

## **NCEA Policy and Procedures for Conducting IRIS Peer Reviews**

### **PURPOSE**

The purpose of this set of Standard Operating Procedures is to clearly explain the United States Environmental Protection Agency's (EPA) process for independent external peer review of draft human health assessments that are prepared under the Agency's Integrated Risk Information System (IRIS) Program. This paper also discusses issues related to conflicts of interest, and appearance of bias or lack of impartiality when a peer review panel is being formed. In addition, this paper includes the process to be followed when an issue of conflict of interest or appearance of bias or lack of impartiality is identified after a person is already on a peer review panel.

### **INTRODUCTION**

The EPA takes its responsibility concerning peer review very seriously. EPA recognizes the importance of independent, external peer review in maintaining high standards for the quality of the science and technical products that EPA produces and sponsors. Peer review is an important component of the scientific process that provides a focused, objective evaluation of a draft product. The constructive criticisms, suggestions, and new ideas provided by the peer reviewers stimulate creative thought, and strengthen and confer credibility on the product. Comprehensive, objective peer reviews lead to good science and product acceptance within the scientific community. Thus, peer review insures that the Agency's scientific reports are held to the highest possible standards.

All draft human health assessments developed in EPA's IRIS Program are subjected to rigorous, open, independent, external peer review and discussed by the external peer reviewers at a public meeting. EPA makes every effort to assure that the scientists serving on these review panels do not have any actual or potential conflicts of interest (COI), including an appearance of bias or lack of impartiality. This rigorous process is designed to assure that the Agency's peer reviews are independent, open, transparent, and of the highest scientific quality.

Some IRIS assessments are considered highly influential scientific assessments (HISA) as defined by the OMB Quality Bulletin for Peer Review (December 2004) and may be peer reviewed by panels of experts convened by EPA's Science Advisory Board (SAB) or by the National Academy of Sciences (NAS). The SAB and NAS peer review procedures with respect to COI are highly regarded, and these procedures are easily accessible to the interested public. Most IRIS assessments, however, are Influential Scientific Assessments (ISAs) that are reviewed by panels of independent experts convened by an EPA contractor. These peer reviews are held to high standards including identification, disclosure, and resolution of potential conflicts of interest, appearance of bias, or lack of impartiality.

### **INTEGRATED RISK INFORMATION SYSTEM**

IRIS is an EPA database ([www.epa.gov/IRIS](http://www.epa.gov/IRIS)) of potential adverse human health effects that may result from chronic (long-term) exposure to chemicals in the environment. The

IRIS Program is a key component of the National Center for Environmental Assessment (NCEA), part of EPA's Office of Research and Development (ORD).

The screenshot displays the Integrated Risk Information System (IRIS) website. The header includes the EPA logo and the text "U.S. ENVIRONMENTAL PROTECTION AGENCY". The main content area is titled "Integrated Risk Information System (IRIS)" and provides a search bar with options for "All EPA" and "IRIS". Below the search bar, there is a section titled "Getting Started with IRIS" with links for "An overview of the web site", "What is IRIS?", and "How does EPA decide which substances to add or update?". A "More frequent questions >>" link is also present. The "Using the IRIS Database" section includes links for "IRIS Process (2009 Update)", "Advanced Search in IRIS", "Compare IRIS Values", and "Download IRIS". The "New Assessments and Reviews" section features a table of recent documents.

Substance	Milestone	Uploaded Date
<a href="#">1,4-Dioxane</a>	External Peer Review	05/07/2009
<a href="#">Pentachlorophenol</a>	External Peer Review	05/07/2009
<a href="#">Platinum</a>	External Peer Review Meeting	04/27/2009

The IRIS database contains chemical-specific assessments of qualitative and quantitative health information in support of the first two steps of the risk assessment process; hazard identification and dose-response evaluation. The other two steps of the risk assessment, human exposure analysis and risk characterization, are not included in an IRIS human health assessment. Entries on the IRIS database contain a summary of health effects information and, since 1995, a supporting Toxicological Review containing a qualitative review of the human and animal studies of the chemical and, when data allow, a quantitative dose-response analysis. An IRIS Summary includes both a reference dose (RfD) and a reference concentration (RfC) for noncancer health effects (Section I) resulting from chronic oral and inhalation exposures, respectively. The RfD and RfC are estimates of daily exposure to the human population (including susceptible subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. The IRIS Summary also includes an assessment of carcinogenicity for both oral and inhalation exposures (Section II). Combined with specific exposure information, government and private entities use IRIS toxicity values to help characterize public health risks of chemical substances in site-specific and chemical-specific situations and thereby support risk management decisions designed to protect public health.

Each entry on IRIS also includes a complete Revision History (Section VII) that details any changes to a chemical file. The IRIS Web site provides a link to *IRISTrack* which gives information on the status of each health assessment in progress.

The screenshot shows the IRISTrack website interface. The main heading is "Integrated Risk Information System" with the U.S. Environmental Protection Agency logo. A search bar is visible with "IRIS" entered. The "Status Report for IRISTRACK" section is active, displaying a list of 8 substances. Below the list, there is a note: "\* - This date is an estimate." and an "Export ALL to Excel" button.

Substance	Lead Office	Next Milestone	Next Milestone Due Date*
<a href="#">Acetaldehyde</a>	NCEA-Cin.	Draft Development	FY09/4th Quarter
<a href="#">Acrylamide</a>	NCEA-RTP	External Peer Review	FY09/3rd Quarter
<a href="#">Acrylonitrile</a>	NCEA-IO	Interagency Review	FY09/3rd Quarter
<a href="#">Alkylates</a>	NCEA-IO	Draft Development	FY10/1st Quarter
<a href="#">Ammonia</a>	NCEA-IO	Draft Development	FY09/4th Quarter

**IRIS Assessment Development Process:** In May 2009, EPA announced a new process for preparation and review of the human health assessments developed in the IRIS Program. A description of this process is on the IRIS Web site at <http://www.epa.gov/ncea/iris/process.htm>.

