Technical Bulletin 117-2013

Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture

California Environmental Quality Act Initial Study/Proposed Negative Declaration

State of California Department of Consumer Affairs

Prepared By
Bureau of Electronic & Appliance Repair Home Furnishings &
Thermal Insulation (BEARHFTI)
4244 South Market Court, Suite D
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UPDATE TO THE NEGATIVE DECLARATION

As of October 17, 2013, the Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation made the following insignificant modifications to the Negative Declaration:

- Throughout this document, a grammatical correction was made to the name of the American Society for Testing and Materials International voluntary upholstered furniture flammability standard. This grammatical correction changed "ASTM E1353-08a" to "ASTM E1353-08a^{ε1}".
- Page 19 The additional baby and infant items that are to be exempt flammability standards was updated to reflect that fifteen (15) baby and infant items are to be added to the criteria of exemption, rather than seventeen (17). Infant mattresses and infant mattress pads were removed from being added to this section since these products are currently under the jurisdiction of the Consumer Product Safety Commission and not the Bureau.
- Pages 45 and 46 The mandatory compliance date for which the new flammability requirements are to be adhered to was updated from July 1, 2014 to January 1, 2015.

NEGATIVE DECLARATION

Project: Technical Bulletin 117-2013: Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture

Lead Agency: Bureau of Electronic & Appliance Repair Home Furnishings & Thermal Insulation (BEARHFTI)

PROJECT DESCRIPTION

This Negative Declaration (ND), supported by the attached Initial Study (IS), evaluates the environmental effects of the proposed update to Technical Bulletin 117. The update relates to flammability standards for upholstered furniture and additional specified articles exempt from flammability standards. The updated bulletin will have statewide application. BEARHFTI prepared the update pursuant to California Business and Professions Code sections 19034 and 19161.

The update proposes to establish new performance and labeling requirements under the new flammability standard Technical Bulletin 117-2013 (TB 117-2013). TB 117-2013 supersedes TB 117 and is based on the American Society for Testing and Materials International voluntary upholstered furniture flammability standard, ASTM E 1353-08a^{£1}.²

BEARHFTI is responsible for establishing upholstered furniture flammability standards³ and providing exemptions for certain items of upholstered furniture that are deemed to not pose a serious fire hazard. BEARHFTI is the lead agency for this project as defined by the California Environmental Quality Act (CEQA) and prepared this IS and ND. The IS and ND reflect the independent judgment and analysis of BEARHFTI.

FINDING

BEARHFTI prepared an IS, attached to this ND, to assess the project's potential effects on the environment and the significance of those effects. Based on the information and analysis in the IS, BEARHFTI determined, and therefore finds, that the proposed project will not have any significant effects on the environment. This conclusion is supported by the following determinations:

The proposed project will have no impact related to aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic.

¹ Available at: http://www.bhfti.ca.gov/about/laws/propregs.shtml.
² The ASTM E-1353-08a^{ε1} standard is copyrighted. The standard is available for review, not copying, at BEARHFTI's office.

³ California Business and Professions Code section 19161

California Business and Professions Code section 19161.5

• The proposed project will have a less-than-significant impact on utilities and service systems. These effects relate to possible minor changes in overall consumer behavior. Specifically, a small portion of the population may desire to dispose of a piece of furniture early in order to purchase a new piece of furniture with fewer chemicals and/or better fire performance. The best available information indicates that changes in consumer behavior due to this project will be minor, and therefore, will not cause significant environmental impacts.

RECORDS OF PROCEEDINGS

Website Access: Materials regarding this project can be found at http://www.bhfti.ca.gov/about/laws/propregs.shtml.

In order to view the copyrighted ASTM E-1353-08a^{£1} standard, you must visit the Bureau of Electronic & Appliance Repair Home Furnishings & Thermal Insulation headquarters. A physical copy can be viewed at this location upon request. Duplicates of this document, however, cannot be made.

Custodian of Records

Bureau of Electronic & Appliance Repair Home Furnishings & Thermal Insulation (BEARHFTI)

4244 South Market Court, Suite D Sacramento, California 95834-1243

Questions or comments regarding this ND and IS may be addressed to:

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After receiving and considering comments from the public and reviewing agencies, BEARHFTI may: (1) adopt the ND and approve the proposed project; (2) undertake additional environmental studies; (3) approve the project with mitigation measures, or (4) disapprove the project.

BEARHFTI

LEAD AGENCY DETERMINATION

On the basis of this initial evaluation:

Pri	nted Name:	For:		
	Signature: Date:			
Ci~	noturo	Data		
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required			
	I find that the proposed project MAY have a "potentially significant imposignificant unless mitigated" impact on the environment, but at least of adequately analyzed in an earlier document pursuant to applicable legoteen addressed by mitigation measures based on the earlier analysis sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it meffects that remain to be addressed.	ne effect 1) has been gal standards, and 2) has as described on attached		
	I find that the proposed project MAY have a significant effect on the er ENVIRONMENTAL IMPACT REPORT is required.	nvironment, and an		
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.			
	I find that the proposed project COULD NOT have a significant effect a NEGATIVE DECLARATION will be prepared.	on the environment, and		

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INITIAL STUDY

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ACRONYMS AND ABBREVIATIONS

AADT Average Annual Daily Traffic
AB California State Assembly Bill

ARB The California Air Resources Board

BEARHFTI The Bureau of Electronic & Appliance Repair Home Furnishings &

Thermal Insulation

CalRecycle California Department of Resources Recycling and Recovery

CCR California Code of Regulations
CEQA California Environmental Quality Act

CO Carbon Monoxide

CPSC Consumer Products Safety Commission
CPUC California Public Utilities Commission
DWR California Department of Water Resources

EIR Environmental Impact Report

FMMP Farmland Mapping and Monitoring Program

GHGs Greenhouse Gasses

IS Initial Study
LOS Level of Service
ND Negative Declaration
NO2 Nitrous Dioxide

PM2.5 Particulate Matter Less Than 2.5 Microns in Diameter PM10 Particulate Matter Less Than 10 Microns in Diameter

RWQCBs Regional Water Quality Control Boards

SB California State Senate Bill

SO2 Sulfur Dioxide

SWRCB State Water Resources Control Board

TACs Toxic Air Contaminants
TB 117 Technical Bulletin 117

TB 117-2113 Technical Bulletin 117-2013

U.S. EPA United States Environmental Protection Agency

USBR United States Bureau of Reclamation

V/C Volume to Capacity Ratio

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CHAPTER 1: INTRODUCTION

The Bureau of Electronic & Appliance Repair Home Furnishings & Thermal Insulation (BEARHFTI) prepared this Initial Study (IS) to evaluate the potential environmental effects of adopting updates to Technical Bulletin 117 and its associated rulemaking. Updates to the bulletin itself are labeled as Technical Bulletin 117-2013 or TB 117-2013. Updates to the overall rulemaking, which encapsulates the new bulletin, are referred to as the "proposed project" or "project."

