TESTIMONY OF
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Introduction

Good morning Mr. Chairman, Ranking Member Upton and members of the Subcommittee. I am Jim Jones, the Deputy Assistant Administrator of the Environmental Protection Agency's (EPA) Office of Prevention, Pesticides, and Toxic Substances. I appreciate the opportunity to appear before the Subcommittee to provide an update on EPA's Endocrine Disruptor Screening Program (EDSP) and plans for its future implementation.

Background

The implementation of the EDSP is part of one of Administrator Jackson's top priorities--to make significant and long overdue progress in assuring the safety of chemicals in our products, our environment and our bodies. Issuing test orders for the generation of data to better understand potential endocrine effects is an important step in improving our ability to protect the public health and the environment from chemicals.

The Food Quality Protection Act of 1996 (FQPA) required EPA to develop and implement a program to screen all pesticides for any "effect in humans that is similar to an effect produced by a naturally occurring estrogen and such other endocrine effect" as EPA may designate. Because endocrine disruption was on the cutting edge of science, shortly after the Act was passed, EPA formed the Endocrine Disruptor Screening and Testing Advisory Committee, composed of scientists from government, stakeholder organizations and academia, and charged it with providing advice on how to design a screening program for endocrine disrupting chemicals. Considering EDSTAC's diverse membership and expertise, EPA found its consensus compelling and scientifically rigorous. Therefore, EPA relied heavily on EDSTAC's advice and recommendations in developing the EDSP.

Developing the Program

Upon the recommendations from EDSTAC, the EDSP was expanded to include assessment of the androgen and thyroid hormone systems and effects on wildlife. EDSTAC also recommended a two tier screening program. Tier 1 is composed of a battery of *in vitro* and short-term *in vivo* assays to identify chemicals that have the potential to interact with the estrogen, androgen or thyroid systems. Although EPA is still refining the process for evaluating Tier 1 results, chemicals that are positive in Tier 1 for potential endocrine effects would be subject to the Tier 2 testing requirements. The purpose of the Tier 2 tests is to confirm chemical interactions observed in Tier 1 screens, and provide information that can be used in risk assessment such as identification and characterization of adverse effects resulting from the interaction of the chemicals with the hormone system and the exposure levels required to produce them in assays involving developmental life-stages in whole animals. EDSTAC recommended a number of assays for EPA's consideration as potential Tier 1 screens and Tier 2 tests for detecting and characterizing endocrine disrupting chemicals.

Validation of Tier 1 Protocols

The FQPA requires the use of validated tests. The purpose of validation is to ensure that the tests are based on solid science and requires that the relevance and reliability of the assay be demonstrated, that is, that it truly measures what it is supposed to measure and that it does so consistently within and across laboratories. Validation of the assays comprising Tiers 1 and 2 was by far the biggest challenge facing EPA. In fact, Tier 2 assay validation is still in progress. As recognized by EDSTAC, no assays were validated to detect or characterize endocrine disruptors when EPA began this task. From 2001 through 2006, EPA consulted with stakeholders and scientific experts through a series of advisory committees regarding the validation of Tier 1 assays. EPA is continuing to involve stakeholders by working through the Organization for Economic Cooperation Development (OECD) validation management workgroups.

The validation of the Tier 1 assays took far longer than anyone at EPA anticipated. The validation process commenced with test method development. Many of these methods were developed or refined within EPA's own laboratories. Once the test protocols were developed and optimized, their reliability and relevance had to be demonstrated in studies conducted in parallel in multiple laboratories outside of EPA. Through most of this process, EPA solicited stakeholders' and the public's views through the advisory committee process. This process has been used in the development and validation of 19 different Tier 1 and Tier 2 assays. Because of the many complexities of methods development and validation for such a large number of assays, validation of Tier 1 assays took 10 years and is still ongoing for Tier 2 assays. Most of the testing in outside laboratories was performed under EPA's contracts and many assays were validated in conjunction with the Organization for Economic Cooperation and Development to produce internationally harmonized test guidelines. Working with OECD has saved the

Agency resources as it leveraged the efforts of other countries, and it promises to reduce testing costs since the data generated under the OECD test guidelines will be accepted by all member countries, reducing the likelihood that tests will be repeated to meet the differing regulatory needs of each member country. After the laboratory work and analysis was completed and approved by EPA, the entire body of work supporting validation of each assay was summarized and submitted to a panel of independent scientific experts for peer review. EPA chose the eleven assays for the Tier 1 battery based upon their performance in validation and their ability to complement one another. EPA's recommendations for the Tier 1 battery were reviewed by the FIFRA Scientific Advisory Panel in March 2008. Validation of the Tier 2 tests, including peer review, should be completed in 2012.

