

**DEPARTMENT OF ENERGY****Notice of 229 Boundary for the Fort Saint Vrain Independent Spent Fuel Storage Installation**

**AGENCY:** Department of Energy (DOE).

**ACTION:** Notice of 229 Boundary for the Fort Saint Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI).

**SUMMARY:** Notice is hereby given that the U. S. Department of Energy, pursuant to Section 229 of the Atomic Energy Act of 1954, as amended, published in the **Federal Register** on August 26, 1963 (28 FR 8400), prohibits the unauthorized entry, and the unauthorized introduction of weapons or dangerous materials into or upon the following described facilities of the Fort Saint Vrain Independent Spent Fuel Storage Installation of the United States Department of Energy.

The FSV ISFSI is located on part of the original FSV Nuclear Generating Station site which is about three and one-half miles northwest of Platteville, Colorado. Platteville is located in Weld County and is about 35 miles north of Denver. The FSV ISFSI street address is 17122 19.5 Weld County Road, Platteville, Colorado. The ISFSI is located approximately 1500 feet northeast of the Public Service of Colorado fossil-fueled, power plant building. The facility occupies 10 acres more or less. The 229 Boundary of this facility is indicated by a combination of chain link fence and chain link gates which surround the facility.

**FOR FURTHER INFORMATION CONTACT:** Scott E. Ferrara, the Department of Energy—Idaho Operations Office (DOE-ID), 1955 Fremont Ave., Idaho Falls, ID 83415. Telephone (208) 526-5531.

Issued in Idaho Falls, Idaho, on June 1, 2017.

**Scott E. Ferrara,**  
*DOE-ID Facility Director.*

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**DEPARTMENT OF ENERGY****Office of Science, Office of High Energy Physics; Request for Information: Impacts From and to Quantum Information Science in High Energy Physics**

**AGENCY:** Office of High Energy Physics, Office of Science, Department of Energy.

**ACTION:** Notice of request for information (RFI).

**SUMMARY:** The Office of High Energy Physics (HEP) in the Department of Energy (DOE) invites interested parties to provide input on topical areas in which progress in quantum information science can inform high energy physics, and on contributions that the high energy physics community can make to advancing quantum information science.

**DATES:** Written comments and information are requested on or before February 12, 2018.

**ADDRESSES:** Interested persons may submit comments by email only. Comments must be sent to *QISandHEP-RFI@science.doe.gov* with the subject line “Quantum Information Science and HEP RFI”. Any attachments must be in one of the following formats: ASCII; Word; RTF; or PDF.

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information may be submitted to Dr. Lali Chatterjee, (301) 903-0435, *QISandHEP-RFI@science.doe.gov* or Dr. Altaf H. Carim, (301) 903-9564, *QISandHEP-RFI@science.doe.gov*.

**SUPPLEMENTARY INFORMATION:** Quantum information science (QIS) encompasses novel approaches to fundamental science and to applications such as sensing, communications, simulation, and computing that are enabled by understanding and manipulation of the uniquely quantum phenomena of superposition, entanglement, and squeezing. Within high energy physics, DOE’s emphasis is on employing new perspectives and capabilities offered or enabled by QIS to address the science drivers identified by the community in the May 2014 “Building for Discovery” report of the Particle Physics Project Prioritization Panel (P5).<sup>1</sup> Focus areas include quantum computing and foundational QIS, quantum sensor technology, and novel experiments exploiting quantum entanglement. QIS methods and concepts are proving increasingly important in advancing fundamental understanding in, *e.g.*, the search for dark matter, emergence of space-time, and the black hole information paradox. Likewise, these advances contribute to development of QIS including quantum error correction and thermalization. Because the field is interdisciplinary and progressing rapidly, effective research programs may require collaborative groups with

<sup>1</sup> [https://science.energy.gov/~media/hep/hepap/pdf/May-2014/FINAL\\_P5\\_Report\\_Interactive\\_060214.pdf](https://science.energy.gov/~media/hep/hepap/pdf/May-2014/FINAL_P5_Report_Interactive_060214.pdf).

appropriate combinations of knowledge, capabilities, and experience in quantum information, particle physics, and/or other related fields. Several DOE HEP reports provide additional information pertaining to QIS impacts on and from HEP.<sup>2 3 4</sup>

The U.S. Department of Energy’s Office of High Energy Physics in the Office of Science seeks input from stakeholders regarding potential research and development in QIS that addresses scientific and technological needs in high energy physics, and regarding capabilities in the high energy physics community that could contribute to the advancement of QIS. The information received in response to this RFI will inform and be considered by the Office of High Energy Physics in program planning and development. Please note that this RFI is not a Funding Opportunity Announcement, a Request for Proposal, or other form of solicitation or bid of DOE to fund potential research and development work in QIS.

*Request for information:* The objective of this request for information is to gather input about opportunities for research and development at the intersection of quantum information science and high energy physics, to inform Federal efforts in this area. The questions below are intended to assist in the formulation of comments, and should not be considered as a limitation on either the number or the issues that may be addressed in such comments.

The DOE Office of High Energy Physics is specifically interested in receiving input pertaining to any of the following questions:

**(1) Fundamental Science**

What are the key questions, opportunities, needs, and challenges for QIS to contribute to progress in the following topics? What kinds of experiments or calculations are needed to advance understanding? How can research in these areas contribute to the advancement of QIS?

- a. Quantum gravity and emergence of space-time
- b. Tensor networks, gauge symmetries, and field theories

<sup>2</sup> HEP-ASCR Study Group Report, Grand Challenges at the Interface of Quantum Information Science, Particle Physics, and Computing, 2015, [https://science.energy.gov/~media/hep/pdf/files/BannerPDFs/QIS\\_Study\\_Group\\_Report.pdf](https://science.energy.gov/~media/hep/pdf/files/BannerPDFs/QIS_Study_Group_Report.pdf).

<sup>3</sup> HEP-BES roundtable report, “Common Problems in Condensed Matter and High Energy Physics”, 2015, [https://science.energy.gov/~media/hep/pdf/Reports/HEP-BES\\_Roundtable\\_Report.pdf](https://science.energy.gov/~media/hep/pdf/Reports/HEP-BES_Roundtable_Report.pdf).

<sup>4</sup> HEP-ASCR QIS roundtable report, “Quantum Sensors at the Intersections of Fundamental Science, QIS and Computing”, 2016, [http://science.energy.gov/~media/hep/pdf/Reports/DOE\\_Quantum\\_Sensors\\_Report.pdf](http://science.energy.gov/~media/hep/pdf/Reports/DOE_Quantum_Sensors_Report.pdf).