The seven major steps in the new process are:

- Step 1 - Document development;
- Step 2 - Internal EPA review;
- Step 3 - Interagency science consultation;
- Step 4 - External peer review and public comment;
- Step 5 - Document revision;
- Step 6A - Final internal EPA review;
- Step 6B - Interagency science discussion; and
- Step 7 - Posting the final assessment on the IRIS database.

After a chemical or substance is nominated and then selected for assessment in the IRIS Program, an EPA scientist is assigned as the Chemical Manager for a specific substance. On occasion co-leads may be named. The Chemical Manager is responsible for

developing the draft assessment and shepherding draft documents through the various review processes and final clearances and approvals.

The screenshot shows the EPA's Integrated Risk Information System (IRIS) website. The page title is "IRIS Process" and the URL is "http://www.epa.gov/ncea/iris/process.htm". The page features a navigation menu on the left with links such as "IRIS Home", "Basic Information", "IRIS Process", "A to Z List of IRIS Substances", "Advanced Search", "Compare IRIS Values", "IRIS Guidance", "Download IRIS", "IRIS Track", "Site Help & Tools", "Site Overview", "IRIS Glossary", "Frequent Questions", "Tools & Databases", and "Related Links". The main content area is titled "IRIS Process" and includes a "Notice" dated 05/21/2009 stating that EPA has announced an update to the current IRIS Process. Below the notice, it lists four steps in EPA's process for developing IRIS assessments: Selection of Substances for Assessment Development, Preparation of Draft Assessments, Review, and Final Assessment. The page also includes a search bar, a "Share" button, and a "Top of page" link.

**Literature Search and Data Call-in:** Prior to the start of the development of the draft IRIS assessment, a literature search is conducted for the subject chemical or substance. The Chemical Manager directs an EPA contractor to conduct and complete a comprehensive search of the scientific literature. After the literature search has been completed for each chemical, EPA publishes a *Federal Register* Notice (FRN) that notifies the public that completed literature searches for a set of chemicals are available on the IRIS Web site. The FRN invites the public and other federal agencies to submit additional scientific information (peer reviewed studies, reports, other assessments, etc.) on the chemical. The FRN requests information on new research that may be planned, underway, or in press. The FRN includes information on how and where to submit scientific information. After the literature search and data call-in are complete, EPA begins development of the IRIS human health assessment.

**Preparation of a draft Toxicological Review:** The Chemical Manager works with a team that may include toxicologists, epidemiologists, statisticians, and modelers in reviewing and analyzing the available literature. EPA may use extramural contract support in the development of sections of the Toxicological Review. EPA's risk assessment guidelines form the basis for the analysis.

Prior to the inclusion of a final assessment on the IRIS database, scientific input on the

draft document is sought by EPA at several points in the process and from many different groups, both internal and external to the Agency. Input is provided by (1) selected EPA scientists with expertise in the scientific issues raised in the draft assessment, (2) a standing group of senior health scientists representing EPA's Offices and Regions, (3) scientists in other Federal agencies and White House offices, (4) any interested members of the public, and (5) a group of external scientific experts known as an independent external peer review panel.

EPA values the scientific input it receives at all five opportunities mentioned above in its pursuit to make the IRIS process open, transparent, and participatory. There is, however, only one of these steps at which EPA obtains independent input from experts in scientific disciplines germane to the science and risk issues discussed in each respective draft human health assessment, and that is ***independent external peer review***.

### IRIS EXTERNAL PEER REVIEW PROCESS

All draft human health assessments developed under the IRIS program are subjected to rigorous, independent external peer review. These peer reviews are conducted in an open forum and the public is invited to attend these peer review meetings as observers. External peer review meetings are announced in the *Federal Register*. Most IRIS assessments are reviewed by panels of scientific experts assembled by an external peer review service provider via a contractual agreement with EPA. The peer reviewers for any particular review are selected by the contractor, independent of EPA participation. EPA may determine, however, that for a selected small group of IRIS assessments which are considered of major importance or high profile, it is beneficial that external peer review be conducted by a panel of experts convened by either EPA's Science Advisory Board (SAB) or the National Academy of Sciences (NAS). Review by the SAB or NAS is the exception to IRIS standard operating procedures rather than the rule. Both of these bodies operate under the auspices of the Federal Advisory Committee Act (FACA). The established process for independent peer review by both the SAB and NAS and their respective procedures for determining COI and any appearance of bias or lack of impartiality, are available on the SAB's Web site (<http://yosemite.epa.gov/sab/sabproduct.nsf/WebSABSO/NominationExperts?OpenDocument>) and on the NAS's Web site (<http://www.nationalacademies.org/coi/index.html>).

This paper focuses on the procedures that EPA follows when contracting for an independent peer review using a peer review service provider. Unlike the SAB and NAS, these peer reviews do not come under FACA, and, therefore, EPA is seeking the expert input and comment from each individual member of a particular peer review panel.

**Peer Review Plan:** Early in the assessment development process, the Chemical Manager develops a peer review plan that specifies the type and level of internal and external review the document will receive, the number of experts that will comprise the peer review panel, and the scientific expertise the reviewers will need. The template for this peer review plan is provided in **Appendix 1**. All peer reviews are conducted in compliance with the EPA *Science Policy Council Handbook: Peer Review* (Third Edition, EPA 100-B-06-002, 2006). Each peer review plan is entered into the Agency's Science Inventory database (<http://cfpub.epa.gov/si/>), and is then posted on the Agency's Peer

Review Agenda ([http://cfpub.epa.gov/si/si\\_public\\_pr\\_agenda.cfm](http://cfpub.epa.gov/si/si_public_pr_agenda.cfm) ). A public comment period on these peer review plans, provides the public with an opportunity to comment early in the assessment development process. Because the Peer Review Plan is prepared early in the assessment development process, this information may be refined as the peer review approaches. The Peer Review Plan is EPA's best judgment as to the anticipated peer review process for a draft assessment at the time the plan is prepared and posted on the Science Inventory.

