• Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and

• Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this rule does not have Tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on Tribal governments or preempt Tribal law.

B. Submission to Congress and the Comptroller General

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

C. Petitions for Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by December 16, 2011. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action.

This action concerning Maryland's adoption of CTG standards for plastic parts and business machines coatings may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Ozone, Reporting and recordkeeping requirements, Volatile organic compounds.

Dated: October 03, 2011.

W.C. Early,

Acting, Regional Administrator, Region III.

40 CFR part 52 is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart V—Maryland

■ 2. In § 52.1070, the table in paragraph (c) is amended by revising the entry for COMAR 26.11.19.07 and adding an entry for COMAR 26.11.19.07–2 to read as follows:

§ 52.1070 Identification of plan.

* * * * *

(c) * * *

EPA-APPROVED REGULATIONS IN THE MARYLAND SIP

Code of Maryland administrative regulations (COMAR) citation	Title/subject	State effective date	EPA approval date	Additional explanation/ citation at 40 CFR 52.1100
*	*	*	*	*
	26.11.19 Volatile Organic Compounds from Specific Processes			
*	*	*	*	*
26.11.19.07	Paper, Fabric, Film, and Foil Coating	5/16/11	10/17/11 [Insert page number where the document begins].	Revisions to Section title and Sections .07A and .07C(3).
*	*	*	*	*
26.11.19.07–2	Plastic Parts and Business Machines Coating	5/16/11	10/17/11 [Insert page number where the document begins].	New Regulation.
*	*	*	*	*

* * * * *

[FR Doc. 2011–26638 Filed 10–14–11; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 372

[EPA–HQ–TRI–2009–0844; FRL–9463–5]

RIN 2025–AA27

Hydrogen Sulfide; Community Right-to-Know Toxic Chemical Release Reporting

AGENCY: Environmental Protection Agency (EPA).

ACTION: Lifting of Administrative Stay for Hydrogen Sulfide.

SUMMARY: EPA is announcing that it is lifting the Administrative Stay of the Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 toxic chemical release reporting requirements for hydrogen sulfide (Chemical Abstracts Service Number (CAS No.) 7783–06–4). Hydrogen sulfide was added to the EPCRA section 313 list of toxic chemicals in a final rule published in the **Federal Register** on

December 1, 1993. However, on August 22, 1994, EPA issued an Administrative Stay of the reporting requirements for hydrogen sulfide in order to evaluate issues brought to the Agency's attention after promulgation of the final rule concerning the human health effect basis for the listing and the Agency's use of exposure analysis in EPCRA section 313 listing decisions. Although the final rule listing hydrogen sulfide under section 313 of EPCRA remained in force, the stay deferred the reporting requirements for hydrogen sulfide while EPA completed this further evaluation. EPA completed its further evaluation of additional information that has become available since the stay was put in place regarding the human health and environmental effects of hydrogen sulfide, and the Agency published a position that the stay should be lifted in the February 26, 2010, **Federal Register** document ''Intent to Consider Lifting Administrative Stay; Opportunity for Public Comment.'' Based on EPA's further evaluation and the consideration of the public comments received on the notice of intent, EPA continues to believe that the Administrative Stay should be lifted. By this current action, EPA is not revisiting the original listing decision, which was accomplished by final rule on December 1, 1993. Rather, EPA is lifting the Administrative Stay of the reporting requirements for hydrogen sulfide.

DATES: This action is effective on October 17, 2011, such that the first reports on hydrogen sulfide will be due on July 1, 2013 for reporting year 2012.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–TRI–2009–0844. All documents in the docket are listed in the *http://www.regulations.gov* index. 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, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the OEI Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the OEI Docket is (202) 566–1752.

FOR FURTHER INFORMATION CONTACT: Daniel R. Bushman, Environmental Analysis Division, Office of Information Analysis and Access (2842T), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; telephone number: 202–566–0743; fax number: 202–566–0677; e-mail: *bushman.daniel@epa.gov,* for specific information on this document. For general information on EPCRA section 313, contact the Emergency Planning and Community Right-to-Know Hotline, toll free at (800) 424–9346 or (703) 412–9810 in Virginia and Alaska or toll free, TDD (800) 553–7672, *http://www.epa.gov/epaoswer/hotline/.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

You may be potentially affected by this action if you manufacture, process, or otherwise use hydrogen sulfide. Potentially affected categories and entities may include, but are not limited to:

Category	Examples of potentially affected entities
Industry	Facilities included in the following NAICS manufacturing codes (corresponding to SIC codes 20 through 39): 311*, 312*, 313*, 314*, 315*, 316, 321, 322, 323*, 324, 325*, 326*, 327, 331, 332, 333, 334*, 335*, 336, 337*, 339*, 111998*, 211112*, 212324*, 212325*, 212393*, 212399*, 488390*, 511110, 511120, 511130, 511140*, 511191, 511199, 512220, 512230*, 519130*, 541712*, or 811490*. *Exceptions and/or limitations exist for these NAICS codes. Facilities included in the following NAICS codes (corresponding to SIC codes other than SIC codes 20 through 39): 212111, 212112, 212113 (correspond to SIC 12, Coal Mining (except 1241)); or 212221, 212222, 212231, 212234, 212299 (correspond to SIC 10, Metal Mining (except 1011, 1081, and 1094)); or 221111, 221112, 221113, 221119, 221121, 221122, 221330 (Limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce) (correspond to SIC 4911, 4931, and 4939, Electric Utilities); or 424690, 425110, 425120 (Limited to facilities previously classified in SIC 5169, Chemicals and Allied Products, Not Elsewhere Classified); or 424710 (corresponds to SIC 5171, Petroleum Bulk Terminals and Plants); or 562112 (Limited to facilities primarily engaged in solvent recovery services on a contract or fee basis (previously classified under SIC 7389, Business Services, NEC)); or 562211, 562212, 562213, 562219, 562920 (Limited to facilities regulated under the Resource Conservation and Recovery Act, subtitle C, 42 U.S.C. 6921 *et seq.*) (correspond to SIC 4953, Refuse Systems).
Federal Government	Federal facilities.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Some of the entities listed in the table have exemptions and/or limitations regarding coverage, and other types of entities not listed in the table could also be affected. To determine whether your facility would be affected by this action, you should carefully examine the applicability criteria in part 372 subpart B of Title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

II. Introduction

Section 313 of EPCRA, 42 U.S.C. 11023, requires certain facilities that manufacture, process, or otherwise use listed toxic chemicals in amounts above reporting threshold levels to report their environmental releases and other waste management quantities of such chemicals annually. These facilities must also report pollution prevention and recycling data for such chemicals, pursuant to section 6607 of the Pollution Prevention Act (PPA), 42 U.S.C. 13106. EPCRA section 313 established an initial list of toxic chemicals composed of more than 300 chemicals and 20 chemical categories.

EPCRA section 313(d) authorizes EPA to add or delete chemicals from the list and sets forth criteria for these actions. Specifically, EPCRA section 313(d)(2) states that EPA may add a chemical to the list if ''there is sufficient evidence to establish any one'' of the listing criteria. Therefore, to add a chemical, EPA must demonstrate that at least one criterion is met, but need not determine whether any other criterion is met. Conversely, EPCRA section 313(d)(3) states that to remove a chemical from the list, EPA must determine that ''there is not sufficient evidence to establish any'' of

the Section 313(d)(2) criteria. Therefore, to remove a chemical, EPA must demonstrate that none of the criteria are met. The EPCRA section 313(d)(2) criteria are:

(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—

(i) Cancer or teratogenic effects, or

(ii) Serious or irreversible—

(I) Reproductive dysfunctions,

(II) Neurological disorders,

(III) Heritable genetic mutations, or

(IV) Other chronic health effects.

(C) The chemical is known to cause or can be reasonably anticipated to cause, because of

(i) Its toxicity,

(ii) Its toxicity and persistence in the environment, or

(iii) Its toxicity and tendency to bioaccumulate in the environment, a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section.

EPA often refers to the section 313(d)(2)(A) criterion as the ''acute human health effects criterion;'' the section 313(d)(2)(B) criterion as the ''chronic human health effects criterion;'' and the section 313(d)(2)(C) criterion as the ''environmental effects criterion.''

Under EPCRA section 313(e)(1), any person may petition EPA to add chemicals to or delete chemicals from the list. EPA issued a statement of petition policy and guidance in the **Federal Register** of February 4, 1987 (52 FR 3479) to provide guidance regarding the recommended content and format for submitting petitions under EPCRA section 313(e). EPA also issued guidance in the **Federal Register** of May 23, 1991 (56 FR 23703) regarding the recommended content of petitions to delete individual members of the section 313 metal compound categories. In addition, EPA published in the **Federal Register** of November 30, 1994 (59 FR 61432) a statement clarifying its interpretation of the section 313(d)(2) and (d)(3) criteria for modifying the section 313 list of toxic chemicals.

III. Background Information

A. What is the history of the listing of hydrogen sulfide under EPCRA section 313?

In response to a petition from the Natural Resources Defense Council and the Governor of New York, hydrogen sulfide, along with 20 other chemicals and two chemical categories, was added to the EPCRA section 313 list of toxic chemicals as part of a 1993 final rule (December 1, 1993, 58 FR 63500). Hydrogen sulfide was listed under the criteria of EPCRA section 313(d)(2)(B) (chronic human health effects) based on chronic neurotoxic effects in humans and under EPCRA section 313(d)(2)(C) (environmental effects) based on acute aquatic toxicity. However, on August 22, 1994 (59 FR 43048), EPA issued an Administrative Stay of the EPCRA section 313 reporting requirements for hydrogen sulfide. Although the final rule listing hydrogen sulfide under section 313 of EPCRA remained in force, the stay deferred the reporting requirements for hydrogen sulfide. On February 26, 2010, EPA issued a document in the **Federal Register** entitled ''Intent to Consider Lifting Administrative Stay; Opportunity for Public Comment'' (75 FR 8889). That document provided the public with the opportunity to comment on EPA's review of the currently available data on the human health and environmental effects of hydrogen sulfide—specifically, chronic respiratory effects, chronic neurotoxic effects, and acute, chronic and early-life stage aquatic toxicity—and EPA's belief that the Administrative Stay should be lifted based on that data.

B. What was the basis for the administrative stay?

After the final rule was issued adding hydrogen sulfide to the EPCRA section 313 list of toxic chemicals, some members of the regulated community expressed a concern that the ''chronic human health effects'' basis for listing hydrogen sulfide under EPCRA section 313(d)(2)(B) had changed between the proposed rule (September 8, 1992, 57 FR 41020) and the final rule (December 1, 1993, 58 FR 63500), and that commenters on the proposed rule therefore did not have an opportunity to comment on that individual basis for the listing. Specifically, although the Agency cited the same acute aquatic toxicity as an ''environmental effects'' basis for the listing under EPCRA section 313(d)(2)(C) in both the proposed and final rules, the Agency also cited chronic respiratory effects as a ''chronic human health effects'' basis under EPCRA section 313(d)(2)(B) in the proposed rule, but chronic neurotoxic effects as a ''chronic human health effects'' basis under that same provision in the final rule. In addition, after issuance of the final rule, some members of the regulated community expressed concern that EPA's decision not to include an exposure analysis in deciding to list hydrogen sulfide on the basis of chronic human health effects was inconsistent with past Agency practice.

Although EPA did not agree that it had been inconsistent in its use of exposure analyses, and notwithstanding the fact that the listing decision was appropriate based on the acute aquatic toxicity finding alone under EPCRA section 313(d)(2)(C), the Agency issued an Administrative Stay of the reporting requirements for hydrogen sulfide in order to review the concerns raised after issuance of the final rule by some members of the regulated community.

