

TABLE 1.—REGISTRATIONS WITH REQUESTS FOR AMENDMENTS TO DELETE USES IN CERTAIN PESTICIDE REGISTRATIONS

EPA Registration No.	Product Name	Active Ingredient	Delete from Label
1448-92	BUSAN 1024	1-Methyl-3,5,7-triaza-1-azoniatriacyclodecane Chloride (Busan 1024)	laundry starch, petroleum production and recovery, textiles, papermaking chemicals and coatings, metalworking fluids

Users of these products who desire continued use on crops or sites being deleted should contact the applicable registrant before September 12, 2008 to discuss withdrawal of the application for amendment. This 30-day period will also permit interested members of the public to intercede with registrants prior to the Agency's approval of the deletion.

Table 2 of this unit includes the names and addresses of record for all registrants of the products listed in Table 1 of this unit, in sequence by EPA company number.

TABLE 2.—REGISTRANTS REQUESTING AMENDMENTS TO DELETE USES IN CERTAIN PESTICIDE REGISTRATIONS

EPA Company Number	Company Name and Address
1448	Buckman Laboratories, Inc. 1256 North McLean Blvd. Memphis, TN 38134

**III. What is the Agency's Authority for Taking this Action?**

Section 6(f)(1) of FIFRA provides that a registrant of a pesticide product may at any time request that any of its pesticide registrations be amended to delete one or more uses. The FIFRA further provides that, before acting on the request, EPA must publish a notice of receipt of any such request in the **Federal Register**. Thereafter, the Administrator may approve such a request.

**IV. Procedures for Withdrawal of Request**

Registrants who choose to withdraw a request for cancellation must submit such withdrawal in writing to the person listed under **FOR FURTHER INFORMATION CONTACT**, postmarked before September 12, 2008. This written withdrawal of the request for cancellation will apply only to the applicable FIFRA section 6(f)(1) request listed in this notice. If the products have been subject to a previous cancellation action, the effective date of cancellation and all other provisions of any earlier cancellation action are controlling.

**V. Provisions for Disposition of Existing Stocks**

The Agency has authorized the registrants to sell or distribute product under the previously approved labeling for a period of 18 months after approval of the revision, unless other restrictions have been imposed, as in special review actions.

**List of Subjects**

Environmental protection, Pesticides and pests, Antimicrobials, Busan 1024.

Dated: August 1, 2008.

**Mark A. Hartman,**

*Acting Director, Antimicrobials Division, Office of Pesticide Programs.*

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**ENVIRONMENTAL PROTECTION AGENCY**

[FRL-8703-5]

**Notice of Decision Regarding the State of Texas Request for a Waiver of a Portion of the Renewable Fuel Standard**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** The Governor of the State of Texas requested a waiver of 50 percent of the renewable fuel standard (RFS or RFS mandate) for the time period from September 1, 2008 through August 31, 2009, pursuant to section 211(o)(7) of the Clean Air Act (the Act), 42 U.S.C. 7545(o)(7). Based on a thorough review of the record in this case, EPA finds that the evidence does not support a determination that implementation of the RFS mandate during the time period at issue would severely harm the economy of a State, a region, or the United States. EPA is therefore denying the request for a waiver. In this Notice EPA is also providing guidance on the Agency's general expectations for future waiver requests.

**DATES:** Petitions for review must be filed by October 14, 2008.

**ADDRESSES:** EPA has established a docket for this action under Docket ID

No. EPA-HQ-OAR-2008-0380. All documents and public comment in the docket are listed on the [www.regulations.gov](http://www.regulations.gov) Web site. Publicly available docket materials are available either electronically through [www.regulations.gov](http://www.regulations.gov) or in hard copy at the Air and Radiation Docket in EPA Headquarters Library, EPA West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744. The Air and Radiation Docket and Information Center's Web site is <http://www.epa.gov/oar/docket.html>. The electronic mail (e-mail) address for the Air and Radiation Docket is: [a-and-r-Docket@epa.gov](mailto:a-and-r-Docket@epa.gov), the telephone number is (202) 566-1742, and the Fax number is (202) 566-9744.

**FOR FURTHER INFORMATION CONTACT:**

James W. Caldwell, Office of Transportation and Air Quality, Mailcode: 6406J, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; telephone number: (202) 343-2802; e-mail address: [Caldwell.jim@epa.gov](mailto:Caldwell.jim@epa.gov).

**SUPPLEMENTARY INFORMATION:**

**I. Executive Summary**

The RFS program, which requires the use of renewable fuels in the U.S. transportation sector, was originally adopted by Congress in the Energy Policy Act of 2005 (EPA Act). This program was recently modified by Congress in the Energy Independence and Security Act of 2007 (EISA). The RFS program provides that the Administrator, in consultation with the Secretaries of Agriculture and Energy, may waive the national renewable fuel volume requirements, in whole or in part, if the Administrator determines that implementation of the requirement would severely harm the economy or environment of a State, region, or the United States (see Clean Air Act section 211(o)(7)(A)).

On April 25, 2008, the Governor of the State of Texas requested a fifty percent waiver of the national volume requirements for the renewable fuel standard (RFS or RFS mandate). Texas

based its request on the assertion that the RFS mandate is unnecessarily having a negative impact on the economy of Texas, specifically that increased ethanol production is contributing to increased corn prices which are negatively affecting its livestock industry and food prices. EPA published in the **Federal Register** a notice of receipt of this request and invited public comment on all issues relevant to making a decision on Texas's request.

After considering all of the public comments, and consulting with the Secretaries of Agriculture and Energy, EPA has determined that the waiver request should be denied. In making this decision, EPA has interpreted the statutory provisions to require: a determination based on the expected impact of the RFS program itself, a generally high degree of confidence that implementation of the RFS program would severely harm the economy of a State, region, or the United States, and a high threshold for the nature and degree of harm by requiring a determination of severe harm. EPA and almost all commenters recognize that there are many factors that affect the use of biofuels in the U.S. and the overall impact of such use. However, the RFS waiver provision calls for EPA to evaluate a much narrower set of issues, focusing on just the impact of the RFS mandate.

With this framework in mind, EPA evaluated all of the evidence concerning the issues that are relevant under the waiver provision. In its supplemental comments, Texas requested that the waiver request focus on the 2008/2009 corn marketing year. EPA agrees that looking at the impact with and without a waiver over this time frame is an important way to identify the impact of implementation of the RFS program. Several commenters submitted modeling analyses that looked at the impact of a waiver of the RFS mandate on ethanol production, corn prices, fuel prices, and other related impacts. In addition to evaluating the information submitted by Texas and other commenters, the Agency conducted its own analysis. In consultation with the United States Department of Agriculture (USDA) and the United States Department of Energy (DOE), EPA reviewed several economic models and chose a model created by researchers at Iowa State University (ISU model) to analyze the impact of the RFS on corn, ethanol, and gasoline prices based on uncertainty in key variables such as crop yields and crude oil prices. As part of our analysis, EPA reviewed the underlying data and assumptions in the

ISU model for their appropriateness. In this context, EPA believes the ISU modeling reflects the most recent data available, is well designed and documented, and provides a number of advantages over other approaches to analyzing the issues relevant for this decision. EPA also considered current market conditions influencing the production of ethanol in the U.S. such as high oil prices and the large existing production capacity of the U.S. ethanol industry, as well as other empirical data including historical and current Renewable Identification Number (RIN) credit prices.

First, after weighing all of the evidence before it, EPA determined that the evidence does not support a finding that implementation of the RFS "would" harm the economy of a State, region, or the United States, because the evidence does not reach the generally high degree of confidence required for issuance of a waiver under CAA section 211(o)(7)(A). On this issue, EPA believes that this body of information supports the determination that the most likely result is that the RFS would have no impact on ethanol production volumes in the relevant time frame, and therefore no impact on corn, food, or fuel prices.<sup>1</sup>

Second, on the issue of the severity of any harm, the weight of all of the evidence also indicates that were the RFS mandate to have an impact on the economy during the 2008/2009 corn marketing year, it would not be of a nature or magnitude that could be characterized as severe. Even in the modeled scenarios where a waiver of the RFS mandate might reduce the production of ethanol, the resulting decrease in corn prices is anticipated to be small (on average \$0.30 per bushel of corn), and there would be an accompanying small increase in the price of fuel (on average \$0.01 per gallon in fuel costs). Such levels of potential impacts from the RFS program do not satisfy the high threshold of harm to the economy to be considered severe. We also conducted a sensitivity analysis on a low probability scenario with larger potential impacts, the results of which are presented below.

EPA also received comment on several issues not associated with the economic impacts of RFS. These include comments on the general economic and environmental impacts of the recent increase in biofuels, and the effect of the use of biofuels on commodity markets. EPA recognizes

<sup>1</sup> As discussed later, EPA believes that this body of information also supports, the determination that implementation of the RFS would have no significant impact in the relevant time frame.

that Texas and many parties, both those supporting the waiver and those opposing the waiver, have raised issues of great concern to them and to others in the nation concerning the role of biofuels in our country. However, the issue before the Agency in this case is much more limited, as described below in our discussion of EPA's authority under section 211(o)(7)(A) of the Act. Based on a thorough review of the record in this case and by applying the evidence to the statutory criteria, EPA finds that the evidence does not support making a determination that implementation of the mandate would severely harm the economy of a State, region, or the United States.

This decision on the Texas waiver request is based on current circumstances and market conditions. However, we recognize that significant changes could occur in the future with respect to the multiple factors related to the production and use of renewable fuels in the U.S. transportation sector. EPA is committed to monitoring the implementation of the renewable fuels program and its impact on the economy and environment.

This is the first RFS waiver request to be submitted to EPA and many important issues were raised and discussed in the public comment process. In addition to announcing and explaining EPA's decision on the Texas waiver request, in this Notice the Agency is also providing guidance to interested parties on its expectations concerning future requests for a waiver.

## II. Overview of RFS Program

The Energy Policy Act of 2005 (EPAct) amended the Clean Air Act to establish a Renewable Fuel Standard (RFS) Program and gave EPA responsibility for implementing it. EPAct required EPA to issue regulations ensuring that gasoline sold in the U.S., on an annual average basis, contained a specified volume of "renewable fuel." The mandate schedule began at 4.0 billion gallons of renewable fuel in 2006, and increased to 4.7 in 2007, 5.4 in 2008, 6.1 in 2009, 6.8 in 2010, 7.4 in 2011, and 7.5 billion gallons in 2012. The Energy Independence and Security Act of 2007 (EISA) amended the RFS program by extending the years in which Congress specified the required volume of renewable fuels by ten years, increasing the required volumes for the renewable fuel mandate, and adding new, separate mandates starting in 2009 for advanced biofuels, including cellulosic biofuel and biomass-based diesel. EPAct set the 2007 mandate for renewable fuel at 4.7 billion gallons and the 2008 mandate at 5.4 billion gallons.

EISA increases the 2008 and 2009 RFS renewable fuel mandates to 9.0 billion and 11.1 billion gallons. EISA also imposed additional requirements for the use of advanced biofuel and biomass-based diesel in 2009, included within the overall mandate for 11.1 billion gallons of renewable fuel in 2009.<sup>2</sup> EPA had the statutory goal of increasing the volume of renewable fuels that are required to be used in the transportation sector and Congress furthered that goal with the passage of EISA. In this context, implementation of EISA is aimed at reducing dependence on foreign sources of energy, increasing the domestic supply of energy, and diversifying the nation's energy portfolio by requiring the transition from petroleum-based fuels to bio-based alternatives in the transportation sector. In addition, as part of EISA, Congress is requiring EPA to perform a life-cycle analysis of emissions of greenhouse gases associated with the full lifecycle of renewable fuels, and is requiring a minimum level of greenhouse gas reduction to qualify for advanced biofuel, cellulosic biofuel and biomass-based diesel. This will be further discussed in EPA's upcoming second phase renewable fuel standard rulemaking (RFS2), which will implement the renewable fuels provisions of EISA.

