STUK

GUIDE **YVL A.9** / 15 AUGUST 2014

REGULAR REPORTING ON THE OPERATION OF A NUCLEAR FACILITY

With regard to new nuclear facilities, this Guide shall apply as of 1 September 2014 until further notice. With regard to operating nuclear facilities and those under construction, this Guide shall be enforced through a separate decision to be taken by STUK. This Guide replaces Guides YVL 1.5 and YVL 7.8.

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Authorisation

According to Section 7 r of the Nuclear Energy Act (990/1987), *the Radiation and Nuclear Safety Authority (STUK) shall specify detailed safety requirements for the implementation of the safety level in accordance with the Nuclear Energy Act.*

Rules for application

The publication of a YVL Guide shall not, as such, alter any previous decisions made by STUK. After having heard the parties concerned STUK will issue a separate decision as to how a new or revised YVL Guide is to be applied to operating nuclear facilities or those under construction, and to licensees' operational activities. The Guide shall apply as it stands to new nuclear facilities.

When considering how the new safety requirements presented in the YVL Guides shall be applied to the operating nuclear facilities, to those under construction and to other use of nuclear energy, STUK will take due account of the principles laid down in Section 7 a of the Nuclear Energy Act (990/1987): *The safety of nuclear energy use shall be maintained at as high a level as practically possible. For the further development of safety, measures shall be implemented that can be considered justified considering operating experience, safety research and advances in science and technology.*

According to Section 7 r(3) of the Nuclear Energy Act, *the safety requirements of the Radiation and Nuclear Safety Authority (STUK) are binding on the licensee, while preserving the licensee's right to propose an alternative procedure or solution to that provided for in the regulations. If the licensee can convincingly demonstrate that the proposed procedure or solution will implement safety standards in accordance with this Act, the Radiation and Nuclear Safety Authority (STUK) may approve a procedure or solution by which the safety level set forth is achieved.*

Translation. Original text in Finnish.

1 Introduction

101. This Guide sets out requirements for the regular reporting at a nuclear facility, and it specifies the requirements set forth in the Nuclear Energy Act (990/1987) and in Government Decrees 717/2013 and 736/2008. This Guide describes the regulatory control of reporting.

102. According to Section 9(1) of the Nuclear Energy Act, *it shall be the licensee's obligation to assure safe use of nuclear energy.* According to Section 23 of Government Decree 717/2013, *Operational measures concerning the nuclear power plant, as well as events having an impact on safety, shall be documented so that they can be analysed afterwards.* According to Section 27 of the Decree, *releases of radioactive substances from the plant shall be monitored, and concentrations in the environment controlled.*

103. According to Section 9 of Government Decree 736/2008, *a record shall be maintained of disposed waste, including waste package specific data on the waste type, radioactive materials, location within the waste emplacement room, and other necessary data. The Radiation and Nuclear Safety Authority (STUK) shall arrange the permanent recording of information concerning the disposal facility and disposed waste.*

2 Scope of application

201. This Guide presents the requirements concerning reports to be drawn up regularly and submitted to STUK. All requirements laid down in this Guide apply to nuclear facilities, including operating nuclear power plants and nuclear waste management facilities located in the same site area. In addition, the annual reporting requirements of this Guide apply to research reactors, where applicable. Guide YVL A.5 applies to nuclear facilities under construction.

202. This Guide sets out requirements for the regular reporting pertaining to the nuclear facility operation, environmental radiation safety and nuclear waste menegement.

- The requirements related to environmental radiation safety reporting apply to the results measured during normal nuclear power plant operation. Under accident conditions, the procedures in the emergency plan shall be applied, among other procedures.
- The requirements pertaining to nuclear waste reporting apply to the storage and disposal facilities of low and intermediate level nuclear waste and, as regards chapter 3.5.3, to spent nuclear fuel.