C. What is EPA's rationale for lifting the administrative stay for hydrogen sulfide?

EPA's technical evaluation of hydrogen sulfide, as discussed in detail in the February 26, 2010 **Federal Register** document (75 FR 8889), shows that it can reasonably be anticipated to cause chronic health effects in humans. The chronic health effects have been observed in laboratory animals at concentrations as low as 28 milligrams per cubic meter (mg/m^3) (20 parts per million (ppm)) for neurotoxicity and 41.7 mg/m^3 (30 ppm) for upper respiratory toxicity. In addition, EPA's technical evaluation of hydrogen sulfide also shows that it can reasonably be anticipated to cause, because of its toxicity, significant adverse effects in aquatic organisms. Examples of hydrogen sulfide's ecological toxicity include acute toxicity (96-hour LC_{50} (*i.e.,* the concentration that is lethal to 50% of test organisms)) values for freshwater fish that ranged from 0.0149 milligrams per liter (mg/L) (fathead minnow) to 0.0448 mg/L (bluegill), indicating high aquatic toxicity. Examples of hydrogen sulfide's chronic ecological toxicity include freshwater fish values that ranged from a 6-week lowest-observed-effect-concentration (LOEC) (growth rate) of 0.0005 mg/L in a tropical fish (*Mystus nemurus*) to a 430-day LOEC (final weight) of 0.009 mg/L for goldfish, also indicating high aquatic toxicity.

Based on the above findings, EPA believes that there is no basis for continuing the Administrative Stay of the reporting requirements for hydrogen sulfide, and that the Administrative

Stay should therefore be lifted. As an aside, EPA notes also that it believes that the above findings clearly demonstrate the correctness of the Agency's final decision in December 1993 to list hydrogen sulfide on the EPCRA section 313 toxic chemicals list based on the listing criteria in EPCRA sections 313(d)(2)(B) and (C).

Finally, in accordance with EPA's stated policy on the use of exposure assessments (59 FR 61432), EPA does not believe that an exposure assessment is appropriate for determining whether hydrogen sulfide meets the criteria of EPCRA section 313(d)(2)(B) or (C), and therefore the Administrative Stay should not be continued for lack of an exposure analysis. As EPA explained in the Intent to Lift the Stay (and as explained in Unit IV.A.1.c. of this Notice):

> EPA has determined that hydrogen sulfide can reasonably be anticipated to cause serious or irreversible chronic human health effects at relatively low doses and thus is considered to have moderately high to high chronic toxicity. EPA does not believe that it is appropriate to consider exposure for chemicals that are moderately high to highly toxic based on a hazard assessment when determining if a chemical can be listed for chronic effects pursuant to EPCRA section 313(d)(2)(B) (see 59 FR 61432, 61433, 61440–61442). Hydrogen sulfide has also been determined to cause ecotoxicity at relatively low concentrations, and thus is considered to have high ecotoxicity. EPA believes that chemicals that induce death or serious adverse effects in aquatic organisms at relatively low concentrations (*i.e.,* they have high ecotoxicity) have the potential to cause significant changes in the population of fish and other aquatic organisms, and can therefore reasonably be anticipated to cause a significant adverse effect on the environment of sufficient seriousness to warrant reporting. EPA does not believe that it is required to consider exposure for chemicals that have high ecotoxicity based on a hazard assessment when determining if a chemical can be listed for effects pursuant to EPCRA section 313(d)(2)(C) (see 59 FR 61432, 61433, 61440–61442). (75 FR 8889, 8893 (Feb. 26, 2010)).

D. What is the purpose of this document?

The purpose of this document is to respond to the public comments received on EPA's February 26, 2010, **Federal Register** document ''Intent to Consider Lifting Administrative Stay; Opportunity for Public Comment'' (75 FR 8889), and to give notice that EPA is lifting the Administrative Stay of the EPCRA section 313 toxic chemical release reporting requirements for hydrogen sulfide. With the lifting of this stay, pursuant to Section 313 of EPCRA, certain facilities that manufacture, process, or otherwise use hydrogen sulfide in amounts above reporting threshold levels must now comply with the reporting requirements that have been in place since hydrogen sulfide was added to the EPCRA section 313 list in 1993. The first reports on hydrogen sulfide will be due on July 1, 2013 for reporting year 2012.

IV. What comments did EPA receive on the intent to consider lifting the administrative stay and what are EPA's responses to those comments?

EPA received fifteen comments on the **Federal Register** document ''Intent to Consider Lifting Administrative Stay; Opportunity for Public Comment'' (75 FR 8889). The comments represented 6 individuals, 32 environmental groups, one state agency, and 10 industry groups. Environmental groups that commented included the Food & Water Watch, National Association of Clean Water Agencies, Natural Resources Defense Council, Waterkeeper Alliance and one comment submitted by 28 other environmental organizations. The comments from the individuals, environmental groups, and state agency were supportive of EPA's intent to lift the Administrative Stay. Many of these groups provided additional information to support EPA's action as well as requesting other actions such as listing additional industry sectors that have significant releases of hydrogen sulfide. The most extensive comments came from the Hydrogen Sulfide Consortium, whose members are: American Coke and Coal Chemicals Institute, American Forest and Paper Association, American Petroleum Institute, Asphalt Institute, Carbon Disulfide Coalition, Corn Refiners Association, National Petrochemical and Refiners Association, and The Sulphur Institute. The most significant opposing comments are summarized and responded to below. The complete set of comments and EPA's responses can be found in the response to comment document in the docket for this action (Ref. 1).

A. Comments From the Hydrogen Sulfide Consortium

1. *Scope of Comments.* Commenters claim that ''EPA cannot properly limit comments to whether or not EPA should lift its Administrative Stay of EPCRA section 313 reporting requirements,'' but rather must revisit the original listing decision accomplished by final rule in 1993. In support of this argument, commenters assert that: (1) EPA stated, when it issued the Administrative Stay in 1994, that it would revisit the original listing decision; (2) EPA cited chronic respiratory effects as one of the bases for listing under EPCRA section 313(d)(2)(B) in the proposed rule, but chronic neurotoxic effects as a basis under that same provision in the final rule; (3) EPA adopted its current policy regarding exposure analyses subsequent to the 1993 listing of hydrogen sulfide; and (4) EPA ''must make a new listing determination before it may lift [the stay].''

For the reasons stated below, EPA disagrees with commenters that EPA must revisit the original listing decision in the context of EPA's consideration of lifting the Administrative Stay of the EPCRA reporting requirements for hydrogen sulfide. Based upon our current review of the science, as presented in EPA's technical evaluation of hydrogen sulfide, which is discussed in detail in the February 26, 2010 **Federal Register** document (75 FR 8889) and summarized in Unit III.C. of this document, EPA has determined that there is no need to re-visit the existing listing determination. Before addressing each of the commenter's arguments in turn, however, a brief reiteration of the factual background is useful.

As described in detail below, EPCRA section 313(d)(2) states that EPA may add a chemical to the list if ''there is sufficient evidence to establish any *one*'' (emphasis added) of the listing criteria specified in section 313(d)(2). Therefore, to add a chemical, EPA must demonstrate that at least one criterion is met, but need not determine whether any other criterion is met.

EPA proposed to add hydrogen sulfide to the EPCRA section 313 list of toxic chemicals on September 8, 1992 (57 FR 41020) based on a determination that there was sufficient evidence establishing both chronic human health effects per EPCRA section 313(d)(2)(B) (specifically, chronic respiratory effects) and environmental effects per EPCRA section 313(d)(2)(C) (specifically, acute aquatic toxicity). On December 1, 1993, EPA promulgated a final rule adding hydrogen sulfide to the EPCRA section 313 list of toxic chemicals (58 FR 63500) (effective January 1, 1994). In the final rule, the listing decision was based on a determination that there was sufficient evidence establishing environmental effects per EPCRA section 313(d)(2)(C) (specifically, the same acute aquatic toxicity as identified in the proposed rule) and chronic human health effects per EPCRA section 313(d)(2)(B). In the final rule, however, the chronic human health effects finding was based on chronic neurotoxic effects, instead of chronic respiratory effects as stated in the proposed rule.

After the final rule was issued adding hydrogen sulfide to the EPCRA section 313 list, and notwithstanding the fact

that the Agency cited the same acute aquatic toxicity as an ''environmental effects'' basis for the listing under EPCRA section 313(d)(2)(C) in both the proposed rule and the final rule, some members of the regulated community expressed a concern that the Agency cited chronic respiratory effects as a ''chronic human health effects'' basis under EPCRA section 313(d)(2)(B) in the proposed rule, but chronic neurotoxic effects as a ''chronic human health effects'' basis under that same provision in the final rule. In addition, after issuance of the final rule, some members of the regulated community expressed concern that EPA's decision not to include an exposure analysis in deciding to list hydrogen sulfide on the basis of chronic human health effects was inconsistent with past Agency practice. As a result of these concerns, some commenters threatened to bring legal action challenging the final rule.

In response to the post-promulgation comments and concerns raised by some in the regulated community, and notwithstanding the fact that the listing decision was appropriate based on the acute aquatic toxicity finding alone under EPCRA section 313(d)(2)(C), EPA issued an Administrative Stay of the EPCRA section 313 reporting requirements for hydrogen sulfide on August 22, 1994 (59 FR 43048) in order to review those post-promulgation comments and concerns.

The stay issued on August 22, 1994 made clear that: ''The effect of this stay is to *defer reporting* on [hydrogen sulfide] while the Agency reviews new data and information made available *subsequent to the promulgation of the final rule''* (59 FR 43048 (Aug. 22, 1994) (emphasis added)). As a result, while the subsequent stay deferred reporting requirements, the stay did not remove hydrogen sulfide from the EPCRA section 313 list or alter that final listing determination, which remained in effect as of January 1, 1994. The listing determination was never administratively or judicially challenged.

On February 26, 2010, EPA issued a notice announcing its ''Intent to Consider Lifting [the hydrogen sulfide] Administrative Stay; Opportunity for Public Comment.'' 75 FR 8889 (hereinafter *Intent to Lift the Stay*). That document stated: ''The purpose of this document is to provide the public with the opportunity to comment on EPA's review of the currently available data on the human health and environmental effects of hydrogen sulfide * * * and EPA's belief that the Administrative Stay should be lifted based on that data* * *. In addition, this document addresses the concerns raised regarding use of exposure analyses.'' *Id.* at 8891. The Intent to Lift the Stay notice clearly explained: ''By this current action, *EPA is not revisiting the original listing decision,* which was accomplished by final rule on December 1, 1993. Rather, EPA is merely presenting its rationale for why the Administrative Stay of the reporting requirements for hydrogen sulfide should be lifted.'' *Id.* at 8889 (emphasis added).

a. *EPA Statements when Issuing the Stay.* Commenters first argue that EPA cannot now limit comment to whether or not to lift the stay because the Agency stated, when it issued the Administrative Stay in 1994, that it intended, at some point in the future, to ''seek comment on the Agency's initial determination for [hydrogen sulfide].'' 59 FR at 43049. Specifically, the Administrative Stay stated:

> [T]he Agency will be issuing a forthcoming **Federal Register** notice which will seek comment on the Agency's initial determination for [hydrogen sulfide], * * * procedural issues concerning the initial final rule, and generally, comments (and any supporting data) on whether the Agency should either propose to delete [hydrogen sulfide] or affirm its initial determination and dissolve today's Administrative Stay. (59 FR at 43049).

Hydrogen sulfide was listed under section 313 of EPCRA by final rule on December 1, 1993. The stay did not remove hydrogen sulfide from the EPCRA section 313 list or alter that final listing determination. The 1993 listing decision was appropriate based on the acute aquatic toxicity finding alone under EPCRA section 313(d)(2)(C), which was included in both the proposed and final rules and never questioned. Therefore, EPA does not believe it is necessary or appropriate to revisit the 1993 final listing of hydrogen sulfide in order to lift the stay of reporting requirements.

Further, the Agency believes that its action in taking comment on its intent to lift the stay is substantially in accord with the course of action it described in issuing the stay in 1994. In the Intent to Lift the Stay notice, the Agency discussed and invited comment on the data underlying its consideration of the matter and EPA's application of its policy regarding exposure assessment to the listing decision. As described in the Intent to Lift the Stay notice, EPA's planned course of action arises out of EPA's review of the currently available data, which clearly demonstrate both chronic health effects in humans (upper respiratory tract toxicity and neurotoxicity) and significant adverse effects in aquatic organisms (acute, chronic, and early life stage). Further, EPA's consideration of these effects is fully consistent with its policy on exposure assessment. Based on these findings, EPA believes that there is no basis for continuing the Administrative Stay of the reporting requirements for hydrogen sulfide, and that the Administrative Stay should therefore be lifted.