This document has been prepared in accordance with the California Environmental Quality Act (CEQA)⁵ and CEQA Guidelines prepared by the California Natural Resources Agency.⁶ An IS is prepared by a lead agency to determine if a project may have a significant effect on the environment,⁷ and thus to determine the appropriate environmental document. In accordance with CEQA Guidelines:

"[a] public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

- (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
 - (b) The initial study identifies potentially significant effects, but:
- (1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
- (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."

In these circumstances, the lead agency prepares a written statement describing its reasons for concluding that the proposed project would not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). By contrast, an EIR is required when the project may have a significant environmental impact that cannot clearly be reduced to a less-than-significant effect by adoption of mitigation measures or by revisions in the project design.

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⁵ California Public Resources Code sections 21000 et seq.

⁶ Title 14, California Code of Regulations ("CCR") sections 15000 et seq.

⁷ 14 CCR section 15063(a)

Purpose

As described in the environmental checklist and supporting narrative (Chapter 3), the proposed project would not result in significant effects to the environment. No mitigation measures would be required as a result of this environmental analysis. This IS concludes that an ND is the appropriate document for compliance with CEQA.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of the proposed project. BEARHFTI is the lead agency for the proposed project and has prepared this analysis to comply with CEQA.

The purpose of this document is to present decision-makers and the public with information regarding the environmental consequences of implementing the proposed project. An IS is required in support of an ND and is attached to the ND. This disclosure document is being made available to the public for review and comment. The ND and IS is available for a 30-day public review.

Comments should be addressed to:

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After comments are received from the public and reviewing agencies, BEARHFTI may: (1) adopt the ND and approve the proposed project; (2) undertake additional environmental studies; or (3) disapprove the project.

Summary of Findings

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it is determined that the proposed project would have no environmental impact related to the following issue areas:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gases
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Geology and Soils

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- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Traffic and Transportation

Environmental impacts of the proposed project would be less than significant for the following issue areas:

Utilities and Service Systems

BEARHFTI also determined that beneficial effects may occur under certain issue areas. A beneficial effect would involve an improvement in environmental conditions compared to the existing setting. The following issue areas may experience beneficial effects as a result of the proposed project:

Hazards and Hazardous Materials

Environmental Comments During Regulation Development

It should also be noted that throughout wide public participation on the development of this proposed project, no stakeholder identified any environmental concerns during the pre-promulgation workshops or meetings.8

Additional Permitting or Approvals

The proposed project must also be reviewed and approved by the State Fire Marshal, pursuant California Government Code section 11359. The State Fire Marshal is currently evaluating the proposed rulemaking and BEARHFTI anticipates a formal response by Mid-March of 2013.

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⁸ See: Gentry v. City of Murrieta (2011) 36 Cal.App.4th 1359, 1379 [citing 14 CCR §15704(b).] A Negative Declaration "may be based on the initial study 'together with any comments received during the public review process'."

Document Organization

This IS/ND is organized as follows:

Negative Declaration Initial Study

Chapter 1: Introduction

Chapter 2: Project Description and Background

Chapter 3: Environmental Checklist

Chapter 4: References

Chapter 5: List of Preparers

Appendices

Appendix A: Green Policy Institute Letter, January 16, 2013 Appendix B: American Home Furnishings Alliance Letter,

January 22, 2012

BEARHFTI

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CHAPTER 2: PROJECT DESCRIPTION

BEARHFTI, within the California Department of Consumer Affairs, is required to adopt rules and regulations necessary for the administration of the Home Furnishings and Thermal Insulation Act.⁹ Among other responsibilities, the Act requires BEARHFTI to protect consumers from the fire safety hazards associated with residential furniture products offered for sale in California, regardless of their place of origin.

Existing regulations establish the flammability and labeling requirements for Technical Bulletin ("TB") 117 entitled, "Requirements, Test Procedures and Apparatus for Testing the Flame Retardance of Filling Materials Used in Upholstered Furniture," last updated in March of 2000. This mandatory performance standard requires that the concealed filling materials and cover fabric of upholstered furniture undergo individual component testing to ensure that they pass open flame and cigarette smolder tests. The main emphasis of the current upholstered furniture flammability standard is on the open flame testing of interior filling materials.

This regulatory proposal would establish new performance and labeling requirements under the new flammability standard TB 117-2013. The regulatory proposal aims to update the flammability standards by allowing BEARHFTI to conduct smolder resistance testing of products for the purpose of protecting consumers from fires ignited by smoldering sources, which are the leading ignition source of fires today. In addition, the proposal also aims to lessen the burden on manufacturers through the proposed exemption of products deemed to pose no serious fire hazard.

The health and welfare of California residents will benefit from this project because it provides greater fire safety protection against smoldering materials, which are the leading ignition source of fires and losses today. The project protects consumers with a more realistic approach to fire safety in addition to reducing the upholstered furniture's smolder ignition potential.

As an added benefit, this regulatory proposal significantly benefits the environment by reducing or eliminating manufacturers' reliance on materials treated with flame retardant chemicals. BEARHFTI's understanding is that if manufacturers are no longer compelled to make materials compliant to current open flame requirements, many will choose to discontinue use of certain chemical treatments in their product filling materials. Manufacturers would instead be able to purchase and use non-flame retardant materials.

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⁹ California Business and Professions Code sections 9810 and 19031.

Background

<u>Upholstered Furniture Flammability Standard:</u> In 1972, AB 2165 (Burton, Chapter 1183) was signed requiring BEARHFTI¹⁰ to establish upholstered furniture flammability standards. AB 2165 enacted Business and Professions Code section 19161, which required all upholstered furniture sold in California to be fire retardant, as defined by BEARHFTI, and labeled in such manner.

BEARHFTI develops flammability standards in the form of "technical bulletins" that are adopted through regulation. There are also a number of federal flammability standards developed by the United States Consumer Product Safety Commission (CPSC) that are currently in effect nationwide. While CPSC has been studying a national residential upholstered furniture standard for several years, California remains the only state with a residential upholstered furniture flammability standard.

<u>Upholstered Furniture Exemptions:</u> In 1975, AB 2446 (Brown, Chapter 663) was signed, which added Business and Professions Code section 19161.5. This provision empowered the BEARHFTI Chief to exempt certain items of upholstered furniture deemed not to pose a serious fire hazard. This was an urgency statute because the recently enacted statutes unintentionally imposed fire retardant requirements upon certain items of upholstered furniture, which did not pose a serious fire hazard, resulting in an unfair burden on manufacturers. Following this bill, Title 13 CCR section 1374.2 was adopted in 1977, establishing the criteria for exemption. BEARHFTI currently requires that exempted products, specified in regulation, must have an exemption label affixed.

Current Regulation

The main emphasis of the current upholstered furniture flammability standard is on the open flame testing of interior filling materials. Manufacturers meet this requirement predominately through use of polyurethane foam treated with flame retardant chemicals, which must withstand exposure to a 12 second small open flame.

