

# Finland's experience concerning bilateral exercises with IAEA

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# During a severe nuclear or radiological emergency ...

- ... the need for information about the ongoing event and its safety significance is immense both domestically and globally.
- **Flow of factual, comprehensive, and timely information is essential for successful emergency response but a very demanding task during stressful situations.**
  - **In addition to establishing, maintaining and developing efficient domestic arrangements, we need**
    - **up-to-date plans, procedures and arrangements how to fulfil the international needs and requirements**
    - **experts who are knowledgeable, experienced and systematically trained for international communication.**

# **STUK is active in exercising international communication**

**STUK is the National Competent Authority (NCA) responsible for dissemination of information to neighbouring countries, the IAEA, and EC in case of a nuclear or radiological emergency in Finland or an emergency elsewhere but impacting us.**

**Other organizations are invited to take part in exercises:**

- neighbouring countries are invited to take part in every exercise that is conducted in a real time**
- IEC of IAEA is also invited and USIE's exercise capabilities used.**

**If no foreign counterparts are involved, reports in English language are still produced for training purposes in all exercises suitable for this purpose.**

# STUK's communication procedures during abnormal events (1)

- Initial notification and information on important change in situation by fax to alert fax numbers and by email to alert email addresses
- Other situation reports with necessary attachments containing information on the ongoing event and its safety significance, information on response actions and decisions on protective actions in Finland are made available on web sites established for emergencies:
  - STUK's own website Finri; access to Finri given to NCA's in neighboring countries as well as to the IEC and EC
  - IEC's USIE web site

## FINRI

### Säteilyturvakeskuksen tilannetiedot poikkeavista tapahtumista Finnish Emergency Response Information

Valitse kieli/Choose your language:



Suomi



English

1.12.2014



## IAEA | USIE EXERCISE

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### USIE Exercise Site

Welcome to the USIE Exercise Site — the exercise version of the IAEA Unified System for Information Exchange in Incidents and Emergencies (USIE). This site should only be used in exercises. For reporting on and information exchange during actual events, incidents and emergencies, please use the [real USIE site](#).

[Read More >](#)

# Information published in Finri...

Event	Title	Subtitle/Attached files	Published UTC time
Exercise: Loviisa13/NB8	Event descriptions, countermeasures	Loviisa 13/NB8 exercise has ended	2013-03-14 16:00
Exercise: Loviisa13/NB8	Press releases	Radioactive release continues at Loviisa NPP, INES 7	2013-03-14 15:52
Exercise: Loviisa13/NB8	Meteorology and dispersion	Message 12: Updated 24 h weather forecast and dose rate estimates Meteorological situation and estimated dose rates (24 h)	2013-03-14 15:51
Exercise: Loviisa13/NB8	Press releases	Map of external dose rates	2013-03-14 15:32
Exercise: Loviisa13/NB8	Event descriptions, countermeasures	Message 11: Reactor core melted - SAM measures and the retention of corium inside the RPV successful - INES class 7 Detailed status of the Plant and actions taken	2013-03-14 15:00
Exercise:			





















## Nuclear Installation Event at LOVIISA-1: Published Reports

This is the list of reports published on this event (Event ID: 2013/6). Information is **Published for limited group of users**.

Reports by Country:

1 - 10 of 15 reports

Items per page:

Report	No.	Source	Validity Date	Date Published
 <b>Measurements and Protective Actions</b> EMERCON-MPA    Published for limited group of users	1	Latvia, Republic of Radiation Safety Centre	14 Mar 2013 18:00 UTC	14 Mar 2013 19:57 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	12	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 15:40 UTC	14 Mar 2013 16:09 UTC
 <b>Measurements and Protective Actions</b> EMERCON-MPA    Published for limited group of users	1	Lithuania State Nuclear Power Safety Inspectorate	14 Mar 2013 14:00 UTC	14 Mar 2013 16:08 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	11	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 14:35 UTC	14 Mar 2013 15:07 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	10	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 14:00 UTC	14 Mar 2013 14:35 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	9	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 14:30 UTC	14 Mar 2013 12:57 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	8	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 11:25 UTC	14 Mar 2013 11:47 UTC
 <b>General Emergency at a Nuclear Installation</b> EMERCON-GENF    Published for limited group of users	7	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 09:45 UTC	14 Mar 2013 10:17 UTC
 <b>Standard Report Form</b> EMERCON-SRF    Published for limited group of users	6	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 09:08 UTC	14 Mar 2013 09:41 UTC
 <b>Standard Report Form</b> EMERCON-SRF    Published for limited group of users	5	Finland Radiation and Nuclear Safety Authority (STUK)	14 Mar 2013 10:20 UTC	14 Mar 2013 08:53 UTC