Moreover, these findings also demonstrate that there is no basis to consider delisting hydrogen sulfide. EPCRA section 313(d)(3) states that to remove a chemical from the list, EPA must determine that ''there is not sufficient evidence to establish *any''* of the Section 313(d)(2) criteria (emphasis added). Therefore, to remove a chemical, EPA must demonstrate that none of the criteria are met. As EPA's review of the currently available data in the context of its consideration of lifting the Administrative Stay demonstrates, EPA cannot show that none of the criteria are met. Indeed, the Agency believes that the only course available is to dissolve the stay, which it is doing through notice-and-comment, and which is substantially in accord with at least one of the alternative courses anticipated in 1994.

Finally, to the extent that the commenters are suggesting that EPA is legally prohibited from now limiting comment to the issue of whether or not to lift the Administrative Stay based on the statements in the preamble the Agency made (excerpted above) when issuing the Administrative Stay, EPA respectfully notes that these preamble statements do not create such a legal obligation. See, *e.g.*, *Natural Resources Defense Council* v. *EPA,* 559 F.3d 561, 564–65 (D.C. Cir. 2009).

b. *Proposed and Final Chronic Human Health Effects.* Second, commenters argue that EPA cannot now limit comment to whether or not to lift the stay because EPA cited chronic respiratory effects as one of the bases for listing under EPCRA section 313(d)(2)(B) in the proposed rule, but chronic neurotoxic effects as a basis under that same provision in the final rule.

EPCRA section 313(d) authorizes EPA to add or delete chemicals from the list and sets forth criteria for these actions. The EPCRA section 313(d)(2) criteria are:

> (A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—

(i) Cancer or teratogenic effects, or

(ii) Serious or irreversible—

(I) Reproductive dysfunctions,

(II) Neurological disorders,

(III) Heritable genetic mutations, or

(IV) Other chronic health effects.

(C) The chemical is known to cause or can be reasonably anticipated to cause, because of

(i) Its toxicity,

(ii) Its toxicity and persistence in the environment, or

(iii) Its toxicity and tendency to bioaccumulate in the environment,

a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section.

EPA often refers to the section 313(d)(2)(A) criterion as the ''acute human health effects criterion;'' the section 313(d)(2)(B) criterion as the ''chronic human health effects criterion;'' and the section 313(d)(2)(C) criterion as the ''environmental effects criterion.''

While it is true that the Agency cited chronic respiratory effects as a ''chronic human health effects'' basis under EPCRA section 313(d)(2)(B) in the proposed rule, but chronic neurotoxic effects as a ''chronic human health effects'' basis under that same provision in the final rule, it bears emphasizing once again that the Agency also separately cited the same acute aquatic toxicity as an ''environmental effects'' basis for the listing under EPCRA section 313(d)(2)(C) in both the proposed and final rules. As a result, and in light of the fact that EPCRA section 313(d)(2) expressly allows EPA to add a chemical to the list if ''there is sufficient evidence to establish any *one''* of the listing criteria (emphasis added), the 1993 listing decision was appropriate based on the acute aquatic toxicity finding alone under EPCRA section 313(d)(2)(C). That basis for the listing was never questioned and was and continues to be supported by the data relied upon by EPA in determining that the stay should be lifted. Any procedural error that may have occurred regarding the section 313(d)(2)(B) ''chronic human health effects'' finding was harmless in light of the unchallenged section 313(d)(2)(C) ''environmental effects'' finding presented in both the proposed and final rules. This analysis also played directly into EPA's decision to proceed in the manner it has, as opposed to rigidly following its stated intentions in 1994.

EPA is currently *lifting the stay* of hydrogen sulfide reporting requirements—a substance that has been and remains listed under EPCRA since promulgation of the final rule on December 1, 1993—based on EPA's review of the currently available data, which clearly demonstrate both chronic health effects in humans (upper respiratory tract toxicity and neurotoxicity) and significant adverse effects in aquatic organisms (acute, chronic, and early life stage). EPA is not revisiting the original listing determination, and comments on the original listing decision are beyond the scope of this action.

c. *EPA's Exposure Analysis Policy.* Third, commenters argue that EPA cannot now limit comment to whether or not to lift the stay because EPA adopted its current policy regarding exposure analysis subsequent to the 1993 listing of hydrogen sulfide.

EPA did not ''adopt a new policy'' on its use of exposure analysis for listing chemicals under EPCRA section 313 subsequent to the listing of hydrogen sulfide in 1993. Instead, the Agency's then-existing position on the use of exposure analyses in listing decisions under EPCRA section 313 was presented in a proposed rule in the **Federal Register** of January 12, 1994 (59 FR 1788). That proposed rule provided the public with the opportunity to comment on the Agency's then-existing interpretation of the statutory listing criteria as it relates to the use of exposure considerations. After considering the comments received, EPA published in the **Federal Register** of November 30, 1994 (59 FR 61432) a ''chemical expansion'' final rule, including a statement clarifying its interpretation of the statutory requirements regarding how exposure is considered in listing decisions. Subsequent to that final rule, EPA's interpretation of the statutory listing criteria as it relates to the consideration of exposure was upheld in *National Oilseed Processors Ass'n.* v. *Browner,* 924 F. Supp. 1193 (D.D.C. 1996), aff'd in part & remanded in part, *Troy Corp.* v. *Browner,* 120 F.3d 277 (D.C. Cir. 1997).

As stated in the chemical expansion final rule:

Through this rulemaking, EPA is clarifying its position regarding the use of hazard, exposure, and risk in listing decisions under EPCRA section 313. EPA will consider exposure factors when making determinations under section 313(d)(2)(A) (acute human toxicity). In addition, EPA has discretion to consider exposure factors where appropriate for determinations under sections 313(d)(2)(B) (chronic human toxicity) and (C) (environmental toxicity), and that there is a broader range of circumstances in which exposure will be considered under section 313(d)(2)(C) than under (B).

EPA has reviewed its past listing decisions in light of this clarification, and believes that its prior listing determinations have been consistent in the consideration of exposure in 31 of the 32 listing/delisting determinations previous to this action * **(59 FR 61442 (Nov. 30, 1994) (emphasis added)).

In *Troy Corp.* v. *Browner,* the DC Circuit agreed with EPA, finding:

Were the EPA to abandon a long-held exposure policy and take a new direction we would, as urged, require a thorough explanation of its reasons for doing so. Yet, *the EPA's pronouncement in its preamble of its exposure policy is not a change in course.* With one exception, the EPA has consistently stated, as it does in this rulemaking, that it will consider exposure under subsection (B) only when the chemical was of ''low to moderately low'' toxicity. * * * [T]he agency has long maintained that it would consider exposure under subheading (B) only for low toxicity chemicals. The inorganic fluorides petition was denied over ten years ago. Since that time, the agency has made several dozen listing and delisting decisions under EPCRA. The inorganic fluorides case was the only instance in which the agency articulated a policy contrary to the one explicated in this rulemaking. Under these circumstances *we cannot say that the agency has departed from prior practice* in a way that requires more explanation than was provided. (*Troy Corp.* v. *Browner,* 120 F.3d at 287 (emphasis added) (citation omitted)).

Thus, EPA did not subsequently adopt a new exposure policy as Commenters suggest. Rather, the Agency simply clarified the existing exposure policy. Further, the 31 of 32 previous cases, noted by the court in *Troy Corp.,* in which the Agency had been consistent with this exposure policy included the listing of hydrogen sulfide. Therefore, EPA had applied this same exposure policy to the listing of hydrogen sulfide, and need not, as Commenters suggest, provide a new notice and opportunity to comment on the use of exposure analyses in listing hydrogen sulfide under section 313 of EPCRA.

As EPA explained in the Intent to Lift the Stay:

EPA has determined that hydrogen sulfide can reasonably be anticipated to cause serious or irreversible chronic human health effects at relatively low doses and thus is considered to have moderately high to high chronic toxicity. EPA does not believe that it is appropriate to consider exposure for chemicals that are moderately high to highly toxic based on a hazard assessment when determining if a chemical can be listed for chronic effects pursuant to EPCRA section 313(d)(2)(B) (see 59 FR 61432, 61433, 61440–61442). Hydrogen sulfide has also been determined to cause ecotoxicity at relatively low concentrations, and thus is considered to have high ecotoxicity. EPA believes that

chemicals that induce death or serious adverse effects in aquatic organisms at relatively low concentrations (*i.e.,* they have high ecotoxicity) have the potential to cause significant changes in the population of fish and other aquatic organisms, and can therefore reasonably be anticipated to cause a significant adverse effect on the environment of sufficient seriousness to warrant reporting. EPA does not believe that it is required to consider exposure for chemicals that have high ecotoxicity based on a hazard assessment when determining if a chemical can be listed for effects pursuant to EPCRA section 313(d)(2)(C) (see 59 FR 61432, 61433, 61440–61442). (75 FR 8889, 8893 (Feb. 26, 2010)).

d. *EPA Must Make a New Listing Determination.* Finally, Commenters argue that EPA cannot now limit comment to whether or not to lift the stay because EPA ''must make a new listing determination before it may lift [the stay].''

This argument merely restates Commenters' first three arguments in support of Commenters' ultimate position that EPA must revisit the 1993 listing decision. For the reasons already discussed above, the Agency disagrees with Commenters' arguments.

2. *Implementation of EPA's Exposure Policy.* Commenters state that EPA may not implement its policy on the use of exposure analysis in EPCRA section 313 listing decisions in an arbitrary manner. Commenters claim that EPA has not identified the specific criteria it utilizes in determining whether a substance causes chronic human health effects at relatively low doses or ecotoxicity at relatively low concentrations. Commenters noted that EPA stated in its intent to lift the Administrative Stay that it is applying the interpretation of the statutory listing criteria and the policy on the use of exposure analyses adopted by the EPA in its November 30, 1994, final rule listing other substances. Commenters cited EPA's statements from the rule that exposure considerations are appropriate in making listing determinations under EPCRA section 313(d)(2)(B) for chemicals with low to moderately low toxicity based on hazard assessment and under EPCRA section 313(d)(2)(C) for chemicals that are low or moderately ecotoxic. Commenters claim that they were unable to identify or locate in the docket for this action any objective criteria that EPA uses in making a determination of whether a substance may cause ''serious or irreversible chronic health effects'' or has ''low to moderately low toxicity.'' Commenters state that they were unable to find any explanation of the criteria that EPA uses in deciding whether a substance has ''low to moderately low ecotoxicity.'' Commenters noted that EPA stated that its interpretation of the statutory listing criteria that supports the 1994 policy statement was sustained during subsequent judicial review.

Commenters state that even if EPA has discretion to select a policy concerning the circumstances in which exposure analysis will be part of the EPCRA section 313(d)(2) listing decision, it does not mean the EPA has unfettered discretion to apply that policy in an arbitrary manner. Commenters state that if EPA is to have a rational policy that can be applied in a fair and equitable manner, the scientists conducting a hazard assessment under EPCRA section 313(d)(2) should not be permitted to make qualitative judgments concerning potential toxicity in the absence of objective criteria or guidance concerning what these terms mean. However, as discussed below, this is precisely the question at issue in *National Oilseed Processors Ass'n.* v. *Browner,* 924 F. Supp. 1193 (D.D.C. 1996), *aff'd in part & remanded in part, Troy Corp.* v. *Browner,* 120 F.3d 277 (D.C. Cir. 1997), where those Courts held that EPA's exposure analysis policy, including the determination of when a toxic chemical has ''moderately high to high toxicity'' based on adverse effects at ''low'' or ''moderate'' dose levels and thus does not require an exposure analysis in order to be listed, was not arbitrary or capricious.

EPA has identified the criteria that it uses in making a determination of whether a substance that may cause ''serious or irreversible chronic health effects'' has ''low to moderately low toxicity,'' and has not applied its policy on the use of exposure analysis in EPCRA section 313 listing determinations in an arbitrary manner. To the contrary, in the preamble to the 1994 chemical expansion final rule, EPA explained that two types of chemicals are considered to exhibit moderately high to high toxicity:

- Where a review of the scientific data provides a high level of confidence that the chemical causes an adverse effect at relatively low dose levels, and
- Where a review of the scientific data indicates that the chemical will cause various adverse effects at moderate dose levels.

