



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
RESEARCH AND DEVELOPMENT

Dr. James H. Johnson, Jr.
Chair, Board of Scientific Counselors
Dean, College of Engineering, Architecture, and Computer Sciences
Howard University
2366 6th Street, NW
Washington, DC 20059

Dear Dr. Johnson:

The Office of Research and Development (ORD) would like to take this opportunity to thank you and the members of the Board of Scientific Counselors (BOSC) for the February 2005 progress review of the Multi-Year Plan for the Mercury Research Program. We especially thank the members of the BOSC Mercury Subcommittee who conducted the review, Drs. Herb Windom (Chair), Rui Afonso, Cindy Gilmour, Rogene Henderson, George Lambert, Michael Waalkes, and yourself.

Enclosed with this letter is our response to the comments in your Letter Report of July 14, 2005. Please feel free to contact me if further information is needed.

We are pleased that the BOSC was very supportive of the Mercury Research Program and the direction we are taking in this very important research area. Again, thank you for your advice to ORD.

Sincerely yours,

A handwritten signature in black ink, appearing to read "William H. Farland".

William H. Farland, Ph.D.
Acting Deputy Assistant Administrator for Science

Enclosure

cc: Dr. Herb Windom (Mercury Subcommittee, Chair)
Dr. Rui Afonso
Dr. Cindy Gilmour
Dr. Rogene Henderson
Dr. George Lambert
Dr. Michael Waalkes



**Office of Research and Development (ORD)
Response to Board of Scientific Counselors (BOSC)
July 2005 Letter Review of the Mercury Multi-Year Plan**

BOSC Mercury Subcommittee:

Dr. Herb Windom, Chair
Dr. James H. Johnson, Jr.
Mr. Rui Afonso
Dr. Cynthia Gilmour
Dr. Rogene F. Henderson,
Dr. George H. Lambert
Dr. Michael P. Waalkes

Submitted:

Joel Scheraga, PhD
National Program Director
Mercury Research Program
Office of Research and Development

ORD Response to BOSC July 2005 Letter Review of Mercury Multi-Year Plan

The following is a narrative response to the comments and recommendations of the BOSC review of the Multi-Year Plan (MYP) for ORD's Mercury Research Program. The review was held in February 2005, in Washington, DC. For the purpose of this review, BOSC formed a subcommittee, chaired by Dr. Herb Windom from Skidaway Institute of Oceanography. The BOSC Mercury Subcommittee reviewed the most recent Mercury MYP (May 2003).

Though the subcommittee was not charged specifically with assessing the quality of ORD's mercury research program, it noted that it is apparent ORD has accomplished much with the available resources and is poised to contribute significantly more to the better understanding of the global mercury problem, especially with regards to transport and fate.

The BOSC had five overarching recommendations. First, it felt that the Mercury MYP planning process would benefit greatly from an interagency council to institutionalize and harmonize collaboration across federal agencies and to provide for proactive leveraging of resources. It noted that the present level of funding provided to the ORD for mercury research is limited considering the regulatory needs of the Agency to address the effects of mercury on human health and the environment.

Second, the BOSC felt that prioritizing and sequencing of APMs need to be discussed more fully in the MYP. Since prioritization is often a "moving target," the criteria for sequencing and for shifting priorities should be stated.

Third, the BOSC observed that the MYP is a "living document" and should therefore be updated annually. The primary focus of an annual update should be to report on progress being made towards completion of APMs. Explanations could be given for any APMs that should have been completed but were delayed. And if priorities have shifted, this should be reflected in the annual update.

Fourth, the importance of the MYP as a communication document as well as a planning document was emphasized. BOSC strongly recommended that the Mercury MYP articulate a detailed plan for communications with domestic and international parties.

Finally, the BOSC suggested that it would be helpful if the Mercury MYP provided an assessment of outcomes related to the various APGs and APMs. The subcommittee members felt that this would help to track progress and to translate how research results are being used.

Following are specific comments related to the charge questions made by BOSC. BOSC's comments are written in italics and ORD's response follows in regular type. Attached to this document is a table which provides a summary of BOSC comments and proposed ORD actions.

