

HSE Accounts for 2016

HSE is given the highest priority by SINTEF, and our aim is to have a work environment that is safe for our staff and offers positive working conditions and high standards of health. One of our goals is to maintain a score of zero accidents, injuries or losses, and the safety of our staff takes precedence over all other considerations. SINTEF intends to be a safe workplace. Company-employee relationships are good, which is of great importance for the maintenance of a good and healthy work environment.

In 2016, SINTEF was audited for certification against three international standards: ISO 14001:2015, Environmental Management Systems; ISO 9001:2015, Quality Management Systems, and OHSAS 18001:2007, Occupational Health and Safety Management. The audits revealed no significant deviations from the requirements, and we received the certificates in March 2017. The certification means that the entire SINTEF organisation offers its clients a uniformly high standard of quality.

SINTEF has overarching goals for its HSE efforts:

- SINTEF will maintain a good work environment that promotes good health
- SINTEF will have a zero rate of work-related sick-leave
- SINTEF will have a zero rate of injuries, accidents and losses
- SINTEF will have a clearly defined environmental profile.

Achievements of our HMS goals in 2016

KPI 2016	Goal	Achievement
- Sick-leave	< 3.5%	3.7%
- Work-related sick-leave	0%	0.3%
- Performance staff interviews	100%	90%
- H1 - frequency of sick-leave ¹⁾	0	1.4
- H2 - frequency of personal injuries ¹⁾	0	4.8
- Frequency of sick-leave (days) ¹⁾	0	8.8
- Accidents leading to damage to the physical environment = 0	0	1
- Critical risk potential of events ¹⁾²⁾	0	10.4
- Reports from field-work and travel ¹⁾	8	7.4
- 10% reduction in quantity of waste by 2018 compared to 2016		Ongoing
- 20% reduction in quantity of municipal solid waste by 2018 compared to 2016		Ongoing
- 5% reduction in energy consumption of SINTEF's buildings by 2018 compared with 2016		Ongoing
- Projects will be carried out with least possible stress on the external environment		Ongoing

¹⁾ Number per million hours of work

²⁾ Undesirable events whose consequences are judged to fall into the critical range

Health and the work environment

In 2016, SINTEF focussed on maintaining its level of activity during a challenging period, while simultaneously exploiting its potential for growth. Personnel numbers in some of our areas of activity were reduced in order to adapt our capacity to match reduced levels of activity in certain markets, particularly in the petroleum sector.

SINTEF's work environment survey was carried out in January 2016, achieving the high response rate of 93%. The survey charts several factors, and the psychosocial work environment is also thoroughly surveyed via a number of topics: motivation, and pleasure in work, team spirit, health and leadership.

SINTEF has achieved high scores for many years, and we also obtained good results this time round. Our departments face different challenges, and some of them obtained lower scores, which will be dealt with at departmental and research group level. Compared to the rest of the institute sector, SINTEF scores high on its psychosocial work environment and management. An innovation this year was that departmental management groups were also evaluated.

HSE training is a continuous process at SINTEF. The obligatory HSE e-learning course for laboratories and workshops has been revised, and was published in February 2017. The process of implementing automatic advance notice of obligatory HSE courses has been in operation for several years, and will continue in 2017.

The system of local work environment committees (AMUs) in the Foundation's four institutes was evaluated in 2016. These are subcommittees of SINTEF's AMU, and the aim of the system is to ensure that the legally required work of the AMU is carried out at local level and close to the people concerned. The

system is now working well, and the formal aspects have been dealt with. The Foundation's AMU plays a supervisory role, and it will follow up the process in order to ensure that the system is operating as intended.

In 2016 the merger of two of the Foundation's limited companies; MARINTEK and SINTEF Fisheries and Aquaculture (SIFA), plus one department of SINTEF Materials and Chemistry, was initiated. The merger process was risk-evaluated, and the involvement of staff and their representatives started in autumn 2016. The fusion was formally completed in January 2017, and has been positively received by our employees.