(59 FR 61432, 61433 (Nov. 30, 1994).

Thus, EPA has in fact articulated criteria for its determination whether or not exposure considerations will be taken into account in its chemical listing decisions.

More specifically, EPA has provided guidance concerning how it evaluates chemicals to determine whether they meet the EPCRA section 313 listing criteria, including information on the factors EPA considers in determining whether a chemical is sufficiently toxic that exposure need not be considered in the listing decision. The specific criteria EPA uses to determine whether a chemical has moderately high or high toxicity, and thus does not have low to moderately low toxicity, were explained in detail in the 1994 chemical expansion rule:

3. *Hazard evaluation.* After completing the screening phase, EPA conducted a thorough hazard assessment for each of the addition candidates that resulted from the above analyses and determined based on the weight-of-the evidence if there was sufficient evidence to establish that the candidate chemical met the statutory criteria for addition to EPCRA section 313. To make this determination, EPA senior scientists reviewed readily available toxicity information on each chemical for each of the following effect areas: acute human health effects; cancer; other chronic human effects; and environmental effects. In addition, EPA reviewed, where appropriate, information on the environmental fate of the chemical.

The hazard assessment was conducted in accordance with relevant EPA guidelines for each adverse human health or environmental effect (*e.g.,* the appropriate guidelines for hazard evaluation of chemical carcinogens and for the type of evidence required to substantiate a determination of carcinogenicity are the Assessment Guidelines for Carcinogen Risk (Ref. 4)). During this assessment the number, severity, and significance of the effects induced by the chemical, the dose level causing the effect, and the quality and quantity of the available data, including the nature of the data (*e.g.,* human epidemiological, laboratory animal, field or workplace studies) and confidence level in the existing data base, were all considered. *Where a careful review of the scientific data for a particular chemical results in a high level of confidence that the chemical causes an adverse effect at relatively low dose levels, EPA believes that this evidence is sufficient for listing the chemical under section 313. EPA also believes that where a review of the scientific data indicates that the chemical will cause various adverse effects at moderate dose levels, the total weight-of-the-evidence indicates that there is sufficient evidence for listing the chemical under EPCRA section 313. EPA believes that both types of chemicals described above exhibit moderately high to high toxicity based on a hazard assessment.*

EPA also conducted an analysis of exposure for each chemical or chemical category proposed for listing under EPCRA section 313(d)(2)(A) (*i.e.,* based on adverse acute human health effects), and, where appropriate, under section 313(d)(2)(C) (*i.e.,* based on adverse ecological effects). For chemicals listed under EPCRA section 313(d)(2)(A), this analysis included estimated concentrations of the chemical at or beyond

the facility site boundary through the use of estimated releases and modeling techniques. EPA did not conduct an analysis of exposure for the chemicals proposed for listing under section 313(d)(2)(B) because these chemicals exhibit moderately high to high toxicity based on a hazard assessment (see Unit IV.B. for a discussion of the use of exposure). As discussed more thoroughly in Unit IV.B. of this preamble, EPA does not believe that it is appropriate to factor exposure into the listing decisions for the chemicals being listed pursuant to section 313(d)(2)(B) in this rulemaking.

Following a review and analysis of the information available about each chemical in this final rule (including information provided through public comment) by senior Agency scientists, the Agency concludes that for each of the chemicals listed one or more of the EPCRA section 313 listing criteria are met. Moreover, the adverse effects associated with each of the chemicals being listed today are serious and significant. In some cases the effects are extreme, such as cancer or death. In others, the effects are serious and lasting, including, for example, impairment of a fetus' or an offspring's physical development, neurological effects inhibiting motor abilities or mental processes or impairing the ability to reproduce, or the sustainability of a fragile ecosystem such as an estuary. For a number of chemicals in the final rule, there is more than one adverse effect.

It is important to understand that although an adverse effect is known or can be reasonably anticipated to be caused by a chemical on the section 313 list, a release of a chemical into a community does not necessarily mean that the effect will occur. Exposure and dose are also important factors in determining whether an adverse effect occurs and how serious the manifestation will be. The listing of a chemical on the section 313 list does not mean that a particular community will experience these adverse effects. Instead the purpose for listing a chemical is to ensure that the public gets information about releases of such chemicals. Thus, EPA believes that for chemicals that typically do not affect solely one or two species but rather affect changes across a whole ecosystem and for which there is well-documented evidence supporting the adverse effects, that their addition to the EPCRA section 313 list is warranted even though the severity of the adverse effects that they induce will be dependent upon site-specific characteristics. Once EPA makes release data available through TRI, the community may then make its own determination on the importance of these releases (and their potential adverse effects). (59 FR at 61433, 11/30/1994 (emphasis added)).

EPA went on to state in the chemical expansion rule that:

Through this rulemaking, EPA is clarifying its position regarding the use of hazard, exposure, and risk in listing decisions under EPCRA section 313. EPA will consider exposure factors when making determinations under section 313(d)(2)(A) (acute human toxicity). In addition, EPA has discretion to consider exposure factors where appropriate for determinations under sections 313(d)(2)(B) (chronic human toxicity) and (C) (environmental toxicity), and that there is a broader range of circumstances in which exposure will be considered under section 313(d)(2)(C) than under (B).

EPA has reviewed its past listing decisions in light of this clarification, and believes that its prior listing determinations have been consistent in the consideration of exposure in 31 of the 32 listing/delisting determinations previous to this action, including a number of deletions of low toxicity chemicals that Congress placed on the initial EPCRA section 313 list. EPA is currently reviewing the one exception, inorganic fluorides, to determine if additional action is warranted. EPA will continue to evaluate petitions according to this clarification and will delete chemicals that do not meet the statutory criteria. (59 FR at 61442, 11/30/1994).

EPA's exposure analysis policy, as set forth in the chemical expansion Final Rule, was judicially challenged in *National Oilseed Producers Ass'n* v. *Browner,* 924 F. Supp. 1193 (D.D.C. 1996). There, the plaintiffs presented precisely the same argument that the Hydrogen Sulfide Consortium now raises. In *National Oilseed,* the court stated that ''Plaintiffs * * * claim that EPA has not adequately explained when it will consider exposure under Section 313(d)(2)(B).'' *National Oilseed,* 924 F. Supp. at 1203. The court squarely rejected that argument, holding:

The Agency argues generally that, in the exercise of its discretion, it has elected to consider exposure only in limited circumstances. Specifically, when EPA's hazard assessment shows that a chemical exhibits only low or moderately low toxicity, EPA will consider the potential for exposure in making a listing decision. Conversely, where EPA's hazard assessment reveals that a chemical's toxicity is high or moderately high, EPA does not consider exposure, and will list the chemical based solely on its toxic effect.

* * * * *

Moreover, EPA asserts that it explained adequately on the record that it chose to not consider exposure in this rulemaking because all of the chemicals proposed for listing under Section 313(d)(2)(B) were of ''high to moderately-high'' toxicity and therefore consideration of exposure was not appropriate.

After consideration of the extensive arguments on both sides of this issue, the Court concludes that the Agency did not act arbitrarily and capriciously in declining to consider exposure in the listing decisions for this rulemaking. * * * While a more clearly and fully articulated policy would be preferable, the Court cannot conclude that EPA was unreasonable in exercising its discretion by continuing to exclude consideration of exposure when chemicals are of high to moderately-high toxicity.

* * * * *

What is significant is that EPA stated what its policy for consideration of exposure would be, and then described its application to the chemicals considered in this rulemaking.

Because EPA's decision to not consider exposure in this rulemaking was consistent with its policy of using exposure data only in particular circumstances, *i.e.,* where chemicals are of low toxicity, the Court concludes that the Agency was not arbitrary and capricious.

National Oilseed, 924 F. Supp. at 1203–04 (citations and footnotes omitted).

On appeal to the U.S. Court of Appeals for the D.C. Circuit, the plaintiffs again raised this same argument. There, the court stated: ''* * * [Plaintiffs] argue that the EPA abused its discretion and acted arbitrarily and capriciously by failing to establish criteria for the consideration of exposure * * *.'' *Troy Corp.* v. *Browner,* 120 F.3d 277, 282 (D.C. Cir. 1997). On this point, the D.C. Circuit rejected the plaintiffs' argument and affirmed the judgment of the D.C. District Court in *National Oilseed. Troy Corp.,* 120 F.3d at 293.

Just as EPA did in the 1994 chemical expansion rule and other previous listing decisions, upheld by the Courts in *National Oilseed* and *Troy Corp.*—including application of the Agency's exposure analysis policy in conducting such hazard assessments—EPA conducted a hazard assessment of the human health and ecological effects of hydrogen sulfide, upon which the determinations that hydrogen sulfide has moderately high to high human toxicity were based. Based on the data from the hazard assessment, as presented in the **Federal Register** notice and supporting documents, EPA determined that hydrogen sulfide has moderately high to high toxicity to humans and is highly toxic to aquatic organisms. EPA discussed these determinations in detail in the notice of Intent to Lift the Stay in the **Federal Register** (75 FR 8889, 2/26/2010). Human health toxicity was discussed in detail beginning on page 8891, with references, and ecological effects were discussed in detail beginning on page 8893, with references.

In the section of the **Federal Register** document that discussed the rationale for lifting the stay, EPA provided the following summary of the hazard data:

EPA's technical evaluation of hydrogen sulfide shows that it can reasonably be anticipated to cause chronic health effects in humans. The chronic health effects have been observed in laboratory animals at concentrations as low as 28 mg/m^3 (20 ppm) and 41.7 mg/m^3 (30 ppm). In addition, EPA's technical evaluation of hydrogen sulfide also shows that it can reasonably be anticipated

to cause, because of its toxicity, significant adverse effects in aquatic organisms. Examples of hydrogen sulfide's ecological toxicity include acute toxicity (96-hour LC_{50}) values for freshwater fish that ranged from 0.0149 mg/L (fathead minnow) to 0.0448 mg/L (bluegill), indicating high aquatic toxicity. Examples of hydrogen sulfide's chronic ecological toxicity include freshwater fish values that ranged from a 6-week LOEC (growth rate) of 0.0005 mg/L in a tropical fish (Mystus nemurus) to a 430-day LOEC (final weight) of 0.009 mg/L for goldfish, also indicating high aquatic toxicity. (75 FR 8893, 2/26/2010).

As the language above clearly shows, EPA did identify the information and the rationale for why hydrogen sulfide was determined to have moderately high to high human toxicity and high ecotoxicity.

3. *EPA's Rationale for Hydrogen Sulfide's Toxicity Level.* Commenters claim that EPA has not given its rationale for why hydrogen sulfide causes chronic human health effects at relatively low levels and ecotoxicity at relatively low concentrations. Commenters contend that EPA has not provided any rationale for the determinations that no exposure assessment is needed for hydrogen sulfide. Commenters noted that EPA provided a description of the chronic human health effects and ecological toxicity of hydrogen sulfide. Commenters also noted that EPA asserted that it had made the requisite determinations concerning the relative magnitude of the toxicity of hydrogen sulfide for both human health and ecological effects. Commenters contend, however, that EPA's statements are wholly conclusory and that the docket does not appear to contain any explanations of the relation between the hazard assessments prepared by EPA scientists and these determinations. Commenters state that they do not believe that the effect levels cited by EPA will be caused by the releases reportable under EPCRA section 313. Commenters state that they believe that the effect levels cited by EPA as ''relatively low'' are actually very high. Commenters stated that the chronic health effect levels cited by EPA are 2,000 to 3,000 times greater than the odor detection threshold (10 parts per billion (ppb)) for hydrogen sulfide. Commenters claim that while releases may result in ambient hydrogen sulfide concentrations that exceed the odor detection threshold, the concentrations will always be far below the lowest levels for chronic effects in animals cited by EPA. Commenters cited a 1990 EPA study on oil and natural gas extraction and a 1999 Public Health Service study for one city near hydrogen sulfide sources as evidence that hydrogen sulfide levels are low. Commenters also cited established state air standards that range from 83 to 200 ppb noting that these are 100 to 150 times less than the lowest levels EPA cited for chronic effects in animals.