measures needed from Loviisa to the eastern border

partially melted - SAM measures ongoing - activity measured and within 5 km radius downwind and actions taken

melted -SAM actions ongoing - Provisional INES class 5 and actions taken

Started - Actions for severe accident management initiated and actions taken

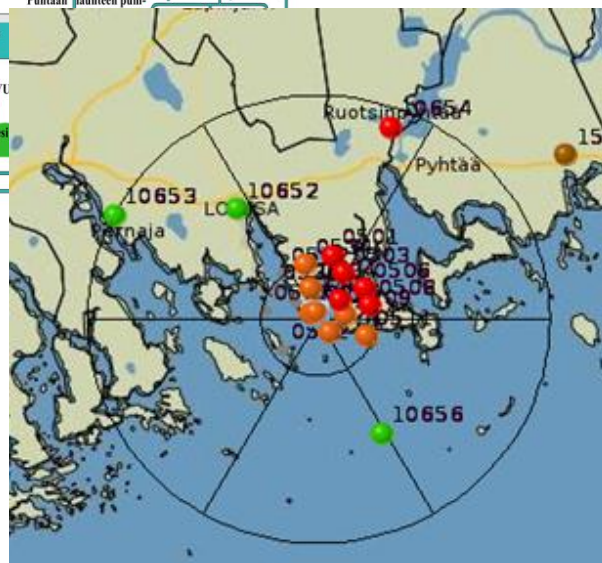
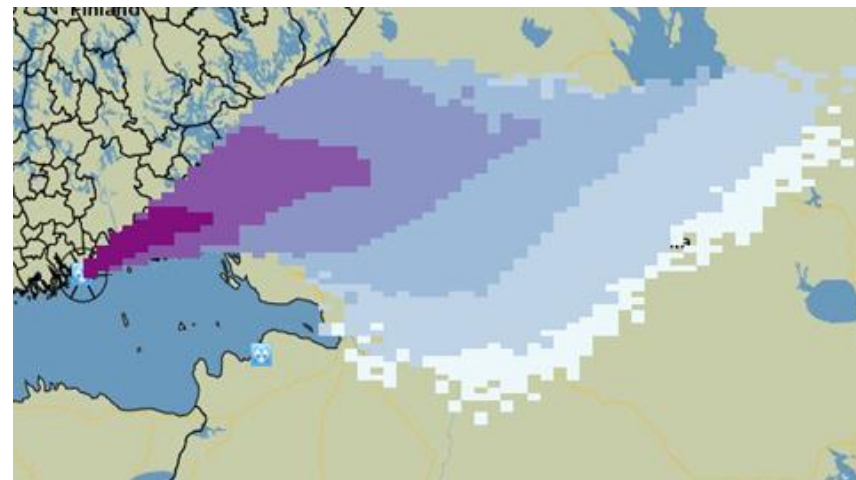
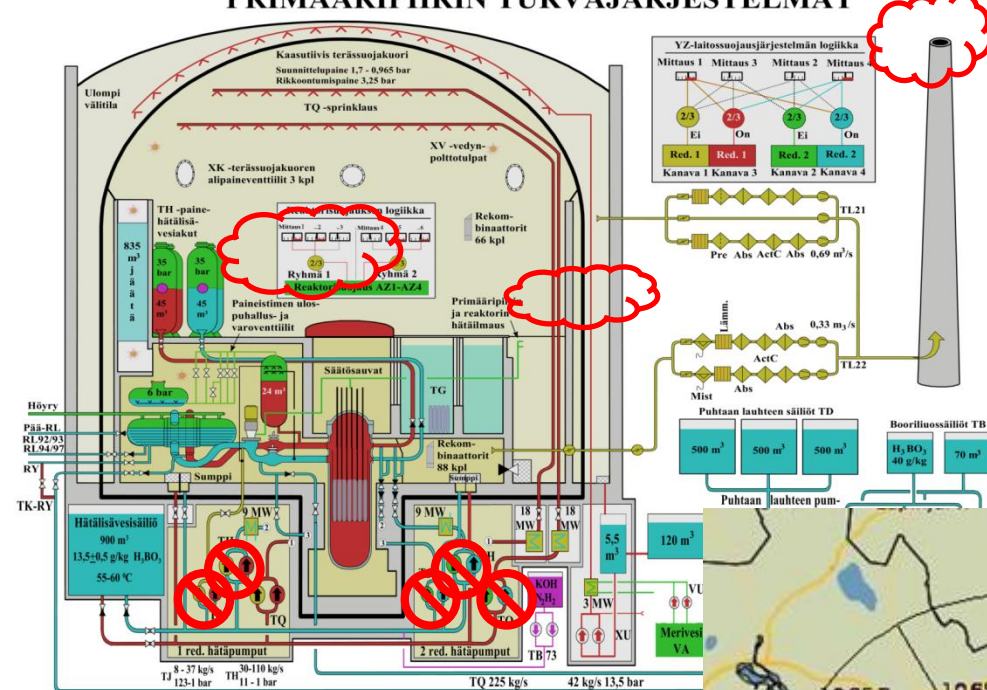
serious (iodine tablets, INES)