**Peer Review Agenda**

On December 16, 2004, the Office of Management and Budget issued its [Final Information Quality Bulletin for Peer Review](#) (PDF, 263 KB, 45 pages, [about PDF](#)) [\[EXIT Disclaimer\]](#). The Bulletin requires federal agencies to conduct peer reviews of "influential scientific information" before it is disseminated to the public and to post Peer Review Agendas on their Web sites.

The Bulletin defines "influential scientific information" as "scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions." The Bulletin establishes minimum peer review requirements for all non-exempt influential scientific information. It imposes the strictest requirements on "highly influential scientific assessments (HISAs)."

A scientific assessment is an evaluation of a body of scientific or technical knowledge that typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information. The Bulletin considers a "scientific assessment" to be "highly influential" if the agency or the OMB Office of Information and Regulatory Affairs Administrator determines that the dissemination could have a potential impact of more than \$500 million in any one year on either the public or private sector or that the dissemination is novel, controversial, or precedent-setting, or has significant interagency interest.

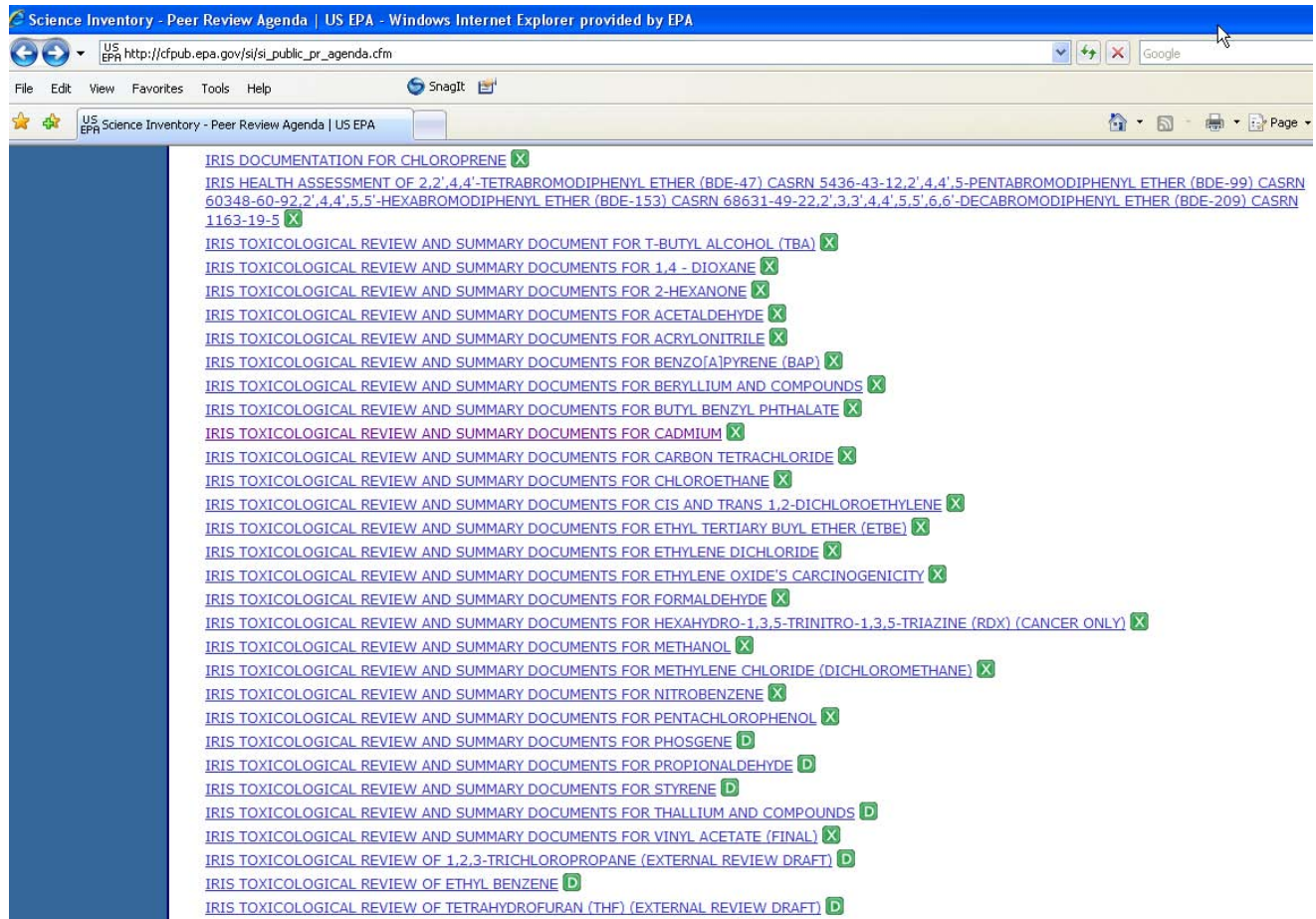
This Web site is designed to meet a requirement in the Bulletin that all federal agencies post on their Web sites a Peer Review Agenda that includes all planned and ongoing "influential scientific information" subject to the Bulletin's peer review requirements. The peer review information provided on each record is described as a "Peer Review Plan." Agencies must allow public comment on the adequacy of their Peer Review Plans. The Bulletin applies to all covered information disseminated on or after six months following publication of the Bulletin, except information for which an agency has already provided a draft report and an associated charge to peer reviewers.