In discussing the data EPA cited as supporting its evaluation that hydrogen sulfide is toxic to aquatic organisms at relatively low concentrations, the commenters stated that while the levels may seem relatively low in the abstract, they believe they are actually quite high when viewed in the context of data that clearly establish that hydrogen sulfide will rapidly oxidize to less toxic chemical forms when released to surface waters. Commenters cited the EPA Water Quality Criteria Gold Book as support for their position:

> The fact that H_2S is oxidized in well-aerated water by natural biological systems to sulfates or is biologically oxidized to elemental sulfur has caused investigators to minimize the toxic effects of H_2S on fish and other aquatic life. (EPA Gold Book, May 1, 1986, page 268 (Ref. 2)).

As discussed in the previous response, EPA has provided guidance on how it determines whether a chemical has moderately high to high human toxicity and high ecotoxicity. In its notice of Intent to Lift the Stay, EPA provided a detailed hazard assessment of both the human health effects and the ecological effects of hydrogen sulfide. This assessment included both the effects caused by hydrogen sulfide and the doses/concentrations that caused those effects. This information was discussed in the **Federal Register** (75 FR 8889, 2/26/2010), and the details were contained in the hazard assessments and other references cited by EPA. Specifically, at 75 FR 8889, 8891–8893 (Feb. 26, 2010), EPA's lengthy and detailed technical review of hydrogen sulfide (Part IV. of the **Federal Register** notice, entitled ''What is EPA's Technical Review of Hydrogen Sulfide?''), including references, can be found (and need not be reiterated here). EPA then concluded, based on the hazard assessment:

> EPA has determined that hydrogen sulfide can reasonably be anticipated to cause serious or irreversible chronic human health effects at relatively low doses and thus is considered to have moderately high to high chronic toxicity * * *. Hydrogen sulfide has also been determined to cause ecotoxicity at relatively low concentrations, and thus is considered to have high ecotoxicity. EPA believes that chemicals that induce death or serious adverse effects in aquatic organisms at relatively low concentrations (*i.e.,* they have high ecotoxicity) have the potential to cause significant changes in the population of fish and other aquatic organisms, and can therefore reasonably be anticipated to cause a significant adverse effect on the environment of sufficient seriousness to warrant reporting. (75 FR 8893, 2/26/2010).

In the section of the **Federal Register** document that discussed the rationale for lifting the stay, EPA provided the following summary of the hazard data:

> EPA's technical evaluation of hydrogen sulfide shows that it can reasonably be anticipated to cause chronic health effects in humans. The chronic health effects have been observed in laboratory animals at concentrations as low as 28 mg/m^3 (20 ppm) and 41.7 mg/m^3 (30 ppm). In addition, EPA's technical evaluation of hydrogen sulfide also shows that it can reasonably be anticipated to cause, because of its toxicity, significant adverse effects in aquatic organisms. Examples of hydrogen sulfide's ecological toxicity include acute toxicity (96-hour LC_{50}) values for freshwater fish that ranged from 0.0149 mg/L (fathead minnow) to 0.0448 mg/L (bluegill), indicating high aquatic toxicity. Examples of hydrogen sulfide's chronic ecological toxicity include freshwater fish values that ranged from a 6-week LOEC (growth rate) of 0.0005 mg/L in a tropical fish (*Mystus nemurus*) to a 430-day LOEC (final weight) of 0.009 mg/L for goldfish, also indicating high aquatic toxicity. (75 FR 8893, 2/26/2010).

The above determinations are based on the human health effects and ecological effects caused by hydrogen sulfide and the doses/concentrations that caused those effects. EPA clearly stated why the hazard assessment supports a finding of moderately high to high human toxicity and high ecotoxicity. Therefore, EPA has clearly stated how the hazard assessment data supports a conclusion that hydrogen sulfide has moderately high to high human toxicity and high ecological toxicity.

Regarding the information that the commenter provided on previous exposure assessments, air standards, etc., none of that information is relevant to a determination that hydrogen sulfide has moderately high to high human toxicity or high ecological toxicity. The toxicity of a chemical is separate from whether there are exposures from facility releases of that chemical or not. In addition, the information provided by the commenter does not demonstrate that releases of hydrogen sulfide could not reach a level of concern from all the types of facilities that report under EPCRA section 313. EPA notes that the examples of the very low air standards for hydrogen sulfide of 83–200 parts per billion support EPA's determination that hydrogen sulfide is highly toxic.

The commenter's statement that the cited toxic effects of hydrogen sulfide are 2,000 to 3,000 times greater than the odor detection threshold for hydrogen

sulfide of 10 ppb is not a basis for discounting the toxic effects of hydrogen sulfide. As EPA has stated:

> Recent reviews of the health hazards associated with H_2S exposure and subsequent treatment include Milby and Baselt (1999a) and Guidotti (1996). Earlier reviews of the health effects were provided by Glass (1990), Reiffenstein *et al.* (1992), and Mehlman (1994). Exposure to H_2S has been reported to be an important cause of morbidity and mortality in the workplace (Snyder *et al.,* 1995) and olfactory dysfunction (Hirsch and Zavala, 1999). These reviews indicate that the typical ''rotten-egg odor'' of H_2S is an inadequate warning indicator of exposure since levels in the range of 100–200 ppm (140–280 mg/m^3) can lead to loss of smell followed by olfactory paralysis (Reiffenstein *et al.,* 1992) (IRIS, 2003, page 10 (Ref. 3)).

In addition, simply because someone can smell hydrogen sulfide does not mean they will automatically remove themselves from that exposure. Individuals that are frequently exposed to hydrogen sulfide may become less sensitive to the smell and, as indicated in the IRIS assessment, it is possible to have loss of smell from hydrogen sulfide exposure.

Commenters further state that:

> EPA bases its evaluation that H_2S is ecotoxic at ''relatively low concentrations'' exclusively on potential effects on aquatic life, noting that toxicity values for aquatic species include ''numerous values that are well below 1 milligram per liter (mg/L).'' While the levels cited by EPA may seem ''relatively low'' in the abstract, they are actually quite high when viewed in the context of data that clearly establish that H_2S will be rapidly oxidized to less toxic chemical forms when released to surface waters. The EPA Water Quality Criteria Gold Book makes a similar observation:
>
> The fact that H_2S is oxidized in well-aerated water by natural biological systems to sulfates or is biologically oxidized to elemental sulfur has caused investigators to minimize the toxic effects of H_2S on fish and other aquatic life.
>
> (Footnotes omitted)

The quote from the water quality criteria document that ''[t]he fact that H_2S is oxidized in well-aerated water by natural biological systems to sulfates or is biologically oxidized to elemental sulfur has caused investigators to minimize the toxic effects of H_2S on fish and other aquatic life'' is from the introductory paragraph of the water quality criteria for hydrogen sulfide. This statement simply explains what has caused some investigators in the past to minimize the toxic effects of hydrogen sulfide. However, in the rationale section, the document goes on to discuss the toxicity of hydrogen sulfide to aquatic life in detail and does not dismiss the potential impacts hydrogen sulfide may have on aquatic life. In fact, the document presents the rationale for setting a water quality criterion of just 2 micrograms per liter (μg/L) undissociated hydrogen sulfide for fish and other aquatic life in both fresh and marine water. Concerning oxidation, the EPA Gold Book states:

> The degree of hazard exhibited by sulfide to aquatic animal life is dependent on the temperature, pH, and dissolved oxygen. At lower pH values a greater proportion is in the form of the toxic undissociated H_2S. In winter when the pH is neutral or below or when dissolved oxygen levels are low but not lethal to fish, the hazard from sulfide is exacerbated. (EPA Gold Book, May 1, 1986, page 268, (Ref. 2)).

The criteria document also states that:

> Many past data on the toxicity of hydrogen sulfide to fish and other aquatic life have been based on extremely short exposure periods. Consequently, these early data have indicated that concentrations between 0.3 and 0.4 mg/L permit fish to survive (Van Horn 1958, Boon and Follie 1967, Theede *et al.,* 1969). Recent long-term data, both in field situations and under controlled laboratory conditions, demonstrate hydrogen sulfide toxicity at lower concentrations. (EPA Gold Book, May 1, 1986, page 268, (Ref. 2)).

and concludes that:

> Available data indicate that water containing concentrations of 2.0 μg/L undissociated H_2S would not be hazardous to most fish and other aquatic wildlife, *but concentrations in excess of 2.0 μg/L would constitute a long-term hazard.''* (EPA Gold Book, May 1, 1986, page 270 (emphasis added) (Ref. 2)).

The conclusion that a concentration of hydrogen sulfide in excess of just 2.0 μg/L would constitute a long-term hazard to aquatic life supports a determination that hydrogen sulfide is clearly highly toxic and a potential hazard to aquatic life despite its fate under certain environmental conditions. If hydrogen sulfide were not highly toxic to fish and other aquatic life, then there would be no need for such a very low water quality criteria value.

Regarding the two references cited by the commenters concerning oxidation of hydrogen sulfide in seawater and aqueous solutions (*i.e.,* Millero, F.J., Hubinger, Fernandez and Garnett (1987). Oxidation of H_2S in Seawater as a Function of Temperature, pH and Ionic Strength. *Env. Sci. Tech.* 21:439–443; Obrien, D.J. and Birkner, F.B. (1977). Kinetics of Oxygenation of Reduced Sulfur Species in Aqueous Solutions. *Env. Sci. Tech.* 11:1114–1120.), the Millero reference was cited in EPA's hazard assessment (page 8) and the Obrien reference was cited in the Millero reference (Ref. 4). EPA is thus familiar with the issue of oxidation of hydrogen sulfide and discussed the topic in its hazard assessment on page 8 and again on page 17 (Ref. 4). However, the fact that hydrogen sulfide can be oxidized under certain environmental conditions does not mean that it is not highly toxic. As was cited above, the EPA Gold Book stated:

> The degree of hazard exhibited by sulfide to aquatic animal life is dependent on the temperature, pH, and dissolved oxygen. At lower pH values a greater proportion is in the form of the toxic undissociated H_2S. In winter when the pH is neutral or below or when dissolved oxygen levels are low but not lethal to fish, the hazard from sulfide is exacerbated. (EPA Gold Book, May 1, 1986, page 268 (Ref. 2)).

If hydrogen sulfide were rapidly oxidized to harmless chemicals under all environmental conditions, then that would have an impact on EPA's assessment, but that is certainly not the case. How much damage a particular release of hydrogen sulfide will cause can depend on a number of factors including the amount of the release, whether the release is continuous or infrequent, the pH of the water, the temperature of the water, the type of water (fresh or seawater), the time of year, velocity of the body of water, etc. These factors would be considered in site-specific exposure and risk assessments. While hydrogen sulfide may be oxidized under certain environmental conditions, there are many common environmental conditions under which oxidation will not be significant and thus will not lessen the impact of a release of hydrogen sulfide. As the aquatic toxicity data shows, hydrogen sulfide is toxic to many different aquatic species and at several stages of life with some toxicity values at or below one part in a billion. Thus, it takes very little hydrogen sulfide to have an impact on aquatic life. Even under favorable oxidation conditions, the experimental half-life of hydrogen sulfide is 50 hours in fresh water and 26 hours in seawater. Considering how low the 48 and 96 hour LC_{50} values are for hydrogen sulfide, hydrogen sulfide toxicity is still a concern even under favorable oxidation conditions. The potential oxidation of hydrogen sulfide does not lessen the inherent toxicity of hydrogen sulfide.

EPA notes that, other than the single quote from the water quality criteria document and two references concerning oxidation of hydrogen sulfide in water, the commenters have not questioned or tried to refute in any way the aquatic toxicity information provided in EPA's hazard assessment. The summary table of the aquatic

toxicity values presented in the hazard assessment provided over 90 toxicity values from more than a dozen sources. The commenters did not provide any specific comments on why those data should not be considered sufficient to support EPA's conclusions.

