

Protection and Safety Programme Advice – Fixed Gauges

A protection and safety programme tells how the licensee will protect people and the environment. This programme should include management arrangements, procedures and equipment.

After FANR has reviewed and accepted the programme, it will become a part of the licence. That is, licensees must meet the commitments they have made in these programmes.

A fixed gauge protection and safety programme should have the following:

1. Information about the licensee

Include

- The number, types and locations of gauges that the licensee uses, including the radionuclides used and their activities
- The number of staff who work directly with gauges
- A floor plan showing where gauges are used and stored

2. Radiation safety policies

Provide a commitment to comply with FANR regulations and licence conditions. Include a commitment to support this protection and safety programme.

Include a procedure to notify FANR at least thirty days before any significant changes to equipment, responsible staff or radiation protection arrangements.

3. Management structure

Include an organization chart showing the reporting chain through clear lines of responsibilities and accountability.. Include the duties and authorities for radiation safety of managers, supervisors and workers. Identify roles of radiation protection officers (RPO) and their duties, authorities (supported by documented delegation) and access to managers. Include a requirement that staff must be qualified for their duties. Include assignment of responsibility for all gauges. Include a procedure for making sure that workers understand and acknowledge their duties. Include maintenance staff.

4. Occupational Protection

Include what will be done to keep doses of workers who work directly with gauges within your dose constraints (an occupational dose constraint of 3 mSv/year is regarded as reasonable). Include a procedure to train workers about what they should do to protect themselves from radiation. Include how pregnant workers who work directly with gauges are



encouraged to notify management and how management will adapt their working conditions to protect the foetus without excluding the women from work.

Include how persons under 18 are protected from radiation.

Specify any controlled areas or supervised areas, and say why they are established. Controlled areas usually include gauge storage facilities. Include how these areas are monitored, how access is restricted and what protective measures are used.

5. Individual and workplace monitoring

- a) For individual monitoring, provide written procedures for worker dose assessments. Include how workers who are monitored are identified. Include arrangements for using an approved dosimetry service and rules for returning and changing dosimeters. Include how the RPO will review doses and how accumulated doses will be recorded. Include procedures for dealing with worker overexposures and lost or damaged dosimeters. Include investigation levels. Provide procedures so that dose records contain the information FANR requires, are kept as long as FANR requires, and are made available to workers. Include a procedure for reporting worker doses to FANR every six months.

Instead of individual monitoring, licensees can provide an evaluation showing that a worker is not likely to receive more than 2 mSv/yr.

- b) For workplace monitoring, include how controlled and supervised areas are monitored for radiation and how often they are checked.

Survey meters are needed only for non-routine operations such as gauge installation, relocation, removal or non-routine maintenance. These meters should be able to measure gamma radiation from 0.1 micro Sv per hour through 2 mSv per hour.

6. Public Protection

Provide the licensee's procedures for keeping doses to the public, including workers who do not work directly with gauges, below an acceptable public dose constraint of 0.1 mSv/yr. (FANR will consider a dose constraint of up to 0.3 mSv/year if the Licensee provides a reason for why a dose constraint of 0.1 mSv/year is impractical¹.) Include taking public protection into account when buying gauges.

7. Safety of gauges

Discuss how the licensee will make sure that it buys the right gauges for its needs and how it will make sure they meet international quality standards.

Provide inspection, calibration & maintenance procedures. Discuss how gauges will be tested according to international standards. Include how the licensee has or has access to leak testing capability.

Include how the licensee will keep gauges secure, including

¹ See FANR Regulatory Guide 007, 'Radiation Safety', page 11.



- Keeping an inventory of all gauges, including their descriptions, where they are located and who is assigned to keep the inventory include criteria to submitted update inventory to FANR;
- Keeping gauges from being lost, stolen or damaged and keeping unauthorized persons away from them both where they are in use and where they are stored.

This section should also include procedures for controlling gauges, including

- Procedures to keep them from being transferred unless the receiver is authorized to have them;
- Procedures to notify FANR after receiving or transferring them;
- Procedures to notify FANR if a gauge is lost, stolen or damaged, as required by REG-24, Article (19); and
- Procedures to send FANR the licensee's inventory of gauges twice each year

8. Operating procedures

These should be written procedures for workers to follow. They should be clearly displayed or easy for workers to find and should be written in all of the languages that the workers may use. Include routine operations and transport.

9. Employee training

Provide the radiation safety training programme for all workers who work directly with gauges. The training should emphasize the procedures the workers must follow. Include how worker attendance at training will be recorded and how the workers will be tested to make sure the training has been effective, as well as the periodic of retraining should be identified

10. Incident reporting and investigation

Provide procedures for reporting incidents and accidents to FANR and procedures for investigating them. Include procedures to meet the reporting requirements in of FANR-REG-24, Article (19).

11. Emergency Response Plan

Begin with a list of predictable incidents and accidents and the procedures that will be followed to deal with them. Include immediate actions to minimize doses, staff and the public. Include how the public will be kept away from affected areas until conditions have been returned to normal.

Describe the duties of each person who will respond to the emergency. any qualified experts. Include the names and complete contact information for these persons.



Provide for simple instructions to be clearly visible and for any equipment needed for emergency response. Include reporting procedures, along with the contact information needed to report accidents to all responsible authorities.

Provide for Emergency Response training that includes drills, exercises and refresher training.

12. Import/Export

Provide the procedure for getting permission from FANR to import and export gauges. Licensees must ask FANR for a permit in advance of each shipment.

13. Transportation

Provide procedures for receiving gauges. Include procedures for surveying them, confirming the shipping documents, and notifying FANR that they have been received. Provide procedures for training workers who do any of these things.

Licensees who send gauges away from their facilities or transport them to other locations should provide procedures for doing these things. These procedures can be developed using FANR Regulatory Guide 006, Transportation Safety

14. Waste management

Include procedures to manage, store, document and dispose of gauges that are no longer used, supported with financial/ administration security for safe disposal or return to supplier.