BOSC RECOMMENDATIONS (ITALICS) FOLLOWED BY ORD'S RESPONSE

I. The first charge question asked for advice on changes that should be made to ensure that the proposed scope of the work is consistent with ORD's subject area Research Strategy, the current state-of-the-science, and research by others.

BOSC did not have any recommendations related to this charge.

ORD appreciates BOSC's observation that the Mercury MYP, as laid out in 2003, is consistent, comprehensive and well thought out. BOSC concluded that the MYP focuses on the most critical information needs in mercury fate and transport (including risk assessment), and on reduction of mercury emissions from a variety of sources, most importantly coal-fired boilers.

ORD also acknowledges BOSC's conclusion that the research that is underway by the Agency is state-of-the-art in the topics being addressed. And the Agency is already working with international governments to gather important data sets to maximize its research productivity.

Finally, ORD agrees with the subcommittee's opinion that the amount of funds provided to the Agency for mercury research is limited considering the regulatory needs to address the effects of mercury on ecosystems and the human condition. However, given the realities of budget constraints faced by the Mercury Program, ORD appreciates the subcommittee's conclusion that EPA is maximizing the research productivity in all ways possible.

II. The second charge question asked for advice on how ORD could ensure that the science questions address the most important scientific gaps and uncertainties in the subject area.

The current MYP was written in 2003 and does not reflect the updated current progress or the most recent plans for future LTGs and APMs. The MYP should be updated annually, documenting progress, outcomes, and any necessary revisions.

The Mercury Research Program agrees that the current MYP is out of date. It does not reflect the most recent plans for future LTGs and APMs.

The most critical change that has occurred since the development of the current MYP occurred when EPA issued the Clean Air Mercury Rule (CAMR) in March 2005. EPA issued the CAMR to permanently cap and reduce mercury emissions from coal-fired power plants for the first time ever. This rule, combined with EPA's Clean Air Interstate Rule (CAIR), will significantly reduce emissions from the nation's largest remaining source of human-caused mercury emissions. With the passage of the CAMR, EPA's research needs have changed; specifically, the needs of the Office of Air and Radiation and Office of Water – two of our primary clients within the Agency -- have expanded. A particular need now exists for

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evaluation of the effectiveness of the new CAMR. As noted by BOSC, “significant new research and assessments also will be needed to adequately monitor the effectiveness of regulations once they are in place.”

The Mercury MYP must be revised to reflect the new CAMR. The CAMR affects the priorities of different research areas that might be undertaken during the next 10 years (Table 1, page 16, of the current MYP). The changes in priorities resulting from the CAMR will affect the LTGs and APMs that should be included in a revised MYP.

ORD believes that there is a continued need for ongoing research focused on increasing the accuracy, precision, and effectiveness of continuous emission monitors. This work is critically important to the implementation of the CAMR, since it will help the EPA, the States, and utilities ensure that necessary reductions will occur if certain technologies are installed. But additional research is now required to evaluate the effectiveness of the CAMR in protecting the environment and human health. This includes research to improve understanding of the processes that impact the fate and transport of mercury (*e.g.*, in watersheds). Also, research is required to focus on identifying potential mercury deposition “hot spots” that may already exist, and may occur in the future with market trading of mercury emissions. Finally, there is increased scientific evidence that the long-range transport and deposition of mercury from other countries is a significant problem – and may dominate the impacts from any domestic sources. (We agree that undertaking research that meets these additional client demands of ORD’s Mercury Research Program is impossible within the current budget.)

Also, we agree that since the current MYP was written three years ago, it does not reflect what research EPA has already accomplished and what research remains to be accomplished. The MYP also doesn’t reflect current research efforts outside of the Agency.

ORD therefore commits to revising the Mercury MYP in 2006 to reflect all of these changes. Also, we commit to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.

III. The third charge question sought advice on how to ensure that the long-term goals are relevant to the science needs of the Agency, and that the MYP situates the annual research products on a clear path to accomplishing each of the LTGs.

The combination of some of the APGs would aid in the clarity of the MYP to clients and stakeholders. For example, within LTG 1, APGs #1, #2, and #4 all address concerns about the release of mercury from coal-fired utilities with an emphasis on monitoring methods and control technology performance to determine the most cost-effective approaches to reduce emissions. These three APGs could be combined to obtain a clearer picture of the extent of the Agency’s activities in this area. Combining these

APGs also would allow coordination of the efforts in this area. There are a number of other cases where APGs could be combined.