With regard to the commenters' statements concerning criteria or guidance for determining whether a chemical has moderately high to high human toxicity or high ecological toxicity, it appears that the commenters may have been looking for some type of numerical cutoffs. The comments regarding criteria or guidance for determining whether a chemical has moderately high to high human toxicity or high ecological toxicity have been addressed in EPA's other responses to the commenters. With regard to possible numerical cutoffs, EPA does not agree that numerical cutoffs should be or need to be established in order to determine whether a chemical has moderately high to high human toxicity or high ecological toxicity. As EPA explained in the chemical expansion rule in 1994:

> The hazard assessment was conducted in accordance with relevant EPA guidelines for each adverse human health or environmental effect (*e.g.,* the appropriate guidelines for hazard evaluation of chemical carcinogens and for the type of evidence required to substantiate a determination of carcinogenicity are the Assessment Guidelines for Carcinogen Risk (Ref. 4)). During this assessment the number, severity, and significance of the effects induced by the chemical, the dose level causing the effect, and the quality and quantity of the available data, including the nature of the data (*e.g.,* human epidemiological, laboratory animal, field or workplace studies) and confidence level in the existing data base, were all considered. Where a careful review of the scientific data for a particular chemical results in a high level of confidence that the chemical causes an adverse effect at relatively low dose levels, EPA believes that this evidence is sufficient for listing the chemical under section 313. EPA also believes that where a review of the scientific data indicates that the chemical will cause various adverse effects at moderate dose levels, the total weight-of-the-evidence indicates that there is sufficient evidence for listing the chemical under EPCRA section 313. EPA believes that both types of chemicals described above exhibit moderately high to high toxicity based on a hazard assessment. (59 FR 61433, 11/30/1994).

EPA provided a hazard assessment that presented the information used to support the finding that hydrogen sulfide has moderately high to high human toxicity and high ecotoxicity. As in the 1994 rulemaking, and subsequent rulemakings, the data presented in the hazard assessments addressed issues such as the number, severity, and significance of the effects induced by the chemical, the dose level causing the effect, and the quality and quantity of the available data, including the nature of the data (*e.g.,* human epidemiological, laboratory animal, field or workplace studies) and confidence level in the existing data base. All commenters had the opportunity to comment on whether these data support EPA's determinations regarding the toxicity of hydrogen sulfide in response to EPA's notice of Intent to Lift the Stay of the reporting requirements for hydrogen sulfide. Establishing a numerical cutoff would limit EPA's ability to consider other factors that might increase or decrease the concern for the toxicity of a chemical. For example, if one chemical causes one serious effect at 100 milligrams per kilogram per day (mg/kg/day) and another chemical causes multiple serious effects across multiple organ systems but at 300 mg/kg/day it would not make sense to discount the latter if there were some arbitrary numerical cutoff of 200 mg/kg/day. EPA does not believe that would be the correct way to evaluate chemicals for listing. Rather, EPA considers all of the toxicity data, including the doses/concentrations causing the toxic effects, in making determinations about the toxicity of a chemical. EPA provided this information in the hazard assessment for hydrogen sulfide and provided its rationale for lifting the stay based on this information.

While EPA has not set numerical cutoffs, a quick review of the chemicals included in the 1994 chemical expansion rule (59 FR 61432, 11/30/1994), the persistent, bioaccumulative, and toxic (PBT) chemicals rule (64 FR 693, 1/5/1999), and other actions shows that the doses and concentrations that cause adverse effects for hydrogen sulfide are well within those of chemicals that EPA has previously determined to have moderately high to high human toxicity and high ecotoxicity. In fact, with regard to ecotoxicity, some of the levels at which hydrogen sulfide causes toxicity are among the lowest that EPA has evaluated. Even if EPA were to establish numerical cutoffs, based on EPA's previous listing determinations the levels at which hydrogen sulfide causes toxicity would be well below any such numerical cutoffs.

With regard to the phrase ''relatively low doses,'' this simply refers to doses that are low relative to the body burden they impose. Dose levels are most often measured as (or converted into) the units milligrams per kilogram per day (mg/kg/day) where kilogram refers to each kilogram of body weight. As noted above, EPA has explained that in determining whether a chemical has moderately high to high chronic toxicity the dose levels causing the effects along with the number and severity of the adverse effects are considered (59 FR 61433, 1/30/1994). While EPA has not set a numerical cutoff for a relatively low dose, it has provided numerous examples of the dose levels that EPA considers to be relatively low as well as dose levels that EPA considers to be relatively high. The 1994 chemical expansion rule alone contains over 200 examples of relatively low doses (59 FR 1788, 1/12/1994). Doses in that rule that were considered relatively low were generally at or below 100 mg/kg/day. EPA has also identified, through numerous actions, dose levels that are considered to be high or relatively high. Such dose levels are typically at or above 500 mg/kg/day, with most examples being in excess of 1,000 mg/kg/day or more (see for example: 59 FR 49888, 9/30/1994; 60 FR 46076, 9/5/1995, and 64 FR 8769, 2/23/1999). Even in the rulemaking that added hydrogen sulfide to the TRI list, EPA identified doses of 600 and 1,000 mg/kg/day as ''relatively high doses'' (57 FR 41020, 9/8/1992). These ''relatively high doses'' were cited by EPA in the determinations that b-chloronapthalene and isobutyl alcohol were not sufficiently toxic to be added to the EPCRA section 313 list (57 FR 41033, 9/8/1992). These dose levels are significantly higher than the less than 15 mg/kg/day doses (converted from 20–30 ppm) that EPA has cited as being relatively low for hydrogen sulfide. While EPA has not set a numerical cutoff for relatively low doses, the Agency has provided, through the listing and delisting of chemicals, substantial guidance for this terminology.

As EPA has noted, low dose alone is not the only consideration in determining whether a chemical has moderately high to high toxicity and thus should be listed on hazard alone:

> Where a careful review of the scientific data for a particular chemical results in a high level of confidence that the chemical causes an adverse effect at relatively low dose levels, EPA believes that this evidence is sufficient for listing the chemical under section 313. EPA also believes that where a review of the scientific data indicates that the chemical will cause various adverse effects at moderate dose levels, the total weight-of- the-evidence indicates that there is sufficient evidence for listing the chemical under EPCRA section 313. EPA believes that both types of chemicals described above exhibit moderately high to high toxicity based on a hazard assessment. (59 FR 61433, 1/30/1994).

An example of this concept is the listing of triphenyltin chloride. This chemical was cited by EPA as causing significant reproductive toxicity, including adverse effects on the testes, epididymis, sperm duct, prostate gland, seminal vesicle, Cowper's gland, and accessory glands, at an oral dose of 380 mg/kg over 19 days. While the dose level was more moderate, EPA determined that the severity and number of effects were sufficient for listing (59 FR 1843, 1/12/1994). This is the kind of flexibility regarding dose levels that is required when making determinations about the toxicity of chemicals, and is consistent with the exposure policy EPA has established for EPCRA section 313 determinations.

Regarding the phrase ''relatively low concentrations'' used in the assessment of ecological toxicity, this is similar to the ''relatively low dose'' terminology in that it focuses on concentrations that result in low doses to the organisms. Data for aquatic organisms is the most commonly cited data and typically has the units of milligrams per liter (mg/L). As EPA has stated, exposure assessments are not used to list a chemical for ecological effects if it has high toxicity. Based on concentration, EPA has typically limited its consideration of highly toxic to those chemicals that cause acute effects at about 1 mg/L or less and chronic effects at 0.1 mg/L or less (see for example: 57 FR 41020, 9/8/1992 and 59 FR 1788, 1/12/1994). Since the statutory criteria of EPCRA section 313(d)(2)(C) also includes consideration of persistence and bioaccumulation, EPA has considered somewhat higher concentrations as highly toxic for chemicals with those characteristics (64 FR 696, 1/5/1999). As with chronic human health effects, EPA has not set a numerical cut off for relatively low concentrations, but has provided, through the listing and delisting of chemicals, substantial guidance for this terminology.

EPA notes that other programs within the Agency that have numerical cutoffs for aquatic organisms have set numerical cutoffs that are consistent with the kind of toxicity concentrations that EPA has identified as being highly toxic in EPCRA section 313 evaluations. For example, the Office of Pesticide Programs cites the following:

ECOTOXICITY CATEGORIES FOR TERRESTRIAL AND AQUATIC ORGANISMS

Concentration (ppm)	Toxicity category
Aquatic Organisms: Acute	
< 0.1	very highly toxic.
0.1–1	highly toxic.
>1–10	moderately toxic.
>10–100	slightly toxic.
> 100	practically nontoxic.

(*http://www.epa.gov/oppefed1/ecorisk_ders/toera_analysis_eco.htm#Ecotox*).

Under the above numerical cutoffs, not only would hydrogen sulfide be considered highly toxic, but most of the available data would support a classification of very highly toxic.

4. *Qualitative Judgment on Exposure Levels.* Commenters stated that the lack of any objective rationale for EPA's determination that hydrogen sulfide causes health and ecological effects at relatively low levels suggests that EPA made a qualitative judgment about the magnitude of the potential exposure without preparing any supporting exposure analysis. Commenters restated their position that EPA has not provided any objective criteria for its determination that hydrogen sulfide causes human health effects and ecological effects at relatively low levels. Commenters assert that one possibility is that EPA scientists have simply made a qualitative judgment concerning the plausibility that hydrogen sulfide exposure might occur at the levels in question. Commenters stated that such a judgment would be intrinsically arbitrary when it is possible to do a proper and defensible exposure analysis. Commenters claim that if an exposure analysis were conducted they are confident it would show that exposure levels are below the levels that EPA has identified for human health effects and ecological effects.

As discussed in a previous response to this commenter, EPA has provided the information it used to determine that hydrogen sulfide has moderately high to high human toxicity and high ecotoxicity and has explained the methodology by which EPA makes such determinations. Therefore, EPA disagrees with the commenter's statement that EPA did not provide an objective rationale for its determinations.

Commenter asserts that:

> One possibility is that EPA scientists have simply made a qualitative judgment concerning the plausibility that H_2S exposure might occur at the levels in question. Such a judgment would be intrinsically arbitrary when it is possible to do a proper and defensible exposure analysis.

There is nothing in the materials that EPA has provided that even suggests that EPA made a qualitative judgment about hydrogen sulfide exposure levels. The determination as to whether or not a chemical has moderately high to high human toxicity or high ecotoxicity is separate from any consideration of potential exposures. EPA did not consider or evaluate the potential exposures to hydrogen sulfide in making its finding that hydrogen sulfide has moderately high to high toxicity to humans and is highly toxic to aquatic organisms. The toxicity of a chemical is an intrinsic property of the chemical that is established by determining what exposure level (*i.e.,* dose) causes adverse effects through appropriately conducted toxicological studies; it is not based on releases that occur at facilities. Consideration of the level of exposure from releases occurring at facilities is part of a risk assessment, not a hazard assessment. Unlike the intrinsic toxicity of a chemical, exposure levels can change depending on many factors such as release quantities, type of release, changes in weather patterns, etc. As EPA has stated:

> It is important to understand that although an adverse effect is known or can be reasonably anticipated to be caused by a chemical on the section 313 list, a release of a chemical into a community does not necessarily mean that the effect will occur. Exposure and dose are also important factors in determining whether an adverse effect occurs and how serious the manifestation will be. The listing of a chemical on the section 313 list does not mean that a particular community will experience these adverse effects. Instead the purpose for listing a chemical is to ensure that the public gets information about releases of such chemicals. Thus, EPA believes that for chemicals that typically do not affect solely one or two species but rather affect changes across a whole ecosystem and for which there is well-documented evidence supporting the adverse effects, that their addition to the EPCRA section 313 list is warranted even though the severity of the adverse effects that they induce will be dependent upon site-specific characteristics. Once EPA makes release data available through TRI, the community may then make its own determination on the importance of these releases (and their potential adverse effects). (59 FR 61433, 11/30/1994).

In upholding EPA's interpretation of EPCRA section 313 listing decisions as it relates to the use of exposure, the U.S. Court of Appeals for the District of Columbia itself provided a very good example of the difference between the toxicity of a chemical and exposure to that chemical:

It is not the case that the congressional language mandating listing of a chemical that 'is known to cause or can reasonably be anticipated to cause in humans' the enumerated adverse effects unambiguously incorporates the likelihood of contact between humans and the chemical. A simple analogy quickly refutes NPG's argument that the language is unambiguous. Consider a herpetologist and a student contemplating a reptile imprisoned in a glass cage. The student asks, 'Can that snake's bite reasonably be anticipated to cause death in humans?' The scientist replies, 'Yes.' The scientist is not commenting on the likelihood of the serpent's escape, only the toxicity of its venom. Concededly, his answer could be taken to mean, 'Yes, it is likely that this creature will escape, bite someone, and kill them.' But that is certainly not the unambiguous purport of his words. Even so is the statutory language of Congress. It is conceivable that Congress may have contemplated release in its phrasing of the standard, but that is certainly not unambiguously the case. (*Troy Corp.* v. *Browner,* 120 F.3d 277, 285 (D.C. Cir. 1997)).