Staff interviews are scheduled annual interviews between individual employees and their immediate superior. Central topics covered by the interviews include the allocation of tasks and aims, the work environment, and personal development. Each interview results in a personal action plan that will be followed up. Ninety per cent of our employees were interviewed in 2016

Staff interviews (including companies owned by SINTEF Holding)



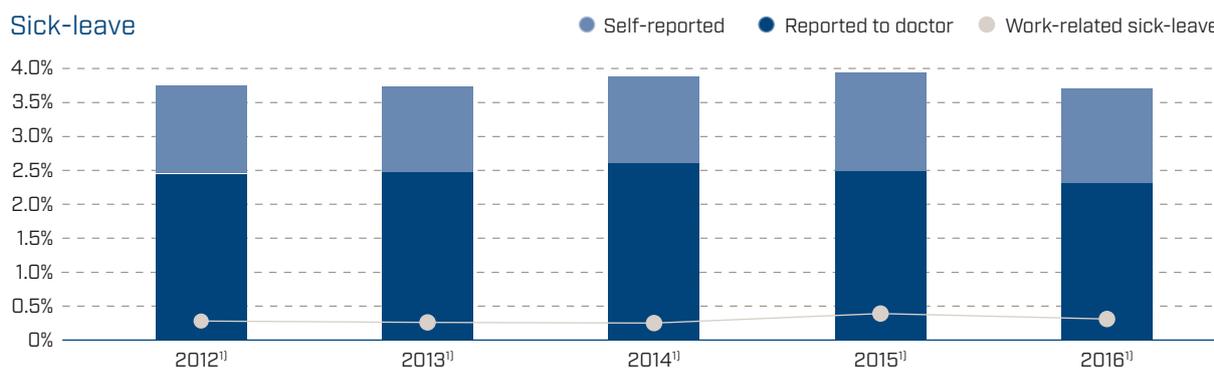
Work-related health issues and sick-leave

At SINTEF, work-related health issues and sick-leave are systematically followed up via close contact with staff members on sick-leave. SINTEF has drawn up a set of aims and an action plan for promoting an inclusive work-life. The percentage of sick-leave taken in 2016 was 3.7, which is higher than our goal of 3.5 per cent. Work-related sick-leave came to 0.3 per cent. Line managers, supported by our HR staff, are responsible for following up individual cases. Stress is laid on

reducing sick-leave by the exercise of appropriate management principles.

Every year, goal-oriented health interviews are conducted with members of staff who are exposed to potential risks to health in their work environment. The selection of interviewees is based on a risk assessment of the employee's exposure situation, and each employee is interviewed every three years. Around 200 health interviews are conducted every year.

Sick-leave



¹⁾ SINTEF Group plus companies owned by SINTEF Holding

In 2016, SINTEF introduced a routine to summarise what we have learned from, and to share experiences of, serious incidents, via a one-page HSE report. These one-pagers comprise a brief description of the incident, its causes and what we can learn from it. They are considered in the first instance by the SINTEF Group management, before being used in a variety of meetings within the organisation. Altogether, 11 of these HSE reports have been drawn up and published internally.

SINTEF uses large quantities of chemicals in the course of its research, and good procedures are essential to the avoidance of injuries and negative effects on health. In 2016, we developed a method for risk-based identification of staff who should be offered health follow-ups.

In 2016, we carried out quality audits at all our institutes. A major part of the activity of each of our institutes is field-work, and this was selected as one of the areas for audit. This showed that our routines for field-work and HSE are good, but revealed some deficiencies in documentation.

In 2016, the Norwegian Radiation Protection Authority audited our use of encapsulated sources of radioactivity. The audit did not result in any remarks

regarding SINTEF's use of radioactive sources.

Injuries

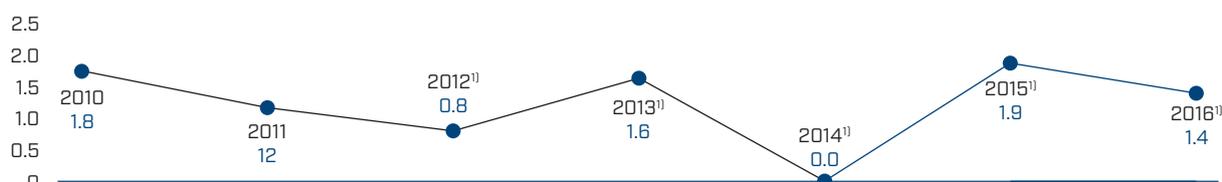
In 2016, 32 personal injuries were registered, 15 of which required first-aid, 12 required medical assistance, and five led to sick-leave. These numbers are lower than in 2015, but higher than in the previous year.

Rates of injuries leading to sick-leave (H1) and frequency of personal injuries (H2) were respectively 1.4 and 4.8 in 2016. In 2015, the corresponding figures were 1.9 and 4.3.