The ORD and Mercury Program agree fully with this comment. APGs should be combined, wherever possible, to clarify to clients and stakeholders the *outcomes* being sought by the various activities being undertaken (*e.g.*, providing decision makers in the EPA, the States, and industry with timely and useful information to implement the most cost-effective approaches to reduce emissions, given the new CAMR). However, we emphasize again that the nature of the APGs contributing to the LTGs will significantly change given the CAMR. For example, the focus of the APGs supporting LTG-1 will likely shift from supporting development of regulations on mercury emissions to supporting implementation of the most cost-effective approaches to reduce emissions.

Similarly, it is possible that the overall focus of the APGs supporting LTG-2 will shift to providing a better overall understanding of the effectiveness of the CAMR in protecting the environment and human health. As suggested earlier, a comprehensive assessment of the effectiveness of the CAMR requires an integrated evaluation of the relative contributions of different mercury emissions sources – including, but not solely, those covered by the CAMR – to deposition patterns in various locations around the country. Such an integrated evaluation requires improved understanding of the processes that impact the fate and transport of mercury (*e.g.*, in watersheds), identification of potential mercury deposition “hot spots” that may already exist and may occur in the future with market trading of mercury emissions, and an increased understanding of the contributions of sources outside the United States through long-range transport and deposition of mercury. As new APGs are developed for LTG-2, they will be combined in a way that provides a clear picture to clients and stakeholders of the *outcomes* being sought and the specific types of decisions the program is trying to inform.

IV. The fourth charge question asked about the types of changes that should be made to ensure that the research products and emphases over the next 5 to 7 years are sequenced appropriately to accomplish goals and meet program and regional needs.

The BOSC recommends that the rationale for choosing APGs and APMs (and prioritizing them) be laid out in more detail in the MYP, and the APGs and APMs be at least roughly ranked. This requires clear summaries of the state-of-the-science, additional information on the status and outcomes of recent APMs, and a prioritized list of needs within each LTG and APG. This recommendation feeds into the need to make the MYP more of a “living” planning and communication document that is flexible in response to changing needs and funding levels.

ORD strongly agrees with the BOSC’s recommendation. In order for the MYP to be a “living document,” the program must be flexible and have a mechanism to respond to the changing information needs of clients and decision makers. (These

changing needs will be partly driven by ongoing improvements in our understanding of the science, but also by other non-science factors.)

We recognize that even as our research program progresses, new questions will be posed by stakeholders as their needs change. For this reason, an important ongoing activity within the program must be identification and *prioritization* of “key” research gaps, *i.e.*, those knowledge gaps that must be filled in order to answer stakeholder questions. The MYP will be revised to include Value of Information exercises that will be periodically conducted to identify key research gaps, new research questions for the program, and new assessment questions.

Since the resources available for conducting Mercury research are scarce, research needs must be prioritized. Research dollars need to be directed to their highest-valued uses, *i.e.*, toward producing timely research products that fill key knowledge gaps that are needed to answer stakeholders’ questions. This requires that value of information calculations be done (either explicitly or implicitly). Such calculations yield insights into the incremental value to stakeholders of information expected to be derived from an investment in a particular research activity. The results of these calculations depend on changing stakeholder needs and values, and the timeliness and relevance of information. Value of information exercises can be expensive to undertake, but need to be part of any research program.

There are a variety of techniques available for calculating the value of information, which will be considered as the MYP is revised. For example, one useful approach is decision analysis. Fundamentally, the “decision” the program faces is to choose among alternative investments in research, each of which has an uncertain outcome (*i.e.*, an uncertain value). Sensitivity analysis techniques of decision analysis could be used to compute the difference in value obtained by changing the decisions about which research to undertake. Influence diagrams could be used to graphically represent the decision problems under uncertainty. Efficient algorithms that have been developed to solve decision problems represented as influence diagrams would then be used to calculate the value of information from alternative research activities. (These algorithms build an auxiliary structure called a rooted cluster tree or strong junction tree. Previous work has suggested that value of information calculations can be performed efficiently on such a tree.)