The example of a venomous snake in a glass cage provides a perfect illustration of the difference between exposure and toxicity. Just as the containment of the venomous snake in a glass cage does not change the fact that the snake's venom is highly toxic, lack of exposure does not lessen the intrinsic toxicity of a chemical. Lack of exposure addresses the issue of the level of risk, not the level of toxicity.

5. *Use of Best Available Science.* Commenters claim that EPA did not properly consider the best available scientific evidence concerning hydrogen sulfide toxicity and exposure. Commenters cited one clinical study of potential neurological effects of hydrogen sulfide exposure in humans that EPA did not consider. Commenters stated that in the Fieldler *et al.* study (Ref. 5), 74 healthy male and female volunteers participated in a clinical study designed to evaluate neurobehavioral effects of 2-hour controlled chamber exposures to hydrogen sulfide. Commenters state that neurobehavioral effects were evaluated using a battery of established tests immediately prior to, and immediately following, exposure to 0.05, 0.5, and 5.0 ppm hydrogen sulfide in separate sessions approximately one week apart. Commenters state that the sequence of exposures was randomly assigned to each subject and that the investigators reported that no significant changes were found between pre- and post-exposure performance, and that no dose-response was found in any of the neurobehavioral or neurosensory data sets. Commenters contend that although the exposures studied in the Fiedler *et al.* study did not constitute chronic exposure, the study is highly relevant in establishing the levels at which humans might experience neurological effects from hydrogen sulfide exposure. Commenters claim that the neurobehavioral endpoints that were evaluated in this study are likely to be much more effective in capturing subtle neurological impairments that could not be detected in animal studies.

Commenters provided an additional primary literature resource for the evaluation of hydrogen sulfide human health effects. However, the commenters mistakenly reported no significant changes between pre- and post-exposure performance. This is inaccurate as the authors identified significant impairment of verbal learning in all exposure groups ($p \leq 0.0003$). Although the response was not dose dependent, the authors offer several explanations for this finding including a threshold effect for hydrogen sulfide as low as 0.05 ppm.

EPA's **Federal Register** notice of Intent to Lift the Stay of the hydrogen sulfide reporting requirements specifically states that the human health concern for hydrogen sulfide is chronic human health effects (both upper respiratory and neurotoxic effects) (75 FR 8893, February 26, 2010). As the commenters correctly pointed out, the Fiedler *et al.* study ''Sensory and Cognitive Effects of Acute Exposure to Hydrogen Sulfide'' evaluated only acute exposures—not chronic exposures. The study evaluated subjects exposed to hydrogen sulfide for ≤2 hours. Therefore, the study in question is not relevant to the chronic human health effects or the environmental effects that form the basis of EPA's cited concerns for hydrogen sulfide.

While the Fiedler *et al.* study may be relevant in establishing the levels at which humans might experience neurological effects from acute hydrogen sulfide exposure, the Agency does not support the extension to chronic neurological effects. The Fiedler *et al.* study was designed to evaluate cognitive endpoints shown to be responsive in acute studies. As detailed in the **Federal Register** (75 FR 8891, February 26, 2010), hydrogen sulfide neurotoxicity is thought to occur due to hypoxia induced neuronal cell death. This pathology would not be evidenced in the short-term human study conducted by Fiedler *et al.* because the exposures were acute not chronic. Therefore, we would also conclude that the neurobehavioral endpoints that were used in the Fiedler *et al.* study are not, as the commenters suggest, ''likely to be much more effective in capturing subtle neurological impairments that could not be detected in animal studies'' since the effects of chronic exposure would not be observed. The ability to sacrifice animals to study neurotransmitters and brain chemistry provides information that is not available in human studies. These types of studies provide powerful quantitative data, as evidenced in Skrajny *et al.* (Ref. 6).

It should also be noted that the hydrogen sulfide inhalation exposure in the Fiedler *et al.* study ranged from 0.05 to 5.0 ppm. This is far below the lowest observed adverse effect levels (LOAELs) seen in the animal studies of neurotoxicity cited in EPA's notice of Intent to Lift the Stay and support materials. The Fiedler *et al.* study may indicate that hydrogen sulfide can cause adverse effects in humans at exposure levels (at least acute exposure levels) much lower than previously expected.

6. *New Hydrogen Sulfide Dosimetry Data.* Commenters state that EPA has not considered new information on tissue dosimetry in determining the no observed adverse effect levels for chronic inhalation exposure to hydrogen sulfide. Commenters cited two studies that, in combination with the Fiedler *et al.* study, they contend demonstrate that the chronic human health effects are not likely at hydrogen sulfide concentrations of 5 ppm or below. Commenters cited the 2006 Schroeter *et al.* study (Ref. 7), in which the authors used computational fluid dynamics (CFD) modeling to quantitatively correlate hydrogen sulfide tissue dosimetry in rat and human nasal passages. Commenters state that assuming that equivalent hydrogen sulfide flux values will induce similar responses in the olfactory regions of rats and humans, the no observed adverse effect level-human equivalent concentration (NOAEL–HEC) was estimated to be 5 ppm. Commenters also cited a 2010 Schroeter *et al.* study (Ref. 8) in which the authors investigated interhuman variability of hydrogen sulfide nasal dosimetry using anatomically accurate CFD models of the nasal passages of five adults and two children generated from magnetic resonance imaging (MRI) or computed tomography (CT) scan data. Commenters state that using allometrically equivalent breathing rates, the authors simulated steady-state inspiratory airflow and hydrogen sulfide uptake. Approximate locations of olfactory epithelium were mapped in each model to compare air : tissue flux in the olfactory region among individuals. The fraction of total airflow to the olfactory region ranged from 2 percent to 16 percent. Despite this wide range in olfactory airflow, hydrogen sulfide

dosimetry in the olfactory region was predicted to be similar among individuals. Differences in the 99th percentile and average flux values were < 1.2-fold at inhaled concentrations of 1, 5, and 10 ppm. Commenters contend that these preliminary results suggest that differences in nasal anatomy and ventilation among adults and children do not have a significant effect on hydrogen sulfide dosimetry in the olfactory region.

The Agency would like to thank the commenters for bringing additional primary research studies to our attention, enabling us to make decisions using all available resources. EPA agrees with the commenters in regard to consideration of the dosimetry information presented in both papers by Schroeter *et al.* This type of pharmacokinetic modeling and the results presented represent the current state-of-the-science for inhalation dosimetry and are being reviewed by EPA for its utility in addressing our current reference concentration (RfC) derivation methods (see *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=212131*). However, it is important to note that the purpose of the papers by Schroeter *et al.* was to provide a model-based NOAEL–HEC (5 ppm), not an alternative final RfC which incorporates the application of uncertainty factors. Thus, the only part of the EPA's methods in deriving a value that is addressed is the calculation of an HEC extrapolated from animal data. No judgment is made by these authors that 5 ppm represents a replacement or alternative RfC or serves to replace or reduce the application of uncertainty factors. EPA's human health hazard assessment for hydrogen sulfide is based on the Agency's current IRIS toxicological profile (Ref. 3), and while this new dosimetry information and resulting NOAEL–HEC might be considered in a revaluation of the current RfC, it does not impact EPA's assessment of the potential for hydrogen sulfide to cause chronic toxicity.

The Agency does not concur with the commenter's conclusion that the Fiedler and Shroeter studies demonstrate that chronic human health effects are not likely at hydrogen sulfide concentrations of 5 ppm or below. As noted, the Fiedler study addresses solely acute exposures and is not relevant to chronic effects. Further, the Schroeter reports only provide data for use in calculating the NOEAL–HEC based on pharmacokinetic modeling. Therefore, the commenter's conclusions regarding chronic human health effects of hydrogen sulfide are not supported by the studies presented.

7. *No Need for TRI Reporting.* Commenters contend that there is no need to include hydrogen sulfide on the Toxics Release Inventory. Commenters restated their claim that emissions of hydrogen sulfide reported under EPCRA section 313 cannot be reasonably anticipated to cause any of the chronic health effects covered by EPCRA section 313(d)(2)(B). Commenters state that although accidental releases of hydrogen sulfide can result in serious adverse effects, such releases are subject to the emergency notification requirements of EPCRA section 304 and by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 103. Commenters state that such accidental releases are expressly regulated pursuant to Clean Air Act (CAA) Section 112(r) and hydrogen sulfide is among the substances that were specifically identified for such regulation by Congress in Section 112(r). Commenters also claim that since there is no evidence that suggests that routine releases of hydrogen sulfide pose any risk, nothing would be achieved by adding reporting requirements under EPCRA section 313. Commenters contend that since emissions of hydrogen sulfide that would typically be reported under EPCRA Section 313 are irrelevant to potential chronic health effects of the type addressed by EPCRA Section 313(d)(2)(B), and accidental releases of hydrogen sulfide that might be expected to present a potential hazard are well regulated, reporting under EPCRA Section 313 serves no purpose. Commenters claim that even if EPA has properly determined that hydrogen sulfide has ''moderately high to high chronic toxicity,'' EPA is not required to list hydrogen sulfide in these circumstances.

Commenters state that in announcing its policy concerning use of exposure analyses in listing determinations under EPCRA Section 313(d)(2), EPA stated:

> The statute is silent on the issue of exposure considerations for the section 313(d)(2)(B) and (C) criteria. The language of section 313 does not prohibit EPA from considering exposure factors when making a finding under either section 313(d)(2)(B) or section 313(d)(2)(C) (59 FR 61441–61442).

Commenters state that the reviewing court that reviewed this construction expressly affirmed this conclusion, stating that ''chemicals of moderate or high toxicity are not necessarily added [to the list] because of it.'' *Troy Corp.* v. *Browner,* 120 F.3d at 287.

Commenters claim that EPA has not cited any adverse consequence from the Administrative Stay of reporting requirements under EPCRA Section 313 that has been in place for over 15 years and that EPA should exercise its discretion to consider exposure factors in making a new listing determination for hydrogen sulfide and then rescind its prior listing determination.

As EPA stated in response to the commenter's previous comments on the releases of hydrogen sulfide, EPA does not agree that the commenters have shown that releases of hydrogen sulfide will not cause the kinds of health and environmental effects that EPA cited as support for listing hydrogen sulfide. Most importantly, EPA is not required to show that the effects that hydrogen sulfide can cause are actually occurring in order to list it on EPCRA section 313. EPA notes that other commenters have provided comments alleging that they have experienced adverse health effects from hydrogen sulfide releases (see for example: EPA–HQ–TRI–2009–0844–0076, EPA–HQ–TRI–2009–0844–0081 in the docket for this action).

Regarding the fact that accidental releases of hydrogen sulfide that may cause serious adverse health effects including death are covered by other statutes, this has no impact on the listing of a chemical under EPCRA section 313. Listing of a chemical under EPCRA section 313 is separate and apart from any other regulatory actions. EPCRA section 313 is focused on a community's right-to-know about releases of toxic chemicals, not emergency reporting requirements for industrial accidents.

With regard to the commenter's statements that listing hydrogen sulfide on EPCRA section 313 serves no purpose, the Agency disagrees. As EPA has stated:

> It is important to understand that although an adverse effect is known or can be reasonably anticipated to be caused by a chemical on the section 313 list, a release of a chemical into a community does not necessarily mean that the effect will occur. Exposure and dose are also important factors in determining whether an adverse effect occurs and how serious the manifestation will be. *The listing of a chemical on the section 313 list does not mean that a particular community will experience these adverse effects. Instead the purpose for listing a chemical is to ensure that the public gets information about releases of such chemicals.* Thus, EPA believes that for chemicals that typically do not affect solely one or two species but rather affect changes across a whole ecosystem and for which there is well-documented evidence supporting the adverse effects, that their addition to the EPCRA section 313 list is warranted even though the severity of the adverse effects that they induce will be dependent upon site-specific characteristics. *Once EPA makes release data available through TRI, the community may then make*

its own determination on the importance of these releases (and their potential adverse effects). (59 FR 61433, 11/30/1994 (emphasis added)).