**Peer Review Agenda**  
[Highly Influential Scientific Assessments](#) | [Influential Scientific Information](#)

**Key:**

- R** The final Peer Review Report has been posted (the peer review is complete.)
- C** Public comments are currently being accepted on the peer review plan. Please note that some peer review plans provide information regarding opportunities to comment on the product or document.
- N** The public may nominate peer reviewers for that record.
- X** The comment period has closed or no comments will be accepted.
- L** The comment period will open later.
- D** The plan is being developed or Science Activity is still ongoing.

[Highly Influential Scientific Assessments \(HISA\)](#)



Above image displays some of the peer review plans on the Agency's Peer Review Agenda.

**Independent Peer Review under Contract with Peer Review Service Provider:** EPA has contracted for peer review services consistent with the Federal Acquisition Regulation (FAR) and the EPA Acquisition Regulation (EPAAR). The contract includes a provision for providing independent external peer review of draft human health assessments prepared in EPA's IRIS program or prepared elsewhere for posting on the Agency's IRIS data base. Under this contract scientific and technical peer reviews are conducted by individuals holding scientific and/or technical expertise in disciplines relevant to the subject matter being reviewed.

The external peer review of an IRIS draft human health assessment is organized, convened, and conducted by the peer review contractor (*hereafter*, contractor). The contractor is solely responsible for all aspects of the peer review: contractor staff select the panelists and enter into separate contracts with them, transmit all materials to the panel, plan the face-to-face meeting, and deliver the panelists' compiled comments to EPA. All communication with the peer review panel is through the contractor, not EPA. The contractor will keep a record of all materials created during the peer review, including correspondence and decisions related to potential COI or the appearance of bias or lack of impartiality of prospective panel members. For quality assurance, the contractor is

required to certify to the Project Officer or the Chemical Manager, who also serves as the Contracting Officer's Representative (COR) when an important milestone in the development of the panel and peer review meeting is completed. These milestones are identified in the Statement of Work.

In addition, the contractor must certify to the best of the contractor's knowledge and belief that all actual or potential organizational conflicts of interest have been reported to the Contracting Officer (CO) or that to the best of the contractor's knowledge and belief, no actual or potential organizational COI exist. Thus, the contractors must state that they have fulfilled the contractual requirement of review and reporting of any COI issues or have certified that no COI issues exist within their organization.

*Statement of Work:* A Statement of Work (SOW) for each individual Task Order (TO) under the peer review contract is prepared by the Chemical Manager or by another designated EPA employee in consultation and cooperation with the Chemical Manager. An SOW is the document that describes the work activities, deliverables, and timeline that a vendor is responsible for in performing specified work for a customer. For a peer review, the SOW also identifies the scientific expertise needed to make up a panel according to a set of technical selection criteria developed by EPA. The contractor shall include a COI certification in all TOs in accordance with EPAAR 1552.209-71 and the Section B Clause "Ordering Procedures".

As a result of the scientific expertise listed in the SOW, the contractor independently identifies a large pool of potential panelists based on the expertise described in the SOW. The following is an example from a SOW listing the desired make up of a panel: "From these areas of expertise, provide: 1 expert in halogenated solvent toxicology, 1 expert in liver toxicology, 1 expert in kidney toxicology, 2 experts in cancer assessment/mode of action (at least 1 with expertise in oxidative stress), 2 experts in PBPK modeling, and 1 expert in dose-response modeling."

*Selection of reviewers:* The number of reviewers required and their qualifications are specified in the task orders; these qualifications may vary with the technical nature of the each product. Individual peer reviewers shall have nationally or internationally recognized expertise in mission-related areas which include but are not limited to the following: risk assessment methodology; toxicology; microbiology; infectious diseases; statistics; epidemiology; biomathematical modeling; pharmacokinetics; software modeling; exposure modeling and assessment development; risk characterization; developmental toxicology and mutagenicity; pulmonary toxicology; dose response assessment; physiology; chemistry; and biology. Potential panelists are also generally expected to be familiar with EPA guidance and with the IRIS database. The candidate panelists should have scientific credentials equivalent to a Ph.D. or M.D. and be regarded as experts in their fields. Expertise is judged by authorship on original publications and/or reviews in peer-reviewed scientific journals. Candidates may also be judged by other measures of expertise including professional accomplishments and recognition by professional societies. Panelists are also chosen because of their impartiality to the outcome of the assessment under review. Impartiality is determined by past and current employment history, family



and financial association, and publication history. It is the contractor, not EPA, who is responsible for ensuring that the candidates meet the technical selection criteria.

The contractor provides the Chemical Manager/COR with the affiliation, qualifications, and *curriculum vitae* for each of the candidates in the pool. EPA reviews the qualifications of each candidate panelist to determine whether he or she has the education, experience, and specified scientific expertise to serve on the peer review panel. If EPA determines that any candidate is scientifically unqualified for a specific review, the contractor provides EPA with a list of substitute candidates. The Chemical Manager/COR can also provide comments to the contractor regarding the potential COI or appearance of bias or lack of impartiality of the proposed panelists, however, the final selection of panel is the responsibility of the contractor.

*Process for Determining COI or an Appearance of Bias or Lack of Impartiality:* Before assembling the final peer review panel, the contractor performs an evaluation to determine the existence of actual or potential COI, including the appearance of bias or lack of impartiality, for each prospective panel member, and resolves issues of actual or potential conflicts of interest or an appearance of bias or a lack of impartiality. For the purposes of this document COI is defined as a situation in which, because of other activities or relationships with other persons or organizations, a person is unable or potentially unable to render an impartial opinion during his/her review of a draft IRIS human health assessment, or the person's objectivity in performing peer review activities is or might be otherwise compromised.

The standard practice in most, if not all, independent peer review processes is the screening and analysis of potential peer reviewers for financial COI. EPA, however, is also concerned with whether or not a potential reviewer has an appearance of bias or lack of impartiality. This is because, in the case of a draft IRIS human health assessment, EPA expects, to the degree possible, that reviewers will base their technical reviews of a draft IRIS assessment on the merits of the document before them. Previously publicly expressed opinions on the toxicity of the chemical or substance under review may indicate a potential for a lack of impartiality.

