low and fixed income families. Those who are unemployed may also be unable to pay the increased costs associated with the ATCM. (Bennett-WC19, Callegari-WC41, Chapman-WC63, Cory-WC61, Foster-WC5, Frost-WC21, Hemminger-WS7, Munger-WC13, Parks-WC53, Reemelin-WC27, Waite-WC72, Wallerstein-WC55, Woltering-WC32)

Agency Response: The ATCM may have a greater impact on some individuals than others. Individuals who are physically unable to haul their own waste to a collection facility may need to obtain a curbside collection service. If such a service is unavailable, individuals may need to rely on the people that are already assisting them with other daily tasks such as bringing groceries, providing yard maintenance service, or other similar services. It should also be recognized that there are only six air districts in the State that do not already prohibit the burning of some form of residential waste. Therefore, in most areas of the State individuals could continue to rely on those people who are already helping them with the disposal of this portion of their residential waste.

As stated in the Staff Report, a consumer who did not previously contract for waste service could incur new yearly costs for waste pickup of \$96 to \$420 depending upon the cost of local service. If curbside waste service is not available, the cost of self-hauling will vary depending upon the frequency of trips, distance to the landfill or transfer station, and tipping fees. We estimate these costs could range from \$78 to \$520 per year for a household self-hauling all of their waste. These costs would be less for households in the 21 air districts that already prohibit the burning of some forms of residential waste and therefore are already using some form of alternative waste disposal, whether it is curbside pickup or self-hauling. In some areas, there are no additional charges for extra waste cans for households using curbside pickup. In other areas, there may be incremental charges for additional cans. Many areas also charge no fee to dispose of paper products through recycling, which would be the primary form of additional waste disposal. Many of the six air districts that currently have no prohibitions against burning residential waste also have very rural areas that will qualify for exemptions to burn paper and cardboard, thereby minimizing the impact on households that have not had to address costs for waste disposal previously.

Waste disposal is a cost most residents of the State include in their overall cost of living. It is true that this cost may be new to those who previously burned their waste, and it may be more difficult for citizens on fixed incomes, low-income residents, and those who are unemployed to pay this cost. However, as has already occurred in many areas of the State, the disproportionate cost impact can be addressed in a number of ways. One is to reduce the amount of waste generated through more careful purchasing decisions, reuse of certain materials, and recycling. A number of local jurisdictions have “pay as you throw” programs which utilize a sliding scale rate structure, with a lower cost charged for less waste disposed. Other jurisdictions may give a reduced rate to residents with incomes below a certain level. While cost may appear considerable to some people, it should be balanced against the beneficial health effects from not burning.

168. Comment: We use a trash compactor, take our waste to the landfill twice a year, and burn only paper. If burning of paper waste is not allowed, the volume of compacted waste that we would need to self-haul would probably triple, requiring more fuel to transport the material to the dumps, adding additional tonnage to the landfill sites, and increasing the economic burden to many on fixed incomes.
(Foster-WC5)

Agency Response: While the burning of paper and cardboard does achieve volume reduction and reduces the amount of material sent to landfills, it also produces dioxins and other TACs with associated health impacts. As such, it is not an environmentally sound method of waste disposal. On average the CIWMB estimates that paper waste constitutes 44 percent of the household waste stream. However, there are a number of alternative options for disposing of this paper waste

that will reduce the amount of material sent to landfills. Paper can and should be recycled where possible. In addition, the CIWMB is looking carefully at other options for paper waste. It can be shredded and incorporated with other composting materials as well as used for animal bedding. To reduce the number of trips to the landfill or transfer station, residents can combine trips for paper waste disposal with existing trips. See also response to comment 167 regarding cost impacts.

169. Comment: Many people who still burn non-prohibited household waste in Colusa County do so because of the costs of garbage service, or their distance from a transfer station. The ability to burn non-prohibited materials [such as paper, cardboard, cloth and wood and other items listed in the definition of "residential rubbish" in Regulation I of the Colusa County Air Pollution Control District regulations,] can result in a significant reduction in the amount of garbage that needs to be hauled away in each household. (Waite-WC72)

Agency Response: See responses to comments 167 and 168 above. Regulations I and II of the Colusa County Air Pollution Control District rules also currently prohibit the burning of household garbage and plastics; therefore, residents are already using some form of alternative waste disposal for a portion of their waste. In addition, the ATCM provides exemptions that will allow the burning of paper and cardboard to continue in low population density areas, if the air district rules and local ordinances already allow them to be burned. Therefore, those in the exemption areas in Colusa County will still have the option of burning paper waste if they are not able to dispose of it by other means.

170. Comment: Services such as curbside recycling, curbside garbage service, and other waste reduction strategies can be effective in rural population centers, but aren't feasible for many areas. (Chapman-WC63, Goings-WC62)

Agency Response: See responses to comments 167 through 169 above. As discussed in these responses, exemptions will be provided for the burning of paper and cardboard in the most rural areas of the State where these types of services may not be available. In addition, composting of some materials, and self-hauling other materials to landfills and transfer stations are options available where curbside service is not feasible or available.

b. Costs to Agencies

171. Comment: The ATCM will require fire suppression agencies to conduct additional administrative, training, permitting, public education and enforcement responsibilities. This may produce a financial and resource impact to these agencies. The likelihood of finding additional resources is minimal. Sufficient funding to support this ATCM must be a consideration. (Barkhouse-WC52,

Barkhouse-OT14, Callegari-WC41, Cox-WC33.1, Dado-WC12, DelBiaggio-WC57, Goings-WC62, Kravitz-WC33, Moreo-WC69, Neilsen-WC55.1, Pazdra-WC36, Todd-WC2, Waite-WC72, Woolley-WS4, Woltering-WC32)

Agency Response: The ATCM could have small, but unquantifiable, cost impacts on fire management agencies. The main impacts would be on permitting activities, enforcement of complaints that could arise from outdoor residential burning, and dissemination of public education materials. Although many fire agencies have the primary responsibility for issuing residential burning permits, the number of permits may decrease due to the reduction in the number of households allowed to burn residential waste materials. In terms of enforcement, while fire agencies have primary responsibility for fire safety, they often are the first ones to respond to complaints about burning, which frequently are not about fire safety, but the burning of prohibited materials. Some jurisdictions have addressed this problem through a memorandum of understanding between the local fire protection agencies and the air district to allow the fire protection agency to recoup its costs for enforcement through a pass-through of fines assessed by the air district. Most fire agencies have administrative, outreach, and enforcement responsibilities already associated with their existing fire safety responsibilities. As the practice of using burn barrels declines, there should be fewer smoke complaints, fewer responses to escaped fires, and fewer enforcement actions. We will provide the needed public education and outreach materials, and will assist fire protection agencies and air districts with initial public outreach efforts.

172. Comment: The burn barrels we experience almost always have illegal materials in them. There is probably more illegal burning that we have not and will not discover with current resources. With the state of the economy, the air district's resources are not expected to grow. Hopefully the air district's enforcement efforts will not be reduced. (Huss-WC58)

Agency Response: As the practice of using burn barrels declines, there should be fewer smoke complaints, fewer responses to escaped fires, and fewer enforcement actions. We will provide the needed public education and outreach materials, and will assist fire protection agencies and air districts with initial public outreach efforts. Revenue to pay for implementation costs such as education and enforcement may also be collected via permit fees associated with residential burning.

173. Comment: The vast majority of illegal burning complaints to emergency call centers result in the dispatch of emergency response equipment. When assigned to such calls, the affected fire department has moved equipment out of position, limiting its emergency response ability. The regulation appears to place an unwarranted burden on fire agencies. While the Executive Officer may have determined that these burdens as insignificant, the fact is that they are significant to local fire agencies. (Goings-WC62)

Agency Response: As discussed in the response to comment 171 above, the ATCM could result in some small, but unquantifiable, impacts to fire agencies. Once the use of burn barrels has been prohibited, the means of conducting burning of prohibited materials will be substantially reduced, and the number of households burning residential waste should decline. The required reduction of burn barrels, together with an effective education program, should result in fewer illegal burning complaint calls, fewer permits, reductions in escaped fires, and fewer enforcement actions, thereby minimizing impacts on fire agencies.

174. Comment: The cost to air districts to implement the ATCM will not be minimal. With diminishing financial resources amidst an increasing array of unfunded State mandates, many rural counties are simply not able to hire the staff needed for additional regulatory enforcement. The ARB should provide funding and assistance to the air districts, based on their need, to help implement the associated administrative and enforcement costs of the ATCM, including public outreach and education. (Amaro-WS5, Barkhouse-OT14, Cox-WC33.1, Goings-WC62, Hemminger-OT21, Hemminger-WC41.1, Hemminger-WS7, Munger-WC13, Speckert-OT13, Stephans-OT19, Stephans-WS6, Waite-WC72, Woolley-WS4)

Agency Response: The ATCM may pose small, but unquantifiable, costs to air quality agencies for implementation, enforcement, and distribution of educational materials. We are committed to assisting air districts with the information needed to determine exemption areas to facilitate implementation of the regulation. To assist with public education, we will provide the needed education and outreach materials, and will assist air districts and fire protection agencies with initial outreach efforts. An effective public education program will help reduce the incidence of illegal burning, in turn reducing enforcement workload. The ATCM will generally be enforced within the context of existing air district burning regulations. Revenue to pay for implementation costs such as education and enforcement may also be collected via permit fees associated with residential burning and penalties collected for violations. See also the response to comment 175 below.

175. Comment: There should be a State commitment to seek out additional subvention funding to adequately implement the ATCM mandates. (Kehoe WC67)

Agency Response: Air districts are provided State funding through the subvention process. They have discretion in using this funding for enforcement and program implementation purposes and can apportion funding based on program needs. Permit programs and penalties for violations are also a possible source of revenue. Health and Safety Code section 41512 et. seq. authorizes air districts to collect fees for activities related to non-vehicular sources, while Health and Safety Code section 42400 et. seq. provides for civil and criminal penalties for violations of air quality rules and regulations. The ATCM does not contain any specific enforcement

or inspection requirements. Existing inspection and enforcement programs address compliance with residential burning and smoke management programs. We expect that the new provisions of the ATCM will be enforced within the context of these existing programs and within existing air district resources. In addition, as the number of households burning residential waste declines due to the prohibitions of the regulation, we expect that the need for enforcement activities will also decline. See also the response to comment 174 above regarding costs for program implementation and education and outreach.

176. Comment: With the removal of \$5 million of subvention funds in the Governor's budget, I can't see how we can continue to accept more mandated enforcement programs with less money. (Stephans-OT19)

Agency Response: See response to comments 174 and 175 above.

177. Comment: The North Coast Air Quality Management District has been contacting local officials for their support and assistance to write burn permits for open burning. The District has written stringent regulations to control these emissions, however they will not provide manpower or cost recovery for increased expenses. The District already cannot provide timely inspections required by their existing regulations. The ARB is trying to establish regulations that they admit they don't have the finance or resources to enforce. (Cox-WC33.1)

Agency Response: Many air districts already allow the permit issued by local fire protection agencies to serve as "permission" for residential burning under the air districts' open burning rules. As part of the public education and outreach program, we will work with air districts and fire agencies to improve the cooperative aspects of their shared responsibilities. Air districts also have the option to develop permit programs and to assess fees to defray costs. See also the response to comment 175 above.