In an actual fire, upholstery cover fabric is the first item to ignite, exposing the foam to a much larger flame than the current small open flame testing method. Once the upholstery cover fabric burns, the foam quickly ignites. BEARHFTI has determined that the current standard does not adequately address the flammability performance of the upholstery cover fabric and its interactions with underlying filling materials upon ignition, whether by an open flame or a smoldering source. Furthermore, the addition of flame retardants to foam can actually increase smolder propensity.

Specifically, a study conducted by the United States Department of Commerce, National Bureau of Standards, concluded that there are no significant fire performance differences between the flame retardant foams formulated to pass TB 117 and

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¹⁰ Note ABx4 20 (Strickland, Chapter 18, Statutes of 2009-2010 4th Extraordinary Session) merged the Bureau of Electronics and Appliance Repair and the Bureau of Home Furnishings and Thermal Insulation into BEARHFTI. Prior to that time the Bureau of Home Furnishing and Thermal Insulation was responsible for establishing and enforcing flammability standards.

untreated foams. 11 These findings were consistent with another study conducted by the CPSC.¹² CPSC also concluded that upholstery cover fabrics play a more important role in fire behavior performance than filling materials. 13 Further research conducted by CPSC concluded that flame retardant treated foam with a relatively low concentration of flame retardant chemicals actually increases the damage to cover fabrics from a smoldering cigarette relative to untreated foam. 14

BEARHFTI research confirmed that the cover fabrics and their combination with underlying filling materials impact the smoldering performance of upholstered furniture. BEARHFTI found that heavier smolder-prone fabrics, when exposed to a smoldering cigarette, impart more energy to the mock-up substrates, resulting in significant weight loss of the polyurethane foams. In many cases, the polyurethane foams were totally consumed in laboratory tests. When the cover fabrics were changed to less smolderprone fabrics, smoldering resistance of the mock-up assembly significantly improved and the weight losses of the underlying foam decreased substantially. 15 These results were consistent with the observations made by CPSC.

California is the only U.S. state with a mandatory flammability standard for residential furniture. According to existing fire statistics, residential upholstered furniture fires have declined significantly in California and across the nation over the last two decades. National fire incidents related to upholstered furniture have dropped 80 percent, resulting in a significant reduction in consumer deaths. 16 Substantial reductions in upholstered furniture fatalities nationwide may be attributed to a number of consumer protection improvements which include child-resistant lighters, introduction of selfextinguishing cigarettes, candle industry's compliance with voluntary fire-safe candle standards, furniture manufacturer's compliance with voluntary upholstered furniture flammability standards, and residential smoke alarms and fire sprinkler requirements.

A recent national study conducted by the United States Department of Homeland Security, United States Fire Administration, concluded that approximately 92 percent of residential fire fatalities occur as a result of smoke inhalation and/or a combination of smoke inhalation and thermal burns. Smoke inhalation affects internal organs and can lead to inflammation and blockage of the airways from breathing smoke containing harmful gases or toxins that are present during a fire. Smoke inhalation alone accounts for 40 percent of residential fire fatalities, making it the primary source of all residential

¹¹ Babrauskas, Vytenis and Krasny, John "Fire Behavior of Upholstered Furniture", U.S. Department of Commerce, November 1985 – Attachment 2 of Proposed Regulation's Initial Statement of Reasons.

12 Mehta, Shivani "Upholstered Furniture Full Scale Chair Tests – Open Flame Ignition Results and Analysis" CPSC, May 2012 – Attachment 3 of Proposed Regulation's Initial Statement of Reasons. ¹³ Ray, Dale R. "Upholstered Furniture Flammability: Regulatory Options for Small Open Flame & Smoking Material Ignited Fires" – Attachment 4 of Proposed Regulation's Initial Statement of Reasons. ¹⁴ Fansler, Linda and Scott, Lisa L. "Performance Criteria, and Standard Materials for the CPSC Staff Draft Upholstered Furniture Standard" CPSC, May 2005 – Attachment 5 of Proposed Regulation's Initial

Statement of Reasons.

15 "Development of a Flammability Standard for Testing the Smolder Resistance of Upholstered Furniture" BEARHFTI October 2012 – Attachment 6 of Proposed Regulation's Initial Statement of Reasons. ¹⁶ Ahrens, Marty "Home Fires that Began with Upholstered Furniture" National Fire Protection Association, August 2011 – Attachment 7 of Proposed Regulation's Initial Statement of Reasons.

fire fatalities.¹⁷ Another recent national study conducted by the United States Department of Homeland Security, United States Fire Administration, found that smoking materials are the leading cause and the greatest risk factor in upholstered furniture fires and losses today. This study determined that the fatality rate was more than seven times greater in smoking-related residential fires than non-smoking-related residential fires; the injury rate is triple that of non-smoking related fires.¹⁸

The California Department of Public Health reports that California mortality averages 234,000 per year. ¹⁹ In California, upholstered furniture fire fatalities have caused an estimated 50 deaths annually based on residential building fires, of which 44, or 88 percent, are smoking-related deaths.

Project Objectives

BEARHFTI has concluded that the current standard must be updated to address the flammability performance of the upholstery cover fabric and its interactions with underlying filling materials. Further, based on evaluation of current statistics, related studies, and currently available technologies, the new standard should address the predominant source of upholstered furniture fire deaths: smoldering materials.

Project Location

The scope of this project is statewide in California. Therefore, any piece of non-exempt upholstered furniture sold in this state, regardless of its place of manufacturing, must comply with TB 117-2013.

Project Description

Flammability Standard and Labeling: Through this regulatory proposal, BEARHFTI seeks to establish new performance and labeling requirements under the new flammability standard TB 117-2013, entitled "Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture." TB 117-2013 supersedes TB 117 and is based on the American Society for Testing and Materials International voluntary upholstered furniture flammability standard, ASTM E-1353-08a^{£1}. 21

ASTM E-1353-08a^{£1} is a voluntary standard entitled Standard Test Methods for Cigarette Ignition Resistance of Components of Upholstered Furniture. This voluntary upholstered furniture standard has been in place since the late 1990s, and was last

¹⁷ "Civilian Fire Fatalities in Residential Buildings (2008-2010)" Dept. of Homeland Security, Federal Emergency Management Agency Topical Fire Report Series Volume 13, Issue 1 / February 2012) – Attachment 8 of Proposed Regulation's Initial Statement of Reasons.

¹⁸ "Smoking-Related Fires in Residential Buildings (2008-2010)" Dept. of Homeland Security, Federal Emergency Management Agency Topical Fire Report Series Volume 13, Issue 6 / June 2012) – Attachment 9 of Proposed Regulation's Initial Statement of Reasons.

¹⁹ "California Statistical Data Related to Mortality and Fire-Related Losses" Prepared by California Department of Public Health for BEARHFTI reference, September 2012 – Attachment 10 of Proposed Regulation's Initial Statement of Reasons.

²⁰ Attachment 11 of Proposed Regulation's Initial Statement of Reasons

²¹ The ASTM E-1353-08a^{ε1} standard is copyrighted. BEARHFTI has obtained copyright permission to incorporate the ASTM standard in its entirety.

amended in 2008. It was developed and subsequently modified with broad stakeholder participation, and the test methods are reproducible, reliable, well known, and practiced by industry and independent laboratories.

