

# Hazard Resilience Index (HRI)

## *Nuclear Failure*

Nuclear Accidents

### Nuclear Failure

Please refer to the *Hazard Resilience Index Instructions (HRI)* document for more information on using this document.

### Nuclear Accidents

<b>Hazard Resilience Rating</b>	High Resilience <input type="checkbox"/>	Low Resilience <input type="checkbox"/>	Need More Info <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
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Yes	No	Need More Info	Not Applicable	FACTORS	This is important to my community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has explored alternatives to nuclear power to reduce risk (e.g., solar or wind power).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has a nuclear response plan in place that identifies a close-range exposure zone, a larger emergency response zone and an ingestion exposure pathway zone and the corresponding evacuation routes to ensure the prompt and effective evacuation of residents to safe shelters.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community-based nuclear failure exercises have taken place in schools and the community-at-large (e.g., table-top or full-scale exercises).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing nuclear facilities have emergency response and containment plans for hazardous nuclear materials which align with provincial and/or federal Nuclear Emergency Response Plans, and are tested and revised regularly.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nuclear hazard maps exist and were developed with the Canadian Nuclear Safety Commission and the power plant leadership to identify the 3 zones within the nuclear response plan; maps are shared with the community.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nuclear materials and wastes (e.g., medical isotopes, nuclear fuel waste)	<input type="checkbox"/>

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				are managed by owners according to Federal regulations.	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All residents and businesses are prepared for nuclear accidents through training and exercises.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plans are in place to effectively communicate with residents (e.g., using social media) and to safely evacuate resident from the three zones, as appropriate, to designated shelters.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Regulations are in place that prohibit development and limit land use within areas of nuclear accident risk (e.g., the close range exposure zone).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Regulations require specific building codes for developments within areas of nuclear accident risk, such as sealing building ventilation systems for residences in proximity to nuclear plants; a plan to update/upgrade structures that pre-date these regulations or their enforcement exists.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has contact with nuclear preparedness agencies such as the Canadian Nuclear Safety Commission to receive nuclear emergency preparedness training and information in the event of a nuclear accident.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has pre-designated shelters outside of the community in the event of nuclear crisis.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has plans that include banning food and water distribution, sheltering livestock, protecting animal feed and providing uncontaminated feed, especially to milk producing cows, goats, and sheep within the ingestion exposure pathway zone to limit contamination following a nuclear accident.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify community residents (using multiple media channels, including social media) of a nuclear accident and the warning includes instructions for evacuation according to the community nuclear response plan.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify emergency response personnel of a potential nuclear accident.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify transient, migrant, homeless and visiting people of a potential nuclear accident.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Diverse and redundant cooling systems are in place at the nuclear plant.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In a worst case scenario following failure of all cooling systems and back-up cooling systems, manual cooling protocol has been developed and, furthermore, created to minimize risks to workers.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing homeless shelters have made provisions for increased capacity, hazard specific conditions and evacuation procedures to other emergency shelters located outside of nuclear fallout danger zones.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plans are in place for remediation of water and soil contamination following nuclear failure.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Regular monitoring of water and soil is conducted to preserve human health impacts from the nuclear plant.	<input type="checkbox"/>

## References

- Canadian Nuclear Safety Commission. (2011). *About CNSC*. Retrieved from <http://nuclearsafety.gc.ca/eng/about-us/index.cfm>
- Clay County, City of Fort Gaines, City of Bluffton. (2006). *Pre-disaster mitigation plan*. Retrieved from <http://www.rivervalleyrc.org/images/PreDisasterPlans/ClayPDM.pdf>
- Fingas, M. (2002). *The handbook of hazardous materials spills technology*. New York: McGraw-Hill.
- French, D. (2012). *Emergency planning for nuclear disasters. NIRS Fact Sheet – Nuclear 911*. Nuclear information and resource service. Tacoma Park, MD.
- Lemyre, L., Lee, J., Turner, M., & Krewski, D. (2007). Terrorism preparedness in Canada: A public survey on perceived institutional and individual response to terrorism. *International Journal of Emergency Management*, 4, 296-315.
- Public Safety and Emergency Preparedness Canada. (2005). *The chemical, biological, radiological and nuclear strategy of the Government of Canada*. Retrieved from <https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/rslnc-strtg-rchvd/rslnc-strtg-rchvd-eng.pdf>