178. Comment: The ATCM will result in earlier dump closures, costs associated with building new transfer stations, and increased tipping fees or trash pickup fees. (Cox-WC33.1, Kravitz-WC33)

Agency Response: We have determined that the additional municipal solid waste that could be diverted to landfills will be much less than one percent of the existing statewide total. It is true that impacts could be greater in some areas than others, depending on the existing capacities of landfills and transfer stations, and the number of exemption areas requested by air districts. Local agencies could experience increased costs if they decide to expand the hours of operation at a landfill or transfer station to meet consumer demand, or need. Additional costs could also be incurred if a waste agency needed to go through a permit amendment process to expand the allowable capacity of a landfill. It is also possible that a local jurisdiction could elect to build new transfer stations to address increased demand

or better serve outlying residents. Infrastructure costs to establish a small, unattended transfer station are approximately \$10,000. Additional costs of approximately \$20,000 would be incurred for permitting, and costs would be higher for larger, attended facilities. However, discussions with several waste management agencies indicate that many factors would influence the decision to establish additional transfer stations; therefore, the potential for this impact cannot be quantified. Composting, compacting waste, recycling, and careful purchasing to minimize packaging can all help reduce the amount of materials sent to landfills and thereby minimize potential costs for landfill and transfer station expansion. We are committed to working with the CIWMB in their efforts to encourage recycling and other waste reduction methods to address landfill diversion issues.

The ATCM could result in non-mandatory costs to local agencies responsible for waste management services to the extent they choose to provide expanded waste disposal services and to address waste diversion impacts. In many jurisdictions, waste service is already available throughout the area, although in many cases it is not mandatory. Additional households who might opt into service due to the requirement of the ATCM would not have an impact on the local agency. However, the expansion of waste service to areas which were previously unserved could result in increased costs to local agencies to develop new waste hauling contracts and for continued management and oversight. However, the costs of additional waste service could be recovered through waste collection service fees, just as current costs are.

179. Comment: There is inadequate infrastructure to support such a measure without negative effects on the county. The costs of developing such an infrastructure far exceed the benefits of eliminating residential outdoor waste burning which is currently done by a small percentage of Colusa County residents, predominantly in areas of low population densities. There is currently only one transfer station in Colusa County, which is over an hour away for some areas in the county that do not meet the proposed population density exemption level yet do not have the option of garbage service. (Waite-WC72)

Agency Response: Under current air district rules, residents in Colusa County are already prohibited from burning household garbage and plastics, regardless of whether they have garbage service, or how far they are from a transfer station. Therefore, households are already using some form of alternative waste disposal for a portion of their residential waste. The prohibitions in the ATCM will only require that residents who do not reside within exemption areas add paper and cardboard waste to these currently used waste disposal methods. Paper and cardboard can also be recycled, shredded, and used for composting and animal bedding to reduce potential waste impacts and costs. See also response to comment 178 above.

6. Environmental Impacts

a. Waste Management Impacts

180. Comment: With current State requirements to reduce trash flows to landfills, total banning of burn barrels would work counter to this goal and should probably be avoided. We have made an effort to meet the very understandable mandate to reduce our waste stream, in part by burning our household waste rather than send it to the landfill. This further restriction will greatly increase the amount of paper in the system and destroy the already strained wood fiber market. We cannot help achieve a 50 percent reduction in the waste stream if we are not allowed to dispose of paper and wood waste as per our present practices. (Crompton-WC22, Dahms-WC25, Schram-WC31)

Agency Response: When the 1990 baseline year rates of waste generation and waste disposal were developed, residential waste burning was not accounted for in the baseline waste generation rates and therefore was considered to be a method of waste diversion, along with recycling. This did not imply that residential burning was an acceptable form of waste diversion. However, the CIWMB has allowed some waste jurisdictions to recalculate waste generation and waste disposal rates for their respective baseline year to develop a better description of what actually happens to all of the waste generated. The CIWMB also allows rural counties to develop a waste diversion target of less than 50 percent. The CIWMB has not penalized waste jurisdictions with less than 50 percent diversion by 2000 if they can make a demonstration of good faith efforts to encourage and increase diversion with recycling, composting, and other incentive programs. The ATCM does allow paper and cardboard to be burned in exemption areas, if it is allowed by air district rules in effect in 2002. Natural, untreated wood waste is not prohibited from burning in this regulation, provided local rules do not prohibit it. The goal of reducing landfill waste should not compromise the equally important goal of reducing the TACs in the air we breathe.

181. Comment: AB 939, passed in 1989, defined a 50 percent diversion rate. The statute also provided an alternative for rural jurisdictions to seek a different rate than the 50 percent reduction in that diversion rate. Rural jurisdictions can appeal to the CIWMB to seek a reduction in the recycling requirement because of the nature of the rural waste management environment where it's difficult to find alternatives. The CIWMB is working with both populated as well as rural jurisdictions throughout the State to meet that mandate. The CIWMB staff has assisted some jurisdictions in putting an application together to reduce their diversion mandate to something less than 50 percent, in consideration of the difficulties that these jurisdictions face in managing their waste materials. (Leary-OT3)

Agency Response: Thank you for the information.

182. Comment: The North Coast Unified Air Quality Management District Board is concerned that there should be no financial penalties to communities that might slide

backwards regarding their waste diversion percentages because of the adoption and implementation of this ATCM. Humboldt County and other jurisdictions in our air district that have achieved that 50 percent diversion rate should not be penalized because of backsliding as a result of this ATCM. (Morgan-OT25, Woolley-WS4)

Agency Response: We have worked with the CIWMB in developing this ATCM and will continue to work cooperatively with CIWMB staff. While we cannot speak for the CIWMB regarding immunity from penalties or prosecution for any backsliding, staff from both agencies are cooperating in looking at the calculation of the baseline for the diversion rates and at the waste jurisdictions that have applied for a rural rate reduction. See also comment 181 above.

183. Comment: We believe the prohibition of burn barrels will result in significant solid waste facility impacts. These impacts are of great concern to much of rural California. (Hemminger-WS7, Moreo-WC69, Moreo-OT18)

Agency Response: The additional waste to be sent to landfills will be much less than one percent of the current Statewide total, although some counties could see higher impacts, while others may experience much smaller impacts. The greatest potential impact could be seen in the six air districts where there are currently no restrictions on the materials that can be burned and, therefore, where some households may not be using any other alternative waste disposal mechanisms. Some of these waste materials, such as food waste and other organic materials, can be composted and probably already are in many rural households. Much of the other waste such as plastics, cans, and paper can and should be recycled. In the other 21 air districts affected by the regulation, households are already disposing of a portion of their waste through curbside service and self-hauling. The ATCM will require these households to dispose of additional materials, primarily paper and cardboard, through these same non-burning methods. As mentioned in prior comments, we will work closely with the CIWMB to provide education on available alternatives such as increased recycling, composting, and garbage compacting for those jurisdictions. In addition, there are provisions for exemptions in the lowest density population areas to allow the burning of paper and cardboard. The benefits of reducing dioxins outweigh the potential impact on landfill capacity.

184. Comment: We have burn barrels that we haul to the dump, twice a year. In the summer during the fire season we have a dumpster that is emptied every two weeks. At the end of two weeks it is mostly full. That shows you the difference in garbage density, just for one household. There is already a problem with where to put garbage, and this will quickly increase the problem 10-fold in Modoc County. (Ackley-WC54)

Agency Response: Although burning waste may reduce the volume of material, it produces dioxins and other TACs that can adversely affect public health. As such, it is not an environmentally sound method of waste disposal. As discussed in the response to comment 183 above, although some counties may see larger local impacts, statewide the additional waste sent to landfills will increase by far less than one percent. In Modoc

County, about 70 percent of the population will still be allowed to burn paper and cardboard, minimizing potential landfill impacts. In addition, there are other ways to reduce the volume of waste including recycling, composting, shredding, and the purchasing of products that minimize the use of packaging.

185. Comment: All disposal facilities should have bins for recycling paper, plastic etc. If someone living near a disposal facility would accept the part time paid job of tidying the disposal facility, it would be possible to have more facilities and thus less burning, less pollution from vehicles hauling waste to facilities and less expense to rural house holds. (Unger-WC30)

Agency Response: Thank you for your suggestion. We will follow up on this suggestion with the CIWMB staff and with local waste jurisdictions as we coordinate with them during the public education and outreach period.

186. Comment: The ARB hearing notice of January 4, 2002 states that the proposed regulatory action will require households to use alternative disposal methods. Exemptions from the ban do not consider circumstances in communities such as ours where trash pick up is conveniently available to some people, and not to others, depending on where the residences are located, and the condition of roads accessing them. Many parts of the county that are rural or semi-rural do not have curbside pickup as an alternative disposal option. (Crompton-WC22, Dahms-WC25, Reemelin-WC27)

Agency Response: In the form of the regulation originally proposed on January 4, 2002, the exemption areas could be determined by air districts depending on "availability" of curbside waste service and a "reasonable" distance to waste disposal facilities for self-hauling. However, air district staff and others pointed out the ambiguity of "available," which could be interpreted many ways and, therefore, implemented inconsistently throughout the State. The ATCM, as approved by the Board at the public hearing, more clearly defines areas eligible for exemptions. These low population density areas where exemptions will be allowed are those which are least likely to have alternative disposal options. Households in areas that are not exempt and that do not have curbside service will need to continue to self-haul their waste to approved waste disposal facilities.

187. Comment: The air quality and water quality control agencies should work a little more closely. Modoc County is under sanction from the water quality control agency controlling what we take to the dumps, and from the dumps to Lockwood. If the County raises the consumption going to the landfills and the dump sites, then we're going to be fined by the water quality control agency. Of course, consumption is going to go up if we have no burn barrels. Granted, the modified ATCM proposal gives us a little space; give us all of it. (Cantrall-OT1)

Agency Response: Water quality concerns are based on the adequacy of waste management practices at landfills. This is more a function of how the landfill is designed to prevent leaching of waste byproducts into the aquifer, than of the amount of waste going to

the landfill. In Modoc County, Alturas is the only portion of the county that will not be eligible for an exemption. The rest of the county, which includes almost 70 percent of the population, falls into the eligible exemption areas. This will minimize some of the potential landfill increases. In addition, waste reduction and recycling will be encouraged. An educated populace can reduce emissions of dioxins without significantly affecting landfill capacity.

188. Comment: The assumption that local transfer or dumping stations will cover much of the bulk of the disposal material is misguided. For example, at the north end of our forest, within two years the Del Norte County landfill will be closed and all refuse will be shipped to Medford, Oregon for disposal. At our southern end the dump facility will only accept brush during a certain time of the year, so it does not become a fire hazard during the summer months. (Woltering-WC32)

Agency Response: Because the North Coast Unified Air Quality Management District currently allows only paper, cardboard and vegetation to be burned at residences, residents are already self-hauling at least part of the waste generated by their households. This ATCM does not prohibit the burning of natural vegetation at residences and will allow paper and cardboard to be burned in exemption areas. Therefore, the volume of materials to be burned will not significantly change in rural exemption areas. However, the volume of materials (paper and cardboard) that will be prohibited from burning in the more densely populated areas will increase. Since some of the facilities were planned for closure prior to the ATCM adoption, local waste jurisdictions are already evaluating service needs and facility adequacy in areas where population is growing. As part of the yearlong public outreach and education program prior to implementation of the prohibitions, we will work with the CIWMB in their efforts to address local landfill diversion issues and to promote recycling and other waste reduction methods such as composting.

189. Comment: El Dorado County has only one waste transfer station. Recycling programs are not available in the outlying rural communities. Vegetation burning is a cost-effective alternative. (Neilsen-WC55.1)

Agency Response: This ATCM does not prohibit vegetation burning, whether for agricultural or residential purposes. The only change to the practice of burning vegetation from residential properties will be the prohibition on the use of burn barrels to burn this material.