Further, the MYP should show the reader how APMs and their priorities have changed through time, without the reader having to access prior versions of the MYP to assess such changes. This might be accomplished by updating the Appendix 2 tables, noting which APMs have been dropped or added each year, and how their rankings have changed.

As previously noted, a variety of factors can influence the research conducted within the program, including the changing information needs of our clients, as

well as changes in our understanding of the science. The changes may translate into changes in the APGs and APMs included in the MYP. It is important to document these changes on a regular basis. It is also important to track progress made towards achieving any particular APM, and to account for any delays in completing an APM. Finally, it is particularly important for the overall accountability of the Mercury Program to track the outcomes achieved by the research program. This will provide the scientific community, and the public at large, with a better understanding of the payoffs from our research investments. ORD therefore commits to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.

V. The fifth charge question asked the BOSC for advice on how to ensure that the MYP is flexible enough to adapt to future science and policy changes. The BOSC responded:

The process for prioritizing research should be discussed so the reader can assess the impact of budgetary and other constraints on the MYP.

ORD concurs with the BOSC's observation that the plan must provide a clear indication of how future research will be prioritized, regardless of whether future funding increases, remains the same, or declines. ORD therefore commits to clearly articulating in a revised MYP the process by which future research will be prioritized.

At the core of any prioritization process undertaken by the Mercury Program will be two central concepts: (1) The program will continue to be stakeholder-oriented. That is, the ultimate goal of the program will be to provide *timely* and *useful* information to our clients to enable them to reduce mercury emissions with the aim of protecting human health and the environment. (2) To ensure that results of research attained and communicated by the program are timely and useful, an ongoing process must be implemented to ascertain the value of information that may be derived from any particular research activity. And the value of information will always be a function of stakeholder information needs, and the timeframe in which the information is needed.

These central concepts suggest that for the Mercury Program to be informative, we must know the particular issues and questions of interest to our clients. The clients must be engaged from the outset of any particular research activity and then involved in the research on an ongoing basis. For the research to be timely, the program must understand how the information will be used by the relevant clients and the timeframe within which the information is needed. The program must strive to answer clients' questions to the extent possible given uncertain science, in the belief that informed decisions are better than uninformed decisions. Uncertainties must also be characterized and their implications for different policy or resource management decisions must be explored.

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All of these concepts will be reflected in the revised Mercury MYP.

VI. The sixth charge question asked the BOSC to comment on changes that should be made to ensure that the MYP articulates a strategy that facilitates effective communication and utilization of research products.

The Agency is strongly encouraged to develop a detailed plan for communication with domestic and international parties. These parties include other federal agencies, states, tribes, the general public, industry, extramural research groups, and governments of other countries. The plan should address how states and these other parties are brought into the planning process. The MYP also should include a detailed plan on how the research products will be marketed and how important research results and technology can be transferred to the other parties.

ORD concurs that a critical component of the research process is *communication* of results. Effective communication of research results helps the program and stakeholders alike to identify additional research and assessment priorities. Effective communication also encourages stakeholders to conclude that their contributions are being utilized and their needs for information are being effectively met.

A detailed plan for communication with domestic and international parties will be developed. If the ultimate purpose of the Mercury Program is to convey timely and useful insights to decision makers and other clients, communication during the problem formulation stage of any research effort is important to ensure that useful research endpoints are identified and pursued. Not only should information needs be identified, but the program must understand how and when stakeholders will use assessment information. Will end users find and read a scientific journal article? Would they prefer a tool or a model to help them evaluate and employ research results? If the audience is the public, is it best served by a pamphlet that simply and accurately relates the findings? Understanding the audience's ultimate needs shapes the communications strategy.

The Mercury Program will articulate a communication strategy that uses a variety of methods to engage stakeholders in identifying and prioritizing issues and concerns and to establish conceptual frameworks for conducting research. Methods include convening stakeholder workshops and meetings, including stakeholders in peer review processes, and establishing web-based communication methods to distribute research results and receive feedback.