203. Requirements pertaining to the licensee's regular reporting are also presented in the following Guides:

- YVL A.5 Construction and commissioning of a nuclear facility (monthly report, annual report)
- YVL A.8 Ageing management of a nuclear facility (follow-up report on the ageing management of systems, structures and components submitted annually)
- YVL A.10 Operating experience feedback of a nuclear facility (summary report on the utilization of operating experience from the licensee's own nuclear facility units and other facilities submitted annually)
- YVL A.11 Security of a nuclear facility (reporting on drills)
- YVL C.2 Radiation protection and exposure monitoring of nuclear facility workers (report on the personal radiation doses of radiation workers submitted to STUK's Dose Registry each month)
- YVL C.5 Emergency arrangements of a nuclear power plant (report on the implementation of the emergency training plans submitted annually, evaluation reports from emergency drills)
- YVL C.7 Radiological monitoring of the environment of a nuclear facility
- YVL D.1 Regulatory control of nuclear safeguards (stock change reports, among others)
- YVL E.5, Inservice inspection of nuclear facility pressure equipment with non-destructive testing methods (annual nuclear facility unit-specific in-service inspection summary and status report)

- YVL E.7 Electrical and I&C equipment of a nuclear facility (ageing follow-up report on containment-internal cabling submitted every five years).

3 Activity reporting

3.1 General requirements for reports

301. The reports required in this Guide shall be drawn up and submitted to STUK on a regular basis. In addition to the reports, the licensee shall provide STUK with other information separately determined by STUK used in calculating certain nuclear safety indicators.

302. The licensee shall document the procedures related to regular reporting. The documents shall describe the contents of each report, and the procedures, responsibilities and duties related to the drawing up, inspection, and approval of the report.

a. The reports may be more extensive than required in this Guide.
b. The reports required in the various chapters of this Guide may be delivered as separate reports or combined reports within the deadlines set.
c. If any information required in this Guide is included in some other reports that the licensee has submitted to STUK, references to the reports in question shall suffice.
d. The presentation of the report shall be clear. Graphical diagrams shall be used in an appropriate fashion in the quarterly and annual reports. The reasons for significant changes in the graphical diagrams shall be explained.

303. If a report submitted to STUK is later found to be erroneous or lacking, the licensee shall submit a supplement or a new version of the report to STUK.

304. STUK stores in its own databases some of the information regularly reported by the licensee and uses the information in its verification analyses. Upon request, information containing a large amount of numerical data shall be submitted in a format that is suitable for automated data processing.

305. The licensee shall store the measurement results based on which the reports have been drafted for a minimum of ten years. The reports shall be stored until the facility has been decommissioned.

3.2 Operational reports

3.2.1 Operational daily report

306. The daily report shall be submitted to STUK for information on a daily basis so that the report is available for STUK by 10:00 a.m. on the working day following the reporting period. The report may be submitted to STUK via e-mail, for example.

307. The daily report shall present the following information for each nuclear facility unit:

a. Average 24-hour reactor power level: reactor power in percentage of the nominal power; gross electric power.
b. Operational state and changes therein.
c. Changes in power larger than 5% and their causes.
d. Planned significant power reductions and outages.
e. Deviations from the requirements of the Operational Limits and Conditions (OLC), and any current and previous unavailability and exceeding of limit values in systems, structures and components governed by the OLC, as well as their causes. The following items shall be presented for the above:
   - Time and means of detection
   - Start time and end time of unavailability
   - Repair time allowed by the OLC and other conditions determined in the OLC
   - Number of the defect report/work permit
   - Measures taken.
f. Events related to nuclear safety and radiation safety for which an operating event report pursuant to chapter 7.3 and Appendix A of Guide YVL A.10 are drawn up.
g. First observations of a fuel leakage.
h. Breaking of pressure equipment or related auxiliary devices during operation (pressure equipment is broken or has otherwise been detected as deviating from the construction plan), erroneous use of pressure equipment (exceeding of operating values, for example), or non-conformant operation of the safety valve.

308. During refuelling and other such extensive outages, the daily report shall also include the following:

a. Significant deviations from general outage plans pursuant to para. 606 in Guide YVL A.6.
b. Updates to schedule diagrams pursuant to para. 606 in Guide YVL A.6, if any significant changes are made to the scope of implementation or schedule of the outage work.
c. Significant changes or deviations from the plans that are presented in the analysis of the safety function status pursuant to para. 607 of Guide YVL A.6.

3.2.2 Operational quarterly report

309. The quarterly report shall be submitted to STUK for information by the 15th day of the month following the reporting period. The corresponding information may also be submitted monthly.

310. The quarterly report shall present an overall safety assessment concerning the quarter:

a. Summary of measures taken or initiated during the reporting period in order to ensure or develop safety
b. Brief descriptions of the most significant events and safety matters of the organisational units responsible for operation, maintenance, technical support, safety, chemistry, radiochemistry, training and quality management.