190. Comment: The most efficient means of disposal of tree and brush trimmings is by burning. We do not have the means to buy an expensive chipper, nor space to store it, nor a way to convey it to a shop for maintenance and repairs. Our one-half acre property does not produce enough tree and brush trimmings to justify contracting with a commercial chipping or brush disposal company. (Kahler-WC60)

Agency Response: This ATCM does not prohibit vegetation burning, whether for agricultural or residential purposes. The only change to the practice of burning vegetation

from residential properties will be the prohibition on the use of burn barrels to burn this material. Residential burning will be limited to permissive burn days, a practice that almost all air district rules already impose. Composting can still be practiced on small lots. In residential neighborhoods, neighbors or neighborhood associations can share the rental of chipping equipment for spring and fall clean-up events and use the chippings for garden mulch and composting.

191. Comment: If your Board bans burn barrels, our volume of waste that will have to be disposed of will increase substantially. For example, all envelopes and paper with names, account numbers, etc. will have to be shredded. Burning paper and cardboard in a burn barrel on a daily basis reduces the bulk of domestic waste tremendously and makes the need to take waste to the landfill less frequent. About all that can be readily recycled are newspaper, and certain aluminum and plastics. (Betts-WC20, Knauer-WC8)

Agency Response: Composting, compacting, and shopping to avoid excess packaging are also viable ways to reduce waste volume, thereby reducing trips to the dump. In addition, shredded paper also can be mixed with vegetative waste for composting. Also, in the more rural exemption areas, paper and cardboard can still be burned as an option for residential households.

192. Comment: The bulk of our burning is junk mail. The State and federal government should target the “junk mailers” from this excessive waste to the American public via our mail boxes. (Foster-WC5)

Agency Response: Much of this “junk mail” can and should be recycled. If there is a concern for privacy, mail can be shredded before disposal. Shredded paper also can be mixed with vegetative waste for composting. In addition, as part of the public outreach efforts, we will provide information on how to reduce the amount of junk mail received.

193. Comment: Efforts should be made by the local waste management agencies and the CIWMB to provide new means for recycling of paper products of the junk mail type and any other paper products. Paper and cardboard doesn't generate much money for recycling; it's very minimal. We are quite concerned about the added volume of paper and cardboard that may have to be handled by the local transfer stations and landfills. (Foster-WC5, Kehoe-WC67)

Agency Response: We agree that recycling should be promoted as a method to reduce the amount of waste sent to landfills. We have committed to work with the CIWMB to encourage recycling programs as well as other waste reduction programs. See also the response to comment 183 above.

194. Comment: Our solid waste is currently transferred out of state and more intense recycling is unrealistic. Burning is the cheapest, most effective method of disposing of a huge portion of our trash and with the use of our technology, we should encourage incineration on a larger scale. (Cullins-WC70)

Agency Response: Commercial scale incineration is only effective from an air quality standpoint where sophisticated pollution control equipment is installed. This equipment technology is not available for residential burning. Should air districts decide to permit new municipal waste incinerators, these facilities will be subject to the stringent control requirements and operating conditions of the air district rules and regulations and will be monitored for compliance.

195. Comment: If people are not allowed to use burn barrels or burn a certain amount of waste at home, illegal dumping and illegal waste storage will increase. Some people will burn or dump illegally to avoid waste disposal fees. The increased illegal dumping not only creates visual blight, but also pollutes and poses a serious health threat to the communities in our counties. It will also increase labor for already overtaxed public works departments. Within the past few years some counties have started winning the war on illegal dumping of trash, debris, furniture, refrigerators and derelict vehicles alongside remote roads. Adoption of this regulation is seen as a setback to all these accomplishments. (Amaro-WS5, Barkhouse-WC52, Callegari-WC41, Chapman-WS63, Cory-WC61, Cory-OT10, Cox-WC33.1, Council-WC64, Dado-WC12, DelBaggio-WC57, Frost-WC21, Hemminger-WS7, Kravitz-WC33, Kehoe-WC67, Moreo-WC69, Munger-WC13, Parks-WC53, Speckert-OT13, Waite-WC72, Woltering-WC32, Woolley-WS4)

Agency Response: The ATCM could result in some increases in illegal dumping and/or waste storage by households that refuse to either pay for curbside service, or self-haul their waste to a transfer station or landfill. While illegal dumping is a continuing concern for waste management officials, the ATCM is not expected to result in a significant increase in the small percent of the population that contributes to this illegal activity. The ATCM will not lead to increases in illegal dumping of furniture, refrigerators and derelict vehicles and other such materials as these are already currently prohibited from open burning by all air districts. Further, the prevention of anticipated illegal dumping does not justify the burning of materials that emit TACs with potential serious health consequences.

A strong public education and outreach campaign that emphasizes the options that are available to consumers for disposing of their waste legally can help mitigate the impact of illegal dumping. We will work jointly with the CIWMB to educate the general public regarding the potential health effects of burning and the availability of non-burning alternatives for waste disposal. These include composting, compacting, and recycling to reduce the generation of waste. Education about State and local penalties for illegal disposal will also be undertaken. Prohibiting burning may trigger residential demand for improvements to the waste collection services and facilities. As more alternatives to burning become available, illegal dumping should decrease. In addition, in very rural areas, where the population density is less than 10.0 people per square mile and where alternatives to burning are less available, air districts may obtain an exemption to allow the burning of paper and cardboard. These exemption areas are designed to allow burning in the areas where alternative waste disposal options are not easily or cheaply available, thereby minimizing the potential for illegal dumping and waste storage.

b. Other Impacts

196. Comment: Even though this ATCM is directed towards dioxin and the reduction of people's exposure, there will be the reduction of many other toxic air contaminants such as benzene, 1,3-butadiene, and PAHs. (Morgan-OT25)

Agency Response: We agree that there will be many additional benefits to the ATCM beyond dioxin emission reductions. In addition to the reduction in emissions of many TACs, emissions of particulate matter will also be reduced. The ATCM will also address concerns about children's exposure to burn barrel emissions in light of OEHHA's recent identification of dioxins and PAHs as two of the initial five TACs that may cause children to be especially susceptible to illness.

197. Comment: We only need look to Bay Area counties to find programs that have successfully banned residential burning for decades to see that it can and will work. Innovative programs in the San Joaquin Valley Air Pollution Control District (SJVAPCD), Nevada County, and other areas are making progress towards lessening or removing residential burning as a health threat. The Lake County Air Quality Management District (LCAQMD) ban was implemented after a conclusion that compliance with burning restrictions was not possible when burn barrel use was allowed, and extensive public debate and careful consideration by local elected officials and the public. The ban has resulted in substantial improvement to the environment, health, fire safety and the appearance of the community. (Beedon-WC44)

Agency Response: We agree. Many of these areas have very rural portions, yet have risen to the challenge of reducing or eliminating residential burning. The Bay Area Air Quality Management District does not allow residential burning except when ordered by a fire official for hazard reduction. The SJVAPCD allows only vegetation burning and prohibits burn barrels. The citizens of some incorporated areas in Nevada County requested severe restrictions on residential burning, including vegetation burning, and there is some discussion of extending the restrictions to less dense residential areas. The LCAQMD also bans burn barrels. All of these areas faced initial challenge to their rules but have managed to implement effective programs.

198. Comment: Although the Staff Report notes numerous air quality benefits that would result from a ban on burn barrels, protection of water quality and soil from toxic ash and other water-extracted toxics should be emphasized more. The researchers who originally pointed out the extreme toxicity of burning garbage in burn barrels were seeking a source for observed dioxin water contamination (Lemieux et al., 2000). Protection of water alone could likely justify the cost of implementing alternatives to burning in burn barrels. (Reynolds-WC35)

Agency Response: We agree. As discussed in the response to comment 200 below, dioxins generated from the burning of residential waste can also deposit onto land and water surfaces.

199. Comment: If burn barrels are banned, many rural residents will likely turn to indoor woodstoves as an alternative to the prohibition on burn barrels. This could lead to an increase in indoor air pollutants and an increased potential for chimney or house fires. (Barkhouse-WC52, Hirschinger-OT8, Munger-WC13, Woltering-WC32)

Agency Response: We recognize that there is a possibility that some people might try burning residential waste material indoors, either through woodstoves or fireplaces. As part of the public outreach materials that we will prepare, we will make it clear that this is an inappropriate activity and potentially extremely risky because of the pollutants that can build up indoors and the potential for chimney fires.

200. Comment: By carefully feeding the fire in the barrel, we can create an efficient “blast furnace” effect. This rapidly eliminates undetected moisture in the burn materials and dries the materials for more efficient burning. Pollutants that would otherwise escape into the air by inefficient burning are reduced to ash and remain in the barrel. The quantity of ash is so insignificant that ground disposal of the ash results in none or minimal pollution of the ground (less than if a wildfire had burned over the area). (Kahler-WC60)

Agency Response: Dioxins are optimally formed when combustion temperatures are within a window between 250°C and 700°C. They can only be minimized or eliminated through careful control of combustion conditions, including maintaining combustion temperatures at approximately 1000°C. For major sources such as municipal and hospital waste incinerators, combustion conditions can be carefully controlled, and the required high temperatures and residence time can be achieved. The “blast furnace” effect described in the comment using additional oxygen and continuous heat may speed combustion and efficiently reduce the volume of ash waste, but it would not achieve and maintain the needed high temperatures to effectively control emissions of dioxins. Dioxins formed during burning may also be found in the residual ash of a burn barrel. This ash can then be resuspended into the air by mechanical or wind disturbances; be inhaled; redeposit on food sources, skin or clothing; leach into the groundwater or run off into surface water. From there, the dioxins can enter the food chain and ultimately be biomagnified in human tissue.

201. Comment: Any expansion of current garbage routes will result in an increase in emissions of diesel exhaust, which is also listed as a TAC. In many instances, this increase in diesel and other emissions may result in a higher release of toxic contaminants and increased cancer risk than would result from the burning of household waste. (Barkhouse-WC52, Cory-WC61, Hemminger-WS7, Munger-WC13, Parks-WC53, Speckert-OT13, Waite-WC72, Whitehall-WC56)

Agency Response: Currently, all but six air districts already have restrictions on the types of residential waste materials that can be burned. Therefore, residents in most areas are already using some form of alternative waste disposal. Where neighboring households already have waste hauling service, or residents self-haul a portion of their residential waste already, the increased emissions from vehicles will be negligible. Where new service is required, or a residence begins to self-haul their waste, the emissions associated with increased vehicle miles traveled from waste service vehicles have been estimated. In Chapter VIII of the Staff Report, we evaluated two scenarios for waste-hauling vehicles to compare with PM10 emissions from a burn barrel. PM10 factors were selected because several of the toxics produced by burn barrels and by vehicles are particulates. In the first scenario we calculated emissions for a diesel-powered refuse truck. A refuse truck travelling 100 miles a week, or 5200 miles per year, results in only slightly more PM10 emissions than the annual emissions from one burn barrel. Therefore, improved curbside waste collection service serving multiple households would reduce particulate matter emissions as compared to burning waste in a burn barrel. In the second scenario, we calculated emissions from a light-duty truck hauling a household's waste 20 miles per week, or 1040 miles per year, and found the emissions to be about 500 times smaller than the PM10 emissions from one burn barrel on an annual basis. In some cases, the household already uses a vehicle to haul waste it would not otherwise burn. Hence it is possible that the same number of vehicle trips would occur as now for a single household, but additional waste would be hauled during those trips.