In addition, the communication plan should include methods to determine the outcomes of EPA's research outputs (i.e., how they were used by the other parties). Expected outcomes might include answers to such questions as: Did the new information generated by ORD result in new stronger or less stringent regulations? Did the industry apply the new EPA technology? Did the new technology decrease emissions or make the current emission control technology more affordable? The outcomes should be tracked for all

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activities described in the MYP. The communications should include current EPA and the other parties' research/data needs and current research plans for soon-to-be-conducted research. This may allow all the parties (including EPA) to reach out to each other to develop cooperative research plans to fulfill research gaps and leverage their research funds to maximize research productivity. The communications between EPA and other parties, including grant awardees, need to be more dynamic and flow in both directions. For a detailed discussion of the needs and methods for communications to all stakeholders the Agency should refer to the Communicating Research Results report prepared by the BOSC Ad Hoc Communication Subcommittee (May, 2004).

The Mercury Program is committed to developing better metrics to document progress and measure performance to improve accountability, and to ensure that it is providing information useful for decision making. The program is also committed to tracking the outcomes for all activities that will be described in a revised MYP. As suggested earlier, these outcomes will be reported on an annual basis in a supplement to the MYP.

This task can be difficult to accomplish. Despite the inclusion of stakeholders in the Mercury Program, it is often challenging to ensure – and demonstrate – that particular research and assessment activities have led to measurable environmental outcomes. The program must rely on its clients to utilize the science in their decisions and implement programs that lead to meaningful environmental improvements. This problem is reinforced by the Mercury Program's stated objective of *informing* decision makers, while not making specific policy recommendations. This reflects the belief that the science must remain unbiased, and a recognition that policy decisions are based on multiple criteria and types of information.

Despite the complexities of the challenge, the program recognizes that metrics have been applied successfully to research programs in industry, academia, and the government. Based on the collective experience of these three sectors, and on the recommendations of the National Research Council in its recently released report *Thinking Strategically: The Appropriate Use of Metrics for the Climate Change Science Program* (2005), the Mercury Program will follow several key principles for developing useful metrics: (1) Metrics should be easily understood and broadly accepted by stakeholders. (2) Promoting quality should be a key objective for any set of metrics. (3) Metrics should assess process as well as progress. Metrics should be diverse, measuring factors that range from program planning, to resulting knowledge and practical applications, to the ultimate impact of policy decisions on society. (4) A focus on a single measure of progress would be misguided. Relying solely on the metric of reducing uncertainty, for example, can create an erroneous sense of progress since uncertainty can increase, decrease, or remain constant as the understanding of causal factors improves. (5) Metrics must evolve to keep pace with scientific progress and program objectives. Adjustments to the measures will be required as the Mercury Program managers gain experience and the program itself matures and evolves. (6) The development

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and application of meaningful metrics will require significant human, financial, and computational resources.

The ORD Mercury Program is committed to developing better metrics of performance, to tracking these metrics and regularly reporting on progress towards the achievement of well-defined outcomes. The revised MYP will articulate a communication strategy that describes how this will be accomplished.

VII. The final charge question asked the BOSC to provide advice on how the program can ensure that there is a clear path for assessing/evaluating the MYP and progress toward its goals.

The subcommittee strongly recommends that Appendix 2 of the MYP be modified to link the APMS to the six scientific questions or, alternatively, produce another simple table/diagram that illustrates these links.

ORD agrees with this recommendation. The revised MYP will contain a table/diagram that links revised APMs to the six scientific questions.

It is further recommended that the proposed schedule to accomplish an APM in the current MYP be compared to the anticipated timetable provided in the previous MYP, and that some indication of the reason (e.g., funding limitation) for an APM not being accomplished be provided in a brief footnote. The Agency should develop an annual revision of the MYP document. This annual document would only track the progress of each APM and their outcomes. The results of each APM, the products of the research, how the products of the research were used by EPA and/or other parties, and the outcomes of the use of the products should be monitored, and the results published every years as the annual update of the MYP.

ORD concurs that it is important to track progress made towards achieving any particular APM, and to account for any delays in completing an APM. It is also particularly important for the overall accountability of the Mercury Program to track the overall outcomes achieved by the research program. This will provide the scientific community, and the public at large, with a better understanding of the payoffs from our research investments. ORD therefore commits to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.

