

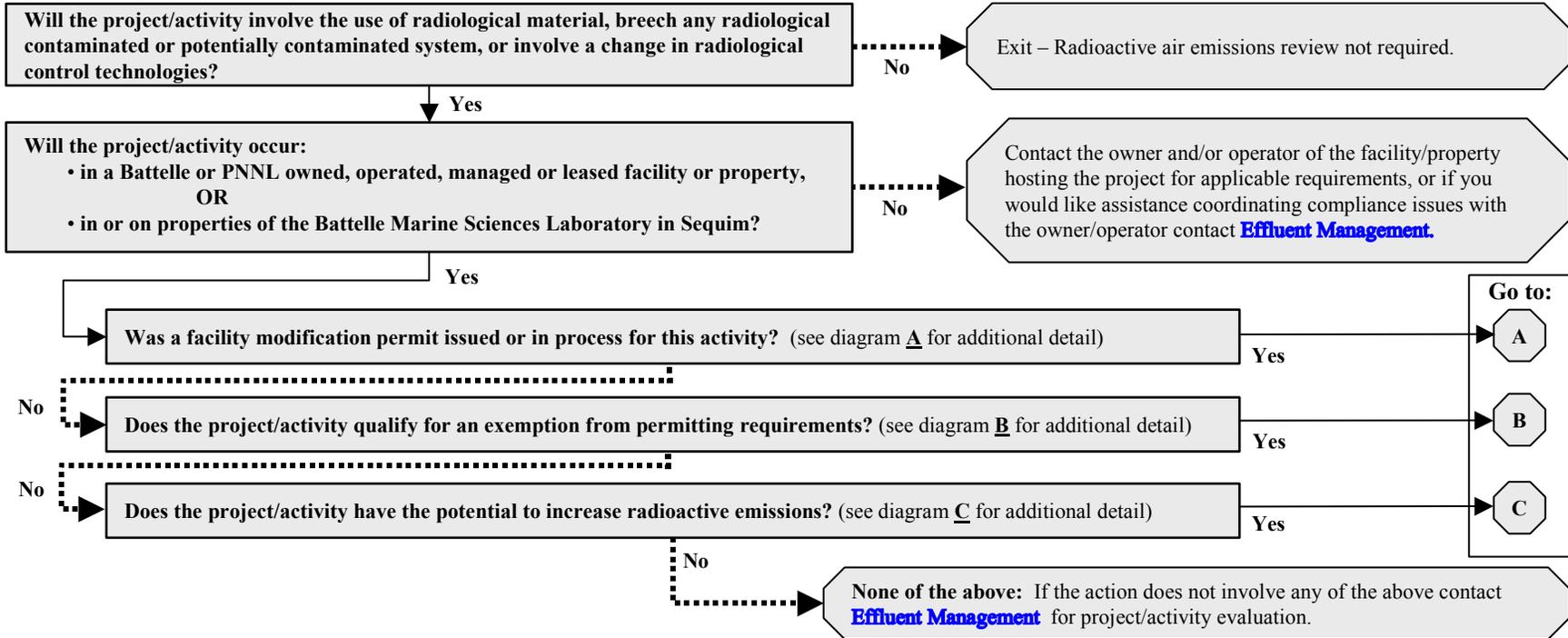
RADIOACTIVE AIR EMISSIONS COMPLIANCE SCREENING TOOL

The **purpose** of the screening tool is to **streamline** the process for assessing and documenting **compliance** with RADIOLOGICAL air regulations and existing facility air permits. This is accomplished by guiding staff, or staff with the assistance of their **Environmental Compliance Representative** (ECR), to complete and document assessments for actions that are exempt or within the limits of existing permits, which represent the majority of actions taken in the laboratory. If an action is not exempt or not within existing permit limits, based on the screening criteria, the tool provides guidance on the information required for a more detailed assessment. The more detailed assessment will be provided by the **Effluent Management** Group (EM), Environmental Management Service Department.