Depending upon location within the State, potential cancer risk from exposure to residential waste burning at a near-source location (within 20 meters of the burn barrel) ranges from approximately 170 up to 2300 additional cancer cases per million. The cancer risk from exposure to diesel particulate matter (diesel PM) from vehicles has a very large range, depending on the source of the traffic and the number of vehicles involved. We calculated the risk range from diesel PM for two source scenarios. Within 20 meters of a truck stop or a low volume freeway, the risk for exposure to diesel PM ranges from 25 to 200 additional cancer cases per million, which is lower than the risk from near-source exposure to one burn barrel. Therefore, eliminating or curtailing outdoor waste burning will reduce the overall cancer risk from air toxics, despite the addition of new vehicular emissions.

202. Comment: The air pollution impacts from the increased vehicle miles traveled uses 2004 emission factors for the pickups and waste service trucks that would be handling the increased garbage collection service and increased trips associated with taking garbage to landfills and collection sites. Emission factors should reflect the age of the vehicles that would be used for these trips; these trucks would likely be 10 to 20 years older than a 2004 model. (Cory-WC61)

Agency Response: The emission factors used in the analysis presented in the Staff Report reflect the average emissions across the full age spectrum of pickups and waste service trucks that are expected to be on the road in 2004, not emission factors only for model year

2004. Therefore, the emission estimates reflect the presence of both older and newer vehicles.

203. Comment: In some areas, where it is not congested, burn barrels are needed for those with limited physical abilities. The county dump is far away and a hardship for those who have limited mobility. In areas where curbside service is available, there are many households where the inhabitants cannot physically move waste cans to the curb because of steep terrain or extensively long driveways or paths. (Bissett-WC37, Reemelin-WC27)

Agency Response: There are some exceptional situations where there may be a physical hardship. In these instances, residents could rely on the people that are already assisting them with other daily tasks such as bringing groceries, providing yard maintenance service, or other similar services. It should also be recognized that there are only six air districts in the State that do not already prohibit the burning of some forms of residential waste. Therefore, in most areas of the State, these individuals could continue to rely on those people who are already helping them dispose of some of their residential waste materials. It does not make sense from a public health standpoint to allow significant emissions of dioxins because of a few unique hardship cases.

204. Comment: If cardboard and related materials can not be burned, they will have to be taken to the landfill. This will result in more traffic at busy intersections, and reduced road safety. This may have an especially large impact on elderly people needing to take their waste to the landfill. (Forester-OT4, Foster-WC5)

Agency Response: For households no longer allowed to burn their cardboard or related materials, there may only be an increase in the amount of material to be transported to the landfill as these households must already transport a portion of their waste to an approved disposal facility. This may not translate into increased frequency of trips. For some of these households, there are existing waste pickup service routes that already serve their neighborhood, although the household may not currently subscribe. No additional trips would be needed if the household switches to the collection service. Shredding for composting or using a trash compactor are other options that may lessen the need to take waste to the landfill. We will be working in conjunction with the CIWMB to encourage households to "Reduce, Reuse, and Recycle" to lessen the amount of waste generated. In addition, trips to the landfill can be combined with other trips, or neighbors can pool resources and use one vehicle to take the paper waste from more than one household. Therefore, the increase in traffic on a particular road or at any intersection is not likely to be significant.

205. Comment: Since many vehicles will be traveling on unpaved roads, fugitive dust emissions should be included in the potential air pollution impacts. It is imperative that while in a rush to take care of one air pollution problem (dioxin) we do not create an even bigger problem (increased emissions from other sources.) (Cory-WC61)

Agency Response: As discussed in the response to comment 204 above, the need for disposal of additional waste may not necessarily result in an increase in the number of trips to dispose of the waste. In the case where the number of waste disposal trips does increase, they will in many cases occur on paved, rather than unpaved roads. Therefore, emissions from travel on unpaved roads would not necessarily increase substantially. While in some cases there may be an increase in unpaved road emissions for individual households, overall the ATCM will reduce both PM10 and dioxin emissions.

206. Comment: The proposed ATCM serves no effective purpose in Lassen or Modoc Counties and in fact will result in the many negative impacts including increased illegal disposal of solid waste on public lands and along roadways; stockpiling of waste materials on private property; vector propagation; driving emissions over the distance to legal disposal sites; increased diesel emissions; indoor burning of waste materials as a convenient “burn barrel alternative”; increased wild land fire dangers; costly fees on fixed/low-income households; inability to self-haul; pressure on existing waste handling facilities; and reduced landfill capacity. (Callegari-WC41, Moreo-WC69)

Agency Response: Each of these negative impacts is addressed in response to other comments in this document. In both Lassen and Modoc Counties, significant health benefits will be realized. In developing the regulation, we considered the emissions and associated potential health risks of residential waste burning, the availability and cost of alternative methods of disposal, and the economic and environmental impacts. With the consideration of the exemption process that is included in the regulation, we believe the regulation provides a safe, effective, and less hazardous alternative to burning.

c. Balancing Impacts

207. Comment: You have addressed the issue of fire safety in a reasonable compromise; this should be satisfying to the various Fire Districts. (Wolbach-WS12)

Agency Response: Thank you. We agree that the exemption provision which allows the use of burn barrels if this practice is deemed necessary by the local fire agency creates an appropriate balance between fire safety and the need to reduce public exposure to the potential health impacts of residential burning.

208. Comment: The residential burning ATCM is less restrictive than the ATCM adopted in 1990 by your Board regulating hospital incinerators. The Lake County Air Quality Management District actions required as a result of that 1990 ATCM closed a hospital incinerator with dioxin emissions less than three typical household burn barrels (See Attachment C of Reynolds-WC35). Because the risks posed by burn barrel use are relatively high and the costs of alternative disposal methods are relatively low, a total ban on both the use of burn barrels and the burning of garbage in favor of more healthful alternatives is a cost effective and reasonable goal. (Reynolds-WC35)

Agency Response: We agree that the ATCM is cost effective and reasonable. Like the hospital waste incinerator ATCM adopted by ARB in 1990, its aim is to reduce the cumulative environmental and public health impacts associated with dioxin emissions and exposure.

209. Comment: We take exception to the across-the-board statewide prohibitions that would be imposed by the proposed regulation without due regard to local conditions that exist in many rural counties. The adverse public health and environmental consequences of the regulations, in many rural areas, would greatly outweigh any incremental benefit that may accrue from a slight reduction in dioxin emissions. (Barkhouse-WC52, Hemminger-WS7, Hemminger-WC41.1, Munger-WC13)

Agency Response: While the reduction in dioxin emissions from residential burning may appear small, control of this source reduces not only neighborhood scale impacts, but also broader community level exposure. A person continues to accumulate dioxins over a lifetime. Current average body burdens are close to levels at which effects on the immune system occur and pose an unacceptable cancer risk. Countries around the world, including the United States, have recognized the serious public health threat posed by dioxin emissions. Further reductions to minimize lifetime exposure are dependent upon eliminating such sources as residential burning.

However, although we focused on dioxins and the five other air toxics with the highest cancer risk potential in determining risk from exposure, the other pollutants produced by household waste burning also have individual and community health impacts. Dioxins are not the only air toxics emitted by uncontrolled burning of mixed household waste, and their production and dispersion into the environment and the food chain are not the only reason for this regulation. In addition to dioxins, the testing conducted by U.S. EPA measured emissions for over 50 volatile organic compounds, over 90 semi-volatile organic compounds, as well as overall particulate matter (both PM10 and PM2.5.) The U.S. EPA also measured the ash from the burns for concentration of 25 metals, some of them hazardous.

The exemption provisions contained in the regulation are included in recognition of waste disposal challenges in rural areas. The Board approved modifications to the January 4th proposal that reflects the recommendations of the air districts and other commentors. The modified exemption approach considers potential health risks with exposure and population density at the local level. Some limited exemptions will be allowed in very rural areas, at population densities where the potential for adverse impacts from illegal disposal, waste storage, and fire escape may be more of a concern. These impacts are discussed in the previous responses in this section. On balance, we believe that the approved regulation is the best achievable control of reducing air toxic exposure, reducing adverse health impacts and limiting other environmental impacts during program implementation.

210. Comment: The fire suppression benefits of burn barrels must also be considered. In terms of fire safety, the benefits of this simple technology in rural areas clearly outweigh the comparatively minimal risks of any emissions-caused health effects. The use of burn barrels is an appropriate environmentally benign method in rural and timberlands of the State, for disposing of paper, cardboard and other combustible waste. We believe the prohibition of burn barrels will result in increased wildland fires, illegal dumping and significant solid waste facility impacts. These impacts are of great concern to much of California. (Moreo-OT18)

Agency Response: We have evaluated the alternatives and believe that restricting the use of burn barrels is the best available control technology for reducing air toxic emissions from residential waste burning. As discussed in the response to comment 50 above, air district inspectors report that they consistently find mixed household waste burned in burn barrels, even in areas where mixed waste combustion is illegal. The burn barrel is not environmentally benign when used to burn these materials; there is no technology that can be applied to reduce or eliminate the production of TACs when residential waste is burned.

The potential for wildland fires is discussed in the responses to comments 49, 52, and 55 above. We believe that the risk of wildfire is no greater by restricting vegetation burning to piles on the ground (already a common practice in most areas.) For extremely rural areas where the risk to neighbors from air toxics exposure is greatly reduced, the ATCM does allow limited exemptions to burn paper and cardboard and vegetation outdoors at residences, and to use burn barrels. Fire officials will have a role in determining where burn barrels must be used for fire safety purposes. The potential for illegal dumping and solid waste impacts is discussed in the responses to comments 183 and 195. The goal of the exemptions is to allow burning of paper and cardboard in the lowest population density areas where feasible alternatives to waste disposal may not be readily or cheaply available, thereby mitigating the potential for the adverse impacts described in this comment. The regulation, therefore, represents the best achievable method for producing a statewide health benefit that outweighs the impacts listed by the commentor.

211. Comment: As noted in the Economic Impacts section of the Staff Report, it will potentially cost consumers without current waste service from \$96 to \$420 annually to comply with the regulation. Most consumers are willing to pay to protect and improve the environment. Unfortunately, all of the pertinent risk and benefit factors have not been evaluated sufficiently enough to justify this proposed ATCM as currently structured. (Cory-WC61).

Agency Response: As discussed in the responses to comments 209 and 210 above, the ATCM will result in a significant reduction of dioxins and other TACs from residential waste burning. By completely eliminating garbage burning, and strictly limiting paper and cardboard burning, dioxin and PCB production through mixed waste burning is further reduced.

In developing this regulation, we evaluated the potential economic impacts and/or benefits on businesses, air, waste, and fire agencies, and private individuals. The regulation may provide increased business opportunities for waste pickup services, landfill operators, and recycling center operators to provide expanded waste disposal services. The economic impacts on air, waste, and fire agencies are discussed in the responses to comments 171 through 179. We are committed to providing support to these agencies through assistance in program implementation and through development of public education and outreach materials. The economic impacts on individual households are discussed in the responses to comments 166 through 170 above. The cost to a household for using an alternative means of waste disposal "buys" the benefits of reduced health risks for individuals that burn waste as well as reducing their neighbors' exposure and reducing pollutants in the ambient environment, not just the air.

The regulation was also evaluated in terms of a wide variety of potential adverse environmental impacts including waste diversion rates, landfill capacities, illegal dumping, illegal waste storage, indoor garbage burning, and increased motor vehicle emissions. The potential for these impacts is discussed in the responses to previous comments in this section. These impacts were evaluated in the context of the exemption provisions of the regulation that will allow the burning of paper and cardboard and the use of burn barrels in the most rural areas of the State. In comparing the potential health risks of residential burning with the availability and cost of alternative methods of waste disposal, as well as other economic and environmental effects, we consider the ATCM to be environmentally, technically, and economically feasible and that all appropriate risk and benefit factors have been sufficiently evaluated and addressed.