Priority Setting and Development of Policies and Procedures

There were two other key activities needed for implementation of the EDSP: the development of a process for selecting chemicals followed by the actual selection of chemicals for the first list, and the development of policies and procedures for issuing test orders to pesticide registrants and chemical manufacturers. The first list of chemicals was selected solely on the basis of exposure because other methods for incorporating endocrine-relevant toxicity information were not yet ready for use. The first list consists of 67 chemicals—58 pesticide active ingredients and 9 inert ingredients that also are high production volume chemicals.

The Agency's policies and procedures instruct how the Agency will issue test orders and the obligations of test order recipients to respond. The Agency is allowing test order recipients 90 days (150 days if they group together to form a consortium) to cite or provide existing data or inform the Agency that they will conduct Tier 1 testing. Test order recipients have up to 24 months from the date of the orders to submit required Tier 1 test data.

Recent Accomplishments

EPA began issuing its first EDSP test orders in October 2009. It will issue the last test orders for List 1 chemicals this month. The test orders are not tailored for specific chemicals and will require the full battery of Tier 1 assays. However, test order recipients can either cite or provide existing data that they believe meet some or all of the requirements of the test order. The Agency is now receiving and evaluating the first of the responses to the test orders and will communicate its determination to recipients. Test orders, responses to test orders, and EPA's final determination of the required testing are being tracked on the EDSP website. Test order recipients have two years from the receipt of the test order to conduct required studies and submit the results to the EPA. The Agency will review the data on each chemical. When test data from all 67 chemicals have been reviewed, EPA will conduct a scientific evaluation of the screening data and determine whether revisions to the battery should be made.

Creation of a Database

EPA has created a database of the initial pesticide chemicals to be screened in the EDSP and made this information available on EPA's website. The database includes the date a test order is issued and to whom; the due date for completing and submitting the data; the recipient's response to the order, including requests for extensions, if any; and a summary of the results of Tier 1 screening or Tier 2 testing for each chemical listed.

List 2 and Substances in Drinking Water

In addition to the FQPA provisions that require the screening of all pesticide chemicals, the Safe Drinking Water Act Amendments of 1996 (SDWA) provide EPA with the authority to test substances that may be found in sources of drinking water to which a substantial population may be exposed. As instructed by the House Appropriations Committee[1], EPA is preparing a second list of no less than 100 chemicals, a draft of which will be released shortly. The List 2 chemicals will be drawn from three sources: National Primary Drinking Water Regulations, the Contaminant Candidate List 3 (CCL 3), and pesticides that are on the reregistration schedule for 2007 through 2008. The CCL3 List is a list of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, that are known or anticipated to occur in public water systems, and which may require regulation under SDWA. The CCL3 list includes pesticides, other chemicals used in commerce, and disinfection byproducts and degredates.

ToxCast

Several years ago, EPA's Office of Research and Development began carrying out a large-scale experiment, called ToxCast™ , which is a part of the Tox 21 program, to test a high throughput screening *in vitro* approach to identify potential toxicity of chemicals. The aim of ToxCast is to more efficiently screen thousands of environmental contaminants using a battery of *in vitro* assays and to prioritize chemicals for further testing based on the biological activity associated with molecular pathways leading to toxicity. EPA is exploring the use of ToxCast, other computational tools, and other data to assist with choosing those chemicals for future lists that show potential to interact with the endocrine system. Fifty-seven of the chemicals on List 1 for EDSP screening have been put through the ToxCast battery of assays. Once those chemicals have been tested through the EDSP Tier 1 battery, results can be compared. So for now, while ToxCast,

[1] H. Rep. No. 180, 111th Cong., 1st Sess. 105 (2009), http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_reports&docid=f:hr180.111.pdf#Page=105.

at its current state of development will initially be used to help select chemicals for future Tier 1 screening lists, it is envisioned that eventually it may be able to replace, at least, some Tier 1 assays. For the current set of test orders, EPA will review ToxCast data along with the claims the order recipients submit. Data generated from Tier 1 assays on the first and second lists of chemicals will play an important role in advancing our understanding of the endocrine disrupting potential of these chemicals, refining the predictions made by ToxCast, and moving us toward the point where some lower throughput assays that still rely on using laboratory animals and some whole animal assays may be replaced by higher throughput, shorter term laboratory results combined with predictive methods.

Closing

In summary, EPA is on track to obtain Tier 1 endocrine screening data on several hundred chemicals within the next several years. Although it has taken a long time to develop and implement the EDSP, we have developed and validated some useful tools and learned lessons that can be applied to other areas.

Thank you for your continued interest in the EDSP. I will be happy to answer any questions.