**Mercury Research Program
Summary of BOSC Comments From July 2005 Letter Report of the Mercury Multi-Year Plan, and Proposed ORD Actions**

Recommendation	Action Items	Timeline
Charge Question 1: Advice on scope of the work		
<i>The BOSC subcommittee concluded that the proposed scope of work in the MYP is consistent and well thought out.</i>	N/A	N/A
Charge Question 2: Advice on ensuring that the science questions address the most important scientific gaps and uncertainties		
<i>The MYP should be updated annually, documenting progress, outcomes, and any necessary revisions.</i>	ORD commits to revising the Mercury MYP in 2006 to reflect all of these changes. Also, we commit to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.	Annually
Charge Question 3: Advice on ensuring that the long-term goals are relevant to the science needs of the Agency.		
<i>The combination of some of the APGs would aid in the clarity of the MYP to clients and stakeholders.</i>	The ORD and Mercury Program agree fully with this comment. APGs will be combined, wherever possible, to clarify to clients and stakeholders the <i>outcomes</i> being sought by the various activities being undertaken.	2006 revision of the Mercury MYP
Charge Question 4: Advice on changes to ensure that the research products and emphases over the next 5 to 7 years are sequenced appropriately		
<i>The rationale for choosing APGs and APMs (and prioritizing them) should be laid out in more detail in the MYP, and the APGs and APMs should be at least roughly ranked.</i>	The MYP will be revised to include Value of Information exercises that will be periodically conducted to identify key research gaps, new research questions for the program, and new assessment questions.	2006 revision of the Mercury MYP
<i>The MYP should show how</i>	ORD commits to producing	Annually

Recommendation	Action Items	Timeline
<i>APMs and their priorities have changed through time.</i>	annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.	
Charge Question 5: Advice on changes to ensure that the MYP is flexible enough to adapt to future science and policy changes.		
<i>The process for prioritizing research should be discussed so the reader can assess the impact of budgetary and other constraints.</i>	ORD commits to clearly articulating in a revised MYP the process by which future research will be prioritized.	2006 revision of the Mercury MYP
Charge question 6: Advice on how to ensure the MYP articulates a strategy that facilitates effect communication and utilization of research products.		
<i>The Agency is strongly encouraged to develop a detailed plan for communication with domestic and international parties. The plan should: (1) address how states and other parties are brought into the planning process; (2) include a detailed plan on how research products will be marketed and how results and technology can be transferred to the other parties; (3) include methods to determine the outcomes of EPA's research outputs; (4) include research/data needs and current research plans.</i>	A detailed plan for communication with domestic and international parties will be developed. The Mercury Program will articulate a communication strategy that uses a variety of methods to engage stakeholders in identifying and prioritizing issues and concerns and to establish conceptual frameworks for conducting research.	2006 revision of the Mercury MYP
<i>Outcomes should be tracked for all activities described in the MYP.</i>	The ORD Mercury Program is committed to developing better metrics of performance, to tracking these metrics and regularly reporting on progress towards	2006 revision of the Mercury MYP

Recommendation	Action Items	Timeline
	the achievement of well-defined outcomes. The revised MYP will articulate a communication strategy that describes how this will be accomplished.	
<i>Communications between EPA and other parties, including grant awardees, need to be more dynamic and flow in both directions.</i>	The Mercury Program will articulate a communication strategy that uses a variety of methods to engage stakeholders in identifying and prioritizing issues and concerns and to establish conceptual frameworks for conducting research.	2006 revision of the Mercury MYP
Charge question 7: Advice on how to ensure there is a clear path for evaluating the MYP and progress towards its goals.		
<i>Produce a table/diagram that links the APMs to the six scientific questions.</i>	The revised MYP will contain a table/diagram that links revised APMs to the six scientific questions.	2006 revision of the Mercury MYP
<i>The proposed schedule to accomplish an APM in the current MYP be compared to the anticipated timetable provided in the previous MYP, and some indication given for an APM not being accomplished.</i>	ORD commits to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.	Annually
<i>An annual revision of the MYP should be developed that only tracks the progress of each APM and their outcomes.</i>	ORD commits to producing annual updates (as an addendum to the existing MYP) that document progress, outcomes, and any significant changes in priorities. Criteria used to make any priority changes will be clearly articulated.	Annually