Update from Finland

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Euratom Treaty Article 35-36 Experts' Meeting 2018
Ispra, Italy, 18-19 September 2018

Contents

- Development of a national radiation monitoring strategy
- Renewal of the automatic dose-rate monitoring network
- Technical recommendations and suggestions related to the Commission's Article 35 verification visit "Loviisa NPP discharge and environmental monitoring and National environmental radioactivity monitoring network in the vicinity" 29 September to 2 October 2015.
- Other items

National radiation monitoring strategy
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- STUK prepared the national monitoring plan in 2014.
  - National radiation monitoring strategy will be prepared based on the monitoring plan
  - Currently various expert groups are reviewing the plan.
  - National radiation monitoring strategy will be completed some time next year.
- Main points and ideas were briefly presented in 2015 at the NERIS Workshop in Milan, Italy, by Director Ms. Tarja Ikäheimonen.
  - A brief summary describing the plan was written in English in 2016.

National radiation monitoring strategy
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Contents of the radiation monitoring plan 1/2

- 1. Foreword
- 2. Monitoring external radiation
- 3. Radioactivity in air
- 4. Deposition
- 5. Exposure of people
- 6. Foodstuffs, drinking water and animal feed
- 7. Environmental samples
- 8. Interiors
- 9. Deposition surveillance
- 10. Measurements in cleaning activities
- 11. Waste and sludge

National radiation monitoring strategy
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Contents of the radiation monitoring plan 2/2

- 12. Prioritising measurements
- 13. Personnel, equipment and designs available for measurements and analyses
  - 13.1 Analysis and measurement activities
  - 13.2 Radioactivity determinations of samples
  - 13.3 Measurements of people
  - 13.4 On-site field monitoring
  - 13.5 Dispersion and dose models
- 14. Cooperation and request for help in measurements

National radiation monitoring strategy
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Six national expert groups were established to prepare the monitoring strategy using the monitoring plan as a background material.

Subject areas of the expert subgroups:

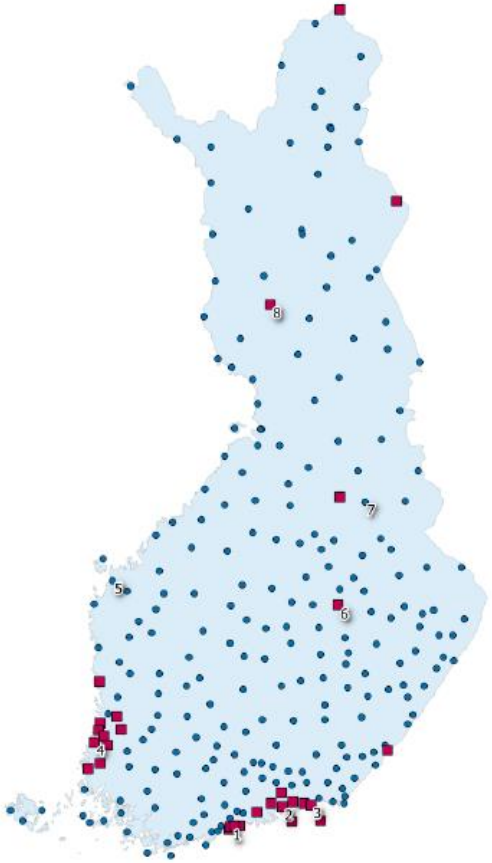
- Skills, maintenance of know-how, training, status of current measurement capacity and objective
- Measurement of the people
- Measurements in the environment
- Vehicles, goods, export certificates
- Food, feed and drinking water
- Waste

The final radiation monitoring strategy will be based on the work of these subgroups. The strategy should be complete in 2019.