### III. EPA's Administrative Process

On April 25, 2008, the Governor of Texas submitted a request to the Administrator under section 211(o)(7) of the Act for a waiver of 50 percent of the RFS "mandate for the production of ethanol derived from grain." The request claims that the mandate is unnecessarily having a negative impact on the economy of Texas and driving up global food prices. In its request Texas specifically identified increased corn prices as having a negative effect on its livestock industry and that a waiver would also provide needed relief to consumers at the grocery store. This initial request did not include substantive supporting data or analyses.<sup>3</sup>

<sup>2</sup> A more detailed discussion of the requirements for different types of biofuels is included in Section V.

<sup>3</sup> Texas subsequently submitted comments during the public comment period, including a recent briefing paper from the Agriculture and Food Policy Center at the Texas A&M University along with an economic analysis on the implications of a RFS waiver on the price of corn and impacts on the livestock industry as well as impacts on the petroleum markets and the broader economy. Texas also clarified that it was asking for a "50-percent reduction in the corn-derived, volumetric ethanol mandates, \* \* \* effectively requesting that EPA, for the foreseeable future, return the RFS system to the status quo prior to enactment of EISA i.e., to the

On May 22, 2008, EPA published a notice requesting comment on the petition submitted by Texas as well as any matter that might be relevant to EPA's action on the petition, specifically including (but not limited to) information that would enable EPA to: (a) Evaluate whether compliance with the RFS is causing severe harm to the economy of the State of Texas; (b) evaluate whether the relief requested will remedy the harm; (c) determine to what extent, if any, a waiver approval would change demand for ethanol and affect corn or feed prices; and (d) determine the date on which a waiver should commence and end if it were granted.<sup>4</sup> As stated in EPA's notice for comment, granting a waiver would reduce the national volume requirements under section 211(o)(2) of the Act, which would have effects in areas of the country other than Texas. Therefore, EPA invited comment on all issues relevant to whether and how the Administrator might exercise his discretion under this waiver provision of the Act, including but not limited to the impact of a waiver on other regions or parts of the economy, on the environment, on the goals of the renewable fuel program, on appropriate mechanisms to implement a waiver if a waiver were determined to be appropriate, and any other matters considered relevant.

EPA's public comment period closed on June 23, 2008. EPA received in excess of 15,000 comments during the comment period; the majority of the comments were short statements generally in support of the Texas request. EPA also received numerous comments from various trade organizations and businesses, Governors and other elected officials, and environmental organizations supporting or opposing the waiver, many of which included references to various studies and reports which are addressed below.

much more moderate trajectory that prevailed under the Energy Policy Act of 2005." Texas states its preference that this be accomplished through a waiver that corresponds to the 2008-2009 crop year (i.e., September 1, 2008 through August 31, 2009). The initial Texas waiver request of April 25, 2008 (Texas waiver request) can be found at EPA-HQ-OAR-2008-0380-0058. The Texas supplemental comments of June 23, 2008 (Texas supplemental comments) can be found at EPA-HQ-OAR-2008-0380-0526. In addition, Texas submitted additional comments after the close of the comment period, on August 6, 2008. These comments can be found at EPA-HQ-OAR-2008-0380. Given the date on which the additional comments were received, EPA's response to them can be found in a Memorandum to the Docket dated August 7, 2008.

<sup>4</sup> 73 FR 29753.

### IV. Key Interpretive Issues

As noted above, Section 211(o)(7) of the CAA provides, in part, that EPA "may waive the [mandated national RFS volume requirements] in whole or in part on petition by one or more States \* \* \* (i) based on a determination by the Administrator \* \* \* that implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States, or (ii) based on a determination by the Administrator \* \* \* that there is an inadequate domestic supply."

This is the first EPA action in response to a petition under this provision, and as a result EPA is addressing a number of questions regarding the scope of this authority. This section discusses EPA's position on the meaning of various key parts of this provision, including EPA's views on the interpretations advanced by Texas and other commenters. Because Texas argues that a waiver is justified under the claim that "implementation of the RFS program would severely harm the economy \* \* \* of a State, a region or the United States," we have focused our review on this provision.

#### 1. Implementation of the RFS Itself Must Severely Harm the Economy

The statute authorizes a waiver where "implementation of the requirement would severely harm the economy." Texas and several commenters argue that high corn prices are causing severe harm to the Texas and U.S. livestock industry as well as to low-income individuals faced with increasing food costs. They acknowledge that high corn prices are caused by a number of factors, but argue that the RFS program is one of the factors leading to these high prices, that it is a significant or material factor, and that this kind of impact from the RFS program is sufficient to justify a waiver of the RFS requirements.<sup>5</sup> Texas recognizes that the waiver provision "speaks in terms of a singular causal link between the mandate and the harm (i.e. 'implementation of the requirement would severely harm')", but that "Congress could not have intended to predicate a waiver on such a link because such a situation is never found in the real world. In the context of an economy at the scale of a state, region or nation, outcomes are determined by multiple factors. Congress must have meant to pivot a waiver on whether the mandates would

<sup>5</sup> See Texas supplemental comments, National Cattlemen's Beef Association at EPA-HQ-OAR-2008-0380-0418 at 1, and Texas Cattle Feeders Association at EPA-HQ-OAR-2008-0380 at 1.

contribute significantly to causing severe harm, as part of a mix of forces.”<sup>6</sup>

We do not agree with the interpretation Texas offers. The statute provides that a waiver of the program is authorized where “implementation of the program would severely harm the economy \* \* \*” As recognized by Texas, the straightforward meaning of this provision is that implementation of the RFS program itself must be the cause of the severe harm.<sup>7</sup> Texas would instead treat the waiver provision as if Congress had authorized a waiver where implementation of the program would significantly *contribute* to severe harm. The provision adopted by Congress does not support the interpretation by Texas.

There are numerous examples in section 211 and other sections of the Clean Air Act where Congress authorized EPA action based on the contribution made by a factor or activity, and worded the statute to clearly indicate this intention. For example, section 211(c)(1) of the Act authorizes EPA to control or prohibit a fuel or fuel additive where it “causes or contributes” to air or water pollution that may reasonably be anticipated to endanger public health or welfare.<sup>8</sup> There are also various waiver provisions where Congress clearly used language indicating that a waiver could be based on a determination that there is a contribution to an adverse result or a similar lesser degree of causal link to the adverse result. Section 211(f)(4), for example, allows EPA to waive a certain prohibition on fuels and fuel additives upon a determination that they will not “cause or contribute” to a specified harm. Likewise section 211(h)(5)(A) allows EPA to remove a federal Reid vapor pressure (RVP) waiver if a state has supporting documentation to show that the RVP waiver will increase emissions that “contribute to air pollution.” Under section 211(m)(3)(A), EPA may waive the requirement for a wintertime oxygenated gasoline program where a State demonstrates that mobile sources “do not contribute significantly” to carbon monoxide levels in the area. Similar language was used by Congress when it referred to lesser degrees of adverse impact on attainment, such as the provision for a waiver of the oxygenated gasoline requirement for reformulated gasoline under section 211(k)(2)(B) (“prevent or

interfere with \* \* \* attainment”)<sup>9</sup> and section 211(m)(3)(A) (“prevent or interfere with \* \* \* attainment”). However Congress did not use such language in this waiver provision, and the omission of any reference to contribution or similar terms in section 211(o)(7)(A) indicates Congressional intent to limit the availability of a waiver to situations where implementation of the RFS program itself would severely harm the economy.<sup>10</sup>

Texas essentially asks EPA to interpret this provision as if it was written to authorize a waiver where implementation of the RFS program would “significantly contribute” to severely harming the economy. However, Texas offers no explanation of why a “significant” contribution would justify such action, as opposed to some other level of contribution such as a non-de minimis, marginal, moderate, or some much more substantial contribution. In addition, Texas argues that this is called for because it would otherwise be impossible to ever demonstrate that the criteria of a waiver have been met and Congress could not have intended this result. Texas asserts this conclusion of impossibility, but fails to even attempt to show that this is the case.

Even if the statute was less clear on its face EPA would still reject the approach suggested by Texas. Many circumstances other than RFS could lead to impacts on an economic factor such as increased corn prices. Other circumstances could be the substantial or the overriding contributor to such an economic factor. Under Texas’ interpretation, a waiver could be authorized where implementation of the RFS contributed in any significant manner to such a situation, as long as the economic factor, overall, was causing severe harm. This approach could apply even if the economic harm was based on this economic factor in combination with another economic factor or factors. The degree of harm actually attributable to implementation

<sup>9</sup>This provision of the Clean Air Act was deleted by the Energy Policy Act of 2005, ending the requirement that reformulated gasoline (RFG) contain 2% oxygen content by weight. During the time that the statutory provision was in effect, EPA considered and responded to requests to waive the 2% mandate. See *Davis v. EPA*, 348 F.3d 772 (9th Cir. 2003).

<sup>10</sup>Even the sentence structure used by Congress indicates that the harm is to come from the RFS mandate itself. Adding the idea of significant contribution would call for changing the way “harm” is used from a verb (would \* \* \* harm) to a noun (would contribute significantly to harm), and changing the kind of harm from the adverb severely to the adjective severe. Congress however did not write it that way.

of the RFS would not matter. As long as the RFS would have some significant effect on some economic factor or combination of factors that was causing severe harm from an overall perspective, then the degree of harm actually attributable to the RFS would be irrelevant to EPA’s authority to issue a waiver. Given the logic of Texas’ approach and recognizing the many varied and complex interrelationships in our modern economy, Texas’ interpretation would amount to a very open-ended and wide ranging waiver provision; EPA does not believe this is what Congress intended. EPA believes that rejecting Texas’ approach, and implementing a more limited waiver provision that requires a showing that the RFS program itself would severely harm the economy of a State, region or the U.S., will better implement Congress’ overall desire to promote the use of renewable fuels, reflected in enacting the expanded RFS program and mandating the increased utilization of renewable fuels over a number of years.<sup>11</sup>

## 2. There Must Be a Generally High Degree of Confidence That There Will Be Severe Harm as a Result of the Implementation of RFS

The waiver provision indicates that EPA must find that implementation of the RFS “would” harm the economy. We interpret this as indicating that there must be a generally high degree of confidence that severe harm would occur from implementation of the RFS. Congress specifically provided for a lesser degree of confidence in a related waiver provision, section 211(o)(8). That provision applies for just the first year of the RFS program, and provides for a waiver of the 2006 mandate based on a study by the Secretary of Energy of whether the program “*will likely result* in significant adverse impacts on consumers in 2006.” (Emphasis supplied). The term “likely” generally means that something is at least probable, and EPA believes that the term “would” in section 211(o)(7)(A) means Congress intended to require a greater degree of confidence under the waiver provision at issue here.

EPA believes that generally requiring a high degree of confidence that implementation of the RFS would

<sup>11</sup>Indeed, Congress provided for a 9 year schedule in EPAct and a 14 year schedule in EISA, specifying the total amounts of renewable fuel that would be required during those years. Under both EPAct and EISA the required level of the RFS is to increase in each year after the end of the statutory schedule. EPA is to set the required level based on consideration of various statutory factors, with Congress specifying a minimum level of growth in the RFS each year.

<sup>6</sup>Texas supplemental comments at 14.

<sup>7</sup>Texas supplemental comments at 14.

<sup>8</sup>Also see section 202(a)(1) (“cause or contribute”); section 213(a)(3), (4) (“cause or contribute” and “significant contributor”); and section 231(a)(2) (“cause or contribute”).

severely harm an economy would appropriately implement Congress' intent for yearly growth in the use of renewable fuels, evidenced by the 2005 and 2007 mandates for such growth. In addition, it would limit waivers to circumstances where a waiver would be expected to provide effective relief from harm. If there is generally high confidence that implementation of the mandate would cause harm, then a waiver should provide effective relief from that harm. However in situations where there is not such a high degree of confidence, a waiver might disrupt the expected growth in use of renewable fuels but there would be no clear expectation that a waiver would provide a benefit by reducing any harm. As discussed below, EPA does not need to interpret this provision in any greater detail for purposes of acting on Texas' petition, as the circumstances in this case clearly do not demonstrate the required degree of confidence that severe harm would occur.

