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United States Government **Department of Energy**

memorandum

DATE: April 13, 2015

REPLY TO
ATTN OF: Office of High Energy Physics, SC-25

SUBJECT: DEPARTMENT OF ENERGY/OFFICE OF SCIENCE REVIEW OF THE PROTON IMPROVEMENT PLAN (PIP-II)

TO: Stephen Meador, Director, Office of Project Assessment, SC-28

I request that OPA organize and conduct for the Office of High Energy Physics (HEP) an Office of Science Independent Project Review (IPR) of the Proton Improvement Plan (PIP-II) at the Fermi National Accelerator Laboratory (Fermilab) in Batavia, Illinois, on June 16-17, 2016.

The HEP strategic plan developed by the Particle Physics Project Prioritization Panel (P5) and documented in the 2014 report, *Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context,* calls for an upgrade of the Fermilab accelerator complex to support the planned physics of the next decade. In particular recommendation 14 states:

> *Upgrade the Fermilab proton accelerator complex to produce higher intensity beams. R&D for the Proton Improvement Plan II (PIP-II) should proceed immediately, followed by construction, to provide proton beams of >1 MW by the time of first operation of the new long-baseline neutrino facility.*

Fermilab has developed a proposal for PIP-II that includes international in-kind contributions. The purpose of this review is to evaluate the PIP-II proposal, the proposed cost range, and the readiness of the laboratory to begin conceptual design. The results of your review will provide support for the Mission Need Statement to be developed by HEP.

The committee should address the following specific items:

1. Is the proposed technical concept, including both new construction and modifications to existing infrastructure, likely to satisfy the P5 recommendation? Are there major alternative technical choices? How well understood are the international in-kind contributions?

2. Is the presented cost range based on sound reasoning, consistent with experience of similar projects? Is it likely to bound the actual cost when PIP-II is built?

3. Does the scheduling strategy fit with other major projects at Fermilab?

4. Is there significant R&D that still needs to be carried out in order to implement the proposed concept? Are all the significant technical and cost risks identified? Does the laboratory have a plan, and sufficient resources, to complete the R&D in a timely manner?

5. Does the management team possess the requisite expertise and experience? Is it appropriately organized and staffed to initiate PIP-II activities?

Dr. Stephen Peggs oversees PIP-II in the Office of High Energy Physics and will serve as the OHEP contact person for the review.

We appreciate your assistance in this matter. As you know, these reviews play an important role in our program. I look forward to receiving your Committee's report within 60 days of the review.

for JS

James Siegrist
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for High Energy Physics

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