




Using FLEX Equipment and Risk Informed Decision Making to Maximize Safety


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Mission

Improve SAFETY and efficiency of the nuclear fleet with the use of portable equipment

	Maximize Areas of Credit	Expand operational and regulatory credit given to mitigating strategies
	Maximize FLEXibility	Expand where portable equipment is used in plant operations
	FLEX and Beyond	Be inclusive of all portable equipment beyond just FLEX (e.g. B.5.b portable equipment)



Vision



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    graph TD
      PE[PORTABLE EQUIPMENT] <--> RI[RISK INSIGHTS]
      PE --> ISO((IMPROVED SAFETY & OPERATIONS))
      RI --> ISO
  
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Industry Framework Guidance

NEI 16-08	+	NEI 16-06
Guidance for Optimizing the Use of Portable Equipment		Crediting Mitigating Strategies in Risk Informed Decision Making
Improving plant safety and operations using portable equipment		Evaluating portable equipment in risk-informed decision making

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4

Implementing Portable Equipment to Improve Risk

NEI 16-08

<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid orange; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;"> Feasibility </div> <p style="font-size: 8px;">Evaluate the potential use of equipment</p> </div> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid orange; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;"> Benefit </div> <p style="font-size: 8px;">Determine the benefits of use of the equipment</p> </div> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid orange; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;"> Engineering Analysis </div> <p style="font-size: 8px;">Establish a technical basis for use of the equipment</p> </div>
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 Training Is there a need to make changes to training programs? Staffing Does sufficient staffing exist to implement the equipment? Unintended Consequences Will implementing portable cause any unintended consequences? |

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5

Addressing Unintended Consequences

Consider whether implementing portable equipment will ...

<ul style="list-style-type: none"> • Cause a Reactor Scram • Cause the actuation or failure of a plant system • Impact to plant design bases • Impact on other plant programs (e.g., FLEX program) 	<ul style="list-style-type: none"> • Impact maintenance Rule implementation • Impact Physical and Cyber Security • Need storage of radiologically contaminated equipment • Impact the site emergency plan
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6

Crediting Portable Equipment in RIDM

NEI 16-06

Feasibility

Is the Equipment Feasible to Use in the Scenario?

Command and Control

Is there Clear and Effective Command and Control?

Equipment

Will the Equipment be Available, Reliable & Deployable?

External Hazards

Will Environmental Conditions Challenge Implementation?

Time

Is There Adequate Time Margin?

Potential Applications of NEI 16-06

Activity	Areas of Potential Benefit					
	SDP	NOEDs	MSP	Maintenance Rule (M) Shutdown Risk	RC 1.200 Risk Online Maintenance	RC 1.200 Risk Applications Defense in Depth Risk Calculations
Qualitative Approach	✓	✓		✓		✓
Semi Quantitative Streamlined Approach	✓	✓			✓	
PRA Modeling	✓	✓	✓		✓	✓

Enhancements to PRA Modeling

Equipment Data	Existing Failure Frequency Data	Portable Equipment Specific Failure Frequency Data	
Human Reliability	Existing Tools and Methods	Use of Judgement	Unique Actions Portable Equipment Specific Actions (e.g., Transportation and Installation)

- Existing data and methods are sufficient for establishing credit for mitigating strategies
- However, enhancements are necessary to establish the appropriate level of credit
- NEI 16-06 provides approaches to address issues until data and methods are refined
- EPR1 has started work for the development of failure frequencies and enhancements to HRA methods