Each prospective panel member is required to fill out a questionnaire disclosing any potential COI, including any public statements or positions taken on the matter under review or any other information that might raise an appearance of bias or lack of impartiality, and complete and sign a certification form certifying that full disclosure has been made. The questionnaire and certification forms are in **Appendix 2**. In addition, the contractor performs a search, via the Internet or other methods, to identify any public statements or written materials attributed to a potential panelist that may be directly related to the specific chemical or substance or technical, science, or risk assessment issue being addressed in the draft assessment that is the subject of the peer review. If any such public statements or other materials are identified that raise concerns about an appearance of bias or lack of impartiality, the contractor resolves the issue with the potential panelist. EPA is not involved in this process. The contractor then selects and secures contractual arrangements with a subset of the proposed pool. Those selected comprise the independent peer review panel.

*COI Certification:* Once the contractor has determined the final composition of the expert peer review panel, the contractor is required to provide to EPA a signed certification concluding that there are no unresolved actual or potential conflict of interest issues among the selected panel members (**Appendix 3**). This certification may be available to the public if requested. The contractor does not disclose to EPA the financial and professional information provided by a potential peer reviewer used to determine an existence of an actual or potential COI issue, including information regarding an appearance of bias or lack of impartiality. The financial and professional information obtained by the contractor as part of the evaluation to determine existence of actual or potential COI is considered private and non-disclosable to EPA or outside entities except as required by law or requested as part of a formal investigation by EPA's Office of Inspector General, the U.S. General Accountability Office, or a Congressional Committee. Thus, it is the contractor who collects, resolves, and ultimately certifies that a potential panelist is free to the degree possible, of COI issues, including financial or other issues, an appearance of bias, or a lack of impartiality.

After COI questionnaires have been collected, the contractor submits a letter of decision to the EPA COR providing a list of prospective panelists, explaining if any of the panelists have been identified to have a conflict of interest and including a rationale for the determination. This memorandum will be signed by the contractor and then signed by a designated EPA official to acknowledge receipt of the contractor's written certification. The letter is filed in the EPA peer review record maintained by the EPA Peer Review Leader (usually the Chemical Manager/COR).

In the COI certification, the contractor must certify that, to the best of the contractor's knowledge and belief, all actual or potential COI has been reported by the potential panelists and that, to the best of the contractor's knowledge and belief, no actual or potential COI or significant appearance of bias or lack of impartiality exist. In addition, the certification includes a statement that the contractor recognizes its continuing obligation to identify and report any actual or potential conflicts of interest arising during performance of the Task Order. The contractor must certify that its own personnel and all subcontractors who are proposed to perform work under the particular TO, or relating to the task order, have been informed of their obligation to continue to report personal and organizational conflicts of interest to the contractor during the course of the contractual agreement between parties. The certifier agrees to monitor and mitigate potential COI situations that arise during the course of this certification and for a period of one year after completion of certification activities. Thus, all the peer review panelists, who are under contractual agreements with the contractor are obligated to report any COI or appearance of bias or lack of impartiality issues that come to light during the contract performance period to the contractor who shall, in turn, report to the EPA Project Officer (PO) and COR. The EPA PO will inform the CO of any emerging COI-related issue.

As a standard procedure, the contractor also requests re-certification from the panelists on whether there were any changes to the information they previously disclosed that could create either an actual or potential COI or an appearance of bias or lack of impartiality during the period of performance. This is generally done two weeks prior to

the public peer review meeting and the day of the public peer review meeting. One of the questions on the certification form and questionnaire that a reviewer is asked to re-certify is, "Have you made any public statements or taken positions on or closely related to the subject chemical or topic under review?" Once these re-certifications are collected, the contractor resubmits correspondence to the EPA COR explaining if any of the panelists have become unsuitable and the rationale for that determination. All correspondence regarding suitability should be filed in the EPA Peer Review Record maintained by the Peer Review Leader.

*Emerging COI Situation:* An emerging COI situation is a potential or actual COI situation that arises, or becomes known, during COI certification or recertification, or for a period of one year after the completion of COI certification activities. A potential emerging COI situation may be identified by the contractor, by the panelist who reports it to the contractor, by EPA, or by a source external to EPA.

*An actual or potential conflict of interest can be identified during the performance by the contractor or the panelist.* The contractor is required to immediately make a full disclosure in writing to EPA's PO on the contract, including a description of actions, which the contractor has taken or proposes to take, after consulting with the PO, to avoid, mitigate, or neutralize the actual or potential COI issue, including a situation involving an appearance of bias or lack of impartiality. Resolution may include, but not be limited to, elimination of a particular reviewer from the panel or by determining that the emerging COI issue will not impair the individual's objectivity or create an unfair competitive advantage for any person or organization.

*If a potential emerging COI situation, including an appearance of bias or lack of impartiality, is identified by EPA, EPA will immediately report it to the PO and COR, who will report it to the contractor.* The contractor will interact with the peer reviewer to resolve the issue. All communication records of this interaction will be maintained by the contractor as part of the contractor's official contract file. The contractor will disclose to EPA a description of actions that the contractor has taken or proposes to take, after consultation with EPA, to avoid, resolve, neutralize, or mitigate the actual or potential emerging COI situation. Resolution may include, but not be limited to, elimination of a particular reviewer from the panel or by determining that the emerging COI issue will not impair the individual's objectivity nor create an unfair competitive advantage for any person or organization.