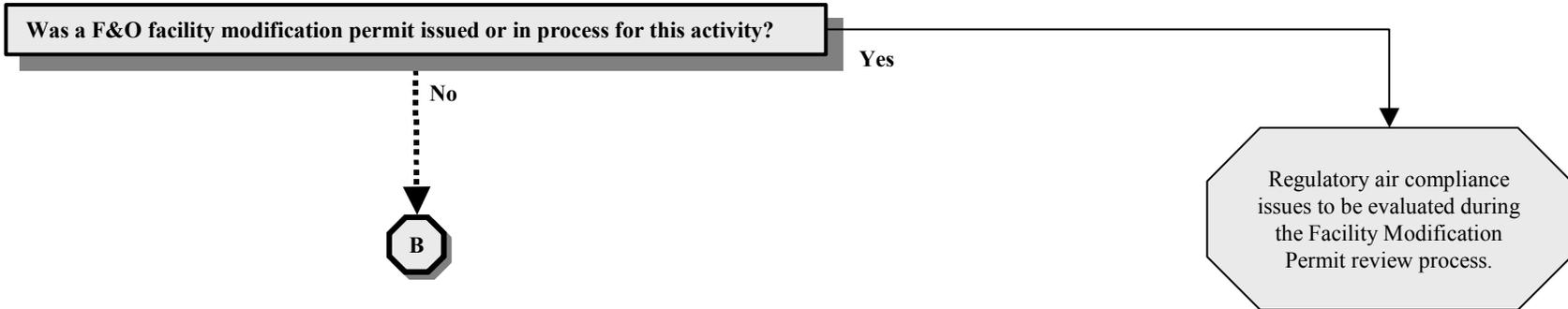
Apply the screening tool by responding to the questions in the flow chart that starts below: Yes = ———▶ ; No =▶

General Information: As part of the upfront process of gathering information about a project the following questions may be useful to obtain data for determining whether or not a Rad Air Notice of Construction (NOC) permit or revision is needed:

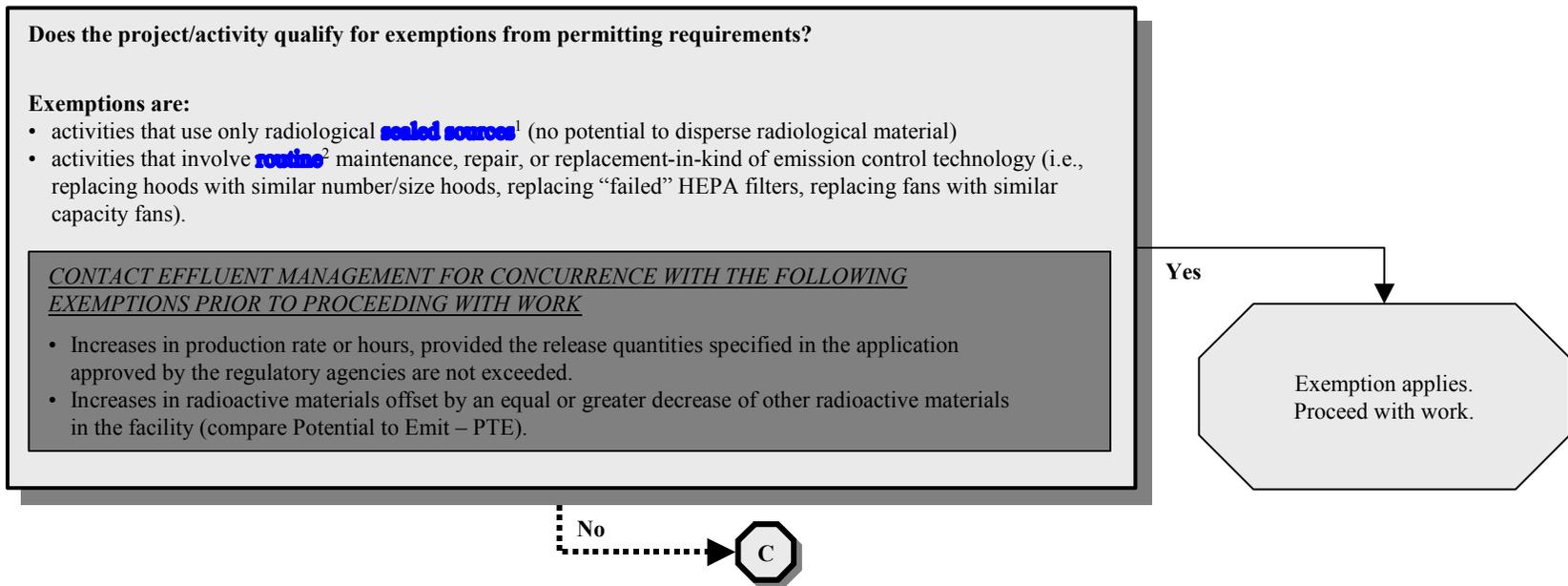
- What radionuclides will be used in the project?
- How many curies or grams of each radionuclide will the project use on an annual basis?
- Any work processes that will change the physical state of the radioactive material?
- Specific building and laboratory room work will be performed in?
- Proposed duration of the project/activity?
- Are the radionuclides for the project/activity already maintained in the facility inventory or will they be brought in from outside the facility?
- If radionuclides are being brought into the facility, from where?
- Will work be performed using an engineered control (i.e. inside a fume hood, glovebox, or hotcell)?



