

INES Event Rating Form

Event Title:	Violation of operating limits and conditions during refuelling
Date of Event:	2019-10-07
Event Location / Facility Name:	Krško NPP
Event Country:	Slovenia
Type of Event:	Power Reactor

INES Rating:	1
Status of Rating:	Final
Date of Rating:	2020-05-18

Impact on People and Environment		
<i>Release beyond authorized limits?</i>	<input type="checkbox"/>	
<i>Overexposure of a member of the public?</i>	<input type="checkbox"/>	
<i>Overexposure of a worker?</i>	<input type="checkbox"/>	
Impact on the Radiological Barriers and Controls at Facilities		
<i>Contamination spread within the facility?</i>	<input type="checkbox"/>	
<i>Damage to radiological barriers (incl. fuel damage) within the facility?</i>	<input type="checkbox"/>	
Degradation of Defence In-Depth?	<input checked="" type="checkbox"/>	
Person injured physically or casualty?	<input type="checkbox"/>	
Is there a continuing problem?	<input type="checkbox"/>	

Event Description:

Note: When the ERF is published on IAEA NEWS, the first 300 characters of the event description will appear on the NEWS home page.

On 7 October 2019 it was found that one containment penetration was open while the refuelling operations were performed. The operating limits and conditions (OL&Cs) require in case of open containment penetration to immediately suspend all operations involving movement of irradiated fuel in the containment building. However, the operators did not recognize the required action from OL&Cs. The NPP staff performed an alternative penetration isolation by three other isolation valves inside the containment. The operating staff reported the event to the SNSA inspector present at the plant immediately after that. The operations involving movement of the irradiated fuel were not suspended during the event.

The containment penetration was open because an isolation valve was removed for repair. The control over refuelling outage maintenance activities did not recognize that the maintenance work on this valve would result in unacceptable conditions according to the OL&Cs.

During the plant conditions outside the OL&Cs no actual initiating event occurred and due to the event there were no actual consequences for the workers or the population and the environment. There was no need to declare an emergency. In case that a possible event would occur such as drop of a fuel assembly during movement of the fuel the consequences would be minor and would not be greater than those in the analysis of the safety analyses report.

Justification of INES Rating:

Note: When the ERF is published on IAEA NEWS, the justification of the INES rating will only appear to privileged users.

The event is rated using both Section 5 and Section 6 of the INES manual (2008). This was an event without a real initiating event.

Rating is performed by Section 5.1.4. The degraded safety function was Confining the radioactive material. The operability of the safety function was considered Just adequate, because the open penetration leads to the Auxiliary building and the release would not spread directly to the environment. The relevant initiating event is Drop of a spent fuel assembly involving only the dropped assembly with the frequency category Possible. After the alternative isolation of containment penetration the safety function was Adequate but still less than Minimum required by OL&Cs. Using the Table 10 this part of event is rated as Level 1.

Consideration of additional factors could increase the rating by Level 1 because of Procedural inadequacies that provided direct cause for the open containment penetration and the Safety Culture issues because the plant staff did not act according to the OL&Cs requirements. This would result in a Level 2.

Rating is performed also by Section 6 and the Table 11. The maximum potential consequences for the event were Levels 1-2 that for the postulated drop of a fuel assembly consider consequences for workers exposure only. The safety layer considered for the event with open penetration was the water level above the fuel that would filter iodine isotopes if fuel assembly would be dropped and damaged. After the alternative penetration isolation is completed, this makes another safety layer. In the first case the rating is Level 1 and in the second case the rating is Level 0. Again, the consideration of additional factors could increase the rating by Level 1. This would result in a Level 2 or Level 1.

The rating was compared to the guidance in Section 6.3.8.2 Fuel handling events where the events involving operation outside the authorized limits should be rated as Level 1. Since this rating already considers the operation outside the OL&Cs, the event rating cannot be increased due to additional factors.

Conclusion: The SNSA rated the event as Level 1 on the INES scale.

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Annexes:

Annex Title	Category	Description (optional)
Click here to enter text.	Choose an item.	Click here to enter text.
Click here to enter text.	Choose an item.	Click here to enter text.