Approximately 80-85 percent of U.S. manufacturers currently comply with the ASTM E-1353-08a^{ε1} standard. With such large stakeholder participation, employing the ASTM standard substantially reduces the need for extensive laboratory testing and associated costs, and is therefore less burdensome on manufacturers.

Through this proposed rulemaking, consumer fire protection will be preserved or enhanced, while the reliance on flame retardant chemicals will be significantly reduced or eliminated. In addition, this proposal aims to benefit stakeholders by decreasing the fire potential of today's primary ignition source.

<u>Exemptions:</u> Currently, several items are exempted under California Code of Regulations section 1374.2, including: strollers, infant carriers, and nursing pillows. BEARHFTI proposes to exempt fifteen (15) additional baby and infant products:

- Infant walkers
- Car seats
- Changing pads
- Highchairs
- Infant swings
- Infant bouncers
- Playards
- Portable hook-on chairs

- Booster seats
- Infant seats
- Floor play mats
- Highchair pads
- Bassinets
- Nursing pads
- Playpen side pads

BEARHFTI finds that these items contain a much lesser fuel load content (*i.e.*, foam, batting) than average adult seating furniture. In addition, these products are less likely to be ignited or come in contact with an ignition source under the exercise of reasonable care and supervision by adults. BEARHFTI has concluded that the 15 proposed items are unnecessarily subject to flammability standards as they do not pose a serious fire hazard. Therefore, BEARHFTI is exercising its authority to exempt these products from flammability standards as specified in Business and Professions Code section 19161.5.

Currently, BEARHFTI requires that all exempted products, which are specified in regulation, must have an exemption label affixed. Failure to label the product, or labeling with incorrect verbiage, is subject to citation and fine.

BEARHFTI finds that affixing an exemption label on products that are exempt from regulation by it does not benefit consumers. Further, the current verbiage in the label implies that the article for which the label is attached failed to meet BEARHFTI's flammability standard, leading to consumer confusion. Confusion regarding the label has historically been problematic for BEARHFTI and manufacturers of exempted

products. BEARHFTI finds that the requirement for an exemption label is unnecessary and unduly burdensome on manufacturers, and therefore proposes to eliminate it.²²

Evaluation of Potential Environmental Impacts

BEARHFTI 's Initial Study follows. On the basis of this study, BEARTHFTI has concluded that there is no possibility that the project as proposed will result in a significant environmental impact.

BEARHFTI 20

²² For additional detail on the project, please refer to the project's initial statement of reasons, available at: http://www.bhfti.ca.gov/about/laws/propregs.shtml.

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Chapter 3: Environmental Checklist

Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway				\boxtimes
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				\boxtimes

Aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and aesthetic or scenic appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual character and quality of the environment, aesthetic impacts may occur.

Discussion

No Impact. The proposed project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, so no changes to the existing visual character of communities would occur. The proposed project would have **no impact** on aesthetics.

Agriculture and Forest Resources

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Potentially Less Than Less Than No Range Assessment Project and the Forest Legacy Assessment Significant Significant Significant Impact Impact with Project; and the forest carbon measurement methodology Impact provided in Forest Protocols adopted by the California Air Mitigation Resources Board. Would the project: a) Convert Prime Farmland, Unique Farmland, or Farmland of \mathbb{N} Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? d) Result in the loss of forest land or conversion of forest land to non-forest use? e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

California is the nation's top agricultural producer, but has experienced significant farmland loss as a result of urbanization. Agricultural land conservation is a priority of many local governments in the state. Farmland is classified by the California Department of Conservation according to its ability to support crops or livestock. The most commonly used system for classifying agriculture in California is the Farmland Mapping and Monitoring Program (FMMP). In addition, The California Land Conservation Act of 1965,²³ commonly known as the Williamson Act, provides incentives to property owners, in the form of property tax reductions to keep their lands in active agricultural production.

California is also home to extensive forest land and is an important producer of timber. Timber production land must be balanced with forest conservation, which has caused forest and timber resources to be limited.

²³ California Government Code section 51200-51295

Discussion

No Impact. The proposed project would not authorize any specific land use or site specific uses. The Plan would not result in conversion of land from agricultural or forest to other uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, so there would be no risk of affecting agricultural or forest resources. The proposed project would have **no impact** on agricultural or forest resources.

Air Quality

established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Significant Impact	Significant with Mitigation	Significant Impact	Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?				
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
d) Expose sensitive receptors to substantial pollutant concentrations?				
e) Create objectionable odors affecting a substantial number of people?				\boxtimes

Air quality within California is regulated by the U.S. Environmental Protection Agency (U.S. EPA), and California Air Resources Board (ARB), and by local air quality management districts or air pollution control districts. Air quality outside of California is regulated by respective state environmental quality agencies and the EPA.

Concentrations of several air pollutants—ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), and lead—indicate the quality of ambient air and are therefore the premise of air quality regulations. Because these pollutants are the most prevalent air pollutants known to be harmful to human health, they are commonly referred to as "criteria air pollutants." Their effects on human health have been studied in depth, and their criteria for affecting health have been documented. Acceptable levels of exposure to criteria air pollutants have been determined and ambient standards have been established for them.

Concentrations of these pollutants are monitored throughout the U.S. and monitoring data is used to designate areas according to their attainment status of ambient air quality standards. When an area is designated "nonattainment" for an ambient air quality standard, air quality planning efforts are initiated to demonstrate how the area intends to reduce emissions and achieve attainment.

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Discussion

Consumer demand for "chemical free" products²⁴ may cause a very small short-term demand in the retail market, possibly generating some minor number of additional vehicle trips to stores and consumer disposal sites. However, these hypothetical additional vehicle trips would only occur in the short-term, would be at most a small number of trips, and are too speculative to quantify.²⁵ Therefore, the proposed project would have no impact on air quality categories contained in the environmental checklist.

²⁴ Meaning any product with fewer amounts of chemicals than available on the market today.

²⁵ For additional commentary on available data, see the Utilities and Service Systems section in this chapter.

Biological Resources

IV. BIOLOGICAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				

California is one of the most biologically diverse areas in the world. Its varied topography and climate have given rise to a remarkable diversity of habitats and a correspondingly diverse array of both plant and animal species. Biological resources in California are regulated and protected by a wide variety of federal, State, and local laws.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, so there would be no risk of affecting aquatic features or natural habitats. There would be **no impact** on biological resources.

Cultural Resources

V. CULTURAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				
d) Disturb any human remains, including those interred outside of formal cemeteries?				

Cultural resources include archaeological sites of prehistoric or historic origin, built or architectural resources older than 50 years, traditional or ethnographic resources, and fossil deposits of paleontological importance. All areas within California have the potential for yielding as yet undiscovered archaeological and paleontological resources and undocumented human remains not interred in cemeteries or marked formal burials.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, so there would be no risk of affecting historic, archaeological, paleontological, or cultural resources. There would be **no impact** on cultural resources.