Renewal of automatic dose-rate monitoring network (early warning network)
1/5

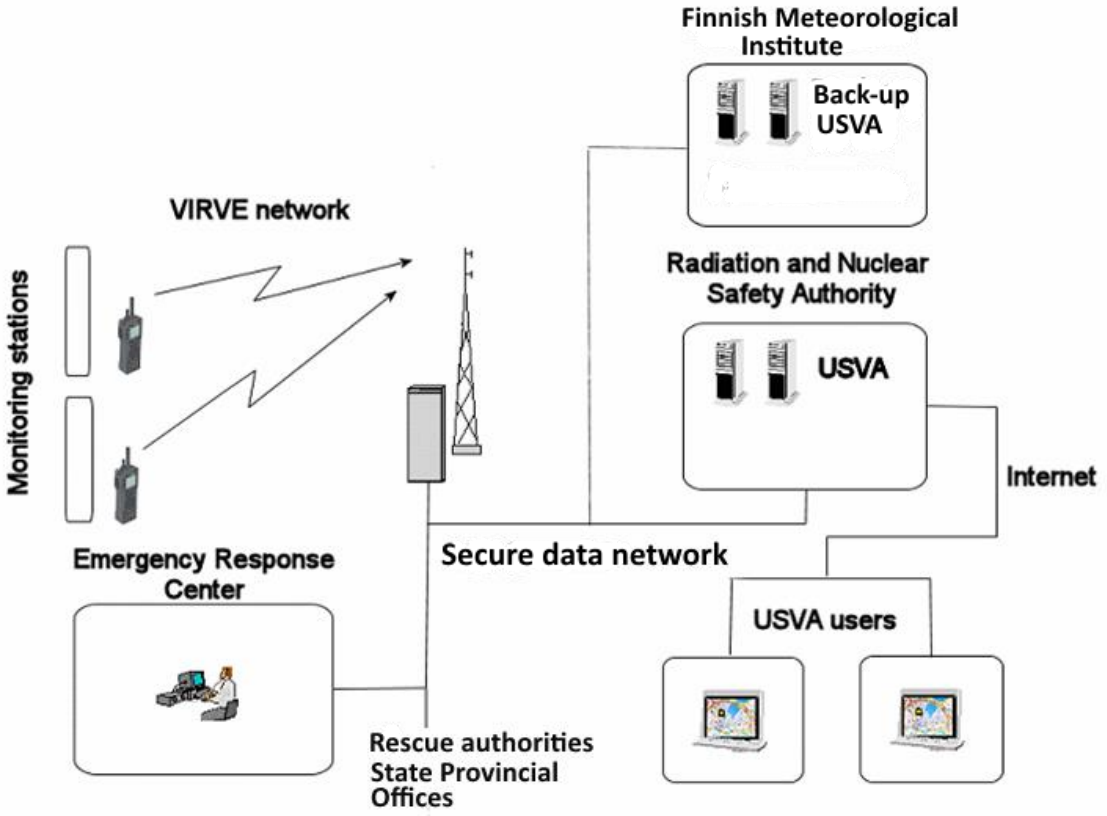
Present network 1/3

- About 300 GM stations (includes stations around nuclear power plants).
- ~30 stations are equipped also with a $LaBr_3$ gamma spectrometer.
- Results transmitted normally as ten-minute averages.
- Network is controlled by the system known as USVA.



Renewal of automatic dose-rate monitoring network (early warning network)
2/5

Present network 2/3



Renewal of automatic dose-rate monitoring network (early warning network)
3/5

Present network 3/3






Examples of detector placements in summer and winter time.

Renewal of automatic dose-rate monitoring network (early warning network)
4/5

Renewal

- Present hardware is gradually reaching its end of life cycle.
- There are nowadays more options for detectors and data transfer technology.
- National monitoring strategy may affect the density of the future network.
  - Tailored software for optimising the locations of monitoring stations is being made at STUK.
- Different technical alternatives are currently being mapped and device tests performed.

Renewal of automatic dose-rate monitoring network (early warning network)
5/5

Renewal

- A prototype of a possible new monitoring station is being built at STUK.

Commission's Article 35 verification visit in 2015
1/5

- In 2015 the Commission carried out the verification visit "Loviisa NPP discharge and environmental monitoring and National environmental radioactivity monitoring network in the vicinity".
- Four recommendations/suggestions were given.
- STUK sent the description of the developments and actions taken on the basis of these recommendations to the Commission in September 2017.