Support for EPA's interpretation of this waiver provision is found in an analogous approach taken by EPA in applying former section 211(k)(2)(B), the provision for waiver of the oxygen content requirement for RFG. In that provision, Congress provided that EPA "may" waive the oxygen content requirement upon a determination that compliance with this requirement "would" prevent or interfere with attainment of a NAAQS. EPA interpreted this as calling for the waiver applicant to "clearly demonstrate" interference before a waiver would be granted. This interpretation was upheld in *Davis v. EPA*, 348 F.3d 772, 779–780 (9th Cir. 2003).

### 3. "Severely Harm" Indicates That Congress Set a High Threshold for Grant of a Waiver

While the statute does not define the term "severely harm," the straightforward meaning of this phrase indicates that Congress set a high threshold for issuance of a waiver. This is also indicated by the difference between the criteria for a waiver under section 211(o)(7)(A) and the criteria for a waiver during the first year of the RFS program. In section 211(o)(8)(A) Congress provided for a waiver based on an assessment of whether implementation of the RFS in 2006 would result in "significant adverse impacts" on consumers. A waiver under section 211(o)(7)(A), however, requires that implementation "severely harm" the economy, which is clearly a much higher threshold than "significant adverse impacts." It is also instructive to consider the use of the term "severe"

in CAA section 181(a). Ozone nonattainment areas are classified according to their degree of impairment, along a continuum of marginal, moderate, serious, severe or extreme ozone nonattainment areas. Thus, in section 181, "severe" indicates a level of harm that is greater than marginal, moderate, or serious, though less than extreme. We believe that the term "severe" should be similarly interpreted for purposes of section 211(o)(7)(A), as indicating a point that is quite far along a continuum of harm, though short of extreme. EPA does not need to interpret this provision in any greater detail for purposes of acting on Texas' petition, as the circumstances in this case clearly do not demonstrate the kind of harm that would be characterized as severe.

### 4. Harm to the Economy

EPA must also consider the meaning of the term "economy" in section 211(o)(7)(A)(2). Texas has argued that the term should be interpreted such that a showing of severe harm to one sector of the economy, e.g. the livestock industry, is sufficient under the statute. Others argue that there must be a showing of severe harm to the entire economy of a State, region or the United States, including all sectors.<sup>12</sup> EPA believes that it would be unreasonable to base a waiver determination solely on consideration of impacts of the RFS program to one sector of an economy, without also considering the impacts of the RFS program on other sectors of the economy or on other kinds of impact. It is possible that one sector of the economy could be severely harmed, and another greatly benefited from the RFS program; or the sector that is harmed may make up a quite small part of the overall economy. Based on the waiver request received and, where appropriate, public comments, EPA should responsibly review and analyze the economic information that is reasonably available regarding the full impacts of the RFS program and a possible waiver, including detrimental and beneficial impacts, before determining that a waiver of the program is warranted.<sup>13</sup>

The statute provides that EPA "may" waive the RFS volume requirement after finding that implementation of the RFS program would severely harm the economy. Therefore, a broad consideration of economic and other impacts could be undertaken whether or

not EPA adopted Texas' more limited interpretation of the term "economy." For example, if EPA rejected Texas' interpretation, EPA would determine whether RFS implementation would severely harm the overall economy of a State, region, or the U.S. However, if EPA adopted Texas' interpretation, and then found severe harm to a sector of the economy, EPA would still evaluate the overall impacts on the economy and other factors before exercising its discretion under the "may" clause to grant or deny the waiver request. EPA does not need to resolve this issue of interpretation in this specific waiver decision. As discussed below the circumstances here do not warrant a waiver under either interpretation.

### 5. EPA Has Broad Discretion in Determining Whether To Grant a Waiver Even If Implementation Would Severely Harm the Economy

As noted above, Congress stated that EPA "may" grant a waiver if certain criteria are met, and the term "may" typically denotes discretionary action. Where Congress intends non-discretionary action, it typically employs a term like "shall." Thus, EPA believes Congress intentionally gave EPA discretion in determining whether to grant or deny a waiver request, even in instances where EPA finds that implementation of the program would severely harm the economy or environment of a State, region or the United States, or where there is inadequate domestic supply. As noted above, this interpretation allows EPA to look broadly at all of the impacts of implementation of the program, and all of the impacts of a waiver, and does not limit EPA to looking only at impacts to the economy, a sector of the economy, the environment, or domestic supply. The relief requested by a waiver applicant will always, under this provision, be national in character, hence we expect that EPA will always want to examine the nationwide effects of the requested relief, and give appropriate weight to the range of anticipated effects. This interpretation allows EPA to weigh all of the impacts before deciding to grant or deny a waiver of the statutory requirements designed to require the expanded use of renewable fuels.

### V. Technical Analysis of RFS Mandate

In this section, we first examine the likelihood that implementation of the RFS will impact the amount of ethanol produced and consumed over the 2008/2009 corn marketing year (September 1, 2008 through August 31, 2009), and thereby impact factors such as the price

<sup>12</sup> Commenters include the Renewable Fuels Association (EPA-HQ-OAR-2008-0380-0479 at 1) and American Coalition for Ethanol (EPA-HQ-OAR-2008-0380-0454 at 1-2).

<sup>13</sup> This is of course limited by the 90 day time frame called for in the waiver provision.

of corn during that time period.<sup>14</sup> Second, we evaluate the impacts and potential degree of harm from implementation of the RFS on key food and fuel parameters, such as U.S. corn prices, livestock feed costs, and fuel prices. As part of this section, we will discuss various comments and our response to them as appropriate.

### 1. Likelihood of Impact of Implementation of the Renewable Fuels Standard

To analyze the impact of implementation of the RFS, EPA evaluated the impact of a waiver of the standard. This comparison of circumstances with and without a waiver identifies the impact properly associated with implementation of the RFS program for the 2008/2009 marketing year. To make this comparison, the EPA first determined the most appropriate economic modeling tool to employ for this purpose. EPA evaluated several models, including the model developed by researchers at Texas A&M University (TAMU model)<sup>15</sup> and the model used by Dr. Elam of FarmEcon, LLC.<sup>16</sup> We chose a model developed by researchers at Iowa State University (ISU model) for a number of reasons. First, we felt it was critical to use a stochastic model to capture a range of potential outcomes, rather than a point estimate, given potential variation in a number of critical variables associated with ethanol production. Second, the ISU model captures the interaction between the agriculture markets and the energy markets, and is able to look at uncertainty in variables in both sectors. Given the volatility in both crude oil and corn prices over the last few years, the ability of the ISU model to account for this variability gives the model an advantage over other models that are locked into a single projected crude oil price or corn crop estimate. Third, while the model has not gone through formal peer review, the documentation is straightforward and transparent, and allows all interested parties to

understand the assumptions that drive the results. Finally, the ISU model was designed to be constantly and quickly updated with the most recently available data, such as the World Agricultural Supply and Demand Estimate (WASDE) reports.<sup>17</sup> This design feature allows the model to be policy relevant, given the fact that a model is only as reliable as the data contained within it.

The ISU model is a stochastic equilibrium model that attempts to capture the most probable prices of corn, ethanol and fuel given uncertainty in six variables: Corn acres planted, corn acres harvested, corn yields, U.S. corn export demand, crude oil prices, and the capacity of the U.S. corn ethanol industry. For each of the approximately 1000 simulated scenarios, the model picks a value for a factor like crude oil price by randomly selecting from a probability distribution curve<sup>18</sup> for that factor.<sup>19</sup> Since the probability of the specific value of a future crude oil price is built into the distribution curve for crude oil prices, the greater the probability of a certain crude oil price the more likely the model will pick that value for any scenario. The result is that the distribution of the results from the random draws fairly reflects the probability of the various uncertain variables. The central tendency of the random draws represents the most likely estimate of the future circumstances. The model is run with and without a waiver to determine the impact of a waiver. Details about the model are included in the June 2008 paper,<sup>20</sup> although for the results described below, several additional modifications have been made since June. At EPA's request, ISU researchers updated their model with the July 11, 2008 WASDE report. In addition, ISU researchers also modified the assumption that ethanol will have to be priced on an energy equivalent basis for volumes greater than 10 billion

gallons.<sup>21</sup> As described in the June paper, the ISU model had previously assumed ethanol must be priced on an energy equivalent basis for volumes over 7.7 billion gallons of ethanol. Additional details on the model changes are included in the docket.<sup>22</sup>

As a result of these updates, the ISU model projects the average expected amount of ethanol demanded in the United States during the 2008/2009 corn crop year without a waiver will be 11.05 billion gallons, which consists of approximately 10.67 billion gallons of domestic production and 380 million gallons (MG) of imports. ISU's model predicts that for 76 percent of the simulated scenarios, waiving the RFS mandate would not change the overall level of corn ethanol production or overall U.S. ethanol consumption in 2008/2009 because more ethanol would be demanded than the RFS requires. For those 76 percent of the scenarios, waiving the RFS mandate would therefore have no impact on ethanol

<sup>21</sup> Despite the fact that ethanol contains only 2/3 the energy value of gasoline, it has historically and continues to be priced to retail consumers the same as if it is gasoline when it is sold in a gasoline blend with up to 10 volume percent ethanol (E10). Consumers are not able to detect the small decrease in fuel economy that results from a 10 percent blend, therefore ethanol can be priced based on its volume, not on its energy equivalent basis with gasoline. The wholesale price for ethanol has likewise followed the price of gasoline, on average being priced over time roughly 8 c/gal less than that of gasoline, reflecting its octane value, other blending costs, and distribution costs. In the last year or so, as ethanol use has continued to increase, the wholesale price of ethanol has begun to separate slightly more from that of gasoline as: (1) The octane value has declined, (2) the distribution costs have increased to get ethanol to more distant markets, (3) gasoline prices have increased, and (4) ethanol is having to compete in markets where gasoline is priced lower than in past ethanol markets. In recent months, the wholesale price of ethanol may also have been influenced by some temporary limitations in terminal blending capabilities to blend all the ethanol being produced. In the long term, as ethanol volumes increase above about 15 billion gallons, ethanol will saturate the gasoline market as an E10 blend and additional volumes of ethanol will have to be consumed in the form of E85 (a fuel that consists of up to 85 volume percent ethanol). When sold as E85, consumers will recognize a reduction in their mileage as compared to the use of an E10 blend due to the reduced energy content of ethanol. Therefore, retail pricing would be expected to take this fuel economy impact into account and wholesale prices for ethanol will have to be below that of gasoline to reflect its lower energy content. While this change in valuation will not occur until we reach about 15 billion gallons of ethanol, for our analysis we have conservatively assumed that this change in valuation will occur at 10 billion gallons to reflect potential short term limitations in the distribution system. If we had used 15 billion gallons as the point at which ethanol must be priced on an energy equivalent basis, the likelihood that the mandate would be binding would be lower and the magnitude of the impacts smaller in the scenarios where the mandate was binding.

<sup>22</sup> See Memorandum to Docket, entitled "Iowa State University Modeling Results."

<sup>14</sup> We use the corn marketing year partially because it is the time period over which Governor Perry requested the waiver, and partially because it is the time period over which it is most straightforward to estimate the impact on corn prices due to a change in ethanol demand.

<sup>15</sup> The March TAMU modeling results were referenced in Texas' initial waiver request and cited by several commenters (EPA-HQ-OAR-2008-0380-0058). A June update to the March report was provided in Texas' supplemental comments (EPA-HQ-OAR-2008-0380-0526).

<sup>16</sup> Several commenters cited the March report by Dr. Elam (EPA-HQ-OAR-2008-0380-0574). The Balanced Food and Fuel Coalition also submitted a June version of the report (EPA-HQ-OAR-2008-0380-0465).

<sup>17</sup> The WASDE is USDA's forecast of supply and demand for major U.S. and international crops and livestock. The information can be found at <http://www.usda.gov/oce/commodity/wasde/>.