Geology and Soils

GEOLOGY AND SOILS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?				
ii) Strong seismic ground shaking?				\boxtimes
iii) Seismic-related ground failure, including liquefaction?				\boxtimes
iv) Landslides?				
b) Result in substantial soil erosion or the loss of topsoil?				
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				

California has a diverse, complex and seismically active geology that includes a vast array of landforms. Seismic activity in California is still ongoing, and can present a hazard to people and property. Risks are greater in fault zones. Soils are fundamental and largely non renewable resources that are the basis for high level sustained yields of agricultural commodities, forest products, and provide support to the wide variety of ecological communities throughout the State.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, so there would be no risk of affecting geologic resources. In addition, the project would not involve the siting of new people or structures, so there would be no potential for risk associated with geologic hazards. There would be **no impact** on geologic resources or soils.

Greenhouse Gases

Greenhouse Gas Emissions. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			⊠ OR	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. GHGs are responsible for "trapping" solar radiation in the earth's atmosphere, known as the greenhouse effect. Major GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Human caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is extremely unlikely that global climate change of the past 50 years can be explained without the contribution from human activities. By adoption of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, and Senate Bill (SB) 97, the state of California has acknowledged that the effects of GHG emissions cause adverse environmental impacts. AB 32 mandates that emissions of GHGs must be capped at 1990 levels by the year 2020.²⁷

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. Although the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

Discussion

As previously discussed in the air quality section, some minor number of vehicle trips <u>may</u> indirectly be generated by this project in the short-term, with associated greenhouse gas increases. These vehicle trips are expected to be quite limited, because empirical data suggests that very few customers will accelerate replacement of their furniture based on BEARHFTI's promulgation of a new flammability standard. (See discussion of Utilities and Service Systems, below.) Thus, the greenhouse gas impacts of the project are negligible, and constitute "**no impact**" or a **less than significant impact**.

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²⁶ Intergovernmental Panel on Climate Change [IPCC] 2007:86

²⁷ California Health and Safety Code section 38530

Relying on Bay Area Air Quality Management District, California Air Pollution Control Officers Association, and the California Air Resources Board's guidance on documenting GHG emissions in CEQA analysis, ²⁸ this project would have, at worst, a **less than significant impact** on GHG emissions.

²⁸ For Summary on GHG guidance from varying governmental authorities, *See Note*, Quantifying an Uncertain Future: The Demands of the California Environmental Quality Act and the Challenge of Climate Change Analysis (2012) 43 McGeorge L. Rev. 1065.

Hazards and Hazardous Materials

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				

Hazardous materials are substances with physical and chemical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials are grouped into four categories based on their characteristics: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases). A hazardous waste is any hazardous material that is finished with its intended use and discarded. This may include items such as spent fuels, industrial solvents and chemicals, process water, and other spent materials (i.e., some types of batteries and fuel cells).

The following is a list of some of the chemicals that have been or are currently used in products that BEARHFTI tests for compliance with the existing TB 117 flammability standard. It is important, however, to understand that BEARHFTI does not regulate the use of these substances. BEARHFTI's sole responsibility is to ensure that specified materials in products, whether or not treated with these chemicals, meet flammability standards.

- PentaBDE: Pentabromodiphenyl ether; CAS 32534-81-9
- TBP-AE or ATT: 2,4,6-tribromophenyl allyl ether; CAS 3278-89-5
- BTBPE: 1,2-Bis(2,4,6-tribromophenoxy)ethane; CAS 37853-59-1
- BEHTBP: bis(2-ethylhexyl) tetrabromophthalate; CAS 26040-51-7
- BTBPIE: 1,2-Bis(tetrabromophthalimido)ethane; CAS 32588-76-4
- DBDPE: Decabromodiphenylethane; CAS 84852-53-9
- DBHC-TCTD or HCDBCO: 5,6-Dibromo-1,10,11,12,13,13-hexachloro-11-tricyclo[8.2.1.02,9]tridecene; CAS 51936-55-1
- DP: Dechlorane Plus, Bis (hexachlorocyclopentadieno)cyclooctane; CAS 13560-89-9
- TBP-DBPE: 2,4,6-Tribromophenyl 2,3-dibromopropyl ether; CAS 35109-60-5
- HBB: Hexabromobenzene; CAS 87-82-1
- HBCDD1 or HBCD: Hexabromocyclododecane; CAS 3194-55-6; Major isomers are: α-, β-and γ-HBCDD
- PBEB: Pentabromoethylbenzene; CAS 85-22-3
- PBT: Pentabromotoluene; CAS 87-83-2
- POPs: Persistent Organic Pollutants
- SCCP: Short-chain chlorinated paraffins; CAS 85535-84-8 and 71011-12-6
- EH-TBB or TBB: 2-Ethylhexyl-2,3,4,5-tetrabromobenzoate; CAS 183658-27-7
- TBBPA: Tetrabromobisphenol A; CAS 79-94-7
- TBBPA-DAE; Tetrabromobisphenol A diallyl ether; CAS 25327-89-3
- TBBPA-DBPE: Tetrabromobisphenol A bis(2,3-dibromopropyl) ether; CAS 21850-44-2
- TBECH: 1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane; CAS 3322-93-8
- DEHTBP or TBPH: Di(2-ethylhexyl) tetrabromophthalate; CAS 26040-51-7
- TCEP: Tris(2-chloroethyl) phosphate; CAS 115-96-8
- TDCPP or TDCP: Tris(1,3-dichloroisopropyl) phosphate; CAS 13674-87-8²⁹

Discussion

These chemicals have entered our homes and waste streams for several decades. This project will neither directly nor indirectly increase the use and prevalence of these materials in furniture or other regulated products, and is expected to decrease the use of such chemicals.

Cover Materials

The proposed project's focus on a performance standard, and change from a focus on filling materials to cover materials, could hypothetically lead manufacturers to begin treating cover materials with the same or different chemicals historically used on filling

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²⁹ San Antonio Statement on Brominated and Chlorinated Flame Retardants and associated Supplemental Materials, available at: http://www.greensciencepolicy.org/SAS#supplemental material; Blum, Arlene Ph.D., Green Science Policy Institute "Why we need fire-safe furniture without flame retardants", Version 1, November 2012.

materials. While this is theoretically possible, it is highly unlikely, and is not anticipated to occur. In numerous public statements, the furniture industry has indicated that 80 to 90 percent of its existing fabrics are smolder-resistant, and that manufacturers plan to use a barrier for the remaining 10-20 percent of the fabrics.

Only cover fabrics made entirely, or mostly, of cellulosic fibers (cotton, rayon) are likely to smolder and fail a smoldering test. Such fabrics are primarily used in high-end furniture, which also use physical barriers for fire prevention, because the barriers are not cost prohibitive. For these reasons, a manufacture changing the treatment of its cover fabrics to include more chemicals is a remote and unrealistic scenario.