## ... and in USIE



# Information concerning on-site and off-site situation is provided

## PRIMÄÄRIPIIRIN TURVAJÄRJESTELMÄT



# **STUK's communication procedures during abnormal events (2)**

- background (static) information on Finnish emergency arrangements, protection strategy, technical data, demographic information etc available only in Finri and not included in the produced reports**
- direct and dedicated contact information (phone, email) to the STUK's emergency organisation attached to the initial notification and made available at Finri. Thus our counterparts can contact directly relevant experts in STUK's emergency organisation for additional questions concerning e.g. on-site situation, dispersion and dose calculations or protective actions.**



# Year 2014 Exercise

- **Exercise scenario a multi-unit event at Loviisa NPP**
- **A bilateral exercise with the IEC**
- **Objective was to test e.g.**
  - **how to handle multi-unit event**
  - **transmission of information to IEC which is comprehensive enough for practicing the assessment and prognosis process in the IEC**

# About exercise scenario...



**Very high sea water level in the Gulf of Finland (+ 2.0 m) => intensive need to secure the safety of both reactors at Loviisa NPP.**

**High sea water level possibly would have created a need to follow closely the situation at the Leningrad NPP, Russia, too!**

**=> the result could have been simultaneous multi-unit event at two countries due to same natural hazard!**

**NOTE! A real situation with high sea water level (+ 1.73 m) at Loviisa NPP was experienced in early January 2005 on a national holiday; NPP announced emergency class “ALERT” => emergency response centres were partly activated at the NPP and STUK for some hours until sea water level started to decrease.**

# IEC's contribution during our exercise (1)

- **STUK's EMERCON messages were posted at USIE Exercise site**
- **For additional clarifications the IEC made some phone calls to various experts of STUK's emergency response organisation**
- **The IEC made their own safety assessments based on information received from STUK; content was checked by STUK**
- **The IEC issued two press releases; content was checked by STUK**
- The IEC made their own safety assessments based on information received from STUK; content was checked by STUK
- The IEC produced very illustrative graphical report of on-site situation!

# Information was made available in USIE and Finri





















## Nuclear Installation Event at LOVIISA-1: Published Documents

This is the list of documents published on this event (Event ID: 2014/67). Information is **For Authority use only** and **Published for limited group of users**.

All (11) | General (2) | Facility (6) | Meteorology (1) | Public Information / Press Release (2)

1 - 10 of 11 documents

Items per page

Document	Size	Source	Date Published ▾
 <b>Detailed information of situation at facility</b> Facility    Published for limited group of users	52KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 14:00 UTC
 <b>INES classification form</b> General    Published for limited group of users	302KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 12:14 UTC
 <b>Detailed information of situation at facility</b> Facility    Published for limited group of users	52KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 12:14 UTC
 <b>EXERCISE_Finland_ConvEx-2e_Press_Release_2_(final).pdf</b> Public Information / Press Release    Published for limited group of users	229KB	UN International Atomic Energy Agency (IAEA) Incident and Emergency Centre	11 Nov 2014 10:59 UTC
 <b>EXERCISE_Finland_ConvEx-2e_Press_Release_1_(final).pdf</b> Public Information / Press Release    Published for limited group of users	228KB	UN International Atomic Energy Agency (IAEA) Incident and Emergency Centre	11 Nov 2014 10:53 UTC
 <b>Detailed information of situation at facility</b> Facility    Published for limited group of users	52KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 10:52 UTC
 <b>Detailed information of situation at facility</b> Facility    Published for limited group of users	52KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 09:53 UTC
 <b>Arrival time of release cloud assuming release at 13:00 UTC</b> Meteorology    Published for limited group of users	468KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 09:53 UTC
 <b>Detailed information of situation at facility</b> Facility    Published for limited group of users	52KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 09:25 UTC
 <b>Situation of information at facility</b> Facility    Published for limited group of users	36KB	Finland Radiation and Nuclear Safety Authority (STUK)	11 Nov 2014 08:55 UTC