A



B



- 1) “Sealed Source” means: radioactive material that is permanently bonded or fixed in a capsule or matrix, or radioactive material in airtight containers, designed to prevent release and dispersal of the radioactive material under the most severe conditions encountered in normal use and handling (WAC 246-246-030(24)).
- 2) “Routine” means: maintenance, repair, or replacement-in-kind performed on systems, equipment, components, or devices of an emission unit’s abatement technology as a planned part of an established inspection, maintenance, or quality assurance program that does not increase the emission unit’s operating design capacity; or normal day-to-day operations of a facility (WAC 246-246-030(23)).

Does the project/activity have the potential to increase radioactive emissions?

Process changes (thermal, chemical, mechanical, etc.)³:

- Are the radioactive materials being subjected to a “new” process in the facility such that the material form (liquid, solid, gas) may change (i.e., grinding, heating, putting into solution, etc.)?

Addition of control technology⁴:

- If a Rad Air Notice of Construction (NOC) Approval Order is already in place for this project/activity, is a control technology being implemented or needed that is not described in the NOC Approval Order (see the **PITS** database)?

CONTACT EFFLUENT MANAGEMENT FOR ASSISTANCE ON DETERMINING IF THE FOLLOWING EXEMPTIONS APPLY:

Increase in facility radionuclide inventory⁵:

- is the project/activity considered a “new” process for the facility?
- is the project/activity outlined in the process description of the facilities NOC Approval Order?
- does the project/activity have the potential to bring “new” radionuclides that are not approved under the existing NOC?
- if a NOC Approval Order has been previously obtained for the project/activity does the “new” quantity of material exceed the permitted levels?
- if the project/activity has been previously performed at the facility, but is not specifically covered under a NOC (as a “grandfathered” activity that has been performed before 1994), is a larger quantity of rad material being processed?

Yes

Potential notification and/or permitting required. Contact your **Environmental Compliance Representative** or **Effluent Management** for assistance.

No

Contact **Effluent Management** for further project evaluation.

3 – Changes in laboratory processes may cause radioactive materials to change forms. This can affect the overall potential to emit (PTE) for the facility. PTE is calculated as follows: PTE = quantity of material (Ci) * release fraction (based on material form: solid = 1E-06, liquid 1E-03, gas = 1.0) * unit dose factor (isotope specific, units of mrem/Ci). If a new process changes the radioactive material from a solid to liquid form this could change the PTE by a factor of 1000. Under the NOC and subsequent WDOH conditions and limitations PNNL is required to manage the PTE below the approved level for the facility. Effluent Management performs an annual NESHAPS assessment of “actual” PTE for PNNL facilities by obtaining radioactive material inventories (from research staff, the sealed source database, and the safeguards/security database) and calculating the PTE. These inventories are used to determine compliance with NOC permitted levels and establish sampling/analysis requirements. As new projects or changes in project scope/radioactive material quantity arise, a comparison against the NESHAPS data should be conducted to determine impacts against the facility PTE (actual and permitted).

4 – Some projects may utilize additional control technologies beyond the typical HEPA filtration installed in our facilities that handle radioactive materials. One example of this is the Tritium Target Project (TTQP) at RPL. The project uses getter-beds to capture tritium as part of their processing. The use of this control technology was written in the NOC application for TTQP and approved by WDOH. If a project may be processing radioactive materials that would not be captured by the facility HEPA filtration (i.e. tritium or other gaseous radionuclides, as in the previous example) credit could be taken for the capture efficiency of technologies used by the specific project.

5 – Quantities of radionuclides that are permitted (through Washington State Department of Health) for the facility are listed in the NOC application for the project/facility. In some cases there may be multiple NOCs for a facility, as they may have been submitted on a project by project basis. NOCs and EPA/WDOH approvals can be viewed through the Permit Information Tracking System (PITS): <http://wwwi.pnl.gov/em/permits/>. The permits are based on “throughput” of the facility, and include the permitted ANNUAL quantities for each radionuclide. In some cases where a rad air permit has not been issued for a facility (since 1994) the activities may be considered to be “grandfathered”. If this is the case then a determination must be made on whether this is new scope of work for the facility and if the amounts of radioactive materials to be used are above previous levels.