Potential Environmentally Beneficial Impact

In addition, there <u>may</u> be a beneficial impact to the environment because manufacturers of applicable products can choose to use fewer or no chemicals on their products to meet the proposed flammability standard. BEARHFTI cannot accurately determine what individual manufacturers will choose to do in order to comply with the proposed standard, therefore any potential benefit is too speculative to accurately quantify. Therefore, there would be <u>no impact</u> to the environment from hazards and hazardous materials from this project.

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Hydrology and Water Quality

IX. HYDROLOGY AND WATER QUALITY: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?				
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				
f) Otherwise substantially degrade water quality?				
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				\boxtimes
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				
j) Inundation by seiche, tsunami, or mudflow				\boxtimes

Both groundwater and surface water are used extensively in California for agricultural, municipal, and industrial water supplies. The water quality of surface waters and groundwater varies throughout California. Potential surface sources of water quality impairments include point sources (direct discharges to water bodies) and dispersed non-point sources (e.g., stormwater runoff). Continuous point source discharges such as domestic wastewater treatment plants can be a source of elevated levels of organic carbon, nutrients (i.e., nitrogen and phosphorus), salinity, or trace metals and organic compounds relative to natural background water concentrations. Potential domestic wastewater discharges of pharmaceutical and other personal care products have been identified as potentially contributing adverse long-term toxic effects to aquatic organisms. Urban stormwater runoff from residential, commercial, and industrial land

uses can mobilize and convey trash, oils, grease, trace metals (e.g., copper and zinc) to drainage systems and natural receiving water bodies. Stormwater runoff from residential and agricultural areas can also contain sediment, pesticides, herbicides, nutrients (e.g., fertilizers), and pathogens (e.g., bacteria and viruses from fecal wastes of pets and livestock). Groundwater quality may be adversely affected by all of the sources contributing to surface water impairment discussed above, particularly in alluvial aquifers that are recharged directly through, by infiltration and percolation of surface water. Direct inputs of wastes to groundwater include sub-surface sources such as inadequately contained solid waste landfills, failing residential and commercial septic system leachfields, and leaking underground storage tanks that contain fuels, oils, or other industrial chemicals.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project. Program products would be handled within the capacity of existing facilities, which are connected to the existing water distribution system. There would be **no impact** associated with water quality, water supply, or drainage patterns.

In addition, the proposed project would not include construction of any housing or structures. Therefore, no housing would be placed within a flood zone as a result of this project, and no impeded or redirected flows would occur. The project would not expose people or structures to risks involving flooding, seiche, tsunami, or mudflow. **No water-related impacts** would occur.

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Land Use and Planning

X. LAND USE AND PLANNING: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c) Conflict with any applicable habitat conservation plan or				

Local governments possess the basic legal authority to control land use, which is part of the police powers to protect community health, safety, and welfare conferred to state governments under the U. S. Constitution and, in turn, delegated by the state to local governments.

Zoning is a land use tool used by governments to separate land uses that are considered to be incompatible due to the nature of activities that are often associated with the respective land uses. Existing permanent HHW collection facilities and recycling facilities would be sited in areas that would be zoned for industrial and/or commercial uses. Existing retail collection points would be zoned for commercial uses.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project; therefore, no changes in land use would occur. There would be **no impact** to land uses.

Mineral Resources

XI. MINERAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				

Mineral resources are all the physical materials that are extracted from the earth for use. Mineral reserves are known deposits of minerals that can be legally mined economically using existing technology.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project, and no mineral resources are required for this project, so there would be no risk of affecting mineral resources. There would be **no impacts** to mineral resources.

Noise

XII. NOISE: Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				

Existing conditions are governed by the presence of noise sensitive receptors, the location and type of noise sources, and overall ambient levels. Noise sensitive land uses are generally considered to include those uses where noise exposure could result in health related risks to individuals, as well as places where a quiet setting is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship and transit lodging, and other places where low interior noise levels are essential, are also considered noise sensitive. Those noted above are also considered vibration sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses, and would not involve the siting of sensitive receptors. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project; therefore, the project would not result in exposure to additional noise. **No noise-related impact** would occur.

Population and Housing

XIII. POPULATION AND HOUSING: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				

Population is projected by the California Department of Finance. Population and housing is addressed at the municipal land use planning level. Cities and counties allocate housing in their general plans to accommodate population projections.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project. The project would not result in an increase in population density or necessitate infrastructure improvements. The project would not displace housing or people, and would not necessitate the construction of replacement housing. Therefore, no changes in land use would occur. There would be **no impact** to population or housing.

Public Services

XIV. PUBLIC SERVICES:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				
Police protection?				
Schools?				
Parks?				
Other public facilities?				\boxtimes

Public services include law enforcement, fire protection and emergency medical response, schools, and parks.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. No new retail or manufacturing facilities would be constructed as a result of the proposed project. Therefore, the project will not require additional public service protections or public facilities. There will be **no impact** to public services.

Recreation

XV. RECREATION:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might				

Recreational resources and facilities are provided and managed at federal, state, and local levels. Recreational facilities and resources in California include, but are not limited to: national, state, regional, and local parks, national forests and grasslands, wildlife refuges, wilderness areas, lakes, campgrounds, museums, wild and scenic rivers, and back country byways, trials, and marine reserves and estuaries.

Discussion

No Impact. The project would not authorize any specific land use or site specific uses. There is an established infrastructure inside and outside of California for manufacturing upholstered products. Complying with the proposed project would use this existing infrastructure. The project would not result in an increase in population or housing. Therefore, the project would not result in increased use of existing parks or other recreational facilities and **no impact** to recreational resources would occur.

Transportation and Traffic

XVI. TRANSPORTATION/TRAFFIC: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				
e) Result in inadequate emergency access?				\boxtimes
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise				

Existing roadway systems in the State generally consist of highways, freeways, arterials, local streets, and intersections/ramps. The existing average annual daily traffic (AADT) volumes on the roadway segments that comprise these systems vary considerably (i.e., from hundreds to hundreds of thousands). The level of service (LOS), a scale used to determine the operating quality of a roadway segment or intersection based on volume to capacity ratio (V/C) or average delay, also vary from LOS A, the best and smoothest operating conditions, to LOS F, most congested operating conditions. Other roadway and traffic volume characteristics, such as roadway length, number of lanes and facility type (e.g., two lane freeway), right of way width and pavement width, terrain classification (e.g., flat), percent of heavy duty truck traffic, and accident rates (e.g., number of accidents per million vehicle miles traveled) also vary substantially depending on the location. In addition to the roadway systems, circulation networks provide additional transportation opportunities and include mass transit, airports, and non motorized travel (e.g., pedestrian and bicycle paths).

Discussion

No Impact. The proposed project will not affect existing manufacturing and retail transportation of upholstered products. Therefore, the project will have **no impact** on transportation and traffic.