*EPA or the contractor may be informed about a potential emerging COI situation, including an appearance of bias or lack of impartiality, by a person or organization external to both EPA and the contractor.* If the contractor is contacted directly by an external party regarding a potential emerging COI situation, the contractor shall follow its standard procedures for resolving the situation, after informing EPA of the situation. If EPA is informed by any means (by letter, by email, in person, by telephone, in the press, etc.) or contacted directly and apprised of a potential emerging COI situation, no one in EPA may attempt to resolve the situation internally. Rather, EPA will immediately inform the contractor and the contractor shall follow its standard procedures for resolving the situation, If an external group

comes to a meeting at the Agency and in the course of the meeting divulges its concerns to the Agency about a potential emerging COI situation regarding a peer reviewer, no further discussion on any aspect of the potential COI issue or possible resolution of said COI issue will be undertaken by the Agency with the group. The group will be immediately informed by EPA that this is an issue that is solely the responsibility of the contractor and that it will be resolved by the contractor. EPA will inform the external group that EPA will immediately inform the contractor about the COI concerns expressed by the external group and the contractor will investigate. In addition, no one in EPA, at any level in the Agency, may direct any other EPA employee to attempt to resolve the potential emerging COI situation. Instead, EPA, through the PO, must immediately contact the contractor regarding the potential emerging COI situation. Only the contractor may interact with the panelist to resolve the issue. The contractor will disclose to EPA a description of actions that the contractor has taken or proposes to take, after consultation with EPA, to avoid, resolve, neutralize, or mitigate the actual or potential emerging COI situation. Resolution may include, but not be limited to, elimination of a particular reviewer from the panel or by determining that the emerging COI issue will not impair the individual's objectivity nor create an unfair competitive advantage for any person or organization.

*Peer Review Panel Members:* After the Peer Review Panel is selected, the contractor designates one of the panelists as the chair with the consultation of the Chemical Manager/COR. The panel chair should have demonstrated abilities for leading a scientific group and knowledge of EPA risk assessment practices. The chair facilitates the panel discussions and face-to-face meeting. The panelists are provided with all draft IRIS documents that are the subject of the peer review, a charge that identifies the scientific issues and questions pertinent to the peer review (developed by the contractor from the questions provided by EPA), and a Web link to EPA's electronic docket (e-docket) system that allowed the panelists to review written comments submitted by the public during the public comment period announced in the *Federal Register*.

*Pre-Peer Review Meeting Activities:* When the draft IRIS human health assessment is cleared for external peer review, it is posted on the NCEA and IRIS Web sites ([www.epa.gov/ncea](http://www.epa.gov/ncea); [www.epa.gov/iris](http://www.epa.gov/iris)). The same day, EPA publishes a Federal Register Notice (FRN) announcing that the draft assessment is available for a 60-day public comment period. The FRN, or a subsequent FRN, also includes an invitation for the public to observe the panel meeting and provide oral comment, along with the date, time, and location of the external peer review meeting. The *Federal Register* announcement provides information about the meeting registration procedure which is coordinated by the contractor. Two weeks before the peer review meeting, the contractor retrieves public comments from the EPA e-docket and provides them to the peer panel for their consideration. Panelists are instructed that the public comments are for their consideration, and that they are not to respond to the individual comments necessarily, but may consider them as they feel appropriate.

The contractor provides instructions to the panel in accordance with the EPA *Science Policy Council Handbook: Peer Review* (Third Edition, EPA 100-B-06-002, 2006). These

instructions include informing the panelists that their pre-meeting and post-meeting written comments will be made publicly available via hard-copies at the public peer review meeting and the IRIS Web site at the end of the peer review process. The contractor informs panelists that from the time they accept the invitation to review the draft IRIS human health assessment; they should have no communications with members of the public, EPA, or other federal agencies regarding the draft assessment under review. Panelists are instructed that if they are contacted in person or in writing on the draft assessment or the peer review by anyone other than the contractor or another panel member, they should immediately inform the contractor. The contractor, in turn, is required to immediately inform the PO or COR of any reports by panel members of pre-meeting contacts regarding the assessment under review. The purpose for the ban on external persons or groups directly contacting individual peer reviewer is because the peer reviewers should be free from external lobbying, influence, or coercion.

The contractor arranges a full day peer review panel meeting (or longer if necessary) for the panelists to discuss the draft assessment. The panelists are allowed 6 weeks to complete their initial review of the draft assessment. The panelists review the charge and draft documents and submit comments to the contractor in electronic format at least 10 days before the panel meeting. The contractor receives and compiles panelist's comments in a draft pre-meeting document. The contractor reviews the comments to ensure that the panelists have fulfilled their responsibilities under their contractual agreement, but does not edit nor rearrange comments. The contractor distributes the pre-meeting comments to the panelists at least 1 week before the meeting. The panelists should review each other's comments to facilitate their full and informed participation in discussions at the public peer review meeting. After the meeting date is set, the contractor and Panel Chair prepare the meeting agenda and provide a draft to the COR 2 weeks prior to the meeting. The contractor then submits the comments to EPA prior to the meeting and by a date as prescribed in the TO. These comments will be publicly available in hard-copy at the public peer review meeting.

*Peer Review Meeting:* At the meeting, the contractor indicates to the panel that EPA is seeking the individual opinions of the panelists and not a consensus of the group. The Panel Chair facilitates the meeting with the intent of promoting a discussion of the major issues identified by the reviewers. As part of the Panel Chair's duties, the Chair attempts to resolve issues, but does not attempt to achieve consensus or solicit a vote on any issue. The contractor helps facilitate the panel by promoting a discussion of the major issues identified by the panelists before the meeting. The contractor introduces the IRIS Chemical Manager/COR (or representative) as the EPA point of contact for the meeting, but indicates that the Chemical Manager is present for the purpose of providing occasional clarification at the request of either the contractor or the panelists. The contractor instructs the Panel Chair not to engage the Chemical Manager in the discussion (except for limited clarification) or provide any opportunity for EPA, or anyone else present at the meeting, to bias the panelists' discussion.