311. The quarterly report shall present the operational information for each nuclear facility unit:

a. graphical diagram of electric power (gross or net power)
b. the following information from the months reported, the quarter in question, the current year, and since start-up:
   - Gross electric power generated
   - Net electric power generated
   - Load factor
   - Availability factor
   - Loss of production caused by component malfunctions

312. The quarterly report shall present a summary of outages and power reductions larger than 5%:

a. Changes in the reactor electric power and gross electric power, and dates of the changes
b. Cause(s) of the event
c. most significant activities and operational measures during the event.

313. The quarterly report shall present the operation of the reactor and fuel:

a. The lowest monthly fuel dryout or DNB margins, lowest linear power margins and highest local linear power outputs
b. estimate of the amount of leaking fuel assemblies and the extent of leaks
c. the causes of any deviations from the limits set in the Operational Limits and Conditions (OLC) or other exceptional events.

314. The quarterly report shall present the unavailability of the systems and components subject to the Operational Limits and Conditions (OLC):

a. the cause of the unavailability (for example, failure, preventive maintenance, periodic testing) and the duration of unavailability
b. a cumulative summary of the unavailability durations of components governed by the OLC during the last 12 months
c. when defining the duration of the unavailability of back-up systems, the actual time when the unavailability of the defect was generated shall also be evaluated (hidden defects).

315. The quarterly report shall present a list of the modifications related to safety-classified systems and those governed by the Operational Limits and Conditions (OLC) decided upon during the reporting period. The list shall specify the following:

a. a short description of the modification and its possible connection to a broader set of modifications or project
b. the identification number of the modification (such as work request number)
c. the preliminary schedule for the implementation of the modification
d. a list of any regulatory documents relating to the modification being drafted or ready at the time of reporting.

316. The quarterly report shall present an analysis of modifications made to safety-classified systems, functions, structures and components and those governed by the Operational Limits and Conditions (OLC) during the reporting period. The following information shall be presented on the modifications:

a. the date of completing the modification
b. the cause of the modification
c. the measures taken
d. the safety significance of the modification
e. the identification number of the modification.

3.2.3 Operational annual report

317. The annual report on the operation of a nuclear facility covering the previous calendar year shall be submitted to STUK for information by the first day of March of the following year. Where required, the information collected into STUK's databases shall be submitted to STUK in a separately agreed digital format.

318. The annual report shall present an overall safety assessment concerning the operating year. The assessment shall report the measures initiated or implemented to ensure or improve safety during the reporting year (Section 24 of Government Decree 717/2013). Such measures include the safety-significant studies and analyses conducted and their essential results and further measures, plans and projects significant to safety, measures relating to service-life management and utilising operating experience feedback, as well as quality management activities. The assessment shall also present identified issues requiring development over the long term, and estimates on the facility's condition and the functioning of its organisation.

319. The annual report shall present the operational information for each nuclear facility unit:

a. Graphical diagram of reactor thermal power production during the reporting period.
b. Graphical diagram of gross or net electric power during the reporting period.
c. The following annual information on the reporting period and at least on the last ten years:
   - thermal energy generated
   - gross electric power generated
   - net electric power generated
   - load factor
   - availability factor
   - duration of annual maintenance outages.
d. Annual safety indicators of the facility for at least the past ten years, especially the following:
   - unplanned energy unavailability factor
   - availability of safety systems
   - industrial safety index.

320. The annual report shall present events important to safety:

a. a summary of operational events for which an operating event report pursuant to Guide YVL A.10 was drawn up
b. a summary of plant fire brigade alarms
c. a summary of recurrent events and common cause failures during the reporting period.

321. The annual report shall present the integrity of the primary circuit:

a. the pressure transients and temperature transients directed at different parts of the primary circuit and other fatigue loaded pressure equipment
b. the number of the various type of pressure and temperature transients used as the design basis of the components of the primary circuit or other fatigue loaded pressure equipment, and the changes of temperature or pressure greater or faster than the transients forecast in design
c. a graphical diagram of the total monthly quantities of identified and unidentified leakages during power operation
d. a summary of the results and most significant observations of the component and piping inspections conducted.