212. Comment: The ban on burning would impose greater health hazards and physical hazards to Placer residents than the ARB staff concerns of toxic air contaminants. We request that the ARB postpone the regulation and conduct a thorough and further study of the negative impacts we have outlined. (Reemelin-WC27)

Agency Response: We disagree. See the responses to comments 209 through 211 in this section.

7. Staff Report and Other Miscellaneous Comments

213. Comment: Illegal dumping on federal land could easily result from this burn barrel ban and this is not covered as an added cost to federal land management agencies in the Staff Report (page VII-5). This illegal dumping could end up in wild areas (e.g., ravines/canyons), in private dumpsters within campgrounds or administrative sites, or along roadsides. In addition to the removal of the material is the added responsibility associated with sifting through the refuse to determine and document any evidence of possible hazardous materials and then disposing of these materials. In the past, the documentation of illegally dumped evidence and enforcement of issued citations has resulted in searches in Crescent City for the cited subjects of illegal dumping. (Woltering-WC32)

Agency Response: It is true that public land management agencies could incur some costs to remove additional illegally dumped materials and dispose of them properly. In some cases, land managers will be able to prosecute to recover costs through fines and penalties. However, while illegal dumping is a continuing concern to these agencies, the ATCM is not expected to result in a significant increase in the small percent of the population that contributes to this illegal activity. The ATCM also provides exemptions for the most rural areas of the State where households may not have alternative waste disposal options and therefore might resort to illegal dumping. In addition, educational efforts prior to rule implementation will focus on this illegal activity so that individuals will be reminded not to tolerate this behavior and to work with each other to deter it. We will also work with the CIWMB and local waste agencies to encourage recycling and other acceptable waste disposal alternatives.

214. Comment: Another waste disposal alternative used during the six month fire restriction period was the piling of the burnable material until it could be burned later in winter. This resulted in potential health problems, along with a fire hazard problem (which is not included in the Waste Storage section on pg. VIII-3 of the Staff Report.) (Woltering-WC32)

Agency Response: That section of the Staff Report does refer to potential health hazards created by increased storage during inclement weather. You are correct that the stockpiling of waste may also occur during extensive fire restriction periods. As discussed in the response to comment 213 above, the ATCM allows exemptions in those areas where households may be most likely to stockpile waste due to lack of alternatives. In addition, the volume of waste that could potentially be stockpiled should decrease as residents switch to non-burning alternatives for disposing of their household waste year-round. Further, in California, putrescible waste cannot be left on a property for more than one week. Legally, the fire official can order the waste to be burned if it creates a fire hazard that cannot be removed by any other means. The ATCM does not override the fire official's authority and does not apply to open fires ignited at the direction of a fire official for fire hazard prevention.

215. Comment: Table IV-2 on page IV-5 of the Staff Report indicates that Amador County's local estimate of number of households actually burning waste outdoors is 1,800. This was the air district's minimum estimate for burn barrels in the county. That number is probably higher. Residences also burn waste in piles on the ground. The air district does not have a good estimate of the number of residences burning waste. (Huss-WC58)

Agency Response: The numbers reported to ARB for the Staff Report were the best estimate of the air district staff at the time. Some air districts included only the number of households with a burn permit; others estimated from their knowledge of local populations and burning practices. The numbers also assume that there is only one burn barrel per household; air districts have informed us that sometimes there is more than one barrel per household. If 1,800 represents the minimum number of households burning waste, then any additional burning would be further justification for the control measure.

216. Comment: There are far fewer burn barrels in Lassen County than you have projected, 774 compared to 2500 that the State has assumed are present. (Parks-WC53)

Agency Response: As stated in the response to comment 215 above, the numbers reported to ARB for the Staff Report were the best estimate of the air district staff at the time. However, regardless of the number of burn barrels that are actually present in each air district, the emissions from the burning of residential waste from even a single burn barrel poses a potential health risk to the surrounding community.

217. Comment: Item B.1 on page VI-3 of the Staff Report indicates that the dioxin emissions from vegetation are lower than manmade materials. It would be helpful to cite the source(s) substantiating that information and expand the discussion by tabulating some of the data. (Huss-WC58)

Agency Response: Recent work by Nakao et al. tested a variety of materials under conditions similar to those found in a burn barrel. Materials tested ranged from dead leaves and natural wood to plastic-containing waste. The emissions from plastic-containing waste were one to two orders of magnitude higher than the emissions from the vegetative materials tested.

218. Comment: There is a discrepancy in the ATCM Staff Report regarding national dioxin emissions and California dioxin emissions from residential waste burning. On page III-4, the Staff Report cites a U.S. EPA reference (U.S. EPA, 2001a), which indicates national dioxin emissions from backyard refuse barrel burning to the air are 628 grams per year. On page IV-7 of the Staff Report, ARB's estimates of dioxin emissions from outdoor residential waste burning are calculated to be between 0.005 and 0.15 grams per household per year. Multiplying ARB's emissions estimates by the 108,200 households estimated to burn residential waste results in total California residential waste dioxin emissions of between 541 and 16,230 grams per year. How can this be? The range

between these two numbers suggests that the numbers used throughout the report vary so greatly that it is impossible to correctly estimate the risk. What amount of emissions are we eliminating by implementing the proposed ban and at what cost to the public? (Stephans-WS6, Stephans-OT19).

Agency Response: The waste burning emission estimates of 0.005 and 0.15 grams/household/year, provided in the Staff Report on page IV-7, Table IV-4, were based on the emission factors of 0.005 and 0.16 mg/kg, reported by Lemieux (2000) and U.S. EPA (1997a), respectively. These emission estimates are for total dioxins, unadjusted for toxic equivalency. The dioxin emissions reported in the Staff Report on page III-4, Table III-1, are toxic equivalency (TEQ) adjusted values as reported by the U.S. EPA (2001a). The TEQ values represent total dioxin concentrations adjusted to the toxicity of the most potent dioxin congener, 2,3,7,8-tetrachlorodibenzo-p-dioxin, which is about 1/65 of the total dioxin emissions factor. In addition, the TEQ values shown in Table III-1 were calculated using the lower and more recent emission factor. Therefore, the respective emissions for 108,200 households statewide, calculated on TEQ basis for comparison with the estimates in Table III-1, would be 8.3 grams per year.

We also used the lower emission factor for dioxins in the risk assessment modeling, rather than the higher emission factor initially reported in 1997. The lower emission factor is the average of several consistent emissions measurements made in the more recent series of emissions tests reported in 2000. The risk assessment calculations were based on the emissions from dioxins and the four other TACs discussed in Chapter III of the Staff Report. Their emission factors are also shown in Table IV-4. Emissions of all of these air toxics will be reduced, thereby reducing the risks from exposure to them. In addition, the amount of particulate matter, a criteria pollutant found in the smoke of residential burns will also be reduced. The emissions of PM10 from residential waste burning were included in Table IV-4 for comparison. Please see the response to comment 103 above regarding the emission reductions and cost of the ATCM.

219. Comment: On Sunday, a person burning could be heard cutting down a small tree and bushes with a chainsaw and then burning this green illegal material. When the fire department arrived they declared the burn within the guidelines set forth for backyard burning and drove off. The fire burned well into Monday. The fire chief views each fire as a safety issue and from the perspective that people have the right to burn. That has left those of us who are affected health-wise and nuisance-wise with no recourse. The air district cannot enforce this. They are 20 miles away and they are an 8 to 5, off Saturday, Sunday and holiday business. I feel that if I am put out enough by the smoke invasion from a backyard fire near me to call it in, that should be enough of a "nuisance" for the fire department to have it put out. (Davis-WC49).

Agency Response: Health and Safety Code section 41802 allows air districts to authorize open outdoor fires to dispose of wood waste from trees, vines, or bushes on property being developed for commercial or residential purposes, or when the cuttings resulted from brush clearance done in compliance with local ordinances to reduce fire hazard.

Many air districts that allow this type of burning may also place further restrictions upon the condition of the vegetation being burned, such as cleanliness and moisture content. Burning “wet” vegetation is not permissible in most air districts.

Health and Safety Code section 41700 states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public.” Nuisance complaints should be reported to the air district and/or the ARB for further investigation and potential enforcement action. The fire protection departments conserve their resources for fire safety situations, and are not required to put out fires solely to protect air quality. In some parts of Placer County, the fire departments have an agreement with the air district to document violations of air district rules if they are called out for a suspected fire emergency. The air district can then cite the burner and collect a monetary penalty to reimburse the fire department for the cost of responding to the “fire.” This type of arrangement makes the public cost of a public nuisance more evident to the private burner.

220. Comment: Local enforcement could be a major concern given the lack of air quality personnel within a 50 to 80 mile radius of many of our communities. Page VII-5 of the Staff Report mentions the potential for fire agencies to recoup costs through a pass-through of fines assessed by the air district under a memorandum of understanding. Would these fines be adequate to compensate the time spent in enforcement or is it a token amount? Also, this fine process may not work in areas with high numbers of low-income residents. (Woltering-WC32)

Agency Response: Health and Safety Code section 42400 provides for civil and criminal penalties for violations of air quality rules and regulations. Depending on the terms of the Memorandum of Understanding between the agencies, a considerable amount of the fine could be passed on to the agency assuming the response and reporting role. In remote areas where the fire agency personnel could be physically closer to the incident than the air district personnel. This delegated and shared responsibility could work well.

221. Comment: I might suggest that when you contact agencies and government groups about proposed regulations that it would help to have the information about residential burning distributed to the tribes. Although the State and the air districts do not have the legal authority to apply this regulation to tribal lands, the tribal councils might be interested in the ideas for their own governance. Tribes in California are all neighbors. We've only got one airshed to work with really. What we generate goes your way and vice versa. (Jones-OT26)

Agency Response: Thank you for your interest. We will work with the appropriate agencies to improve dissemination of information on residential burning to the tribes.

C. Comments Received During the 15-Day Comment Period on Modified Regulatory Language

In response to the Notice of Public Availability of Modified Text, the Board received 16 letters or emails with written comments from the persons listed below. The table below lists the commentors and their reference code. Following the table is a summary of each objection or recommendation regarding the modified language, or the procedures used by the ARB, together with an explanation of the reasons for making no further change to the adopted regulation. In addition, although Government Code section 11346.9(3) does not require the agency to summarize the objections or recommendations received on the elements of the regulation not subject to the additional 15-day comment period, we have prepared some additional responses to give further clarification of the regulation.

Comment Reference	Commentor	Organization	Date
Anderson-15WC10	Judi Anderson	Citizen	5/29/02
Birdsall-15WC14	Steve Birdsall	Imperial County Air Pollution Control District	5/30/02
Carleton-15WC16	Warren Carleton	Citizen	5/31/02
Ferris-15WC15	Harry Ferris	Citizen	5/31/02
Gardiner-15WC2	Dennis Gardiner	Citizen	5/22/02
Hagge-15WC7	Willy Hagge	Modoc County Board of Supervisors	5/28/02
Hatch-15WC6	Andy Hatch	Central Sierra Environmental Resource Center	5/28/02
Hemminger-15WC12	James A. Hemminger	Regional Council of Rural Counties	5/29/02
Moreo-15WC8	Joseph A. Moreo	Modoc County Department of Agriculture	5/28/02
Mosher-15WC1	Charles B. Mosher	Mariposa County Air Pollution Control District	5/16/02
Mosher-15WC5	Charles B. Mosher	Mariposa County Air Pollution Control District	5/26/02
Odle-15WC13	Lawrence D. Odle	Butte County Air Quality Management District	5/29/02
Spears-15WC11	Mark Spears	Citizen	5/29/02
Thalhamer-15WC3	Todd Thalhamer	Citizen	5/23/02
Unger-15WC9	Arthur Unger	Citizen	5/29/02
Williamson-15WC4	Cathy Williamson	Citizen	5/24/02

D. Responses to Comments Received during the 15-Day Comment Period on Modified Regulatory Language

1. General Support

1. 15-Day Notice Comment: The Central Sierra Environmental Resource Center (CSERC) supports the findings of the ARB in relation to the health risks associated with the use of uncontrolled burning for the disposal of waste. Upon review it appears that the ATCM should help minimize this threat in urban and populated areas. (Hatch-15WC6)

Agency Response: Thank you for your support.

