Vessel/Hopper Entry Compliance Checklist

Licence Condition 2052, Vessel or Hopper Entry, is applicable to fixed-gauge licensees who enter vessels and/or hoppers fitted with radiation devices. All licensees who may be required to enter such a vessel or hopper must do so by following the procedures submitted to and approved by the Canadian Nuclear Safety Commissions (CNSC). To increase compliance with these procedures and to prevent events related to these entries, the CNSC developed this checklist to guide licensees on how to safely enter any vessel or hopper fitted with a radiation device.

Licence condition 2052 states:	You must ensure that:	CNSC tip
1. The entry into the vessel or hopper is performed in accordance with written procedures acceptable to the Commission or a person authorized by the Commission;	☐ workers/contractors entering vessels fitted with radiation devices have been trained on the CNSC-accepted procedure(s)	All training must be documented. You may wish to record this information directly on the vessel entry authorization form.
2. Prior to any entry, every radiation device on or in the vessel or hopper: a) has been identified, b) has had the source shielded or otherwise made safe, and, c) has been verified to be safe for a person to enter the vessel or hopper;	☐ all entry points into a vessel fitted with radiation devices are clearly marked with a radiation warning sign and a reference to the appropriate vessel entry procedure ☐ vessel entry forms clearly identify the vessel to be entered and the serial numbers of all radiation devices mounted on the vessel ☐ workers opening or closing the shutter of a radiation device have been trained to do so ☐ the shutters of all devices have been closed and locked out, or the beams have been otherwise shielded, in accordance with CNSC-accepted procedures	It is good practice for the Radiation Safety Officer (RSO) to oversee the lock-out of gauges prior to vessel entry.
3. A radiation survey meter is used to: a) verify that it is safe to enter the vessel or hopper, b) measure the radiation dose rate values where any person will be located inside the vessel or hopper, and these values are recorded by the licensee;	☐ workers who use a radiation survey meter have been trained on how to use it ☐ the radiation survey meter has been calibrated in the last 12 months, and any pre-operational checks of the survey meter required by the radiation protection program have been performed and documented ☐ the radiation survey meter is used to verify that all sources have been shielded, with the measurements being recorded ☐ the radiation survey meter is used to measure the dose rate inside the vessel where the work will be performed, with the measurement being recorded	Ensure that any dose rate values include a unit of measurement (usually in µSv/hr). It is good practice to document the serial number and calibration date of the survey meter used.
4. A specific written authorization for entry into the vessel or hopper is issued for the proposed activity, including the date and estimated duration of entry;	the authorization clearly identifies: ☐ the date of the entry ☐ the vessel to be entered ☐ any radiation devices located on or in that vessel ☐ the estimated duration of entry	N/A
5. Any person entering the vessel or hopper: a) has been appropriately trained, b) is aware of the radiation devices present, c) has been made aware of the specific written authorization, and, d) has been made aware of the recorded radiation dose rate values inside the vessel or hopper where a person may be located;	☐ workers/contractors entering the vessel have received appropriate radiation safety training and the training has been documented ☐ workers/contractors entering the vessel have been informed of the dose rate where they are performing the work ☐ workers/contractors entering the vessel have reviewed the vessel entry procedure that was submitted to and approved by the CNSC	All training must be documented. You may wish to record this information directly on the vessel entry authorization form.
6. A record is maintained of: a) the entry authorization referred to in item 4, b) the name of any person entering the vessel or hopper and the dose received by that person, and, c) the results of any other radiation survey.	☐ a copy of the authorization is kept on file in accordance with record retention requirements and is made available during CNSC inspections ☐ the length of time each worker spends in the vessel is recorded, as this is needed to calculate the dose to each worker/contractor ☐ the dose received by each worker/contractor is calculated and recorded	A spreadsheet is a great way to track doses to workers who perform multiple vessel entries. This will help you ensure that no worker exceeds the radiation dose limits. Some licensees also use calibrated electronic personal dosimeters (EPDs) to measure doses to workers.

As you review the licence condition requirements, you may wish to make changes to or update your vessel entry procedure or forms. Any changes to your internal procedures must be submitted to and approved by the CNSC.