

May 2018 UPDATE: Policy Issues – Non-Light Water Reactors

Policy Issues – Non-Light Water Reactors		
Issue as presented on web page & previous meetings – raised questions related to applicability for LWR SMRs and non-LWRs		Updated Note/Status to specifically address activities related to non-LWRs
Issues with Ongoing Activities for non-LWRs		
License for Prototype Reactors	NRC staff drafting white paper	Action Complete Discussion incorporated (Enclosure 1) into NRC’s “A Regulatory Review Roadmap for Non-Light Water Reactors” (ML17312B567)
Appropriate Source Term, Dose Calculations, and Siting	SECY-16-0012, “Accident Source Terms and Siting for Small Modular Reactors and Non-Light Water Reactors,”	Parts of this topic related to Licensing Modernization Project (LMP) and other activities. A draft white paper (ML17333B158) related to siting in relation to population centers and population density discussed during December 14, 2017 and May 3, 2018 stakeholder meetings. NEI ARRTF and SMRWG assessing issue. NRC considering possible changes to guidance. Topic for future stakeholder meeting.
Key Component and System Design Issues		Related to LMP and white paper on SSC safety classification (ML17290A463) and RIPB guidance document (report with staff comments – ML18120A321)
Offsite Emergency Planning (EP) Requirements	SECY-15-0077 Drafting Regulatory Basis	Regulatory Basis (ML17206A265) completed for the emergency preparedness rulemaking with regard to small modular reactors and other new technologies. NRC staff preparing proposed rule and related guidance with planning milestone of providing to Commission by October 2018. Agenda item for June 14 th stakeholder meeting.
Insurance and Liability	Evaluating for periodic report to Congress on Price-Anderson Act	Issue discussed during November 2, 2017 stakeholder meeting, including presentation from American Nuclear Insurers. No short-term

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		actions by NEI Advanced Reactor Working Group (ARWG) or other stakeholders; NRC staff to prepare Commission paper for report to Congress and engage stakeholders during its development.
Use of Probabilistic Risk Assessment in the Licensing Process	SRP Revisions (safety focused review)	This topic is related to LMP and white papers/guidance (ML17158B543). Also related to NRC participation in development of non-LWR PRA Standard (ASME/ANS) – see NRC response to NEI white paper (ML17233A187) and RIPB guidance document (report with staff comments – ML18120A321).
Implementation of Defense-In-Depth (DiD) Philosophy for Advanced Reactors	SECY-15-0168 (part of licensing framework)	This topic is related to LMP and white papers/guidance (ML17354B174) and RIPB guidance document (report with staff comments – ML18120A321)
Security and Safeguards Requirements for SMRs	NRC White Paper	Current topic of interactions between NRC staff and stakeholders in context of NRC white paper (ML17333A524) and discussions during public meeting on December 13, 2017 (ML17354B266). NRC staff preparing Commission paper with expected completion in mid 2018 NRC security design considerations issued for public comment (NRC-2017-0073) and currently on hold.
Licensing Basis Event Selection	Ongoing discussions	This topic is related to LMP and submitted white paper (ML17104A254) and related NRC staff comments/questions (ML17145A531) and RIPB guidance document (report with staff comments – ML18120A321)

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<p>Fuel qualification, materials qualification</p>	<p>Issues vary by fuel type and reactor technology</p>	<p>Ongoing discussions with advanced reactor technology groups and developers. This topic was discussed during August 3rd stakeholder meeting (ML17229B317; slides ML17220A315) Agenda item for June 14th stakeholder meeting.</p>
<p>Fuel cycle facilities (front end)</p> <ul style="list-style-type: none"> • Increased enrichments 	<p>Ongoing discussions</p>	<p>NEI provided a draft white paper on issues related to industry acquisition and use of higher assay low enriched uranium (HALEU) and fuel cycle facilities needed to support advanced reactors (ML17341A604)</p> <p>The specific issues identified in the NEI white paper as needing NRC support are listed below along with current staff activities and/or planned interactions</p>