<sup>18</sup> The distribution curves for the stochastic variables are based on historical information, where available. Where reliable data is not available, simplifying assumptions are used. Details are included in the June 2008 paper (EPA-HQ-OAR-2008-0380-0548).

<sup>19</sup> The model also accounts for the impact of the blenders' tax credit and the tariff on imported ethanol. In the scenarios that were modeled these factors did not change, hence their impact on demand for ethanol did not change with and without a waiver of the RFS.

<sup>20</sup> EPA-HQ-OAR-2008-0380-0548.

use, corn prices, ethanol prices, or fuel prices. We refer to that model result as a 76 percent probability that the RFS will not be "binding" in the 2008/2009 marketing year. Conversely, in 24 percent of the simulated ISU model runs the RFS would be binding. In this case, binding means that in 24 percent of the random draws of potential corn production, crude oil prices, and corn demand, the resulting market demand for ethanol would be below the RFS mandate and, therefore, the RFS would require greater use of ethanol than the market would otherwise demand. The binding scenarios are generally those in which crude oil prices and corn production are relatively low. In those cases, the RFS would have an impact on ethanol use and the food and fuel markets in the United States.

For the primary analysis, the ISU model assumes corn ethanol would account for ten billion gallons of the RFS mandate during the 2008/2009 corn crop year. Because the corn crop year is split over two RFS compliance years, the 10 billion gallons is based on the fraction of the corn crop year that would occur in the 2008 compliance year (one-third) and the 2009 compliance year (two-thirds). EISA requires 9 billion gallons of renewable fuels in 2008 and 11.1 billion gallons in 2009; however, 600 million gallons of the 2009 volume must be advanced biofuels (including 500 million gallons of biomass-based biofuels). This advanced biofuel volume is not included in the calculation of the 2008/2009 marketing year mandate, since the ISU model does not include cellulosic or biodiesel renewable fuels.<sup>23</sup> As a sensitivity analysis, ISU researchers also evaluated different scenarios in which some of the 2008/2009 mandate was also met with additional biodiesel production and renewable identification number (RIN) credits earned from excess ethanol production in the 2007 and 2008 compliance years.<sup>24</sup> Both of these changes essentially make the RFS mandate less binding. We also conducted a sensitivity analysis that used a distribution curve for crude oil

prices based on a mean crude oil price of \$146/barrel. For that model run, the probability that the mandate would be binding decreased to 12%. Clearly, this assumption makes a difference in the modeling results. We believe the \$125/barrel mean crude oil price scenario incorporates the best information available at this time, but we recognize that conditions may change in the future. For purposes of simplicity, only the results of the primary analysis using \$125/barrel mean crude oil ISU scenario are presented in this document. However, the results from the full range of scenarios are included in the docket.<sup>25</sup>

We believe the results provided by the ISU model are more robust than Elam's and TAMU's estimates for a number of reasons. Many of the assumptions used by Elam's model do not appear to accurately reflect market forces. According to Elam's March paper,<sup>26</sup> U.S. gasoline and diesel prices impact the prices of corn and soybeans, but do not influence the demand for biofuels. In other words, the agricultural sector portion of the model does not appear to be directly linked to a fuel market module. Since higher crude oil prices are one of the major reasons for the increase in biofuel production, we believe this assumption is a major short coming of the model. Furthermore, the model used by Elam appears to value ethanol on an energy equivalent basis.<sup>27</sup> We believe that ethanol will continue to be priced on a volumetric basis as long as most of the ethanol is being blended as E10.

In his June paper, Elam estimated the impact of waiving the RFS under two different scenarios: One based on the June WASDE projections and one based on a "severe weather" scenario with a lower corn crop. Under both scenarios, Elam predicts ethanol production will decrease by 2.1 billion gallons with a 50% waiver of the mandate. However, under both scenarios Elam estimates that ethanol production will exceed the mandated levels when the mandate is in place. We do not find this analysis plausible, since waiving the mandate should have little to no effect on ethanol production if the projected levels of ethanol demand exceed the mandate. In addition, we would not expect the same change in ethanol production to occur as a result of the waiver when corn prices are \$8.00/bushel and when they are \$5.80/bushel. When corn costs

\$8.00/bushel, we would expect more ethanol producers would not be able to cover their operating costs and would choose to reduce production. Therefore there would be a larger potential change in ethanol production at \$8.00/bushel than at \$5.80/bushel, which in turn would lead to a larger impact from waiving the mandate. Finally, we believe the severe weather scenario presented by Elam overstates the impact of the recent floods in the Midwest. This scenario assumes a significant reduction in corn acres harvested and corn yields relative to the WASDE estimates. Under this severe weather scenario, Elam's projected corn crop would be 10.85 billion bushels, compared to the higher July WASDE estimate that 11.7 billion bushels will be produced in 2008/2009.

Similar to the ISU model, the TAMU model is a hybrid stochastic simulation model that estimates the probabilistic price of corn and production levels of ethanol with and without various government biofuel policies over the next few years. However, we believe some of the inputs used in the model are not as current as the inputs used by the ISU model. In addition, the TAMU model likely overstates the probability that the mandate will be binding for two reasons. First, the projected corn prices are significantly higher than either the June or July WASDE reports. Whereas the July WASDE report (which assumes the mandate is still in place) predicts corn prices will be between \$5.50–\$6.50/bushel, the TAMU model predicts that corn prices with the mandate in place will be between \$6.70–\$7.96/bushel depending on the size of the corn crop. If the TAMU model was re-run with the July WASDE data, we believe the results would be closer to the estimates provided by the ISU model. Second, we believe that the TAMU model undervalues ethanol, since it assumes ethanol must compete with gasoline on an energy equivalent basis for all volumes over the quantity projected to be used to meet reformulated gasoline (RFG) requirements (approximately 3 billion gallons). As discussed in more detail in the following section, ethanol continues to be priced in the market at a premium over its energy content since it is primarily used as a gasoline extender. We expect this trend to continue until significant quantities of ethanol can no longer be blended as E10 and must be sold as E85. If the TAMU valued ethanol on a volumetric basis, we would expect the model would predict higher production levels of ethanol, both with and without the waiver.

TAMU provides information for three different scenarios: a "mean corn crop",

<sup>23</sup> Although Iowa State analyzed the impact of waiving 100% of the mandate, the model predicted no difference between waiving 100% of the mandate and 50% of the mandate, as the amount of ethanol demanded under all the scenarios without the mandate was more than five billion gallons of ethanol (50% of the mandate).

<sup>24</sup> RINs are generated by producers of renewable fuels, and are used by refiners and importers to show compliance with the RFS. Excess RINs may be used as credits for the year following their generation, e.g., 2007 RINs may be used to show compliance with the 2008 RFS standard, and 2008 RINs may be used to show compliance with the 2009 RFS standard.

<sup>25</sup> See Memorandum to Docket entitled, "Iowa State University Modeling Results."

<sup>26</sup> EPA-HQ-OAR-2008-0380-057.

<sup>27</sup> The lack of model documentation submitted to the docket with regard to the model limited our ability to fully compare the results.

a “95% of mean corn crop”, and a “90% of mean corn crop”. Using historical information, TAMU estimates that 79 million acres of corn will be harvested in 2008/2009 and corn yields will be 153.9 bushels/acre, resulting in a “mean corn crop” production of 12.1 billion bushels. The “95% of mean corn crop” scenario evaluates the effects of a 5% shortfall in corn production (relative to the mean corn crop scenario), which corresponds to a crop of 11.5 billion bushels. The “90% of mean corn crop” scenario evaluates the effects of a 10% shortfall relative to the mean corn crop, which corresponds to a corn crop of 10.9 billion bushels. In the mean corn crop scenario, the TAMU estimates that

the probability that the mandate will be binding is 42%. In the 95% of mean corn crop scenario, the TAMU model predicts that the probability that the mandate will be binding is 67%, and in the 90% of mean corn crop scenario, the probability that the mandate will be binding is 88%.

Although this mean corn crop scenario production level is higher than the July WASDE estimates, the impacts of this scenario are directionally consistent with the ISU results. For example, the TAMU model predicts that the average expected amount of ethanol that will be produced in 2008/2009 will be 10.8 billion gallons, which is higher than the RFS mandate. In their

comments, however, Texas asserts that a shortfall in the range of the 5% or 10% of production “now appears highly likely.” Therefore, Texas concludes that the mandate will “most likely contribute significantly to causing corn price increases.” In light of the July WASDE data, which predicts a corn crop that is larger than both the 90% mean corn crop and the 95% mean corn crop scenarios, we believe the 90% mean corn crop scenario significantly overestimates the potential impact of the flooding. We believe the mean corn crop and the 95% of mean corn crop scenarios are more credible than the 90% mean corn crop scenario.

TABLE 1—COMPARISON OF KEY STUDIES ESTIMATING CORN AND ETHANOL PRICES AND PRODUCTION LEVELS

	Elam scenario based on WASDE	TAMU mean corn crop	Iowa state mean estimate	USDA benchmark*
Mean Corn Prices with Mandate (\$/bushel) .....	\$5.80	\$6.70	\$6.00	\$5.50–\$6.50
Mean Corn Prices with Waiver (\$/bushel) .....	\$4.75	\$6.36	\$5.93	.....
Change in Corn Prices with Waiver .....	–\$1.05	–\$0.34	–\$0.07	.....
Mean Corn Production (Billion bushels) .....	11.74	12.14	11.70	11.70
Mean Ethanol Price with Mandate (\$/gal) .....	\$2.76	\$2.89	\$2.59	.....
Mean Ethanol Price with Waiver (\$/gal) .....	\$2.76	\$2.76	\$2.57	.....
Mean Domestic Ethanol Demand w/Mandate (Billion gallons) .....	11.00	10.78	11.05	.....
Mean Domestic Ethanol Production w/Waiver (Billion gallons) .....	8.94	10.05	10.90	.....
Probability that Mandate is Binding .....	N/A	42%	24%	.....

Since Congress enacted the Energy Policy Act in 2005, biofuel production has consistently been higher than the RFS mandated levels, which is an indication that factors other than the RFS requirements have been the primary drivers of biofuel growth. In addition, in its 2007 Annual Energy Outlook (AEO), the Energy Information Administration (EIA) projected that even without the recent renewable fuels requirement in EISA, ethanol use would increase to 12 billion gallons in 2010. This dramatic increase in ethanol use was estimated to occur despite assuming crude oil prices in the \$50 to \$60 dollar per barrel range. Assuming other factors remain constant, the higher oil prices that we are experiencing now would provide an even greater incentive to produce and use additional ethanol from corn.

ISU’s estimate for the maximum ethanol capacity in 2008/2009 is 13.5 billion gallons, which is similar to EPA’s estimate that over 13 billion gallons of plant capacity was on-line or under construction as of December 19, 2007 when EISA was passed.<sup>28</sup> Once

ethanol production capacity is built, we expect ethanol producers will continue making ethanol to the extent that they can cover their operating costs. Therefore, ethanol production in the short term is highly dependent on the built capacity of the ethanol industry rather than the mandate.

Certain empirical data also supports the projection that the RFS is unlikely to be binding in the 2008/2009 timeframe. For example, the price of tradable renewable identification number (RIN) credits remains relatively low: Below five cents per gallon as of July 1, 2008. Refiners and importers verify their compliance with the RFS by collecting and expending RINs, which are assigned to volumes of renewable fuel by their producers. Refiners and importers use RINs for an appropriate volume of renewable fuel to demonstrate compliance with their RFS volume requirement. Parties that exceed their RFS obligations for a compliance period can trade excess RINs to other parties that need them for compliance. When the mandate is expected to be binding, we would expect the demand for RINs would increase and the supply of excess RINs to decrease, leading to an increase in price for RINs.