At the beginning of the meeting, the contractor informs members of the public that they are present only to observe and should not offer comments during the panel discussions. The contractor informs observers that any comments or requests should be directed to

the EPA point of contact and not to panel members or to the contractor. At no time during the meeting or breaks should observers attempt to discuss the assessment under review with any panel member. Panel members are asked to report any contact or attempt to influence the review during the meeting to the contractor. Members of the public and interested parties who have pre-registered to make comments will be given an opportunity to speak briefly as specified in the FRN announcing the meeting. Those who registered will be given up to 5 minutes each to make a statement at the beginning of the meeting prior to the panel's discussion of the draft assessment. No time will be allowed at the conclusion of the meeting for public comment.

*Post-meeting activities:* The panelists have 2 weeks after the face-to-face meeting to edit their pre-meeting comments. The contractor reviews the revised comments, but does not edit or rearrange them. The contractor then provides the comments in a bound document, including panelists' cover/comment letter. The contractor may format the comments for consistency. The compiled comments are provided to the EPA Chemical Manager/COR, who posts the report on the NCEA and IRIS Web sites. A copy of the final meeting report is provided to the EPA PO.

The Chemical Manager/COR uses the peer review comments, as well as public comments submitted during the public comment period, to make revisions in the draft assessment and develops a disposition of comments, which is included in the Toxicological Review as Appendix A.

#### POSTING ON THE IRIS DATA BASE

The revised draft IRIS human health assessment documents are provided simultaneously to the Agency internal reviewers and to other Federal agencies and White House offices for interagency discussion. The interagency discussion step is an opportunity for other Federal agencies that may have an interest in a particular chemical or substance to understand how EPA addressed the peer review and public comments. The final content of an IRIS human health assessment is the sole responsibility of the EPA. After these steps are completed, and final Agency clearance is obtained, the assessment is included on the IRIS data base.

#### SUMMARY

EPA values and depends on an independent, rigorous, transparent, and open peer review process to insure strong science, high quality, and integrity of the human health assessments developed in the IRIS program.

### Appendix 1

*Peer Review Plan Information Template for Highly Influential(HISA) and Influential Scientific Assessment(ISI) Products listed on the Agency Peer Review Agenda and in the Science Inventory.*

#### Base Data

Title:*1P	
Description:*1	
Purpose/Objective:*1P	
Additional Keywords:	
External Collaborators:	
GPRA Goal:	
Product Completion Date:*1P	
Product Availability:	Final, Draft, Not For Public Use, Not Available
Work Product File:	If Final, please provided the product file.
or Citation:	
or URL(s):	
Will the Product be peer reviewed?	Yes, No
OMB Category:*R	HISA, ISI, Other
Related records:	

#### Organization Data

AA/RA:	
Lab/Center/Office:	
Division/Office:	

Branch:	
Principal Investigator:	
Peer Review Leader:	
Contacts:	

### Peer Review Data

Peer Review Type(s): IPR	Internal or External
Internal Peer Review Mechanism:P (see list in Appendix A)	
Date of Projected Peer Review:	
Date Peer Review Completed:	
Date Peer Review Activity Closed:	
External Peer Review Mechanism: P (see list in Appendix B)	
Date of Projected Peer Review:	
Date Peer Review Completed:	
Date Peer Review Activity Closed:	

### OMB Data

Was a deferral to peer review invoked?R	Yes	No
If yes, Months DeferredR		
Will an alternative peer review process be employed?R	Yes	No
If yes, Alternative ProcessR		
Number of Peer ReviewersP	3 or fewer, 4 to 10, More than 10	
Primary Disciplines needed in the review:P (see list in Appendix C)		
Other DisciplineP		
Who will select the reviewers?P	EPA, FACA, Outside Organization	
Outside OrganizationP		
Will the public, including scientific or professional societies be asked to nominate peer reviewers?P	Yes	No
Was a reviewer appointed pursuant to an exception to the independence or conflict of interest standards of the OMB bulletin?R	Yes	No



If yes, provide Explanations:		
Will there be opportunity for public comment on the product?P	Yes	No
Describe How and When:		
Will the Agency provide significant and relevant public comments to the peer reviewers before they conduct their review?P	Yes	No
Will the review be a panel, conducted in public?P	Yes	No
Will public comment be allowed to present at the panel review?P	Yes	No
Number of peer reviewers recommended by professional societies:R		

**Appendix 2**  
*(Sample Contractor "Reviewer" COI Certification)*

**U.S. Environmental Protection Agency IRIS Program  
CONFLICT OF INTEREST DISCLOSURE FORM**

External Peer Review: \_\_\_\_\_

If you answered YES to any of the nine questions above, please elaborate below: *(Attach additional pages if necessary.)*

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**Reviewer Certification**

Please sign below to certify (1) that you have fully and to the best of your ability completed this disclosure form, (2) that you will update your disclosure form promptly by contacting the [INSERT NAME OF CONTRACTOR] IRIS peer review manager if relevant circumstances change, (3) that you are not currently arranging new professional relationships with, or obtaining new financial holdings in, an entity (related to the subject chemical) which is not yet reported, and (4) that the certification below, based on information you have provided, and your CV may be made public for review and comment.

Signature \_\_\_\_\_

Date \_\_\_\_\_

(Print name) \_\_\_\_\_

**[INSERT NAME OF CONTRACTOR] Certification**

[INSERT NAME OF CONTRACTOR] has reviewed the information provided on the Conflict of Interest Disclosure form for \_\_\_\_\_ by \_\_\_\_\_ and certifies that to the best of [INSERT NAME OF CONTRACTOR]'s knowledge and belief, there are no relevant facts or circumstances which could give rise to a conflict of interest, as defined in FAR subpart 9.5, or that [INSERT NAME OF CONTRACTOR] has disclosed all such relevant information.