322. The annual report shall present the operation of the reactor and of the fuel:

a. the annual trend of the parameters describing thermal margins, power distribution and control of reactivity registered during the monitoring of operation of the reactor in graphical diagrams

b. the fuel failures observed or suspected and the number of leaking fuel assemblies removed from the reactor during the year
c. the average and highest burn-up of the fuel assemblies removed from the reactor, highest local burn-up (rod node burn-up) and the number of assemblies classified as follows: manufacturer, type, usage time in the reactor.

323. The annual report shall present an analysis of hydrochemical and radiochemical conditions:
a. a description and graphical diagram of the hydrochemistry and radiochemistry of a pressurised water reactor plant's primary and secondary circuit, a boiling water reactor plant's reactor circuit, and the plant fuel pools, and a graphical diagram of the amount of impurities and radionuclides from a five-year period as well as a written analysis of the development during the year
b. deviations from the limit values of the OLC and the licensee's action limits, as well as the causes and durations of the deviations
c. detected radioactivity in systems where radioactivity was not expected, the causes of the deviation, and the measures taken to return the situation to normal
d. in case there has been a significant fuel leakage at the facility during the operating cycle (or operating year), a graphical diagram shall also be presented for the measured activity concentrations of uranium and transuraniums in the primary circuit, and for the number of leaking assemblies
e. for at least the past ten years, a chemistry index which describes the efficiency of the maintenance of hydrochemical circumstances in the secondary circuit of pressurised water reactor units and the reactor circuit of the boiling water reactor units in terms of impurities and corrosion products. The index calculation formula, and the changes thereto, shall be submitted to STUK for information.

324. The annual report shall present the worker radiation dose information:
a. a graphical diagram of the annual collective radiation doses of workers at each plant unit
b. the distribution of workers' individual doses into doses of various sizes
c. the collective radiation doses of different groups of workers, the number of people exposed and the highest individual radiation dose; in addition, distribution of the dose between internal staff and external workers
d. work resulting in exposure of over 0.02 manSv. Work shall be divided into periodic or repeated work (such as refuelling, steam generator maintenance) and into single unusual work. The name of the work or the item worked on, the collective radiation dose, highest individual dose, number of workers and duration of work shall be given
e. recording of any internal doses (see Guide YVL C.2 for more details).

325. The annual report shall present the modifications made:
a. a list of all modifications to safety-classified systems and systems governed by the OLC, as well as of system modifications to EYT (non-nuclear) systems, made during the year
b. a graphical diagram of the number of modifications to safety-classified systems and EYT systems from at least the past ten years.

326. The annual report shall present the organisation of the licensee and the facility:
a. organisational changes and changes in permanent staff that are important in terms safety, and an assessment of meeting the safety goals set for the organisational change
b. an assessment of the sufficiency and competence of the personnel required for the safe operation of the nuclear power plant, and a summary of the development thereof
c. annual information in a graphic form on the number of staff in the organisation units responsible for the operation, maintenance and technical support functions, at least for the past ten years
d. a summary of the personnel competence development goals related to safety, and an estimate of meeting these goals
e. summaries of the safety related goals in the executives' development programmes, and of the realisation of the development programmes.

327. The annual report shall present the assessment and improvement of the management system:

a. the goals set for safety and quality and their realisation
b. the measures initiated in order to improve the management system
c. an assessment of the status of the safety culture, and the development needs identified.

328. The annual report shall present the improvement of the facility:

a. a summary of the significant modifications or other projects improving safety planned for the coming years (implementation decided on or preparations at an advanced stage).
b. the total amount of investments made in plant maintenance and modifications for the reporting year and previous years. The figures given for different years shall be comparable, meaning that the investments shall be reported in the currency of the reporting year, adjusted by the building cost index.

3.3 Outage reports

3.3.1 Outage report

329. The scope of the outage report depends on the outage. A report on annual outages and other comparable outages planned in advance shall be submitted to STUK within three months from the end of the outage.

330. The outage report for an annual outage shall present the following:

a. an overview of the realized outage and its schedule, and significant modifications to the planned scope of execution
b. information concerning refuelling
c. inspection of fuel and control rods
d. a list of maintenance work and modifications with safety or other significance made during the outage
e. significant deficiencies and defects detected during periodic tests and inspections
f. events (including near misses) and observations significant to the development of the management system as well as the measures taken thereupon
g. a summary of the leaktightness tests of the containment, individual isolation valves and penetrations, the containment total leakage rate, and a reference to the result reports; the result reports from leakage rate tests shall be enclosed with the outage report
h. the conclusions concerning the management of the chemical and radiochemical conditions during the outage
i. the collective radiation doses and highest individual radiation doses
j. the licensee's assessment concerning the success of the outage, and areas for improvement that have been identified on the basis of the assessment.