◀ 1 2 ▶

# IEC's contribution during our exercise (2)

- STUK's EMERCON messages were posted at USIE Exercise site
- For additional clarifications the IEC made some phone calls to various experts of STUK's emergency response organisation
- The IEC made their own safety assessments based on information received from STUK; content was checked by STUK
- The IEC issued two press releases; content was checked by STUK
- **The IEC made their own safety assessments based on information received from STUK; content was checked by STUK**
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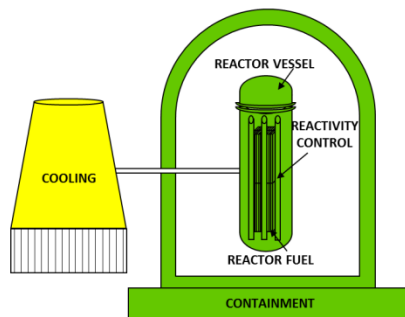
# Exercise: On-site situation at 10 UTC

## UNIT no 1

### Reactor Assessment Summary

Current declared emergency classification: **Site Area Emergency**

IAEA assessed emergency classification: **Site Area Emergency**



Potential for release?

**Yes**

#### Auxiliary Systems

AC Power

DC Power

Control Systems

#### Critical features

Residual heat removal function

Vessel Water Level

Cooling Systems

#### Spent Fuel Pool

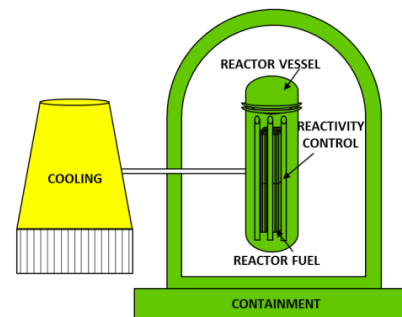
- Status not confirmed
- Functioning normally
- Functioning degrading
- Failure

## UNIT no 2

### Reactor Assessment Summary

Current declared emergency classification: **Alert**

IAEA assessed emergency classification: **Alert**



Potential for release?

**Unknown (or possible)**

#### Auxiliary Systems

AC Power

DC Power

Control Systems

#### Critical features

Residual heat removal function

Vessel Water Level

Cooling Systems

#### Spent Fuel Pool

- Status not confirmed
- Functioning normally
- Functioning degrading
- Failure



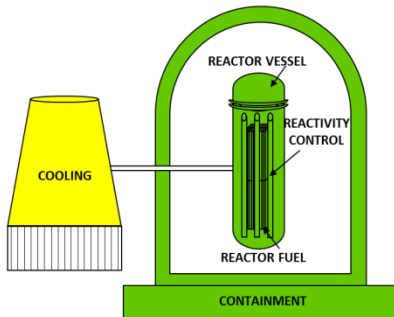
# Exercise: on-site situation at 11:30 UTC

## UNIT no 1

### Reactor Assessment Summary

Current declared emergency classification: **Site Area Emergency**

IAEA assessed emergency classification: **Site Area Emergency**



Potential for release?

**No Potential**

#### Auxiliary Systems

AC Power

DC Power

Control Systems

#### Critical features

Residual heat removal function

Vessel Water Level

Cooling Systems

#### Spent Fuel Pool

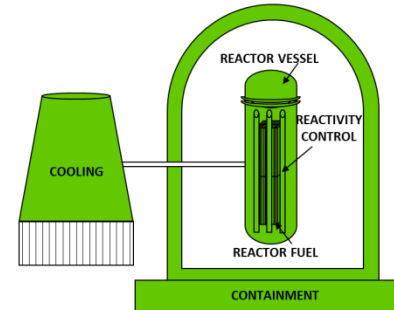
-Status not confirmed  
-Functioning normally  
-Functioning degrading  
-Failure

## UNIT no 2

### Reactor Assessment Summary

Current declared emergency classification: **Alert**

IAEA assessed emergency classification: **Alert**



Potential for release?

**No Potential**

#### Auxiliary Systems

AC Power

DC Power

Control Systems

#### Critical features

Residual heat removal function

Vessel Water Level

Cooling Systems

#### Spent Fuel Pool

-Status not confirmed  
-Functioning normally  
-Functioning degrading  
-Failure

# To conclude...

**Involving real time international communication in our exercises assists STUK in**

- **giving us a possibility to test and develop our emergency arrangements**

**AND**

- **giving an opportunity for our experts to get more experienced in co-operation and communication with our neighbouring countries and international organisations.**



***Thank you for your attention!***

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