Utilities and Service Systems

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			\boxtimes	
g) Comply with federal, state, and local statutes and regulations related to solid waste?				\boxtimes

<u>Wastewater and Sewer:</u> The California State Water Resources Control Board (SWRCB) is the State agency responsible for the regulation of wastewater discharges to surface waters and groundwater via land discharge. The Regional Water Quality Control Boards (RWQCBs) are responsible for issuing permits or other discharge requirements to individual wastewater dischargers and for ensuring that they are meeting the requirements of the permit through monitoring and other controls.

Municipal wastewater collection, treatment, and disposal are the responsibilities of local government or special districts. Wastewater collection is accomplished by sanitary sewers, which sometimes have interconnections with storm sewer systems.

<u>Water Supply:</u> The principal water supply facilities in California are operated by the U.S. Bureau of Reclamation (USBR) and the California Department of Water Resources (DWR). USBR is responsible for the management of the Central Valley Project; DWR is a State agency that is responsible for managing and implementing the State Water Project.

<u>Electricity and Natural Gas:</u> The California Public Utilities Commission (CPUC) regulates investor owned electric and natural gas companies located within California. Locally, energy service is provided by a public or private utility.

Solid Waste Disposal: Statewide, the Department of Resources Recycling and Recovery (CalRecycle) is responsible for the regulation of the disposal and other handling of solid waste in California. Under the supervision of CalRecycle, and pursuant to regulations adopted by CalRecycle, locally designated public agencies serve as enforcement agencies in the approval and regulation of solid waste disposal facilities, transfer/processing stations, compost facilities and other solid waste handling activities.

Discussion

<u>Wastewater and Sewer:</u> This project would have **no impact** wastewater and sewer systems throughout the state.

<u>Water Supply:</u> This project would have **no impact** on water supplies throughout the state.

<u>Electricity and Natural Gas:</u> This project would have **no impact** on electricity or natural gas in the state.

Solid Waste Disposal: While BEARHFTI regulations prescribe a performance standard, and by no means regulate the use of chemicals in upholstered furniture, a minor, short-term impact to the environment may occur due to this regulation. Specifically, the foreseeable indirect adverse environmental impact from the proposed project is that the availability of chemical-flame-retardant-free furniture and juvenile products may induce some Californians to dispose of their flame-retardant-containing products before the end of the products' useful life. This behavior would accelerate the material through-put and increase total landfill waste, albeit to a small degree. It is also conceivable that filling manufacturers, furniture manufacturers, or retailers could be left with, and therefore dispose of, inventory that the supply chain no longer desires, resulting in landfill waste. For the reasons below, these impacts are anticipated to be less than significant.

In-Built Mechanisms That Obviate Waste Impacts

BEARHFTI's regulation contains several in-built mechanisms to minimize the likelihood of early disposal of furniture or components. These include:

- Retailer sell-through provision: Retailers are not required to adhere to new requirements until January 1, 2015. This compliance date – which represents an extension of previously proposed deadlines -- was set to give manufacturers additional time to comply, and to ensure that they have ample time to deplete their current product inventory.³⁰
- Pre-promulgation consultation: BEARHFTI met with manufacturers on several occasions, prior to noticing of this regulation, and held two public workshops, in order to ensure that proposed compliance deadlines would have minimal impact to business practices and reduce wasted materials and inventory.

³⁰ This is discussed in further detail in the TB 117-2013 Initial Statement of Reasons, pages: 19-20, 22-24.

• Fire-safety focus of rulemaking: While environmental benefits of this rulemaking have been widely discussed, ³¹ BEARHFTI's primary focus is ensuring the regulation is the best fire safety enhancement measure. The Bureau's discussions with stakeholders and industry indicate that this focus, rather than a focus on chemical composition, will minimize early consumer disposal, because nothing in the regulation suggests that there is any urgency to replacing existing furniture before the end of its useful life. The relatively high capital cost of furniture (in the spectrum of consumer product purchases) also suggests that few consumers will replace fully functional furniture before the end of its useful life.

The remaining impact analysis looks at the various stages of the supply chain in turn, and concludes with an aggregate analysis.

Impacts at Component Part Manufacturing Stage

This project is likely to greatly reduce chemical treatments to foam used in upholstered furniture as well as in specified juvenile products. It is important to note that the treated foams and other materials must be utilized in short time frames after treatment (*i.e.*, after component parts are treated assembly must occur within several weeks). Therefore, component material inventories are depleted and replenished every few weeks. As a result, the industry compliance with these rules will not result in unused products that will be disposed of.³²

Impacts at Product Assembly Stage

BEARHFTI worked with industry in setting the January 1, 2015 compliance date so that materials at the assembly stage will not sit in warehouses and never be purchased and therefore need to be disposed of. The compliance date ensures that industry has ample time to change their treatment practices so that no existing inventory will be wasted.³³

Impacts at the Retail Stage

Similar to the assembly stage impacts, BEARHFTI's sell-through provisions and compliance date ensure that no products will languish in a furniture store and require disposal.³⁴

³¹ See Office of the California Governor Press Release: "Governor Brown Directs State Agencies to Revise Flammability Standards" June 18, 2012, http://gov.ca.gov/news.php?id=17598

The Bureau consulted with the Polyurethane Foam Association and the American Home Furnishings
 Alliance on the production of foam and the storage of foam, respectively. Foam is manufactured and distributed in a just-in-time basis, meaning it is kept in inventory for very little time.
 In July 2012, the Bureau held two public workshops on implementation of a new residential upholstered

³³ In July 2012, the Bureau held two public workshops on implementation of a new residential upholstered furniture standard to garner feedback from industry. Subsequent to the public workshops, several additional meetings with various members of industry were convened to discuss potential impacts and to identify the appropriate transition period needed to minimize such impacts. Meetings were held with representatives from both the California and National Associations of furniture manufacturers, various manufacturers, retailers, and the polyurethane foam and textile associations.

³⁴ Furniture retailers may sell through their current inventory of products without the restriction of a sell by date. Any new products purchased by retailers, on or after January 1, 2015, must meet the requirements of the new standard. Depletion of inventory of upholstered furniture varies by retailer however, not mandating a sell by date of furniture already manufactured, ensures that products will not be disposed of prematurely.

Impacts at the Customer Use and Disposal Stage

Consumer premature disposal of existing furniture may cause a small environmental impact. As discussed below, BEARTHFTI has concluded that this does not rise to a level of significance.

Consumer Awareness Impact

In reaching its conclusion that there will be minimal expedited replacement of existing furniture, BEARHFTI took into consideration how many consumers will even become aware of the proposed changes, and what subset of those might be motivated to replace their products based on this knowledge. Although there is little information available on this factor, BEARHFTI communicated with several experts in the field to better understand the prevalence of such accelerated-replacement behavior.