Following the occurrence of several potentially serious events in 2016, SINTEF's management launched a more thorough survey of the causes of accidents and near-accidents. The analysis included an evaluation of management and follow-up systems, and a discussion of measures to strengthen our preventive efforts. In the course of the analysis, we asked for advice from our own safety research groups as well as from external sources. These efforts have resulted in a set of recommendations aimed at strengthening SINTEF's safety culture, with particular attention being paid to technical safety and the demands made to managers and staff. KL has discussed the matter and will decide on follow-up measures in 2017.

Frequency of injuries leading to sick-leave [H1 value]

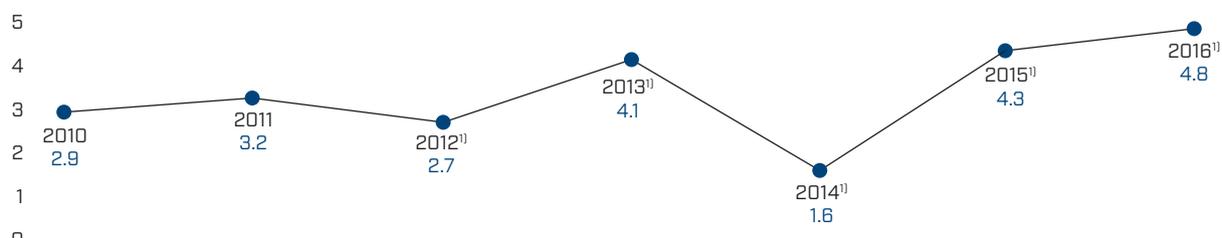
Number of injuries per million working hours



¹⁾ SINTEF Group plus companies in SINTEF Holding

Frequency of personal injuries [H2 value]

Sum of number of injuries leading to sick-leave and other personal injuries, excluding injuries requiring first aid, per million working hours



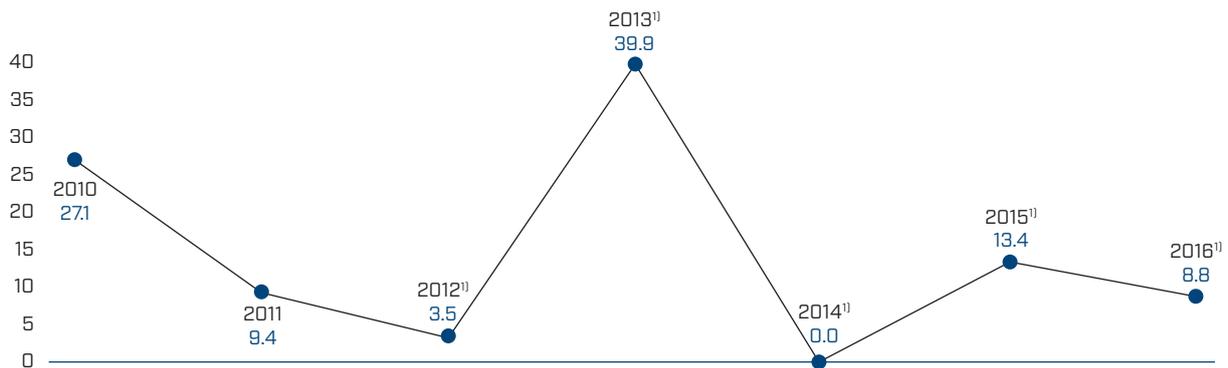
¹⁾ SINTEF Group plus companies in SINTEF Holding

Five accidents in 2016 led to a total of 31 days of sick-leave, equivalent to a sick-leave frequency of 8.8, and improvement on the corresponding figure for 2015, which was 13.4. The number of days of sick-leave associated with individual events ranged from 2 to 13.

SINTEF has a goal of zero personal injuries, and all serious events are immediately reported to line management, so that any necessary measures can be rapidly implemented.

Frequency of sick-leave (F value)

Days of sick-leave taken due to workplace injuries, per million working hours



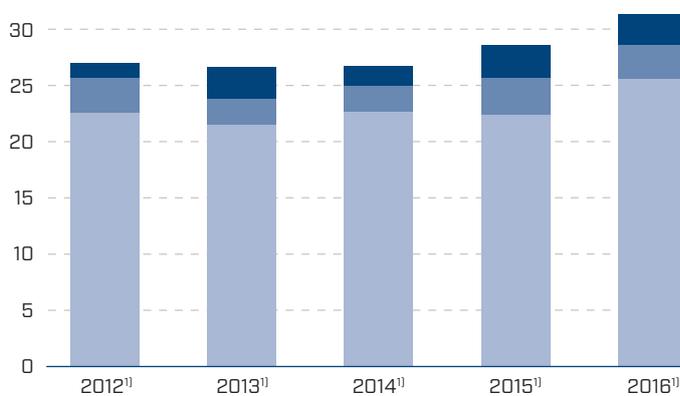
¹⁾ SINTEF Group plus companies in SINTEF Holding