The RIN banking and rollover provisions of the RFS also allow

obligated parties to use or trade current RINs in the next compliance period. Therefore, we would expect the current RIN price to reflect the market’s current and near-term expectations about how binding the RFS is likely to be. The most recent available data shows that the RIN price was below 3 cents per gallon of ethanol on July 18, 2008. This RIN price represents a very small share of the price of a gallon of ethanol, suggesting that refiners and blenders expect the RFS is not likely to be binding in 2008 or 2009. It is possible that RIN prices have been depressed by market uncertainty generated by Texas’ waiver request. However, the record high RIN price before the Texas waiver request was only approximately 6.5 cents per gallon. Unlike the previous discussion in this section which involved different agricultural sector models that seek to evaluate the impacts of the RFS, the RIN price is the result of actual market outcomes, as opposed to a modeled result. EPA believes the RIN price information is one additional way to evaluate the likelihood of an impact from implementation of the RFS. In this case, the RIN price information corroborates the modeled impacts of the RFS.

<sup>28</sup> These estimates are for the ethanol production capacity and are higher than the volumes of ethanol that are projected to be produced. See Memorandum to Docket entitled, “Ethanol Capacity Estimates.”

2. Severity of Impact

(a) Corn Price Impacts

When evaluating the economic impacts of waiving the mandate, our analysis centered on four major areas: U.S. corn prices, food prices, feed prices, and fuel prices. While there may be other areas of potential impact, we focused on these areas because they are expected to have the largest potential economic impacts in the U.S. Given the limited time available for this analysis, we have not looked at the interaction of these impacts in an integrated modeling system. However, we believe that looking at these indicators individually provide a useful framework for

determining the potential severity of the impact of the RFS mandate.

As described in the previous section, we believe that implementation of the RFS would not have a significant impact on expected ethanol production in 2008/2009, with the most likely result being no impact on ethanol production. We have analyzed the impacts of waiving the mandate under a wide variety of scenarios, ranging from worst case scenarios to the more likely situations. Based on the ISU modeling results, the average expected impact of waiving the mandate over all the potential outcomes, both those binding and those non-binding, would be a decrease in the price of corn by \$0.07/bushel. In the limited subset of potential

outcomes in which the mandate is binding (24% of the results), waiving the mandate would result in an average expected decrease in the price of corn of \$0.30/bushel.

However small the probability, we also recognize it is possible that all the market outcomes could converge to result in a worst case scenario, therefore, we also provide this example to help bracket the range of potential outcomes. The “Worst Case” example demonstrates the largest potential change in corn price predicted by the ISU model as a result of the waiver, which is a decrease in corn prices of \$1.38/bushel. Table 2 presents the three ISU scenarios.

TABLE 2—RANGE OF ESTIMATED CORN PRICES AND PRODUCTION LEVELS

	Iowa state mean estimate	Iowa state when mandate binds	Iowa state “worst case” example
Mean Corn Prices with Mandate (\$/bushel) .....	\$6.00	\$6.40	\$6.85
Mean Corn Prices with Waiver (\$/bushel) .....	\$5.93	\$6.10	\$5.47
Change in Corn Prices with Waiver (\$/bushel) .....	–\$0.07	–\$0.30	–\$1.38
Mean Corn Production (Billion bushels) .....	11.70	11.22	10.57
Percentage of Times Mandate is Binding .....	24%	100%	N/A

(b) Food Price Impacts

In consultation with USDA, EPA estimated how the changes in corn prices influence U.S. food prices. The results of the modeled corn price impacts discussed above appear to be quite modest for both the mean estimate and the subset of scenarios in which the mandate is binding. A \$0.07/bushel decrease in corn prices would result in a 0.07% decrease in Food CPI<sup>29</sup> and a 0.03% decrease in All Item CPI.<sup>30</sup> A \$0.30/bushel decrease in corn prices would result in a 0.28% change in Food CPI and a 0.04% change in All Item CPI.

For the average household, a \$0.07/bushel decrease in corn prices would result in a reduction of household expenditures on food equal to \$4.01 in 2008/2009, while a \$0.30/bushel decrease in corn prices would result in a savings of \$17.13. In the scenario with the largest change in corn price, a \$1.38/bushel decrease in corn prices would decrease the Food CPI by 1.29% and All Item CPI by 0.19%. The average household would in turn save \$78.57 in 2008/2009 on food expenditures.

Since people in the lowest income groups are more sensitive to changes in food prices, we also analyzed the impact

of changes in food expenditures as a percentage of total consumer expenditures and as a percentage of income. The changes in food expenditures are relatively small compared to total consumer expenditures for both average and low income households.<sup>31</sup> When comparing the changes in food expenditures relative to income, the impact on low income households is larger than the impact on average households. Additional details on the methodology used to calculate the CPI and household expenditures are included in the docket.<sup>32</sup>

TABLE 3—IMPACTS ON FOOD PRICES, CPI INDICATORS, AND HOUSEHOLD EXPENDITURES

	Units	Iowa state mean estimate	Iowa state mandate binds	Iowa state worse case
Change in Corn Price with Waiver .....	\$/bushel .....	–\$0.07	–\$0.30	–\$1.38
Change in Food CPI with Waiver .....	percent .....	–0.07%	–0.28%	–1.29%
Change in All Item CPI with Waiver .....	percent .....	–0.01%	–0.04%	–0.19%
Change in Annual Food Expenditures for Average Households with Waiver.	\$ .....	–\$4.01	–\$17.13	–\$78.57
Change in Annual Food Expenditures for Lowest Quintile Households with Waiver.	\$ .....	–\$2.09	–\$8.95	–\$41.05
Change in Food Expenditures as a Percentage of Consumer Expenditures for Average Households with Waiver.	percent .....	–0.01%	–0.04%	–0.16%

<sup>29</sup> The Food CPI as measured by the Bureau of Labor Statistics (BLS) consists of two components—the “CPI for food at home” and the “CPI for food away from home” with the “CPI for food away from home” having a weight of 0.45 and the “CPI for food at home” having a weight of 0.55.

<sup>30</sup> The Food CPI has a weight of 0.14 in the All Item CPI. This implies that for every 1 percent increase in the Food CPI the All Item CPI would increase by 0.14 percent.

<sup>31</sup> The lowest quintile (20%) of households, as described in the Bureau of Labor Statistics’ 2006

Consumer Expenditure Survey, has an average income after taxes of \$9,969. The average annual household income after taxes for all households is \$58,101.

<sup>32</sup> See Memorandum to Docket entitled, “USDA Food CPI and Feed Cost Methodology”.

TABLE 3—IMPACTS ON FOOD PRICES, CPI INDICATORS, AND HOUSEHOLD EXPENDITURES—Continued

	Units	Iowa state mean estimate	Iowa state mandate binds	Iowa state worse case
Change in Food Expenditures as a Percentage of Consumer Expenditures for Lowest Quintile with Waiver.	percent .....	-0.01%	-0.44%	-0.20%
Change in Food Expenditures as a Percentage of Income for Average Households with Waiver.	percent .....	-0.01%	-0.03%	-0.14%
Change in Food Expenditures as a Percentage of Income for Lowest Quintile with Waiver.	percent .....	-0.02%	-0.09%	-0.41%

## (c) Feed Price Impacts

Using WASDE projections (which assume the mandate is in place) for feed costs in 2008/2009, we estimated that U.S. feed prices are projected to be \$233.13/ton, using a weighted average use of corn, sorghum, barley, oats, and soybean meal. In estimating the impact of a change in corn prices on feed costs,

we used a simplifying assumption that the percentage change in corn prices is applied to all components of the feed grains components used in this analysis. Since the price of other feed grains tend to track the price of corn, we believe this simplifying assumption is a realistic estimate of how feed grains will track each other with changes in corn prices. We estimated the potential impact of

granting the waiver on feed costs for the three change in corn price scenarios described in the previous sections: The ISU mean estimate of a \$0.07/bushel decrease in corn price, the subset of ISU scenarios in which the mandate is binding (\$0.30/bushel decrease in corn price), and the ISU worst case scenario (\$1.38/bushel decrease in corn prices).<sup>33</sup>

TABLE 4—U.S. FEED PRICES

	2005/06	2006/07	2007/08	2008/09
Feed Cost*:				
Cost (\$/ton) without waiver .....	\$87.75	\$125.72	\$152.71	\$233.13
Decrease in Feed Costs, \$/ton (\$0.07/bushel corn price change scenario) .....	.....	.....	.....	-2.72
Decrease in Feed Costs, \$/ton (\$0.30/bushel corn price change scenario) .....	.....	.....	.....	-10.56
Decrease in Feed Costs, \$/ton (\$1.38/bushel corn price change scenario) .....	.....	.....	.....	-46.97

Source: July 11, 2008 WASDE.

\*Feed is equal to the weighted average sum of feed use of corn, sorghum, barley, and oats plus domestic use of soybean meal.

Based on USDA's estimates for U.S. livestock feed costs and returns, we estimated the impact of a percentage change in feed costs per unit for poultry, pigs, fed cattle, cow-calves, and milk production. Details on the methodology used to calculate feed impacts are included in the docket.<sup>34</sup> Using USDA's production and slaughter estimates, we aggregated the potential feed cost impacts of a waiver for the U.S. and Texas.<sup>35</sup> In dollar terms, the single

largest sector of the livestock industry that benefits from the waiver is the fed cattle industry. As Texas points out in its comments, Texas has the largest cattle industry in the U.S., and accounts for approximately 25% of the U.S. herd. A \$0.07/bushel change in corn prices would decrease total livestock feed costs in Texas by \$53 million (1.2% change). A \$0.30/bushel change in corn prices would decrease total livestock feed costs in Texas by \$207 million (4.7% change),

while a change of \$1.38/bushel would decrease total feed costs in Texas by \$19 million (20% change). Compared to Texas's \$1 trillion dollar economy, these impacts appear to be relatively small. Even looking at the cattle and poultry industry in Texas specifically, we believe \$53-\$207 million is a small impact compared to the over \$10 billion livestock industry.<sup>36</sup>

TABLE 5—TOTAL FEED COSTS AND ESTIMATED DECREASE WITH RFS WAIVER FOR CATTLE, POULTRY, PIGS, AND DAIRY PRODUCTION

	US	Texas
<b>Cow Slaughter:</b>		
Feed cost without waiver, \$ million .....	\$842.8	\$40.1
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	9.8	0.5
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	38.2	1.8
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	169.8	8.1
<b>Fed Cattle:</b>		
Feed cost without waiver, \$ million .....	9,923.4	2,491.1
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	115.8	29.1
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	449.7	112.9
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	1,999.2	501.9
<b>Poultry:</b>		

<sup>33</sup> In the subset of scenarios in which the mandate is binding, corn prices are generally higher than for the mean estimate. We would therefore expect average feed costs to be higher than the WASDE estimates.

<sup>34</sup> See Memorandum to Docket entitled, "USDA Food CPI and Feed Cost Methodology".

<sup>35</sup> These estimates assume there are no changes in quantities (e.g., early slaughter) based on higher feed costs.

<sup>36</sup> The \$919 million change is from a worst case scenario that EPA considers highly unlikely.

TABLE 5—TOTAL FEED COSTS AND ESTIMATED DECREASE WITH RFS WAIVER FOR CATTLE, POULTRY, PIGS, AND DAIRY PRODUCTION—Continued

	US	Texas
Feed cost without waiver, \$ million .....	7,571.6	586.7
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	88.3	6.8
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	343.1	26.6
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	1,525.4	118.2
<b>Pork:</b>		
Feed cost without waiver, \$ million .....	10,874.8	134.1
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	126.9	1.6
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	492.8	6.1
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	2,190.8	27.0
<b>Dairy:</b>		
Feed cost without waiver, \$ million .....	37,028.8	1,307.2
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	432.0	15.3
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	1,677.9	59.2
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	7,459.8	263.3
<b>Total Feed Costs (cattle, poultry, pigs, dairy):</b>		
Without waiver, \$ million .....	66,241.4	4,559.2
Decrease in Feed Costs, \$ million (\$0.07/bushel corn price change scenario) .....	772.8	53.2
Decrease in Feed Costs, \$ million (\$0.30/bushel corn price change scenario) .....	3,001.6	206.6
Decrease in Feed Costs, \$ million (\$1.38/bushel corn price change scenario) .....	13,345.0	918.5

To produce a pound of poultry live weight, about 1.5 pounds of feed required.