Disclosure (if applicable):

\_\_\_\_\_

\_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

[INSERT NAME OF CONTRACTOR] [INSERT NAME OF SIGNER]

**Conflict of Interest Analysis and Certification**  
**Questions and Supporting Information**

- a. To the best of your knowledge and belief, is there any connection between the subject chemical or topic and any of your and/or your spouse's compensated or uncompensated employment, including government service, during the past 24 months? Yes \_\_\_\_ No \_\_\_\_
- b. To the best of your knowledge and belief, is there any connection between the subject chemical or topic and any of your and/or your spouse's research support and project funding, including from any government, during the past 24 months? Yes \_\_\_\_ No \_\_\_\_
- c. To the best of your knowledge and belief, is there any connection between the subject chemical or topic and any consulting by you and/or your spouse, during the past 24 months? Yes \_\_\_\_ No \_\_\_\_
- d. To the best of your knowledge and belief, is there any connection between the subject chemical or topic and any expert witness activity by you and/or your spouse, during the past 24 months? Yes \_\_\_\_ No \_\_\_\_
- e. To the best of your knowledge and belief, have you, your spouse, or dependent child, held in the past 24 months, any financial holdings (excluding well-diversified mutual funds and holdings, with a value less than \$15,000) with any connection to the subject chemical or topic? Yes \_\_\_\_ No \_\_\_\_
- f. Have you made any public statements or taken positions on or closely related to the subject chemical or topic under review? Yes \_\_\_\_ No \_\_\_\_
- g. Have you had previous involvement with the development of the document (or review materials) you have been asked to review? Yes \_\_\_\_ No \_\_\_\_
- h. To the best of your knowledge and belief, is there any other information that might reasonably raise a question about an actual or potential personal conflict of interest or bias? Yes \_\_\_\_ No \_\_\_\_

- i. To the best of your knowledge and belief, is there any financial benefit that might be gained by you or your spouse as a result of the outcome of this review?  
Yes \_\_\_\_\_ No \_\_\_\_\_

Compensated and non-compensated employment (for panel member and spouse): list sources of compensated and uncompensated employment, including government service, for the preceding two years, including a brief description of work.

- j. Research Funding (for panel member): list sources of research support and project funding, including from any government, for the preceding two years for which the panel member served as the Principal Investigator, Significant Collaborator, Project Manager or Director. For panel member's spouse, provide a general description of research and project activities in the preceding two years.

- k. Consulting (for panel member): compensated consulting activities during the preceding two years, including names of clients if compensation provided 15% or more of annual compensation. For panel member's spouse, provide a general description of consulting activities for the preceding two years.

- l. Expert witness activities (for panel member): list sources of compensated expert witness activities and a brief description of each issue and testimony. For panel member's spouse, provide a general description of expert testimony provided in the preceding 2 years.

- m. Assets: Stocks, Bonds, Real Estate, Business, Patents, Trademarks, and Royalties (for panel member, spouse and dependent children): specific financial holdings that collectively had a fair market value greater than \$15,000 at any time during the preceding 24-month period (excluding well-diversified mutual funds, money market funds, treasury bonds and personal residence).

- n. Liabilities (for panel member, spouse and dependent children): liabilities over \$10,000 owed at any time in the preceding twelve months (excluding a mortgage on personal residence, home equity loans, automobile and consumer loans).

- o. Public Statements: A brief description of public statement and/or positions on or closely related to the matter under review by the panel member.

- p. Involvement with document under review: A brief description of any previous involvement of the panel member in the development of the document (or review materials) the individual has been asked to review.

- q. Other potentially relevant information: A brief description of any other information that might reasonably raise a question about actual or potential personal conflict of interest or bias.

**Appendix 3**  
**NCEA Contractor's COI Certification Letter to EPA (Template)**

Date: Month Day, Year

To: EPA Contract Officer's Representative (COR),  
Forward to the EPA Peer Review Leader (PRL) if the COR and PRL are not the same person.

From: Contractor Name  
Contractor Company

Subject: **Selection of Peer Review Panelists For the External Peer Review of**

Prior to potentially entering into any arrangement with a peer reviewer, [Contractor Company Name] has conducted a thorough evaluation to determine if the candidate reviewers pose a conflict of interest or an appearance of a lack of impartiality. Each candidate peer reviewer has provided answers to all questions of conflict of interest to date and all written information that [Contractor Company Name] collected shall be retained in [Contractor Company Name]'s files including an explanation of the suitability and rationale for including or excluding each final prospective panelist. In addition to the collection of written information, [Contractor Company Name] staff have conducted Internet searches for public comments made by each candidate reviewer.

With this letter, [Contractor Company Name] concludes and certifies that all prospective peer review panelists have adequately passed the COI evaluation process signifying that, in [Contractor Company Name]'s judgement, there is no significant evidence to trigger a COI finding for any of the prospective panel members listed below. [If a reviewer poses a conflict of interest but is considered possible to serve, the contractor shall report the COI and rationale to serve in this letter]. [Contractor Company Name] shall select and enlist the services of reviewers from the list of prospective panelists below.

Through [Contractor Company Name]'s continuing obligation to identify and report any actual or potential conflict of interest or an appearance of a lack of impartiality, [Contractor Company Name]'s files will document the results of each panelist's recertifications. If any actual or potential conflict of interest or appearance of a lack of impartiality is found, disclosure shall be made to the EPA.

Prospective Panel Members:

1. Name, Affiliation	6. Name, Affiliation
2.	7.
3.	8.
4.	9.
5.	10.

Date \_\_\_\_\_

(Contractor Official Signature)

\_\_\_\_\_  
(Print Contractor Name and Title)

This written certification has been prepared for EPA. By signing this letter EPA acknowledges that the contractor has certified that no conflict of interest exists or an appearance of a lack of impartiality, or all conflicts of interest have been reported. A copy of this letter will appear in the EPA Peer Review Record.

Date \_\_\_\_\_

(EPA COR Signature)

\_\_\_\_\_  
(Print COR Name)

Date \_\_\_\_\_

(EPA Peer Review Leader Signature)

\_\_\_\_\_  
(Print Peer Review Leader name)