2. 15-Day Notice Comment: The Modoc County Board of Supervisors wishes to express its support for the modifications to the ATCM. The Board is particularly pleased that the ARB staff has suggested, in response to County staff and other's input, the exemption criteria based upon population density within census zip code areas. (Hagge-15WC7)

Agency Response: Thank you for your support.

2. Regulatory Language

a. Subsection a - Applicability

No additional comments

b. Subsection b - Definitions

3. 15-Day Notice Comment: By your definition of waste, one might be able to state that all agricultural burning is also banned. Other agricultural waste is typically burned during the harvest. These agricultural waste items include packaging, paper, wax paper, plastic, tires, and other items banned under regional waste board regulations. (Thalhamer-15WC3)

Agency Response: While the definition of waste in subsection (b)(22) of the ATCM does include a broad cross-section of materials including paper and plastic, the regulation is only applicable to the outdoor burning of waste materials generated inside residences and from outdoor activities associated with residences, as enunciated in subsection (a)(1). Moreover, the burning of natural vegetation continues to be allowed because it is an "allowable combustible" as defined in subsection (b)(5). Subsection (a)(3) further states that the ATCM applies only to residential burning but not to the other types of open outdoor burning described in Article 2, "Nonagricultural Burning" and Article 3, "Agricultural

Burning" of chapter 3 of part 4 of division 26 of the Health and Safety Code. Therefore, the regulation is not applicable to agricultural burning and the burning of waste associated with this activity. However, air district rules may also place further restrictions on the types of materials that can be burned along with agricultural vegetation. These restrictions would apply under an air district's Smoke Management Program as developed in accordance with 17 CCR 80100 et seq.

4. 15-Day Notice Comment: The definitions for collection centers have been deleted; I assume the centers all remain and the omissions are only because they do not have to be mentioned in the proposed ATCM. (Unger-15WC9)

Agency Response: That is correct. These definitions have been deleted as the terms are no longer used in the modified regulation.

c. Subsection c - Prohibitions

5. 15-Day Notice Comment: Due to fire safety concerns, several of Butte County's local fire agencies requested that burning be allowed early in the day (prior to 8:30 a.m.). Consequently, for residential burn day determinations, the District staff agreed to determine the burn day status the prior day and provide this information in a telephone recording. The proposed regulation would limit the District's ability to satisfy local fire agency safety concerns as burn day status would not be available until after 8:30 a.m. each day. The District staff requests flexibility in burn day determination for residential burning so that the public can be provided the burn day status the prior afternoon to allow for commencement of burning early the next day. The ARB has not demonstrated or made a finding explaining why the existing program fails to provide reasonable or satisfactory compliance toward obtaining and maintaining the State's ambient air quality standards. These findings should be made and explained by ARB prior to ARB unilaterally modifying the existing program. (Odle-15WC13)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see response to comment 64 in the 45-day comment section. The need for the regulation is discussed in the responses to comments 107, 108, 111, and 134 in the 45-day comment section.

d. Subsection d - Compliance Schedule

6. 15-Day Notice Comment: Recycling in Tuolumne County is extremely easy and access is also well distributed. Postponing the date that these regulations go into effect seems unnecessary and unfair to people who are most at risk for health effects of air contamination. (Hatch-15WC6)

Agency Response: While recycling and other alternatives to residential burning are currently readily available in some parts of the State, additional time is needed in other

areas to alert the public on access to and availability of these services. A combination of regulation and education is often the most effective in achieving the desired goal of reducing burning. Allowing one year of public education prior to the date the regulation's prohibitions take effect provides a balance between these two approaches, and provides a mechanism for enhanced compliance and hence greater reductions in burning once implemented. Further, air districts may be more stringent and adopt a regulation in which the prohibitions take effect sooner.

7. 15-Day Notice Comment: ARB's " public education" subsection (d)(3) should inform those who may be allowed to burn untreated wood, yard waste, paper, and cardboard of the toxicity of doing so, especially if people nearby are exercising, young, old, pregnant, or have otherwise compromised immune systems. The quantity and toxicity of aldehydes from wood burning should be stated. Although not relevant to this ATCM, the toxicity of burning wood in a certified wood stove could be discussed in the same breath. Instruction on composting natural vegetation waste should be available. People should be reminded that allowable combustibles could be brought to collection centers with disallowed combustibles. (Unger-15WC9)

Agency Response: Thank you for your comment. We appreciate your suggestions and agree that information on the potential health hazards posed by residential burning, as well as information on alternative waste disposal methods that are available, should be emphasized in the public education efforts.

8. 15-Day Notice Comment: Education and outreach alone will be much more efficient than regulation in reducing emissions and solid waste together. (Moreo-15WC8)

Agency Response: We agree that public education is an important tool in reducing the practice of residential burning. Many households will, when provided information about the potential health hazards of burning, decide to use alternative methods of waste disposal. However, other households may continue the practice, resulting in potential health impacts not only for themselves, but also for their neighbors and their community. For this reason, a regulatory approach combined with education and outreach is needed to provide adequate health protection and provide a mechanism for enforcement.

9. 15-Day Notice Comment: Provide a rigorous program of education regarding the hazards of backyard burning of any products other than pure paper and cardboard. (Mosher-15WC1)

Agency Response: We agree that public education is essential and have included a provision for one year of public education and outreach prior to the regulation's prohibitions taking effect. However, the burning of paper and cardboard, as well as household garbage pose a public health threat; therefore, our education efforts will address and encourage the reduction in burning of all materials.

e. Subsection e - Exemptions

10. 15-Day Notice Comment: The Central Sierra Environmental Resource Center does not support the blanket exemption for rural areas with less than 3.0 people per square mile. If the air districts are going to be able to enforce this measure, it will be much easier if all burning of paper and cardboard was registered. This would also make it easier to explain to those people what not to burn such as plastics, coated cardboard etc. By giving a blanket exemption, the air districts will have more work to do both in outreach and education, and in enforcement. (Hatch-15WC6)

Agency Response: Although these areas will not be subject to the education and outreach requirements of the other more populated exemption areas, our public outreach campaign will be targeted statewide to ensure that all households where the burning of household garbage and plastics are currently allowed are aware of the new restrictions. In addition, in most areas, households are already required to obtain a burn permit from the local fire agency. We will also work with these agencies to provide information to all households conducting burning. As for enforcement, we will work with the air districts to provide the appropriate maps and information needed to clearly define exemption area boundaries and facilitate appropriate enforcement efforts by area.

11. 15-Day Notice Comment: The proposal by the Imperial County Air Pollution Control District is to amend the ATCM to grant an exemption to burn paper, cardboard, and natural vegetation waste at all non-incorporated areas which do not have service on a weekly basis by a solid waste disposal service. (Birdsall-15WC14)

Agency Response: Self-hauling waste to local transfer stations and landfills is a practice used by most households that do not have weekly waste disposal service. Because other options exist for these households, it is not appropriate to develop an exemption based only on the availability of weekly garbage service. In addition, a criterion based solely on the availability of weekly pickup service does not appropriately consider the proximity of neighbors and associated potential health impacts to the surrounding community.

12. 15-Day Notice Comment: I request that you provide a variance for Amador County to allow burn barrels to be used. (Carleton-15WC16)

Agency Response: The regulation is structured to provide a uniform framework for addressing residential burning throughout the State, while providing appropriate flexibility to air districts and fire agencies in determining the need for exemptions and in specifying exemption sub-areas. Therefore, it is not appropriate to provide a variance to an entire air district for the use of burn barrels if the area does not meet the exemption criteria, or if a fire officer does not determine that burn barrel use is necessary for fire safety.

13. 15-Day Notice Comment: The exemption area cut-off should be increased to 50 or 100 people per square mile. (Gardiner-15WC2, Williamson-15WC4)

Agency Response: The population density cut-points consider several factors including potential health risks from exposure to dioxins and other TACs, the potential for adverse environmental impacts in very rural areas, and the more limited availability of alternative waste services in the least populated areas of the State.

The risks shown in Tables B-1 through B-5 in Appendix B of the Staff Report were used for the exposure analysis. Further discussion of the procedures used in the risk assessment is provided in the response to comment 150 in the 45-day comment section. A density of 3.0 people per square mile is equivalent to the separation distance where potential cancer risk drops below one cancer in a million at the property line of a household burning all their waste in a burn barrel at the center of the property. As the distance between residences decreases, the risk increases. A density of ten people per square mile translates to the distance where the potential cancer risk drops below approximately two in a million. At 50 or 100 people per square mile the potential cancer risk increases to approximately 10 to 20 cases per million, as each household becomes increasingly impacted by plumes from waste burning on adjacent properties. Therefore, in consideration of the increasing potential health risks at higher population densities, as well as the potential for lack of alternatives in the lower population density areas, we believe the selected tiers represent appropriate cut-points.

14. 15-Day Notice Comment: We request that our air pollution district and fire suppression officials be the authorities to determine the exemption areas within Modoc County. (Moreo-15WC8)

Agency Response: The regulation has been structured to provide a uniform framework for addressing residential burning while providing appropriate flexibility to air districts and fire agencies in determining exemptions. It provides automatic exemptions in census zip codes where the population density is less than 3.0 people per square mile, as well as a mechanism for air districts and local fire agencies to work together to determine the need for exemptions in areas where the population density is between 3.0 and 10.0 people per square mile. We believe this provides the appropriate balance between local control and the need for consistency in health protection throughout the State.

15. 15-Day Notice Comment: A blanket application of the burning prohibition to the entire zip code in an areas like the Mariposa County Air Pollution Control District would likely result in people reacting to the regulatory tone and closing their minds. Define the boundaries of relatively dense population pockets exceeding 10.0 people per square mile (where the regulatory prohibition should be in place), and those sparsely populated areas within the same zip code with the population density below the threshold where backyard burning and burn barrels could be exempt from the prohibition. (Mosher-15WC1)

Agency Response: We agree; the modified regulation has been structured in accordance with this approach by providing a provision for air districts to request exemptions for those portions of a densely populated zip code where the population density is 3.0 people per square mile or less.

16. 15-Day Notice Comment: Given the level of uncertainty involved in the dispersion modeling and risk analysis, RCRC believes that the criteria in subsection 93113(e)(5) should be increased to allow exemptions in areas with a population density of at least 10.0 people per square mile, consistent with exemption criteria for other “very rural areas.” No explanation is provided for why, based on public health risk analyses, the ARB did not apply the same proposed exemption criteria in subsection 93113(e)(3) to remote “sub-areas” in all zip code areas. Increasing the “sub-area” exemption threshold in subsection 93113(e)(5) to 10.0 people per square mile (from 3.0) would at least make the proposed regulations internally consistent. (Hemminger-15WC12)

Agency Response: A density cut-point of 3.0 people per square mile rather than 10.0 people per square mile was selected as a criterion for obtaining exemptions in sub-areas in order to ensure that the sub-area was separated from the more densely populated portion of the zip code with an adequate buffer zone in consideration of the distribution of the population within the region. Requiring the lower population density cut-point, with the coincident greater spacing between households, minimizes the potential for some households in a sub-area to be located right at the border between the exempt and non-exempt portions of the zip code. In this manner, it ensures that the sub-area is truly remote and that burning will not cause health impacts in the remaining more dense portion of the zip code.

