

ATTACHMENT 1 TO NL-13-075

License Renewal Application—Completed Engineering Project Cost Estimates  
for SAMAs Previously Identified as Potentially Cost Beneficial

ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3  
DOCKET NOS. 50-247 AND 50-286

contingencies reflecting the location and complexity of the work and consistency with Association for Advancement for Cost Engineering (AACE) guidance (Reference 14).

**TABLE 1**  
**Results of Cost Benefit Analysis of IP2 SAMA Candidates**

<b>IP2 Phase II SAMA</b>	<b>Benefit</b>	<b>Benefit with Uncertainty</b>	<b>Estimated Cost</b>	<b>Conclusion<sup>1</sup></b>
009 – Create a reactor cavity flooding system.	\$6,347,528	\$13,363,217	\$1,738,982	Cost Beneficial (Deferred)
021 – Install additional pressure or leak monitoring instrumentation for inter-system loss of coolant accident (ISLOCAs).	\$2,093,852	\$4,408,109	\$4,607,051	Not Cost Beneficial
022 – Add redundant and diverse limit switches to each containment isolation valve.	\$1,071,465	\$2,255,716	\$7,685,460	Not Cost Beneficial
028 – Provide a portable diesel-driven battery charger.	\$1,357,046	\$2,856,939	\$2,137,804	Cost Beneficial (Deferred)
044 – Use fire water system as backup for steam generator inventory.	\$2,350,530	\$4,948,485	\$3,046,418	Cost Beneficial (Deferred)
053 – Keep both pressurizer power-operated relief valves (PORV) block valves open.	\$659,715	\$1,388,873	\$1,467,848	Not Cost Beneficial
054 – Install flood alarm in the 480V switchgear room.	\$5,591,781	\$11,772,170	\$456,985	Cost Beneficial (Deferred)
056 – Keep residual heat removal (RHR) heat exchanger discharge motor operated valves (MOVs) normally open.	\$48,723	\$102,574	\$1,705,367	Not Cost Beneficial
060 – Provide added protection against flood propagation from stairwell 4 into the 480V switchgear room.	\$1,275,337	\$2,684,920	\$715,145	Cost Beneficial (Deferred)
061 – Provide added protection against flood propagation from the deluge room into the 480V switchgear room.	\$2,754,991	\$5,799,982	\$933,981	Cost Beneficial (Deferred)
062 – Provide a hard-wired connection to an SI pump from alternate safe shutdown system (ASSS) power supply.	\$850,165	\$1,789,822	\$1,624,840	Cost Beneficial (Deferred)
065 – Upgrade the ASSS to allow timely restoration of seal injection and cooling.	\$5,591,781	\$11,772,170	\$1,789,771	Cost Beneficial (Deferred)
IP2-GAG	N/A	\$13,000,000	\$458,617	Cost Beneficial (To Be Implemented)

<sup>1</sup> Bases for conclusions are discussed further below.

### Results of Cost Benefit Analysis of IP3 SAMA Candidates

IP3 Phase II SAMA	Benefit	Benefit with Uncertainty	Estimated Cost	Conclusion <sup>2</sup>
007 – Create a reactor cavity flooding system.	\$5,038,071	\$7,301,552	\$1,869,811	Cost Beneficial (Deferred)
018 – Route the discharge from the main steam safety valves through a structure where a water spray would condense the steam and remove most of the fission products.	\$4,821,779	\$14,637,545	\$35,676,701	Not Cost Beneficial
019 – Install additional pressure or leak monitoring instrumentation for ISLOCAs.	\$2,126,663	\$3,082,120	\$6,462,470	Not Cost Beneficial
052 – Open city water supply valve for alternative AFW pump suction.	\$249,398	\$361,446	\$138,378	Cost Beneficial (Implemented)
053 – Install an excess flow valve to reduce the risk associated with hydrogen explosions.	\$498,795	\$722,892	\$340,790	Cost Beneficial (To Be Implemented)
055 – Provide hard-wired connection to a safety injection (SI) or RHR pump from the Appendix R bus (MCC 312A).	\$4,073,152	\$5,903,118	\$1,589,189	Cost Beneficial (Deferred)
061 – Upgrade the ASSS to allow timely restoration of seal injection and cooling.	\$4,359,371	\$6,317,929	\$2,258,137	Cost Beneficial (Deferred)
062 – Install flood alarm in the 480 VAC switchgear room.	\$4,359,371	\$6,317,929	\$494,175	Cost Beneficial (Deferred)
IP3-GAG	N/A	\$19,000,000	\$458,617	Cost Beneficial (To Be Implemented)

As noted in Table 1 above, six SAMAs previously identified as potentially cost-beneficial (IP2-021, IP2-022, IP2-053, IP2-056, IP3-018, IP3-019) are not cost-beneficial based on the now-completed, more comprehensive engineering project cost estimates. Further information regarding the cost estimates for the six no-longer-cost-beneficial SAMAs is provided below.

#### 1. IP2-021: Install Additional Pressure and Leak Monitoring Instrumentation for ISLOCAs

IP2-021 involves the installation of pressure transmitters at nine separate inter-system loss of coolant accident (ISLOCA) paths (inside containment) in order to measure pressure changes within an isolation boundary. The installed pressure transmitters would transmit information to a location outside containment for remote display and monitoring. The previous cost estimate for IP2-021 was \$3.2 million. That estimate was updated in accordance with the methodology described above, including use of more detailed plant-specific design information, current labor billing rates, updated contingency factors, and accounting for site access restrictions. The

<sup>2</sup> Bases for conclusions are discussed further below.