The State of Texas did not attempt to quantify the impact of waiving the RFS on the livestock industry, although they did submit reports by the Agricultural and Food Policy Center (AFPC), the Texas Department of Agriculture, and McVean Trading & Investments (a company that specializes in monitoring the health of the livestock industry), which conclude that the livestock industries, including poultry, are experiencing financial losses due to increases in the cost of production due to higher corn prices.

While most of these impacts are outside the scope of our analysis since they do not focus on the impacts directly related to the RFS, we have attempted to compare our methodology with the methodology used by Texas. The Texas Department of Agriculture report cites the March study by Elam in which he estimates that the increase in biofuels will result in an increase in cost to the Texas livestock and poultry industries of approximately \$2.4 billion in calendar year 2008. This impact was based on an estimated increase of \$2.04/bushel in corn prices due to the increase in biofuels policies as a whole. Although the increase in corn price cited by Elam is higher than the modeling results by ISU and TAMU

discussed in the previous section, the methodology for estimating the impact on feed costs employed by Elam appears to be generally consistent with our analysis. When the cost increases for cattle, poultry, pork, and dairy production are separated out, Elam estimates a \$1.3 billion dollar increase in feed costs in 2008. If Elam had used a change in corn price that was approximately two thirds of his \$2.04/bushel estimate (\$1.36/bushel), his methodology would have estimated an increase in feed costs in Texas of approximately \$867 million dollars. This figure is similar to our estimate of a \$919 million increase in feed costs in Texas, which corresponds to our worst case scenario of a \$1.38/bushel increase in corn prices.

As described in the previous sections, the corn price increase attributable to the RFS is likely to be much smaller. Texas's own "95% of mean corn crop" scenario predicts a change of only \$0.73/bushel as a result of the RFS waiver, which would make the impact on the livestock industry even less than the \$918 million calculated here.

(d) Fuel Price Impacts

The ISU model also predicts the change in U.S. ethanol, gasoline, and

blended fuel prices based on changes in ethanol production volumes. The ISU model assumes that both the demand and supply of gasoline are relatively inelastic. Therefore, reducing the ethanol production levels will increase gasoline demand and increase gasoline prices.<sup>37</sup> Although the decrease in ethanol demand is associated with a decrease in ethanol prices, the total blended fuel price is dominated by the change in gasoline price since it is a much larger portion of the fuel pool. The ISU model predicts that the most likely outcome is that waiving the RFS mandate would have no impact on fuel prices. The ISU modeling predicts that the average impact across all modeled scenarios is that waiving the RFS mandate would increase blended fuel prices by 3/10 of one cent. When looking at the smaller subset of instances in which the mandate is binding, the average impact of granting the waiver would be to increase blended fuel prices by \$0.01/gallon. Even in the case where ethanol production volumes change the most, the impact on blended fuel prices would be no more than an increase of \$0.03/gallon.

<sup>37</sup> In the subset of scenarios in which the mandate is binding, when the mandate is in place it artificially increases demand for ethanol (and artificially decreases the demand for gasoline). Therefore, removing the mandate in those scenarios allows for lower demand of ethanol which results

in an increase in demand for gasoline. Over the one year period for which this model addresses fuel price impacts, the model assumes gasoline production is relatively inelastic and import supplies are fixed. As a result, the increase in gasoline demand is associated with a slight increase

in blended fuel prices. In a longer time frame, if the supply of gasoline were more elastic, it is possible that we could get a different impact on blended fuel prices as a result of the waiver.

TABLE 6—RANGE OF ESTIMATED ETHANOL AND BLENDED FUEL PRICES

	Iowa state mean estimate	Iowa state when mandate binds	Iowa state "worst case" example
Mean Ethanol Price with Mandate (\$/gal) .....	\$2.59	\$2.52	\$2.62
Mean Ethanol Price with Waiver (\$/gal) .....	\$2.57	\$2.43	\$2.22
Mean Domestic Ethanol Demand w/Mandate (Billion Gallons) .....	11.05	10.00	10.00
Mean Domestic Ethanol Production w/Waiver (Billion Gallons) .....	10.90	9.40	7.27
Blended Fuel Price with Mandate (\$/gal) .....	\$3.021	\$2.692	\$1.987
Blended Fuel Price with Waiver (\$/gal) .....	\$3.024	\$2.704	\$2.017
Change in Blended Fuel Price (\$/gal) .....	\$0.003	\$0.012	\$0.030

Based on these small predicted changes in blended fuel prices, the overall impacts on the economy are also expected to be modest, and in the opposite direction from any impact on the livestock industry and food prices in general.

Our analysis shows that a \$0.003/gallon increase in blended fuel price for the Iowa State mean scenario would be expected to change the Energy CPI by 0.049%. For the subset of scenarios in which the mandate is binding, a \$0.01/gallon increase in blended fuel price

would be expected to change Energy CPI by 0.219%. A \$0.03/gallon increase in blended fuel price in the worst case scenario would be expected to change Energy CPI by 0.739%. Details on the methodology for determining these impacts are included in the docket.<sup>38</sup>

TABLE 7—IMPACTS ON ENERGY CPI AND GASOLINE EXPENDITURES FOR AVERAGE AND LOW INCOME HOUSEHOLDS

	Units	Iowa state mean estimate	Iowa state mandate binds	Iowa state "worst case" example
Change in Blended Fuel Price with Waiver .....	\$/gallon .....	\$0.003	\$0.012	\$0.030
Change in Energy CPI with Waiver .....	percent .....	0.49%	0.219%	0.739%
Change in Annual Expenditures on Gasoline for Average Household with Vehicles.	\$ .....	\$3.43	\$13.72	\$34.29
Change in Annual Expenditures on Gasoline For Lowest Quintile Households with Vehicles.	\$ .....	\$2.02	\$8.07	\$20.18
Change in Gasoline Expenditures as a Percentage of Consumer Expenditures for Average Household with Vehicles.	percent .....	0.007%	0.028%	0.071%
Change in Gasoline Expenditures as a Percentage of Consumer Expenditures for Lowest Quintile of Vehicle Owners.	percent .....	0.010%	0.040%	0.099%
Change in Gasoline Expenditures as a Percentage of Income After Taxes for Average Household with Vehicles.	percent .....	0.006%	0.024%	0.059%
Change in Gasoline Expenditures as a Percentage of Income After Taxes for Lowest Quintile with Vehicles.	percent .....	0.020%	0.081%	0.202%

For the average household that owns a vehicle, the \$0.003/gallon change in fuel prices would result in a \$3.43 increase in annual gasoline expenditures in 2008/2009. A \$0.01 gallon increase in fuel prices translates to a \$13.72 increase in household expenditures on gasoline. Finally, a \$0.03/gallon increase in fuel prices translates to a \$34.29 increase in household expenditures on gasoline. When analyzing the impact of these changes on the lowest income groups, the absolute expenditures on gasoline are lower than for the average household, due to the fact that this segment of the population tends to drive fewer miles on average. Since people in the lowest income groups are least able to absorb changes in fuel prices, we also analyzed these changes in expenditures as a percentage of consumer expenditures. Our analysis shows a

slightly larger impact on lower income households as a percentage of consumer expenditures. When calculating the change in gasoline expenditures as a percentage of income, the impact on low income households is noticeably larger than the corresponding impact on the average household, although the magnitude of the change is still small (less than a 1% change for all scenarios).

Some commenters argued to the contrary, claiming that waiving the RFS would significantly impact the price of fuel. These commenters rely on papers by Urbanchuk<sup>39</sup> and Verleger and Chodorow<sup>40</sup>, which both estimate large changes in gasoline prices as a result of waiving the mandate, although the estimated impacts are opposite in sign. The fundamental assumption in both the Urbanchuk and Verleger and Chodorow papers is that granting the waiver would lead to a relatively large

change in U.S. ethanol production. We disagree. As described in the previous sections, our analysis suggests that other market factors such as high crude oil prices are driving the current increase in ethanol production, not the RFS mandate.

Urbanchuk estimates the impact of removing 4.5 billion gallons of ethanol from the fuel pool over a short time frame, which would have to be made up by approximately 3.1 billion gallons of gasoline on an energy equivalent basis. Assuming the demand and supply for gasoline is largely inelastic, Urbanchuk estimates this increase in gasoline demand would lead to an increase in gasoline price of about \$1.14/gallon. While we agree in principle that increasing the demand for gasoline by approximately three billion gallons would significantly increase short term gasoline prices, EPA does not believe

<sup>38</sup> See docket for the memorandum from U.S. DOE to U.S. EPA.

<sup>39</sup> EPA-HQ-OAR-2008-0380-0479.

<sup>40</sup> EPA-HQ-OAR-2008-0380-0526.

granting the waiver would result in an increase in gasoline demand by over three billion gallons. Furthermore, Urbanchuk estimates the percent change in price relative to a percent change in the quantity of U.S. gasoline supply. We believe this assumption overstates the price impact, because it would be more appropriate to estimate the price change relative to a percent change in the world gasoline supply.

Verleger and Chodorow use a very different analytical approach to predict that an increase in U.S. gasoline production would lead to lower U.S. gasoline prices. Their paper assumes that an RFS waiver would reduce demand for ethanol by between 4.5 and 5.55 billion gallons in 2008 and 2009 respectively, and that the increased demand for motor fuel would be made up entirely by gasoline on an energy equivalent basis. This would increase crude oil demand so that gasoline would replace ethanol. The increased crude refining would produce more diesel fuel, which would reduce diesel fuel prices by approximately \$0.70/gallon (15 percent). In turn, Verleger and Chodorow assert that decreased diesel prices would cause prices for light sweet crude to decline by approximately \$16/barrel (12 percent), and that the decrease in crude prices would lower finished motor gasoline prices by approximately \$0.15/gallon (4 percent).

This analysis depends on several assumptions that we believe are likely to be incorrect (or at least overstate the potential impact of granting the waiver). Verleger and Chodorow assume that ethanol is priced in the market based on its energy content in comparison to gasoline; therefore on an energy equivalent basis ethanol is currently more expensive than gasoline. In reality, ethanol has historically been priced based on volume displacement of gasoline and will be until it has to be sold as E85 in large quantities and E10 has saturated the U.S. gasoline market. At that time, any additional ethanol will be sold as an E85 blend. Today, we are not at the point of E10 saturation, therefore, on a volumetric basis, ethanol is still cheaper than gasoline. We believe that the market will continue to demand a higher quantity of ethanol than the mandate under most future market conditions. Thus, even if the Verleger and Chodorow paper were directionally correct, the magnitude of the impact would be significantly overstated.

The second major assumption in the Verleger and Chodorow paper that we believe is not accurate is the proposition that current high crude oil prices are

caused by high diesel fuel prices. While there appears to be evidence that tight distillate markets are contributing to higher world crude oil demand and crude oil prices,<sup>41</sup> crude oil prices are a function of supply and demand for crude oil and specifically the demand of all the products made from it, not just diesel fuel. Without this questionable assumption by Verleger and Chodorow, their projected increase in demand for crude oil would likely increase crude oil prices and prices for both gasoline and diesel fuel, thus reversing the conclusion of their study that increasing diesel production would decrease crude oil prices.

Empirically, diesel prices have risen along with diesel consumption over the last few years. Verleger and Chodorow attempt to quantify this effect through the use of regression analysis over a limited time period for one market. Such a regression cannot determine the causation, and its use may have numerous other technical problems. We therefore believe this relationship is unsupported.

### 3. Summary of Technical Analysis

For the 2008/2009 corn crop marketing year, our analysis shows that the likelihood that the RFS will determine ethanol demand in the U.S. is low, and that the most likely result is that the RFS would have no impact on ethanol demand. Furthermore, our analysis shows that potential changes in U.S. corn and fuel prices resulting from a waiver would have at most a limited impact on the food, feed, and fuel markets.