Arlene Blum, PhD, Executive Director of the Green Science Policy Institute, indicated that the Institute received 120 comments, nationwide, in 2012 relating to the use of flame retardants in upholstered furniture. Only seven, or less than six percent, of these informed consumers' comments indicated that they wished to discard their furniture sooner than expected. The majority of consumers instead indicated that they were already in the market for new furniture and were inquiring for ways to determine which products were chemical free.³⁵

Furthermore, the consumer population that would dispose of their current furniture would not necessarily do so in a landfill. Many are likely to donate it to charity so that its full potential useful life is utilized or recycle it. 36

In addition, the American Home Furnishings Alliance indicated that in 2005, the flame retardants penta- and octa-BDE were phased out of furniture. However, despite wide media coverage of the phase-out, "the industry did not experience a marked increase in sales" of furniture. 37

Consumer Behavior with Recalled Items

Studies involving consumer behavior when dealing with products subject to recall may help explain probable behavior due to the implementation of this project. In July of 2003, CPSC received a report prepared on its behalf entitled: "Recall Effectiveness Research: A Review and Summary of the Literature on Consumer Motivation and Behavior."38

Letter received from Green Policy Institute, dated January 16, 2013, Appendix A.
 CalRecycle Illegal Dumping Technical Advisory Committee May 23, 2012 meeting minutes, Item VI, A, available at: http://www.calrecycle.ca.gov/illegaldump/taskforce/2012May/Minutes.

Tetter received from American Home Furnishings Alliance, January 22, 2012, Appendix B.

³⁸ http://www.cpsc.gov/library/foia/foia03/media/recalleffectiveness.pdf

The report stated:

The research collected and reviewed for this project details the large number of steps required for a recall message to achieve an active response from an affected product user. Users must receive the message, internalize and comprehend its instructions, determine that a response is necessary, and be willing to perform that response even if there are costs associated with doing so. In the case of product recalls, they must follow through on that willingness to check if they have an affected product, then take additional actions to eliminate or reduce the hazard.

There is little data available that quantifies the effectiveness of product recalls, an even less that accounts for changes in consumer behavior due to the expanded use of the internet and social media. However, several sources indicate that the actual return of dangerous and defective products is around 18 percent.³⁹

This indicates that even when companies and government entities are actively trying to recall products in extremely hazardous situations, consumers' response rates are low. In addition, consumer behavior to replace a recalled product is likely substantially greater than how consumers respond to regulatory efforts like BEARHFTI's present project.

Similar Government Environmental Analyses

Proposed federal flammability regulations, similar to this project, have been analyzed for potential environmental impacts. In each analysis the CPSC concluded that there was no significant impact pursuant to National Environmental Policy Act requirements.

 In 2005, CPSC proposed standards for the open flame testing of flammability of mattresses and mattress foundation sets. As part of its study into environmental considerations, it looked at the impact mattresses and mattress sets would have: "at the end of their useful lives, the [materials] will be disposed of."

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House Report 110-366, October 9, 2007, available at: http://www.gpo.gov/fdsys/pkg/CRPT-110hrpt366.htm; Ross, Kenneth "'Adequate and Reasonable' Product Recalls" October 2003, available at: http://www.productliabilityprevention.com/images/1-AdequateandReasonableProductRecalls10.03.pdf
 Federal Register / Vol. 70, No. 9 / Thursday, January 13, 2005 / Proposed Rules / Pages 2470, 2491-

⁴⁰ Federal Register / Vol. 70, No. 9 / Thursday, January 13, 2005 / Proposed Rules / Pages 2470, 2491-2492. The Final Rulemaking had similar finding, See: Federal Register / Vol. 71, No. 50 / Wednesday, March 15, 2006 / Rules and Regulations / Pages 13472, 13495-13496.

In 2008, CPSC proposed standards for the flammability of residential upholstered furniture. As part of its study into environmental considerations it looked at the effect of changes in chemical compositions on upholstered furniture and the fact that the rule "minimize[d] the need for manufacturers to use [chemicals] to comply with the standard."41

Conclusion

Any increase in demand for solid waste disposal services generated by the project is expected to be very small, and could be adequately served by existing capacity at solid waste facilities throughout the state. Likewise, the volume of solid waste generated by the project, although too speculative to be estimated, would not be such that the anticipated closure dates of receiving landfills would be affected. Recycling of appropriate materials could also reduce the impact upon landfill capacity in the state.

The project would comply with all applicable regulations related to solid waste; therefore, the impact is considered less than significant.

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⁴¹ Federal Register / Vol. 73, No. 43 / Tuesday, March 4, 2008 / Proposed Rules / Pages 11702, 11738-11739.

Mandatory Findings of Significance

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				

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Chapter 4: References

Statutes

California Business and Professions Code sections 9810, 19031, 19161, 19161.5.

California Government Code sections 51200-51295.

California Health and Safety Code section 38530.

California Public Resources Code sections 21000-21189.3.

Regulations

Title 14, California Code of Regulations sections 15000-15387.

Court Case

Gentry v. City of Murrieta (2011) 36 Cal.App.4th 1359, 1379.

BEARHFTI Materials

TB 117-2013 Regulatory Materials Available at: http://www.bhfti.ca.gov/about/laws/propregs.shtml

- California Administrative Procedure Act Documents
 - Notice of Proposed Changes
 - Proposed Regulatory Language
 - Initial Statement of Reasons (Including Attachments 1-11)
- California Environmental Quality Act Documents
 - Notice of Intent to Adopt a Negative Declaration
 - o Initial Study/Proposed Negative Declaration

ASTM E-1353-08a^{£1} copyrighted standard, available for review, not copying, at BEARHFTI's headquarters: 4244 South Market Court, Suite D, Sacramento, California 95834.

BEARHFTI Correspondence and Public Workshops

Blum, Arlene Ph.D., Green Science Policy Institute, Letter to BEARHFTI, dated January 16, 2013, Appendix A.

Counts, Andy S., American Home Furnishings Alliance, Letter to BEARHFTI, dated January 22, 2012, Appendix B.

BEARHFTI conducted two public workshops to discuss the proposed requirements, test procedure, and apparatus for testing the smolder resistance of upholstered furniture.

- July 23, 2012, 10:00am 3:00pm, Department of Consumer Affairs 1st Floor Hearing Room, 1625 North Market Blvd., Sacramento, CA 95834
- July 25, 2012, 10:00am 3:00pm, Department of Consumer Affairs Bureau of Automotive Repair, 1450 Iowa Avenue, Suite 150, Riverside, CA 92507

Reports and Studies

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CalRecycle Illegal Dumping Technical Advisory Committee May 23, 2012 meeting minutes, Item VI, A: Discussing ratio of landfill disposed versus recycled mattresses and box springs, available at:

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Federal Register, Vol. 71, No. 50, Wednesday, March 15, 2006, Rules and Regulations, Pages 13472, 13495-13496.

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Office of the California Governor, Press Release: "Governor Brown Directs State Agencies to Revise Flammability Standards" June 18, 2012, http://gov.ca.gov/news.php?id=17598

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AdequateandReasonableProductRecalls10.03.pdf.

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"Smoking-Related Fires in Residential Buildings (2008-2010)" Dept. of Homeland Security, Federal Emergency Management Agency Topical Fire Report Series Volume 13, Issue 6 / June 2012, available at: http://www.bhfti.ca.gov/about/laws/attach 9.pdf.

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Chapter 5: Report Preparation

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Appendix A

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Appendix B

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