17. 15-Day Notice Comment: Item (e)(5) should be consistent with other exemptions available in the proposed measure by changing the last word from 3.0 to 10.0. (Mosher-15WC5)

Agency Response: See response to comment 16 above.

18. 15-Day Notice Comment: The regulations, as modified, create inconsistent standards for large geographical areas that may be identical in all respects, except for where their location happens to fall relative to a “zip code boundary line.” An area of 100 square miles with a widely scattered population of 500 people (about one residence per 320 acres) may be able to file for an exemption if it lies within one zip code area. However, if this “sub-area” happens to lie on the “wrong” side of a zip code line, the air district could be precluded from filing an Exemption Request--even if the “eligible sub-area” happened to be located closer to a more densely populated area than the “ineligible sub-area.” If the U.S. Postal Service decided to shift its zip code boundary for whatever reason, all of a sudden the “ineligible sub-area” could automatically become eligible for an exemption even though there may have been no changes in land use for miles around and no change in associated health risks. (Hemminger-15WC12)

Agency Response: In the example provided, if a region with an overall population density of five people per square mile lies within one zip code, the region could qualify for an exemption. The commentor is correct that if this region represents only a sub-area of a zip code, and if the overall zip code population density is greater than 10.0 people per

square mile, the region would not meet the more stringent requirements for creating sub-areas and therefore no exemption would be allowed. However, air districts have the option of demonstrating that there may be smaller areas within this region that meet the 3.0 people per square mile criterion, and request an exemption for that area.

The census zip code is a statistical geographic entity that approximates the delivery area for a U.S. Postal Service five-digit zip code. Census zip codes follow census block boundaries. Census tracts are designed to be relatively homogeneous with respect to population characteristics, economic status, and living conditions. Census tract boundaries are delineated with the intention of being maintained over many decades. Because of this, we do not believe it is likely that a region would change from ineligible for an exemption to eligible by virtue of changing census zip code area designation.

19. 15-Day Notice Comment: The rulemaking supporting documents do not provide a meaningful alternative analysis that compares the incremental health benefits of the different exemption criteria (3.0 versus 10.0 people per square mile) with the associated increased costs and increased potential for adverse environmental impacts. We believe such an analysis would indicate that the potential public health benefits do not justify the proposed 3.0 people per square mile density limit for “sub-area” exemptions. The RCRC believes that an objective alternative analysis would show that the costs for required local enforcement increase dramatically in proportion to population density. The analysis would also show that the potential for the most significant adverse environmental consequences is greatest in those rural areas with the least population density. In short, RCRC believes that the proposed regulations would do more harm than good in many rural areas of California unless the exemption criteria is modified. The RCRC believes that this type of analysis should be done prior to adoption of the proposed exemption thresholds. (Hemming-15WC12)

Agency Response: The Staff Report which accompanied the initial regulation provides an analysis of various alternatives to the regulation and discusses the potential environmental impacts as well as the potential costs. The ATCM was evaluated in terms of potential impacts on waste diversion rates, landfill capacities, illegal dumping, illegal waste storage, and increased vehicle traffic due to expanded waste service or self-hauling. The goal of the exemptions is to allow burning in those areas where feasible alternatives to burning as a form of waste disposal do not exist and where population density is low; therefore mitigating the potential for adverse economic and environmental impacts in areas where they would be most likely to occur. When comparing the potential health risks of residential burning with the availability and cost of alternative methods of waste disposal, as well as other economic and environmental effects, we consider the ATCM to be environmentally, technically, and economically feasible, and that all appropriate risk and benefit factors have been sufficiently evaluated and addressed. The modifications made in the 15-day notice simply provide more specificity to the exemption process; therefore, they do not change the basic conclusions of the original alternatives analysis.

20. 15-Day Notice Comment: Modoc County Air Pollution Control District still considers

the risk assessment to be so flawed that the timetable for implementation needs to be extended so that actual environmental monitoring of dioxin levels in the field can confirm or disprove the dietary exposure assumptions used in the risk model. Over 90 percent of the additional cancer risks are of a dietary pathway. We strongly believe if these assumptions were subject to field evaluation and residue testing, we would find the actual risks to differ significantly from the risk model. (Moreo-15WC8)

Agency Response: See response to comment 150 in the 45-day comment section.

21. 15-Day Notice Comment: The suggested density threshold of 3.0 people per square mile appears to be arbitrary and unsupported by scientific data. The risks associated with distances of greater than 20 meters are not correlated to proposed exemption criteria. The wide range of calculated risk assessment is not adequately addressed as a basis for the proposed population density thresholds. An area with a population density of 10.0 people per square would certainly seem to fit ARB's designation as "very rural". With this very low density, the average distance between homes would be over 2,000 feet (or about 600 meters). Yet, the ARB's health risk assessment supporting the regulation seems to be based primarily on a distance of 20 meters. The calculated cancer risks at 20 meters range from "less than 10 to 2,300 chances in a million." Within in this wide range of uncertainty, there does not appear to be a valid statistical basis for limiting the population density threshold in certain areas to 3.0 people per square mile while allowing a density of 10.0 in other demographically similar areas. (Hemming-15WC12)

Agency Response: In developing the risk assessment, we estimated potential health risk impacts at a number of locations ranging from 20 to 1,000 meters downwind from a single burn barrel, for a variety of potential exposure pathways, and under several different meteorological conditions. The range of "less than 10 to 2,300 chances in a million" does not represent uncertainty, but rather provides an estimate of potential cancer risk at 20 meters under different combinations of the exposure pathways and meteorological conditions. The low end represents the cancer risk from the site-specific meteorological scenario for Alturas using only the four minimum exposure pathways of inhalation, soil ingestion, skin exposure, and mothers milk. The high end represents the cancer risk from a default meteorological scenario and all possible exposure pathways which in addition to the four minimum pathways includes consumption of meat, milk and produce.

As discussed in the response to comment 13 above, the population density cut-points consider several factors including potential health risks from exposure to dioxins and other TACs, the potential for adverse environmental impacts in very rural areas, and the more limited availability of alternative waste services in the least populated areas of the State. A density of 3.0 people per square mile is equivalent to the distance where potential cancer risk drops below one cancer in a million at the property line of a single household burning all its household waste at the center of the property. As the distance between residences decreases, the risk increases. A density of ten people per square mile translates to the

distance where the potential cancer risk drops below approximately two in a million. See also the responses to comments 103, 104, 150 and 218 in the 45-day comment section.

22. 15-Day Notice Comment: The Imperial County Air Pollution Control District believes that this method to regulate residential burning by census zip code areas and sub-areas will be difficult and costly to operate and enforce. The proposed ATCM should be amended so that the residential burning program would remain cost effective to our District. The proposed program will require verification of all residential burn calls according to their location on a zip code map. The District estimates that the process to verify compliance of a residential burn call on a map would be tedious and time consuming, thus increasing the cost and difficulty of administration of the residential burn program. (Birdsall-15WC14)

Agency Response: As part of the implementation process for the ATCM, we are committed to working with the air districts to map and define exemption areas and provide the tools needed for effective enforcement by the air districts. In Imperial County, there are 18 zip code areas. Of these, our preliminary assessment is that only eight may qualify for exemption. We believe verification of the location of residences within these limited areas will not pose a significant additional workload.

23. 15-Day Notice Comment: The majority of residences which are located in non-incorporated areas are low-income households, and paying for a residential burn permit would greatly impact their income. Experience tells us that requiring permits for residential burning would cause households that cannot afford a permit to continue to burn without the current level of cooperation and notification. (Birdsall-15WC14)

Agency Response: The regulation in subsection (e)(10)(B) requires the use of an "air district or appropriate fire protection agency permit program or other equivalent mechanism" to distribute information on the potential health impacts of residential burning and ways to minimize these hazards. Therefore, a permit program is not specifically required. However, most local fire agencies already require some form of permit for residential burning for fire safety reasons. Educational materials can be provided through this process. The regulation is structured to require public education and outreach efforts for all burners. These public education efforts are aimed at educating households about the significant potential health impacts of burning in order to afford all households the opportunity to make informed decisions about their actions, and thereby minimizing the use of burning to dispose of household waste.

24. 15-Day Notice Comment: The air district inspectors in the field will be hard-pressed to determine if a residential burn in progress is within exempted areas. Residents will burn at night to avoid detection. The health risks associated with burning at night are increased because the inversion layer is lower so the smoke stays closer to the ground. Generally at night there are more people at home including school age children who would not have been exposed during the day. When we know where burns are taking place, we can have

our inspector in the field to do spot checks to make sure the proper materials are being burned. (Birdsall-15WC14)

Agency Response: As part of the implementation process for the ATCM, we are committed to working with the air districts to map and define exemption areas. This may include development of street type maps that inspectors could carry with them in the field to determine whether a residential burn is within an allowable exemption area. While a small minority of residents may burn during the night to avoid detection, the public education and outreach component of the regulation that focuses on the potential health hazards of burning, along with neighborhood-based enforcement efforts, can be effective in minimizing illegal burning.

3. Regulatory Process

25. 15-Day Notice Comment: We do recognize that section 39650(e) of the Health and Safety Code allows the ARB to take actions even if “absolute and undisputed scientific evidence may not be available.” However, we do not believe that the State Legislature intended this provision as a basis for ARB to set seemingly arbitrary population density limits based on questionable data (mixed waste vs. waste paper) and unsupported assumptions--particularly when reliable data could be reasonably obtained. (Hemminger-15WC12)

Agency Response: The exemption criteria were based on the best available scientific information available and have a basis in the risk assessment modeling and research conducted by the U.S. EPA and others on emission factors as described in the Staff Report. See responses to comment 20 and 21 above and the response to comment 39 in the 45-day comment section for specific descriptions of the basis for these components of the regulation.

26. 15-Day Notice Comment: Section 39650(d) of the Health and Safety Code specifically requires that any proposed regulation of toxic air contaminants be subject to “review by a scientific review panel.” The RCRC believes that the proposed modifications to the subject rulemaking packet have not been processed in accordance with these statutory controls. The review process for burn barrel regulation seems to have been “short circuited.” This short-circuiting” has limited the ability of the scientific community and regulated entities to critically evaluate the questionable findings upon which the proposed population density thresholds are based. There is no indication that the proposed “population density thresholds” have undergone this type of independent scientific review. The RCRC believes that the allowable population density thresholds would be considerably higher than those currently being proposed by ARB in the modified regulation. We believe this lack of review may be one reason why the contested “three persons per square mile exemption threshold” was approved by the ARB. (Hemminger-15WC12)

Agency Response: Health and Safety Code section 39650(d) states that “... the scientific research on which decisions related to health effects are based should be reviewed by a

scientific review panel and members of the public.” This language refers to review of research related to the identification of TACs, not regulations developed to control emissions of these toxic air contaminants. The ARB established the Scientific Review Panel (SRP) in 1983 as required under Health and Safety Code section 39670 to carry out the function of reviewing all research and recommendations related to the identification of TACs. Specifically, according to Health and Safety Code section 39670 the SRP “... shall be appointed to advise the State board and the Department of Pesticide Regulation in their evaluation of the health effects toxicity of substances ...” This panel reviewed the health-based research on dioxins, 1,3-butadiene, PAHs, PCBs, and benzene and concurred with the Board’s identification of these substances as toxic air contaminants. See also the response to comment 21 above.