331. A report concerning unexpected outages shall be submitted to STUK for information within one month from the end of the outage. The report shall include, as far as applicable, the information required in items a.–j. in para. 330.

3.3.2 Outage radiation protection summary report

332. A radiation protection summary report shall be drawn up for completed refuelling outages and extensive service and repair outages, and it shall be submitted to STUK for information within three months from the end of the outage.

333. The outage radiation protection summary report shall present the following:

a. events and findings significant to radiation protection
b. realisation of plans and dose estimates concerning radiation protection
c. key results from follow-up of personal contamination and other types of contamination, and from the whole body count
d. a summary of the results of the nuclide-specific measurements of the surface activity of the inside surfaces of the reactor circuit and systems connected to it.

3.4 Environmental radiation safety reports

3.4.1 Quarterly environmental radiation safety report

334. A report on the releases of radioactive substances, dispersion conditions and the monitoring of the external dose rate in the environment

shall be submitted to STUK for information within one month from the end of each quarter.

335. The release information shall be presented for each plant unit. The quarterly report shall present the following information on the releases of radioactive substances:

a. the plant unit whose releases the results concern
b. the results from the continuous radioactive release monitoring systems
c. the measurement results from the release samples and the releases calculated on their basis
d. sample-specific detection limits for the most significant radionuclides in the releases
e. the release times and the corresponding volume of air or water released into the environment
f. any functional deviations of the measurement systems and their causes.

336. The quarterly report shall present a plant site-specific summary of the release information for the quarter in question and the current year:

a. releases into the atmosphere (noble gases, iodine, particulate matter, tritium, ^{14}C, alpha active substances)
b. Releases into water (fission and activation products, tritium, alpha active substances).

337. The following information shall be reported on the dilution factors of the releases:

a. average dilution factors for each sector (for a minimum of 12 sectors, using the sector division laid down in the annex, for example) as averages for at least the following distances: 1, 2, 5, 10, 20, 30, 40, 60, 80 and 100 km
b. value, sector and distance of the highest dilution factor.

If releases occur at several heights, their dilution factors shall be separately reported.

338. The quarterly report shall present the results of the following meteorological measurements:

a. the direction of dispersion, wind speed, wind data measurement height, precipitation time and amount, air humidity, air pressure, stability class, and information used for determining the stability class
b. the information on the continuous meteorological measurements and the stability class derived from them shall be presented as graphical diagrams.

339. The quarterly report shall present the measurement results from the continuously operating radiation dose rate measuring stations and dosimeters as graphical diagrams.

3.4.2 Annual environmental radiation safety report

340. The report concerning the results of the previous calendar year shall be submitted to STUK for information by the fifteenth day of April of the following year.

341. The annual report shall present the following information:

a. a summary of the results to be reported, and of the operation of each plant unit during the reporting year
b. essential operating information concerning the releases of radioactive substances, such as times for annual outages and other longer outages, fuel failures, and the use of waste treatment and water removal systems
c. general descriptions of release routes, measurement equipment, sampling programme, analysis methods, and dispersion and dose calculations
d. an assessment of measurement precision and the operability of the measurement equipment
e. an analysis of how the release limits and dose limits set for operation monitoring have been followed.

342. The releases of radioactive substances shall be reported for each plant unit, as well as in summary form for the entire plant site. The following items shall be presented in the report:

a. release information for each radionuclide, broken down into release information for the quarter and the entire year for different release routes (into the air and into the cooling water)

b. total release information, grouped as follows:
   - releases into the atmosphere (noble gases, iodine, particulate matter, tritium, ^{14}C, alpha active substances)
   - releases into water (fission and activation products, tritium, alpha active substances)
c. air and water volumes released from the plant unit into the environment through different release routes.

343. The amount and composition of the releases shall be analysed in comparison to previous years. The reasons for significant changes shall be presented with explanations.

344. As regards releases into the atmosphere, the following information shall be reported:
a. the durations of the meteorological dispersion scenarios as annual averages as shown in the Annex, for example
b. the dilution factors as an annual average as laid down in para. 337
c. precipitation and duration of rain as monthly data.