Listing a chemical under EPCRA section 313 allows the public and governments to track and assess the impacts of chemical releases and make determinations as to whether or not a risk exists. Without release data, the public is limited in its ability to determine whether or not releases of a toxic chemical are impacting their health and/or environment. Even if releases are low and no adverse impacts are expected, that information is still of value to the public.

The listing of hydrogen sulfide on EPCRA section 313 is consistent with EPA's stated policy on the use of exposure assessments, which does not include the use of exposure for chemicals such as hydrogen sulfide that have moderately high to high human toxicity and high ecotoxicity. The commenter suggests that EPA should exercise its discretion with regard to the consideration of exposure, citing *Troy Corp* v. *Browner* for the proposition that ''chemicals of moderate or high toxicity are not necessarily added [to the list] because of it.'' Placed in greater context, that quotation is as follows:

> The EPA's exposure policy merely informed the public that the agency would exercise its discretion by considering exposure only for low toxicity chemicals. The EPA did not thereby curtail this discretion; it did nothing more than clarify its own position. The policy does not impose rights or obligations or bind the agency to a particular result. Chemicals of low toxicity may be added despite the policy, just as chemicals of moderate or high toxicity are not necessarily added because of it. (*Troy Corp.* v. *Browner,* 120 F.3d at 287).

As the DC Circuit noted, EPA stated that it would exercise its discretion by considering exposure only for low toxicity chemicals. If EPA were to consider exposure for hydrogen sulfide it would be inconsistent with the Agency's stated policy on the use of exposure assessments in EPCRA section 313 listing decisions. While EPA does have discretion to deviate from its policy, the Agency does not believe that there is any reason to consider exposure in its listing decision for hydrogen sulfide and thus has no reason to deviate from its stated exposure policy.

B. Comments From the National Renderers Association

The commenter stated that they do not support listing hydrogen sulfide emissions from rendering plants under EPCRA section 313 because of what they claim are extremely low levels of hydrogen sulfide potentially emitted from such facilities. The commenter stated that they agreed with EPA that, at certain concentration levels, exposure to hydrogen sulfide can cause significant adverse acute and chronic human health effects and adverse impacts to the environment. The commenters contend that these potentially harmful concentrations are well understood, published, and regulated under the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) standards with which their facilities comply. The commenter stated that there are safe levels of hydrogen sulfide exposure and that the fence-line concentration of hydrogen sulfide at a typical rendering plant would be expected to be well below these safe levels. The commenter recommended that EPA take into account the ''concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases,'' as required under EPCRA section 313(d)(2)(A), and exempt the reporting of hydrogen sulfide as a by-product of rendering operations.

The commenter provided information on the natural sources of hydrogen sulfide and information that hydrogen sulfide degrades rapidly in the environment. The commenter stated that the typical rendering plant might emit roughly 400 pounds of hydrogen sulfide per year. The commenter stated that hydrogen sulfide can be found in very low concentrations throughout the rendering industry supply and processing chain as a by-product related to the recycling, collecting, handling and processing of animal byproduct and used cooking oil. The commenter claims that hydrogen sulfide releases in the rendering facility workplace environment tend to be fugitive in nature, inconsistent in concentration, and irregularly present. The commenter stated that the presence of hydrogen sulfide, if any, depends on the age of the raw materials, moisture content, temperature, state of anaerobic bacterial decay, and other factors. The commenter claimed that ''[h]ydrogen sulfide concentration emissions from a typical rendering plant likely result in air concentrations off-site that would be several orders of magnitude below concentrations that are potentially hazardous to human health and the environment.'' The commenter claims that as a result of these characteristics, the hydrogen sulfide that may be present in a rendering facility is not likely to reach site boundaries at any measurable or reliably quantifiable concentration. The commenters claim that through their years of studying potential hydrogen sulfide emissions in rendering operations, they know that it is difficult to quantify and report the low levels of emissions that may occur at their facilities. The commenter suggested that the addition of hydrogen sulfide to TRI listing must, at a minimum, allow for no TRI requirements for de minimums sources such as facilities in the rendering supply and processing chain.

As EPA discussed in the Notice of Intent to Lift the Stay (75 FR 8893, 8889, February 26, 2010), exposure consideration is not appropriate for chemicals that have moderately high to high chronic human health toxicity or high environmental toxicity. Hydrogen sulfide meets both of these criteria, therefore exposure (or the potential for exposure) is not a factor in the listing decision. Regarding EPCRA section 313(d)(2)(A), hydrogen sulfide is not listed under that criteria, but rather the criteria of EPCRA sections 313(d)(2)(B) and (C).

It is well known that hydrogen sulfide is a byproduct of the rendering process (Ref. 9). EPA has published emission factors for at least one stage of the rendering process (Ref. 10). The commenter believes that reporting would be difficult for hydrogen sulfide, yet they provide an estimate of 400 pounds of releases per year, thus it appears that these facilities could make at least a reasonable estimate of releases as required under EPCRA section 313. EPA notes that rendering plants must already report their release of ammonia, another gas with variations in production and release. Regarding whether or not ''emissions from a typical rendering plant likely result in air concentrations off-site that would be several orders of magnitude below concentrations that are potentially hazardous to human health and the environment,'' unless the release data is made available the local communities and governments will not be able to confirm this conclusion. EPCRA section 313 contains no provisions for de minimis sources other than the fact that facilities must exceed the reporting thresholds (25,000 pounds for manufacture and processing and 10,000 pounds for otherwise use). It appears that rendering plants do not use hydrogen sulfide, thus they would have to manufacture or process 25,000 pounds before they would have to file a report.

C. Comments From the American Meat Institute

The commenters stated that they agree with the comments submitted by the National Renderers Association. The commenter stated that in their members' plants hydrogen sulfide is released primarily in rendering and waste treatment processes and that the releases are fugitive, can be widespread and are in concentrations that are irregular and inconsistent. The commenter stated that to comply with EPCRA Section 313, their members will have to estimate their releases to determine if the reporting thresholds are met. The commenter claimed that because of the ephemeral nature of the releases, standard field and even more sophisticated laboratory grade measurement devices are inadequate and unreliable. The commenter claimed that the releases disperse rapidly, resulting in concentrations below the measurement capability of some devices and, regardless of the measurement device, the measurements are not easily replicated. The commenter stated that meat packing and processing plants do not have a reliable method for determining compliance. The commenter stated that because of this they have significant concerns regarding how to implement EPCRA section 313 with respect to hydrogen sulfide and contend EPA should consider such practical issues before lifting the stay.

EPA notes that the ability of any one particular industry to be able to report releases is not a factor in determining whether a chemical meets the EPCRA section 313 listing criteria. It is well known that hydrogen sulfide is a byproduct of the rendering process (Ref. 9). EPA has published emission factors for at least one stage of the rendering process (Ref. 10). The commenter believes that reporting would be difficult for hydrogen sulfide, yet the National Renderers Association provided an estimate of 400 pounds of releases per year, thus it appears that these facilities could make at least a reasonable estimate of releases as required under EPCRA section 313. EPA notes that rendering plants as well as meat packing and processing plants must already report their release of ammonia, another gas that is also likely to have variations in production and release as it is also produced from the decay of organic matter. While EPA would like to collect the most accurate information possible, EPCRA section 313 only requires that facilities report a reasonable estimate of releases. EPA sees no reason why meat packing and processing plants should not be able to make at least reasonable estimates of the amounts of hydrogen sulfide manufactured and released.

VI. What are the references cited in this document?

EPA has established an official public docket for this action under Docket ID No. EPA–HQ–TRI–2009–0844. The public docket includes information considered by EPA in developing this action, including the documents listed below, which are electronically or physically located in the docket. In addition, interested parties should consult documents that are referenced in the documents that EPA has placed in the docket, regardless of whether these referenced documents are electronically or physically located in the docket. For assistance in locating documents that are referenced in documents that EPA has placed in the docket, but that are not electronically or physically located in the docket, please consult the person listed in the above **FOR FURTHER INFORMATION CONTACT** section.

1. USEPA, OEI. Response to Comments Received on the February 26, 2010, **Federal Register** Document (75 FR 8889): Hydrogen Sulfide; Community Right-to-Know Toxic Chemical Release Reporting; Intent to consider lifting the administrative stay; opportunity for public comment. U.S. Environmental Protection Agency, Office of Environmental Information, Office of Information Analysis and Access. July 21, 2011.
2. USEPA, Office of Water Regulations and Standards, Quality Criteria for Water, EPA 440/5–86–001 (May 1, 1986) (EPA Gold Book), page 268.
3. U.S. Environmental Protection Agency. ''Toxicological Review of Hydrogen sulfide, (CAS No. 7783–06–4), In Support of Summary Information on the Integrated Risk Information System.'' Washington, DC: Integrated Risk Information System. U.S. Environmental Protection Agency. June, 2003. *http://www.epa.gov/ncea/iris/toxreviews/0061-tr.pdf.* Integrated Risk Information Summary for Hydrogen Sulfide available at: *http://www.epa.gov/ncea/iris/subst/0061.htm.*
4. U.S. Environmental Protection Agency, Technical Review of Hydrogen Sulfide: Chemistry, Environmental Fate and Ecological Toxicity, CAS Registry Number 7783–06–4; Office of Environmental Information, Office of Information Access and Analysis, Environmental Analysis Division, Analytical Support Branch; June 22, 2009.
5. Fiedler N., Kipen H., Ohman-Strickland P., Zhang J., Weisel C., Laumbach R., Kelly-McNeil K., Olejeme K., and Lioy P., ''Sensory and Cognitive Effects of Acute Exposure to Hydrogen Sulfide.'' *Env. Health Persp.* v. 116(1), (2008), pp. 78–85.
6. Skrajny, B., Hannah, R.S., Roth, S.H., ''Low concentrations of hydrogen sulphide alter monoamine levels in the developing rat central nervous system.'' *Can. J. Physiol. Pharmacol.* v. 70(11), (1992), pp. 1515–1518.
7. Schroeter J.D., Kimbell J.S., Andersen M.E., and Dorman D.C., ''Use of a pharmacokinetic-driven computational fluid dynamics model to predict nasal extraction of hydrogen sulfide in rats and humans.'' *Toxicol. Sci.* v. 94(2), (2006), pp. 359–367.
8. Schroeter J.D., Garcia G.J. M., and Kimbell, J.S., ''A computational fluid dynamics approach to assess interhuman variability in hydrogen sulfide nasal dosimetry.'' *Inhalation Toxicol.* v. 22(4), (2010), pp. 277–286.
9. Emission Factor Documentation for AP–42 Section 9.5.3 Meat Rendering Plants Final Report. Prepared by Midwest Research Institute (MRI) for the Office of Air Quality Planning and Standards (OAQPS), U. S. Environmental Protection Agency (EPA), under EPA Contract No. 68–D2–0159. September 1995.
10. AP 42, Fifth Edition, January 1995. Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources. Chapter 9: Food and Agricultural Industries section 9.5.3 Meat Rendering Plants. Office of Air Quality Planning and Standards (OAQPS), Office of Air and Radiation, U.S. Environmental Protection Agency (EPA).

List of Subjects in 40 CFR Part 372

Environmental protection, Community right-to-know, Reporting and recordkeeping requirements, and Toxic chemicals.

Dated: September 8, 2011.

Lisa P. Jackson,

Administrator.

Therefore, 40 CFR part 372 is amended as follows:

PART 372—[AMENDED]

■ 1. The authority citation for part 372 continues to read as follows:

Authority: 42 U.S.C. 11023 and 11048.

§ 372.65 [Amended]

■ 2. Section 372.65 is amended by lifting the stay on hydrogen sulfide and methyl mercaptan entries and all related dates under paragraph (a) and under paragraph (b), lifting the stay on the entries for CAS Nos. 74–93–1 and 7783–06–04 and all related dates.

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