27. 15-Day Notice Comment: Consistent with the statutory requirements of Health and Safety Code section 39665, which requires ARB to report on the need and appropriate degree of regulation for a substance identified as a TAC, the ARB, in 1986, did adopt a “Regulatory Amendment Identifying Chlorinated Dioxins and Dibenzofurans as Toxic Air Contaminants.” However, the comprehensive 1986 report does not include outdoor residential waste burning as one of the 15 identified TAC source categories. Unless the stringent exemption criteria in subsection 93113(3)(5) of the proposed regulations are modified and allowances made for the burning of waste paper, RCRC believes it is incumbent upon the ARB to amend and re-process the 1986 report to include “burn barrels” as a “point source” or, at least, to subject their recent “burn barrel” findings in support of the proposed density limits to the same level of public and scientific scrutiny that is statutorily required for all of the other previously identified dioxin “source categories.” (Hemming-15WC12)

Agency Response: After the identification of dioxins as a TAC in 1986, a needs assessment was conducted between 1988 and 1990 as part of the development of the ATCM for medical waste incinerators. The research identifying the burning of residential waste materials was not available at the time we developed the medical waste incinerators ATCM. However, subsequent to that report, the U.S. EPA also began a reassessment of dioxins exposure and human health effects. Based on national inventories for dioxins representing 1987 and 1995, the U.S. EPA report suggested that the burning of household waste is the largest uncontrolled source of dioxin emissions in the environment. This report, and underlying research studies contained in the report, provided the basis for developing the proposed ATCM. The ISOR/Staff Report for this ATCM serves as the needs report for the residential burning source category. The Health and Safety Code does not contain any requirements to update the original identification report or the medical waste incinerator needs report. Therefore, we have complied with the statutory requirements of Health and Safety Code section 39665.

28. 15-Day Notice Comment: Perhaps the most important provision of Health and Safety Code section 39655 is the requirement that all relevant comments received during consultation with the air districts, affected sources, and the public, shall be made available to public review and comment at least 45 days prior to the public hearing. The ARB

received many verbal and written comments from the air districts, the public, local agencies, elected officials, fire districts, trade associations, and others (including RCRC) during the course of this rulemaking process. To date, these comments have not been made publicly available. Many of these comments were quite critical of the ARB's regulatory proposal, including the most recent modifications. Many commentors raised serious questions about the lack of scientific basis for ARB's regulatory proposals and felt that adverse environmental consequences of implementation have been grossly underestimated. Instead of making specific comments available for public review prior to its public hearing, the ARB's supporting regulatory documentation makes only general allusions to various workshops and outreach efforts that were undertaken. I would appreciate receiving copies of all verbal and written comments that ARB has received relative to the proposed regulations along with the ARB's response to these comments. (Hemminger-15WC12)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see response to comment 99 in the 45-day comment section. In addition, RCRC has been provided with a copy of all comments received during both the 45-day comment period and the subsequent 15-day comment period.

29. 15-Day Notice Comment: The RCRC strongly feels that the proposed rule-making package should be suspended unless suggested modifications are incorporated therein. Suspension of the rulemaking process would allow for scientific analysis of the toxic air contaminant emission factors for waste paper only (excluding plastics) and for further determination of the various input factors used for dispersion modeling and establishment of exemption criteria. Without this additional work, we believe that the extremely low exemption threshold of 3.0 people per square mile simply cannot be scientifically justified. (Hemminger-15WC12)

Agency Response: The ARB has followed all statutory requirements in developing the proposed regulation, including numerous workshops and consultations with air districts and affected parties, a 45-day comment period, a public hearing, and the subsequent 15-day comment period on the modifications. As discussed in the response to comment 21 above, the development of the exemption criteria was based upon comments by CAPCOA and evaluation of potential health impacts, as well as the potential for adverse environmental impacts and the reduced availability of alternative waste disposal methods in the most rural areas of the State. Therefore, we do not agree that the rule-making package should be suspended.

30. 15-Day Notice Comment: Leave those of us who use burn barrels in the country, with no neighbors as far as one can see, on permissive burn days, with a current burn permit, alone. (Williamson-15WC4)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see the responses to comments 122, 126 and 134 in the 45-day comment section.

31. 15-Day Notice Comment: I am unable to burn the accumulation of vegetation on my seven acres and am unable to maintain my property without great expense due to harassment from the air district. You wish to give more leverage to air district enforcement personnel who are out of control and unsupervised. (Spears-15WC11)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, the regulation will be enforced via the authority provided to air districts under Health and Safety Code section 39666. All air districts currently have some form of existing regulation addressing residential burning. The further requirements placed by the ATCM will not provide additional leverage to air district personnel. They have only those powers granted by statute, including the authority to "observe and enforce" air district rules and regulations (see Health and Safety Code section 39750.) In addition, ARB has oversight authority to review and evaluate air district programs, and conducts audits of air district programs, including enforcement, to ensure that air districts are properly conducting their programs.

32. 15-Day Notice Comment: What about the polluted air drifting up here from the two Valleys that prevents us from reaching attainment of air standards? Rather than shutting down our burn barrels, you should be doing more about the tons of air borne material out of the Valleys impacting Amador County. You should be calling attention to the immigration impacts on our State that produces so much air degradation but you should not penalize Amador County for this when our air problems stem from this and from the Valleys. (Carleton-15WC16)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 134 and 158 in the 45-day comment section.

33. 15-Day Notice Comment: Do what you need to in the cities, especially in regard to auto emissions. What the hundreds of us are doing is nothing compared to the tens of thousands in the cities. The few people per acre that exist in these areas contribute only a minute fraction of the pollution today. Focus on and fix the real problem. Allot funding for air quality and regulate the dense population and enforce it, but leave us country folk alone. (Williamson-15WC4, Spears-15WC11)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 115, 134 and 158 in the 45-day comment section.

34. 15-Day Notice Comment: There isn't a problem with burn barrels in Amador County. Even though city populations don't meet your criteria for a burn barrel allowance, there aren't air pollution problems here on permissive burn days. (Carleton-15WC16)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 134 and 158 in the 45-day comment section.

35. 15-Day Notice Comment: It needs to be realized and understood that rural counties have a long history of being willing and able to educate and govern our own. Leave the State enforcement of the residential ATCM in the urban districts where it may be needed. (Moreo-15WC8)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 75, 126, and 134 in the 45-day comment section.

4. Basis for Regulation

36. 15-Day Notice Comment: The dispersion data are calculated using generalized assumptions that do not seem to be scientifically documented. Other input data to the ARB's dispersion model (which apparently is used as the basis for establishing proposed population thresholds) are similarly questionable and seem to be based more on limited anecdotal information rather than scientific surveys. The ARB's Staff Report says that it is assumed that each family burns twice per week and that each burn may last for two hours. There is no basis to assess the statistical validity of these underlying assumptions. Many rural APCOs take exception to these generalizations based on extensive hands-on field experience. Erroneous input necessarily leads to false results. An impressive sensitivity analysis is provided in ARB's Staff Report to evaluate a few selected factors, but similar sensitivity analyses has not been done on the input factors mentioned above - key factors that relate directly to the proposed risk-based exemption criteria. (Hemminger-15WC12)

Agency Response: The information on burn duration and frequency was based upon information provided by various air districts we contacted which included several rural air districts. As verification, we looked at the weight of waste generated by California households, and the rate of combustion that occurred in the U.S. EPA burn barrel tests. This analysis confirmed that approximately four hours of burning per week would be needed for combustion of the amount of waste typically generated. See also the responses to comments 103, 104, and 150 through 153 in the 45-day comment section.

37. 15-Day Notice Comment: Using emission factors for mixed waste in burn barrels as a basis for restricting any residential burning of segregated paper products is fundamentally flawed and leads to incorrect risk assessment findings. It does not logically follow that these emission factors can be reasonably applied to each individual component of the mixed waste stream - especially when it is scientifically acknowledged that nearly all dioxin emissions from burn barrels (including the most hazardous compounds) originate from plastic waste materials (particularly polyvinyl chloride). The fact that "dioxin emissions were significant across the range of measured values" does not logically imply emissions were generated proportionately from each waste type. The extraordinary "data leap" (from

“mixed waste” to “waste paper” and from “burn barrels” to “open burn piles”) is not addressed as a consideration for the proposed population density thresholds. (Hemming-15WC12)

Agency Response: Dioxins are produced from the combustion of all types of materials that contain carbon and chlorine. We agree that the burning of waste material containing chlorinated plastics produce the greatest amount of dioxins. In the original testing conducted by U.S. EPA, individual tests were not conducted to quantify dioxin emissions from separate material types such as paper and cardboard. However, subsequent to this work, further research was carried out by Nakao et al. (2000) to assess emissions from different materials. This study showed that even paper mixtures without the presence of plastic waste materials produced dioxin emissions. Many paper products may also contain plastic in the form of coatings and package liners and inserts. In addition, even in areas where the burning of plastic materials are already prohibited, air districts report that they find prohibited materials in the majority of burn barrels examined. Therefore, in order to provide a health-protective basis for the exemption criteria, the risk assessment modeling was conducted using emission factors for the complete mix of waste materials.

38. 15-Day Notice Comment: What are the most common sources of polycyclic organic matter and benzene and cadmium and 1,3-butadiene that are often burned by residences? Are PCBs in most plastics used in households and consequently burned in barrels or ground pits? (Anderson-15WC10)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, information on the sources of these contaminants can be found in Chapter III of the Staff Report.

5. Economic Impacts

No comments were received on this topic.

6. Environmental Impacts

39. 15-Day Notice Comment: What should we do with our burnables that are not recyclable - give them to the landfills? This will cause problems with the landfills. Burn barrels save thousands of tons of paper from claiming precious space in landfills each year. (Williamson-15WC4, Ferris-15WC15, Gardiner-15WC2)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see response to comment 183 in the 45-day comment section.

40. 15-Day Notice Comment. Recycling centers often take only glass, aluminum, and plastic bottles. The nearest paper recycling centers can be far away. Transfer stations are only open on certain days, some as little as once per week. Reducing refuse such as

paper and cardboard by burning helps eliminate the stockpiling of large amounts of household rubbish. (Moreo-15WC8, Hemminger-15WC12)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 183, 184, 195, and 214 in the 45-day comment section.

41. 15-Day Notice Comment: We expect to see an increase in illegal dumping. (Birdsall-15WC14, Hemminger-15WC12)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see response to comment 195 in the 45-day comment section.

42. 15-Day Notice Comment. We are buried in junk mail. The most efficient way to get rid of it is in a burn barrel. Rather than curtail us, why haven't you taken the lead to reduce junk mail? Is it because you are sensitive to infringing on the right to send mail? If so, what about our right to burn the mound of junk mail? (Carleton-15WC16)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see response to comment 192 in the 45-day comment section.

43. 15-Day Notice Comment: The banning of a tool that aids fire suppression, is in the least, a direct and immediate threat to public safety. (Moreo-15WC8)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 52 and 210 in the 45-day comment section.

44. 15-Day Notice Comment: Our property is sloping which has permitted runaway flaming pinecones to run down the hill. This is why I use a burn barrel that is an apparent solution for many residents in the area who also live on hillsides. (Spears-15WC11)

Agency Response: This comment is not germane to the 15-day changes made by the Board. However, see responses to comments 52 and 210 in the 45-day comment section.

7. Other Comments on Staff Report

No comments were received on this topic.