## VI. Other Issues

EPA received comment on several areas of concern, in addition to the economic impact of the RFS mandate. Comments were received on the general impacts of biofuels, the environmental impacts of RFS, the effect that granting or denying the waiver request would have on commodity markets, and the impact of granting a waiver on the future of ethanol production in the U.S. Although this section summarizes and provides general responses to the comments concerning these issues, EPA notes that several of the issues are either not relevant to EPA's consideration of the current waiver request or do not provide a full record by which to analyze the issue.

### 1. General Impacts of Recent Increase in Biofuels

Many commenters focused on the recent increase in corn prices from approximately \$2.00 in 2005 to almost \$8.00 this spring. Most of the commenters stated that biofuels have contributed to the recent increase in U.S. corn prices, although estimates of the magnitude of this impact varied. Commenters referencing Dr. Joe Glauber, Chief Economist at the USDA, in testimony presented before the Committee on Energy and Natural Resources in the U.S. Senate, noted estimates that increased ethanol production in the U.S. has raised U.S. corn prices by approximately \$0.24/bushel in the 2006/2007 time frame (9 percent) and approximately \$0.65/bushel in the 2007/2008 (18 percent) timeframe. Alternatively, in a report prepared for Kraft Foods Global Inc., Dr. Keith Collins suggests that the increase in U.S. biofuels since 2006/7 has increased U.S. corn prices by a larger amount, with a range of 29% to 60% (EPA-HQ-OAR-2008-0380-0514.2). While EPA recognizes that there has been a large increase in corn prices that has coincided with the recent expansion of biofuels, the individual contribution of the RFS mandate has been much smaller. A number of factors have contributed to the recent increase in corn prices, such as foreign demand for coarse grains, sustained drought in major international crop producing regions, and historically high energy prices.

In a similar vein, comments and supporting analyses generally agreed that the recent increase in U.S. biofuels production has increased food prices in the U.S., although the magnitude of this impact varied throughout the comments. Collins suggested that if biofuels accounted for 60% of the increase in corn and soybean prices between the 2006/2007 marketing year and expected 2008/2009 levels, food ingredient costs would be approximately \$20.5 billion higher. In turn, ingredient costs will be passed on in higher meat and food prices to U.S. consumers. In total, Collins predicts that increased biofuels will increase U.S. food prices by approximately 1.8%. The 1.8% increase is a 23–25% increase in the normal rate of food price inflation in a two to three year period. Alternatively, Purdue University Extension suggests that for the year 2007, the increased use of biofuels have increased food costs by approximately \$15 billion compared to the 2005 crop year.<sup>42</sup> At the low end of

<sup>41</sup> <http://www.iea.org/w/bookshop/add.aspx?id=402>.

<sup>42</sup> EPA-HQ-OAR-2008-0380-0574.

the spectrum, several commenters cited a report prepared by Dr. Richard Perrin of University of Nebraska-Lincoln, that estimated ethanol is responsible for no more than 15–20 percent of overall grain price increases over the last two years and that increases from ethanol have had a negligible impact on U.S. consumer prices.

EPA also received many comments discussing how the recent increase in corn price has had a negative impact on the livestock industry. The State of Texas provides several reports that conclude that the livestock industries, including poultry, are experiencing financial losses due to increases in the cost of production due to higher corn prices. Several other commenters provide detailed descriptions of the financial impact on cattle, poultry or broiler companies from rising feed costs.

EPA is aware of the overall impact that biofuels have had in recent years on the food and feed markets, and we are also cognizant of the current macroeconomic conditions in the U.S. that have exacerbated some of these impacts. While we generally agree that the issues raised by commenters are important considerations, we think that some commenters may have overstated the magnitude of the impacts. In addition, as discussed previously, the issue before EPA is a narrower one—what impact if any the RFS mandate itself would have over the time period at issue, not the impact of the overall production and use of biofuels in the U.S.

## 2. Environmental Concerns

A number of commenters expressed concerns that the RFS mandate severely harms the environment. As discussed below, EPA believes that the RFS mandate is not expected to lead to an increased use of ethanol during the time period at issue. In addition, EPA has considered and evaluated the environmental impact of an increased use of renewable fuels in the RFS1 rulemaking.<sup>43</sup> In addition, EISA also made several important changes to the RFS program, many of which directly address some of the environmental concerns raised below. EPA is preparing a proposed rulemaking to update the RFS program to reflect the EISA changes, and in this rulemaking EPA will further evaluate the environmental concerns raised below.

Specifically, commenters outlined four major environmental harms related to the expansion of the RFS mandate. First, a few commenters expressed concern about increased emissions of

volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) associated with increased use of ethanol. They claimed that when an area that currently blends little or no ethanol into gasoline starts to use such blends, significant increases in the amounts of VOCs and NO<sub>x</sub> occurs.

The agency has evaluated the impact of increased use of ethanol a number of times (See 66 **Federal Register** 37256–37161). Most recently, we conducted a thorough analysis of the impact of increased ethanol usage in the final rule for implementation of the Renewable Fuel Standard Program, for levels up to approximately 10 billion gallons of renewable fuel use a year.<sup>44</sup> We have shown through the use of the ozone Response Surface Model that changes in ambient ozone levels are small when moving to these volumes of ethanol-blended gasoline and those slight increases would be smaller when factoring carbon monoxide reductions from increased ethanol use.<sup>45</sup>

Second, some commenters stated that ethanol's lifecycle greenhouse gases (GHGs) substantially increase once greenhouse gases released from indirect land use are considered in ethanol's GHG lifecycle. These comments rely on evidence from Searchinger, *et al.* which utilized the GREET and the Food and Agricultural Policy Research Institute (FAPRI) models to show a manifold increase in lifecycle GHGs as marginal cropland, forests, and native grasslands are converted to agricultural lands as a result of ethanol production.<sup>46</sup> This is an important issue. EPA has analyzed the greenhouse impacts of various renewable fuels, most recently in the RFS1 rulemaking.<sup>47</sup> EPA will further address this issue with an updated analysis in its upcoming proposed rulemaking to implement the RFS

changes called for by EISA 2007. These RFS changes include GHG thresholds for certain fuels, based on lifecycle emissions of GHG gases, including significant indirect emissions resulting from land use changes.

Third, others argue that current agricultural production will put around 100 million tons of soil and 300,000 tons of nitrogen-based fertilizers in Midwestern waters. The soil erosion and fertilizer runoff are major contributors to the Gulf of Mexico's "Dead Zone." These commenters argue that the RFS mandate, at a minimum, prevents the implementation of solutions to issues in the Gulf and would ultimately exacerbate the situation as farmers grow more crops for energy production in the future. We acknowledge that impacts to water quality may result from increased biofuel crop production, and we intend to provide information about this issue as part of the upcoming RFS rulemaking.

Fourth, commenters expressed concern over the effect on natural habitats and biodiversity from clearing critical habitats like forests, wetlands, and grasslands for biofuels production. They argue that these habitats are necessary to preserve biodiversity, and the RFS provides an incentive to use these lands and other lands in conservation programs for use to produce energy crops.

Other commenters noted the environmental benefits from blending ethanol into gasoline. Most notably, commenters point to the reductions in carbon monoxide emissions from using ethanol blends, decreased emissions of greenhouse gases, and the use of ethanol as an oxygenate that helps to break down harmful chemicals before being released into the atmosphere.

For these comments, as with the prior comments, EPA notes that the Agency will be evaluating these and other environmental issues in the upcoming proposed rulemaking to implement the changes to the RFS program required by EISA. EPA is conducting a significant amount of analyses for this upcoming rulemaking to implement EISA, and we will further investigate both the positive and negative environmental impacts and costs of increased renewable fuel production and consumption. In addition, EISA changes the definitions of renewable fuel, and precludes use of renewable fuel in the RFS program if it was produced from feedstocks from certain lands. EPA will address these changes in the upcoming RFS2 rulemaking.

<sup>44</sup> See 72 FR 23900, 23969–978.

<sup>45</sup> In our RFS ozone modeling, we found that the CO decreases would likely offset the potential ozone air-quality impacts of a two percentage point adjustment to VOCs. We found that reduced CO emissions ranged from 0.9% to 2.5% depending on the volume of renewable fuels increased. Concerning VOCs and NO<sub>x</sub>, we expected to see increases of 4 to 5 percent and 5 to 7 percent respectively in some areas. Overall, we found that the average impact on summer ambient ozone levels for all areas is a 0.057 ppb increase or about 0.06 percent of the ozone NAAQS (80.0 ppb). Additionally, in areas with significant increases (greater than 50 percent) in ethanol use between now and 2015, the increase on summer ambient ozone levels is 0.153 ppb (72 FR 23977).

<sup>46</sup> Searchinger, Timothy; Heimlich, Ralph; Houghton, R. A.; Dong, Fengxia; Elobeid, Amani; Fabiosa, Jacinto; Tokgaz, Simla; Hayes, Dermot; *et al.*, "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change", *Science*, No. 319 (Feb 29, 2008): 1238–1240.

<sup>47</sup> See 72 FR 23978–984.

<sup>43</sup> 72 FR 23899 (May 1, 2007).

### 3. Potential Impacts on Commodities Markets

We received comments that supported and opposed granting the waiver request on the grounds that the RFS mandate contributes to investment speculation in the commodities markets. The State of Texas argues that the RFS mandate is causing and will continue to cause unnecessary harm to the economy by facilitating speculative investment in corn futures. EPA recognizes that the RFS requirements may be influencing the U.S. corn futures market in years beyond the 2008/2009 time period, which may in turn influence prices today. However, research to date has not been able to link future corn prices from the larger RFS required volumes to current 2008/2009 corn prices.<sup>48</sup> We intend to continue to review and monitor this issue as appropriate.

Conversely, one commenter argued that granting the waiver would introduce a level of uncertainty in the biofuels markets that could adversely impact investment decisions, research and development initiatives for advanced biofuels, and/or how future RFS requirements are enforced. Furthermore, other commenters point out that expanded ethanol production increases available livestock feeds and may lead to corn price stabilization through the use of distiller's grains.

Some economists note that speculation provides a vital role in the price discovery process with a chance of "overshooting" the equilibrium because the balance between supply and demand is never precisely known. The prices are corrected as new information becomes available. This appears to be the case with corn futures as prices have fallen as the recent flooding in the Midwest has shown to have marginal national impact, as discussed above. Many commenters noted corn futures prices surpassing \$8.00/bushel peaks during the uncertainty of the effect of the flood, compared with the current \$5.25/bushel futures price.<sup>49</sup>

As discussed above, the RFS mandate is not expected to cause any increase in the use of ethanol during the time period at issue, and therefore is not expected to have any impact on corn prices.

### 4. Future of Renewable Fuels

A number of commenters raised concerns over the impact that granting the waiver would have on the future of ethanol production. Many commenters, especially those related to the ethanol industry, stated that granting the waiver would send a signal to ethanol and other biofuels producers that investments in production and distribution of renewable fuels were uncertain. Additionally, these commenters note that granting a waiver this soon after raising the standard raises questions concerning future investments in advanced biofuels mandated by EISA beginning in 2009.

On the other hand, some commenters raise questions about whether the current production capacity of ethanol would be able to meet the revised standards and whether distribution facilities would be able to accommodate the increased amount of renewable fuels required. These commenters argue that granting the waiver request would allow a smoother transition to biofuels in terms of production capacity and distribution by allowing more realistic development of infrastructure to support the renewable fuels industry. Additionally, they argue that granting the waiver request might create an incentive to develop more advanced biofuels more quickly and move away from grain-based ethanol.

Many commenters point out that a significant amount of production capabilities are scheduled for completion during 2009 with over 13 billion gallons of production capacity scheduled to come online.

EPA will be considering these and other issues in a comprehensive fashion in the upcoming rulemaking to implement the changes called for by EISA. However they are not relevant to the threshold issue in this waiver proceeding—whether implementation of the RFS mandate, during the time period at issue, would severely harm the economy. Given the basis for the decision described below in Section VII, the issues raised in this section VI are more appropriately considered in the upcoming rulemaking to implement the changes called for by EISA.