HSE reports

In 2016, 510 HSE reports were registered by Synergi. Of these, 42 were accidents, 50 near-accidents and 418 were reports of hazardous conditions/observations. Seventeen of the accidents and near-accidents were assessed as potentially critically serious. Some

60 per cent of the reports were based on our laboratory and workshop activities. Synergi is an important tool for following up undesirable events and analysing them with a view to implementing improvements.

HSE reports per 100 work-years



¹⁾ SINTEF Group companies in SINTEF Holding

● Hazardous conditions ● Near-accidents ● Accidents

The following definitions are employed in reporting HSE events:

Accidents: Occurrences that have led to personal injury (including injuries require first-aid), illness and/or damage to or loss of property, damage to the environment or injury to a third party.

Near-accidents: Occurrences that under slightly different circumstances could have led to personal injury, illness and/or damage to or loss of property, damage to the environment or injury to a third party.

Hazardous conditions: Circumstances or conditions that could potentially lead to personal injury, illness and/or damage to or loss of property, damage to the environment or injury to a third party.

Emergency preparedness

In 2016, there were no incidents serious enough to require a comprehensive response on the part of SINTEF's emergency preparedness organisation.

SINTEF Petroleum Research declared an emergency on one occasion due to challenges raised by its evaluation of a situation. In the wider context, the year has been exposed to a number of terrorist actions. France, Belgium, Germany and Turkey have suffered serious incidents as a result of which SINTEF personnel were

followed up by SINTEF's emergency preparedness team. In the course of the year, our travel agency established routines for contacting SINTEF staff in places where serious incidents had taken place.

In the course of 2016, all of SINTEF's institutes have carried out emergency preparedness exercises. In April, an emergency preparedness day for SINTEF Group management focussed on the topic of "The role of management in a crisis or major disaster in Forskningsveien in Oslo".

External environment

By working systematically to reduce the load it imposes on the external environment, SINTEF assumes its share of responsibility for our environment and meets the expectations of our clients. SINTEF intends to satisfy the requirements of the international environmental management standard ISO 14000, and its efforts to secure certification have led to the involvement and greater environmental awareness among our staff. SINTEF has adopted an action plan for the environment that includes energy-efficient operation and waste treatment. Long-term aims for 2018 have been set out in order to enable SINTEF to perceive the effects of these efforts.

Our most important contribution to the environment is our internationally leading-edge research and development effort to develop renewable energy, climate and environmental technologies. Our work on behalf of the environment is actively communicated to an external audience through dissemination of our research and our expertise in the environmental sector.

A minor event resulted in an oil leak from a tank, and this was dealt with in accordance with current regulations. In 2016, SINTEF experienced no undesirable events that impacted the external environment and were required to be reported.

SINTEF's HSE plan for 2017

Our action plan for 2017 will support our overarching HSE aims.

Aims	Measures
<ul style="list-style-type: none"> • Staff interviews = 100% • Sick-leave < 3.5% • Work-related sick-leave = 0.0% • H1 - sick-leave injury frequency = 0 ¹⁾ • H2 - sick-leave due to personal injury = 0 ¹⁾ • Sick-leave frequency (days) = 0 ¹⁾ • Critical risk potential of events = 0 ¹⁾ • Reports from field-work = 8 ¹⁾ • Accidents causing damage to external environment = 0 ¹⁾ • Reduce quantity of waste by 10% by 2018, vis-à-vis 2016 level • Reduce quantity of municipal solid waste by 20% by 2018, vis-à-vis 2016 level • Reduce energy consumption of operating SINTEF's buildings by 5% by 2018, vis-à-vis 2016 level • Project to be carried out with least possible impact on physical environment 	<ul style="list-style-type: none"> • Staff interviews • Work environment survey part 2, mid-way follow-up • Improve reorganisation process • Improve technical safety levels in laboratories and work-shops • Follow up reports from analyses, studies and audits • Improve understanding of risk and strengthen culture of safety • Joint HSE studies with NTNU • Improve good order and tidiness in laboratories and workshops • Simplify risk-control in projects • Improve methods for assessing environmental aspects of projects • Draw up KPI's for environmental contributions of project deliveries • Follow-up after certification audits

¹⁾ Number per million hours worked