345. As regards releases into the cooling water, the following information shall be reported:
a. results from the applied dispersion model that describe the annual dispersion in the water environment
b. other information affecting the dispersion of the releases in the water system, such as ice cover in the area of discharge and significant water level variations.

346. The following information shall be reported on the dose calculations:
a. the annual radiation dose of a representative person from the most exposed population group (presented graphically for the entire duration of the facility's operation)
b. the collective radiation dose for the population
c. the radiation doses to the individual (representative person) shall be presented broken down by significant exposure pathways and nuclides
d. the doses caused by releases into the atmosphere and the cooling water shall be separated.

347. The annual environmental radiation safety report shall also present other information related to the radiation safety of the environment, such as:
a. information on tracer tests
b. a list of other reports on the environmental impacts of nuclear facilities required by the authorities.

348. The reports required by other authorities on the environmental impacts of the nuclear facility shall be submitted to STUK for information.

3.5 Nuclear waste management reports

3.5.1 Storage and disposal of low and intermediate level nuclear waste, and transport of radioactive material

349. The annual summaries on the storage and disposal of low and intermediate level nuclear waste and the transports of radioactive material during the previous calendar year shall be submitted to STUK for information by the first day of March of the following year. In accordance with item b of para. 302, the reports may be submitted as separate reports or a combined report.

350. The following items shall be presented in the reports:
a. An annual summary in graphical diagrams on the amounts and total activities of the liquid radioactive waste stored, as well as the most significant radionuclides in the waste.
b. An annual summary in graphical diagrams on the amounts and total activities of the solid radioactive waste stored, as well as the most significant radionuclides in the waste. Detailed information on disposed waste packages shall be submitted separately in the manner described in Guide YVL D.5.
c. A summary on the amounts and total activity of radioactive waste transported from the power plant area (including waste exempted from regulatory control) as well as a report on the most significant radionuclides, storage sites and methods of the waste.

3.5.2 Follow-up reports on the disposal facility of low and intermediate level nuclear waste

351. The reports on the research, testing and supervision programmes carried out during the construction and operation of a disposal facility pursuant to Guide YVL D.5 shall be submitted to STUK annually. The reports shall be submitted to STUK for information by the first day of June of the year following the reporting period.

352. Results from the following shall be presented in the reports:

a. follow-up of the stresses, movements and deformations in the host rock surrounding the disposal facilities
b. hydrogeological observations of the host rock surrounding the disposal facilities
c. groundwater chemistry follow-up at the disposal site.

3.5.3 Reporting the amounts of spent nuclear fuel in the nuclear waste management report

353. The annual summaries on the total number of spent nuclear fuel assemblies and their tonnage (corresponding to fresh uranium) from the previous calendar year shall be submitted to STUK for information by the first day of March of the following year.

4 Regulatory oversight by the Radiation and Nuclear Safety Authority

401. When inspecting the reports, STUK verifies that the following conditions are met:

a. the nuclear power plant is being operated in line with legislation and official regulations
b. the operation of the nuclear power plant, as well as events having an impact on safety, are sufficiently documented so that they can be analysed afterwards.

402. Based on the nuclear waste management reports, STUK follows the development of the amount and quality of low and intermediate level waste in different forms, and it estimates the safety of the interim storage and disposal.

403. STUK uses the information reported by the licensee to fulfil its own national and international communication and reporting duties.

References

1. Nuclear Energy Act (990/1987).
2. Government Decree on the Safety of Nuclear Power Plants (717/2013).
3. Government Decree on the Safety of Disposal of Nuclear Waste (736/2008).
4. IAEA General Safety Requirements No. GSR Part 1, Governmental, Legal and Regulatory Framework for Safety, 2010.
5. IAEA Specific Safety Requirements No. SSR-2/2, Safety of Nuclear Power Plants: Commissioning and Operation, 2011.
6. IAEA Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards No. GSR Part 3, 2014.

ANNEX Example, durations of meteorological dispersion scenarios (%)

Stability class:

Observation time:

Wind	**Speed (m/s) at the highest level**								**Total**	**Average speed**
Direction of dispersion	0–3	1–3	3–5	5–8	8–12	12–16	16–20	> 20		
0–30										
30–60										
60–90										
90–120										
120–150										
150–180										
180–210										
210–240										
240–270										
270–300										
300–330										
330–360										
Total										

Still (%):

Missing observations (%):

The tables are created for each stability class and for the entire observation material.