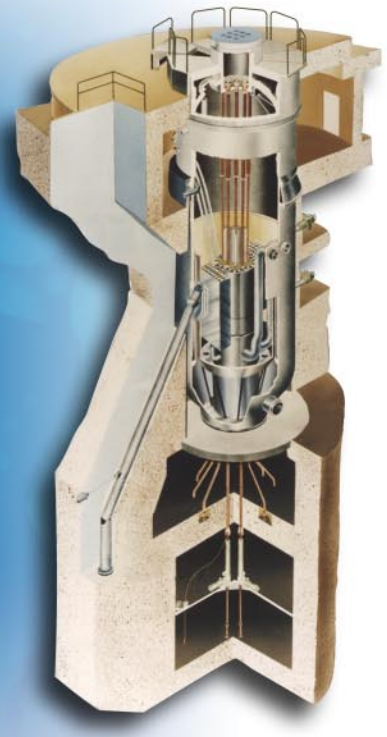

INL's Unparalleled Advanced Test Reactor

Idaho National Laboratory

Based on nearly 40 years of operating experience and a well-documented record of continuous upgrades, Idaho National Laboratory scientists, engineers and safety professionals are confident the Advanced Test Reactor and other INL site facilities can safely support the proposed consolidation of nuclear operations related to the production of Plutonium-238 for space batteries and national security.

Beyond this professional perspective, though, the U.S. Department of Energy is implementing its standard practice of seeking public input before proceeding with major projects that have the potential of impacting the environment. As part of this involvement process, questions have been asked about the design, operating record, geographic location and age of the Advanced Test Reactor (ATR), which would be part of the Pu-238 mission at INL.

Design

- The ATR is one of the world's most versatile and best-designed test reactors. It is used to study the effects of radiation on materials. This reactor also produces rare and valuable medical and industrial isotopes that safeguard and improve American lives every day. As such, the ATR has the capacity and capability to support the production of Pu-238 without any physical modifications or changes to its safety posture.
- A highly flexible reactor, it is designed and operated to be shut down as often as needed to support the reactor's missions, including the need to retrieve experimental results from the reactor's materials testing missions or when maintenance is scheduled. It is also designed to automatically shut down in response to power outages and experiment instrument irregularities that would result in the loss of experiment data. When this happens, there is no impact on the environment and the reactor's shutdown system – commonly known as a "SCRAM" system – has not

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failed. In fact, it is doing exactly what it is designed to do.

- ATR does not require a containment dome. Comparable operating test reactors – licensed by the NRC, or authorized to operate by DOE – do not have and do not require a containment structure, no matter where they are located. The ATR simply does not have the inventory of radioactive material – 1/60th the inventory of a U.S. commercial power reactor – or the amount of stored energy (high pressure and high temperatures) that would make a containment dome necessary. The ATR operates at temperatures and pressures that are essentially the same as a home hot water heater. Nonetheless, the ATR is enclosed in a "confinement structure" which would prevent the release of radioactive materials in the very unlikely event of an accident. Given the low temperatures and pressures at which the ATR operates, the confinement structure is entirely adequate to protect public health and safety.
- The frequently cited statement that this reactor is capable of dispersing 175 million curies of radiation is reflective of analysis done on what amounts to a "perfect storm" accident that assumes the worst imaginable event, at the worst imaginable time, in combination with a set of circumstances that are, at best, incredible. INL regularly analyzes for such improbable events to ensure all scenarios have been considered. Recent INL safety analyses show such an ATR accident would not occur in more than once in one million years – or one million years of reactor operations – which is consistent with NRC siting criteria. The ATR bears no design or operational resemblance to the Chernobyl reactor and comparing this hypothetical accident scenario to the Chernobyl accident is not valid

Operating Record

- The Advanced Test Reactor has an *exceptional* operating record — it has operated safely and without any reactor or nuclear accident since it started up in 1967. INL has full confidence in the continued safe operations of the reactor on the INL Site. It will be a safe source of irradiation services for many years to come.
- ATR complies with the federal safety rules and U.S. Department of Energy orders established for DOE-regulated reactors. The rules that govern the design and operation of ATR are commensurate with the rules the Nuclear Regulatory Commission applies to test reactors it licenses.

Geographic Location

- The ATR is not located, as some have suggested, in a seismically active zone similar to San Francisco. The ATR is located on the eastern Snake River Plain, which is seismically quiet relative to the surrounding seismically active mountainous region. INL seismic monitoring has recorded 30 small-magnitude earthquakes since 1972. The best and most important measure of how well the INL facilities have been designed and built to perform in these types of earthquakes is obtained from the Advanced Test Reactor. In 1983, when one of the largest U.S. earthquakes in memory occurred at Borah Peak, ATR performed exactly as designed, immediately shutting itself down and placing itself in a safe configuration.

Age

- Since it began operating in 1967, the ATR has been regularly updated with plant upgrades to maintain and improve its performance and safety posture. For example, every 8 to 10 years, ATR crews replace all the internal reactor core elements subject to wear and tear by irradiation – thus eliminating the concern that limits the life span of a commercial reactor. To put plant life in perspective, the useful life of a commercial reactor is limited by the effects of neutron irradiation on core structural components. INL completed a core internal change-out this year, returning the ATR core internals to as-new condition.

INL leaders and employees value the environment and are committed to the safety and well-being of ourselves, our neighbors in Idaho, Wyoming and other Western states, and the cherished national treasures we find in such places as Yellowstone and Grand Teton national parks.

We welcome further questions, comments and public discussion on this important topic.

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