Commission's Article 35 verification visit in 2015
2/5

Recommendation 1

- STUK's laboratories (Section 9.2 of the TR**)**
  - *The verification team recognises that STUK's performance in monitoring environmental radioactivity requires a very high level of staff competence. This high level of competence is achieved through an appropriate programme of education, training and retraining. The verification team stresses the importance of maintaining the current level of staff and to continue the policy of adequate education, training and retraining.*

- Main response
  - Information about the national radiation safety research programme (CORES) with the universities, national nuclear safety programme (SAFIR) and national training course on nuclear and waste safety (YJK Course).

Commission's Article 35 verification visit in 2015
3/5

Recommendation 2

- Discharge monitoring at the Loviisa NPP (Section 9.6 of the TR)
  - *A key aspect of monitoring routine discharges to the environment is that the samples taken for analysis are representative of the actual discharge. The verification team notes with satisfaction that the Loviisa NPP has entered into a re-examination of the representativeness of samples taken for monitoring liquid effluent discharges as well as of samples taken for monitoring gaseous effluent discharges. The verification team asks that the Commission Services be informed, within three months, about the outcome of these investigations and the actions taken to ensure the representativeness.*

- Main response
  - The said investigation was conducted and the Commission Services informed about the outcome.

Commission's Article 35 verification visit in 2015
4/5

Recommendation 3

- Loviisa NPP laboratory for analysis of discharge samples (Section 9.7 of the TR)
  - *It is key that Loviisa NPP continues to ensure that routine analysis can be adequately guaranteed. The verification team notes that the laboratory of the Loviisa NPP has only limited possibility to exchange experience and compare performance with other similar laboratories. The verification team therefore recommends a review of the quality assurance programme, including exploring possibilities for experience exchanges with other laboratories, also with reference laboratories, and increased access to national and international intercomparison exercises, particularly for low activity samples.*
- Main response
  - Aims at intensifying the existing (quite good) co-operation in the way the Commission suggests.

Commission's Article 35 verification visit in 2015
5/5

Recommendation 4

- On-site and off-site environmental monitoring at Loviisa NPP (Section 9.8 of the TR)
  - *The verification team takes note of the fact that STUK conducts the programme of environmental radioactivity monitoring around the Loviisa nuclear power plant. The verification team supports the review of the environmental monitoring programme around the Loviisa NPP which STUK, in close contact with Fortum Power & Heat Oy, the operator of the Loviisa Nuclear Power Plant, has started.*

- Main response
  - The environmental monitoring programme in the surroundings of the NPP has been reviewed and a new YVL guide C.7 published in December 2016 (*"Radiological monitoring of the environment of a nuclear facility").*

Other items
1/2

- HERCA: Position paper: *Invite Member states to share actively future monitoring results in USIE when clearly abnormal observations are made to ensure wider information exchange among competent authorities and to ensure that all counterparts are informed.*
- ENSREG: Communication: *ENSREG reminds the strong commitment of its members in using the IAEA early notification Convention, not only on a mandatory basis as requested by Article 1 and 2 of the Convention, but also on a voluntary basis when no trans-boundary release of radiological significance occurred.*
- Competent Authority Meeting under the IAEA Conventions of early notification and assistance; conclusion 12, action 28: *Member States are encouraged to implement arrangements that allow for a rapid information exchange via USIE in case of events leading to elevated radiation levels of unknown origin.*

Other items
2/2

- As the statements (that reflect the experiences from the Ru-106 case) of the previous slide suggest, it is important that countries send abnormal monitoring data as soon as possible also to USIE in addition to circulating them (i.e. data on activity concentrations in air) among the members of Ro5.
  - As regards backward calculations and data assimilation, modellers want to know also all sites where nothing has been detected (but measurements have been performed).

- STUK has started training of voluntary measurement teams.

Thank You for Your Attention!