### VII. Decision

EPA is authorized to grant Texas's waiver request if EPA determines that implementation of the RFS mandate would severely harm the economy of a State, region, or the United States. As discussed in section IV, this calls for a determination that implementation of the mandate itself would severely harm the economy; it is not enough to

determine that implementation would contribute to such harm. The required determination has two basic parts. The first criterion is that there must be a generally high degree of confidence that severe harm would occur from implementation of the RFS. The second criterion is a high threshold for the nature and degree of harm that would support issuance of a waiver, indicating a point that is quite far along a continuum of harm, though short of extreme. EPA recognizes that Texas and many parties, both those supporting the waiver and those opposing the waiver, have raised issues of great concern to them and to others in the nation concerning the role of the increased use of biofuels. However the issue before the Agency in this case is a much more limited one, as described above. Based on a thorough review of the record in this case, and applying the evidence to the statutory criteria, EPA finds that the evidence does not support granting a waiver.

First, regarding the degree of confidence that implementation of the mandate during the time period at issue would harm the economy, EPA notes that the overall weight of the evidence indicates that implementation of the mandate itself would have no significant impact on the economy during this time period, and the most likely result is that implementation of the mandate itself would have no effect on the economy of a State, region, or the United States. All parties agree that any claimed economic harm would derive from the increased use of ethanol, and any associated increase in the price of corn. However the weight of evidence strongly indicates that waiving the mandate would not be expected to change the amount of ethanol that would be used. The ISU modeling projects that waiving the mandate would have no impact at all on the use of ethanol in 76% of the scenarios modeled. The ISU results are also generally supported by the modeling performed by TAMU, which indicates that under scenarios similar to the ISU modeling, a waiver of the mandate would have less than a 50% chance of impacting the use of ethanol. Current market conditions that foster ethanol production and the low price currently in the market for renewable fuel RINs also supports the conclusion that waiving the mandate would not be expected to have a significant effect on the use of ethanol. As discussed in section V, the evidence submitted to support the view that a waiver would have a large effect on ethanol use is less credible because of concerns about the

<sup>48</sup> Abbot, Hurt, and Tyner, July 2008, What's Driving Food Prices? <http://www.farmfoundation.org/news/articlefiles/404-FINAL%20WDFP%20REPORT%207-21-08.pdf>; <http://www.cftc.gov/stellent/groups/public/@newsroom/documents/file/itfinterimreportoncrudeoil0708.pdf>

<sup>49</sup> "Electronic Corn Quotes." 08 July 2008. Chicago Board of Trading. 05 Aug 2008 [www.cbct.com/](http://www.cbct.com/).

validity of key assumptions in the analyses and models. After considering all of the evidence and weighing it appropriately, EPA believes that waiving the RFS mandate would not significantly affect the use of ethanol during the time period at issue, and the most likely result is that implementation would have no effect. Therefore it is unlikely that implementation of the mandate would cause harm to the economy. There is insufficient evidence before the agency to support a finding that implementation of the RFS would likely or even probably cause harm to the economy for that time period—and certainly the evidence does not reach the generally high degree of confidence required for issuance of a waiver under section 211(o)(7)(A).

With respect to the second criterion, the Agency examined the evidence to evaluate the potential impact of implementation of the RFS mandate on corn prices and the impacts of such corn prices on various sectors of the economy and the overall economy, both within Texas and for the entire United States. In the ISU modeling a range of scenarios were modeled, with the model projecting ethanol use, corn price and fuel price. The modeling indicates that for 76% of the scenarios there would be no change in ethanol use or corn price from a waiver of the mandate, with only 24% of the scenarios indicating a change in ethanol use and a corresponding change in corn price. EPA determined that the average change in corn price over all of the scenarios was \$0.07 per bushel of corn. The average change in corn price over the 24% of scenarios where a waiver would have an effect was \$0.30 per bushel of corn. As discussed in section V, a price change in corn of this magnitude would have only a limited impact on livestock costs and food prices. It would also be accompanied by a small change in fuel costs. For the reasons discussed above, EPA believes the weight of the evidence supports the view that there is most likely no impact on ethanol use or corn prices from implementation of the RFS mandate over the time period at issue, and if an impact were to occur, it would likely be on average \$0.30 per bushel of corn. EPA believes this range of price increases for corn, even without considering the accompanying impact on fuel prices, would not support a finding of severe harm to the economy, whether considering the livestock industry of Texas, the livestock industry of the nation, the economy of Texas, or the economy of the United States. In this case, EPA does not need to

determine exactly what nature or degree of harm would amount to severe harm, as the evidence in this case clearly does not meet the criterion of a high threshold for severe economic harm.

In conclusion, EPA finds that the evidence in this case does not support a determination that implementation of the RFS mandate during the time period at issue would severely harm the economy of a State, a region, or the United States.

#### **VIII. Guidance on Future Requests for Waivers**

In considering waiver requests, EPA takes seriously its responsibility to evaluate whether circumstances warranting a waiver have arisen, while providing the necessary level of stability for this program that Congress intended. In order to meet these objectives, the Agency is providing guidance on its expectations for future waiver requests.

Section 211(o)(7)(A) of the Act requires notice and comment before the Administrator may grant a waiver of the RFS volume requirements. For 2008, only a state governor may request a waiver, however beginning in 2009 “any person subject to the requirements” of the RFS may also request a waiver. Thus, refiners and importers of gasoline, as well as producers and importers of renewable fuels such as ethanol and biodiesel, may request a waiver.

The statute provides that EPA “may waive [the RFS requirements] \* \* \* based on a determination by the Administrator, after public notice and opportunity for comment,” that certain circumstances exist. It does not, however, specify that notice and an opportunity for comment are required for EPA denial of a petition. While EPA always has the discretion to proceed through public notice and comment prior to acting on a waiver request, we believe that there could well be circumstances where it is appropriate for EPA to deny a petition without notice and opportunity for comment. For example, petitions that clearly do not contain information and analysis of a type and quality sufficient to support a grant of a waiver may not justify public consideration prior to issuance of a denial by EPA. EPA is concerned that time and resources of both the Agency and stakeholders should not be unnecessarily devoted to a public notice and comment process if a clearly meritless petition is filed, including a petition that is not supported by an appropriate level of information and analysis. In such a case, EPA can make an appropriate decision without public input. In addition in those circumstances a public notice and

comment process would detract from the time and resources of all stakeholders, including the resources that may be available to address petitions that are adequately supported by an appropriate level of information and analysis. To assist future petitioners, EPA offers the following guidance on the types of information and analysis that we expect would accompany a waiver request. EPA notes that this guidance is not a rule, and therefore is not binding on the public or EPA. Any final decision on the sufficiency and merit of a petition will be made upon review of a petition by EPA in consultation with the Secretaries of Agriculture and Energy.

By example, in section IV of this decision EPA provides its interpretation of the criteria for deciding a waiver request based on a claim that implementation of the RFS would severely harm the economy of a State, a region, or the United States. In section V EPA explains how it weighs the body of evidence on the issues that are relevant for this waiver request. Based on this, EPA expects that future applicants for a waiver will provide information and analyses that address what is the impact of implementation of the RFS, and what is the nature and degree of harm associated with the impact of the RFS. The information and analyses discussed in section V, such as appropriate modeling, provides guidance on the kind of information and analyses that EPA expects would be provided by an applicant. EPA expects that it will evaluate a waiver request by weighing all of the evidence; hence no one specific kind or form of evidence or analyses is necessarily dispositive. At the same time, EPA expects that applicants would provide a comprehensive and robust analytical basis for any claim that the RFS itself is causing harm, and the nature and degree of that harm.

In the future, EPA will review a request for a waiver and first determine whether to proceed with public notice and comment. EPA will not grant a waiver without such notice and comment, but in appropriate circumstances EPA reserves the right to deny a waiver request without going through that process. Where an applicant does not address the relevant issues or does not provide adequate evidence to support their claims, EPA may decide to deny the request without notice and comment.

In this case the initial submission by the State of Texas provided little analytical or evidentiary basis for their request. EPA proceeded through a notice and comment process as this was

the first such request and EPA had provided no prior guidance on these issues. EPA believed all parties to the process would benefit from a complete public airing of the issues involved in the first waiver request. Texas properly submitted substantive and detailed comments during the comment period to support its request. However during the public comment period other commenters were necessarily focused on addressing just the limited information provided in the initial request submitted by Texas. They did not have the opportunity to respond to Texas' more substantive submission until after the comment period had closed. This is not the most efficient use of EPA's or the public's resources, especially given the short time specified in the Act for EPA to make a decision. The guidance in this section is designed in part to avoid this kind of situation in the future and better allow the Agency to meet the statutory deadlines provided in EISA.

EPA may grant a waiver for no more than one year unless renewed by the Administrator. EPA expects that applicants would state the requested start date and duration of the waiver, with waiver applications received generally at least six months before the requested start date, and to the extent that applications cannot be submitted in such timeframe an application should include an explanation why such expectation could not be met. EPA expects that applicants would notify the Administrator approximately three months before the termination of a waiver period if renewal of the waiver is desired. The request for an extension would include an update of the information and rationale submitted with the original waiver request.

The Administrator may also grant a waiver based on severe harm to the environment of a State, a region, or the United States, or inadequate domestic supply. At this time the Agency is not providing any more specific guidance for these types of waiver requests, but anticipates that the guidance discussed in this section would apply in general terms to these requests as well.

My decision will affect not only refiners, importers and other regulated parties in Texas but also refiners, importers, and other regulated parties throughout the nation who must comply with the renewable fuel standards and other requirements in order to produce gasoline and renewable fuel for use in the United States. A waiver would affect the national volume of renewable fuel that is required, and would therefore affect parties all across the nation who produce gasoline or renewable fuel, as

well as other regulated parties who are involved in the distribution of such fuels. For this reason, I hereby determine and find that this is a final action of national applicability.

This action is not a rule as defined by Executive Order 12866. Therefore, it is exempt from review by the Office of Management and Budget as required for rules and regulations by Executive Order 12866.

Dated: August 7, 2008.

**Stephen L. Johnson,**

*Administrator.*

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**BILLING CODE 6560-50-P**

## **ENVIRONMENTAL PROTECTION AGENCY**

**[EPA-HQ-OPP-2008-0046; FRL-8376-8]**

### **Notice of Receipt of Several Pesticide Petitions Filed for Residues of Pesticide Chemicals in or on Various Commodities**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** This notice announces the Agency's receipt of several initial filing of pesticide petitions proposing the establishment or modification of regulations for residues of pesticide chemicals in or on various commodities  
**DATES:** Comments must be received on or before September 12, 2008.

**ADDRESSES:** Submit your comments, identified by docket identification (ID) number and the pesticide petition number (PP) of interest as shown in the body of this document, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.

- *Mail:* Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001.

- *Delivery:* OPP Regulatory Public Docket (7502P), Environmental Protection Agency, Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. Deliveries are only accepted during the Docket Facility's normal hours of operation (8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays). Special arrangements should be made for deliveries of boxed information. The Docket Facility telephone number is (703) 305-5805.

*Instructions:* Direct your comments to the docket ID number and the pesticide

petition number of interest as shown in the body of this document. EPA's policy is that all comments received will be included in the docket without change and may be made available on-line at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through [regulations.gov](http://www.regulations.gov) or e-mail. The [regulations.gov](http://www.regulations.gov) website is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through [regulations.gov](http://www.regulations.gov), your e-mail address will be automatically captured and included as part of the comment that is placed in the docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

*Docket:* All documents in the docket are listed in the docket index available at <http://www.regulations.gov>. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either in the electronic docket at <http://www.regulations.gov>, or, if only available in hard copy, at the OPP Regulatory Public Docket in Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. The hours of operation of this Docket Facility are from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket Facility telephone number is (703) 305-5805.

**FOR FURTHER INFORMATION CONTACT:** A contact person is listed at the end of each pesticide petition summary and may be contacted by telephone or e-mail. The mailing address for each contact person listed is: Registration