	<p>(1) Finalization of the Material Control and Accountability (MC&A) rulemaking and associated regulatory guidance document (NUREG-2159) for Category II Special Nuclear Material (SNM).</p>	<p>See Supplement to Fuel Cycle Program Integrated Schedule - December 19, 2017.(ML17355A040) for NRC status and NRC webpage Planned Rulemaking Activities – Rules.</p>
	<p>(2) Development of guidance for implementing a Physical Security plan at a Category II SNM facility. This will require that the NRC and DOE to work together to finalize a consistent approach for addressing material attractiveness. Completing this work will enable determination of the need to continue with security rulemaking (10 CFR Part 73) and development of associated implementation guidance.</p>	<p>Staff activities currently on hold pending further Commission direction. See Supplement to Fuel Cycle Program Integrated Schedule - December 19, 2017.(ML17355A040) and NRC webpages “Security-Related Rulemaking to Update 10 CFR Parts 73 and 26” for NRC status and Planned Rulemaking Activities – Rules.</p>
	<p>3) Collaboration with DOE and other involved parties on development of:</p> <p>(a) criticality benchmark data and</p> <p>(b) HALEU shipping package and transporter certifications.</p>	<p>NRC agrees that additional criticality benchmark data could facilitate criticality reviews. Decision on what criticality experiments to conduct is seen as an industry and DOE decision. Industry proposed design defines the data needs to support facility or transportation package design, DOE capability define the criticality experiments that can be conducted. NRC will collaborative with industry and DOE.</p> <p>NRC is prepared to review industry submitted shipping package and transporter applications.</p>

New Policy Issues - Warranting Immediate Actions?

<p>Items currently tracked as having no ongoing activities to be discussed in upcoming stakeholder meetings</p> <ul style="list-style-type: none"> • Manufacturing licenses • Staffing, including remote/autonomous operation 		

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<i>Open Issues for non-LWRs but no current activities</i>		
Annual Fees	Final Rule (May 2016) - Annual fees scalable based on licensed thermal power rating, applicable only to LWR SMRs	Part 171 definitions: <i>Small modular reactor (SMR)</i> for the purposes of calculating fees, means the class of light-water power reactors having a licensed thermal power rating less than or equal to 1,000 MWt per module. This rating is based on the thermal power equivalent of a light-water SMR with an electrical power generating capacity of 300 MWe or less per module. Expect that changes will be needed to address non-LWRs
Manufacturing License Requirements	Pending determination of possible interest from non-LWR developers	SECY-14-0095 states no interest in obtaining a manufacturing license from near-term SMR applicants was expressed. Questions raised by stakeholders regarding possible approaches for non-LWRs given desire to use manufacturing/modular approaches Agenda item for Sept/Oct stakeholder meeting.
Industrial Facilities Using Nuclear-Generated Process Heat	SECY-11-0112 (assess as necessary)	Expect that additional guidance will be needed to address non-LWRs and possible process heat applications (also tied to siting and EP issues)
<i>Fuel cycle facilities (front in)</i>	<i>Ongoing discussions</i>	<i>One issue (increased enrichments) has been moved to ongoing activities portion of the table</i>
Waste Issues (back end)	Ongoing discussions	Generally deferred to NRC mid-term IAP activities pending specific needs/timeline for technology or design-specific licensing and deployment.

New Policy Issues - Not Warranting Immediate Actions?

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<i>Issues with no current plans to undertake activities (resolved or need input from stakeholders)</i>		
License Structure for Multi-Module Facilities	SECY-11-0079	Staff committed to provide Commission with a specific proposal using an actual SMR application for insights, status updated in SECY-14-0095
Operator Staffing for Small or Multi-Module Facilities <ul style="list-style-type: none"> Including related items such as remote and autonomous operation 	SECY-11-0098 (flexibility w/ existing guidance)	Long term solution to possibly include changes to NRC regulations (rulemaking), status updated in SECY-14-0095 Topic of staffing, including remote and autonomous operation, to be an agenda item for upcoming (Sept/Oct) stakeholder meeting.
Operational Programs for Small or Multi-Module Facilities	SECY-11-0112 (flexibility w/ existing guidance)	Confirmed in SECY-14-0095
Installation of Reactor Modules During Operation of Multi-Module Facilities	SECY-11-0112 (existing guidance)	Confirmed in SECY-14-0095
Decommissioning Funding Assurance	SECY-11-0181 (Site-specific exemptions)	Long term solution to possibly include changes to NRC regulations (rulemaking), status updated in SECY-14-0095
Aircraft impact assessments	Final rule (June 2009)	Confirmed in SECY-14-0095

