

Asset Management / Koskinen Karri

7.2.2018

Suppliers' occupational safety group

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| Time | 07/02/2018 9.00 am-4.00 pm |
| Place | Original Sokos Hotel Ilves Hatanpäänvaltatie 1, 33100 Tampere |
| Present | Marko Elorinne, Eltel Networks Oy Mikko Hakala, TLT-Building Oy Kimmo Honkaniemi, Caverion Suomi Oy Juha-Matti Huhtanen, ABB Oy Toma Karkkulainen, Vattenfall Services Nordic Oy Markku Linnanen, Siemens Osakeyhtiö Tauno Nieminen, Infratek Finland Oy Teemu Palosaari, Destia Oy Timo Pekonen, Empower PN Oy Erkki Pusa, VEO Oy Jani Rintala, TMV Line Oy Pasi Lehtonen, Fingrid Oyj Karri Koskinen, Fingrid Oyj Tuomas Maasalo, Fingrid Oyj |
| Absent | Janne Ketola, Infratek Finland Oy |

Matters to be dealt with

1 Meeting arrangements

Karri Koskinen acted as Chair and Secretary of the meeting. It was agreed that a memorandum of the meeting will be written and sent to the participants for commenting. The memorandum and other materials used in the meeting will be published on the Fingrid website.

In addition to the regular members of the occupational safety group, participants in the meeting included Fingrid's Project Manager Tuomas Maasalo and Tauno Nieminen from Infratek Finland Oy, who served as Janne Ketola's deputy.

Teemu Palosaari from Destia Oy joined the occupational safety group as a new member. Teemu received Fingrid's guidelines on compliance with competition legislation in advance and he had read the material before the meeting. At the start of the meeting, the group was reminded of the guidelines on compliance with competition legislation and that only occupational safety matters would be discussed in the meeting and at the unofficial evening segment.

2 Memorandum from the previous meeting

We reviewed the [memorandum](#) from the previous meeting.

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Working at height was still a much-discussed topic:

During the working at height section, one supplier said that they had tested **fall protection that is wrapped around the tower twice in wooden tower work**. They found that climbing was not possible on Fingrid towers when using that method. On the other hand, fall protection placed in a figure eight shape did work. A simple U-shaped attachment is often used in working at height training sessions.

Safety ladders are not installed at all substation portals. The group discussed the fact that equipping the portals with ladders is justified. The aim in substation projects is to perform the work from a hoisting cage in order to avoid climbing. The same requirements apply to climbing a portal as to climbing towers.

When climbing onto the cover of a transformer, the same rules for working at height apply. For example, the site must have two people trained in lowering an injured person if the work involves the risk of falling with a harness. Some easing of these rules was requested for inspections performed on a transformer cover. It was decided that easing of the rules cannot be permitted when working on a transformer cover.

The group discussed the **lowering an injured person training**. Fingrid's contract terms concerning safety do not specify how often the lowering an injured person training should be repeated. In practice, the suppliers repeat the training in conjunction with the annual competence test required by Fingrid, where the requirements include a demonstration of lowering an injured person. There was a request that the frequency of competence tests be reduced, for example, so that it must be performed once every 2 years.

The group also discussed **electrical safety** at the same time. Information had been received about a Dehn remote voltage detector that must have an earthed structure near the site in order to display the right reading. According to the suppliers, this remote voltage detector works at substations but not on transmission lines located far from tower structures. This matter will be investigated further. It will be discussed at the next suppliers' occupational safety meeting when comments from the manufacturer have been obtained.

3 Changes in the contract terms concerning safety

Karri presented the changes in Fingrid's contract terms concerning safety that took effect on 1/1/2018.

It was stated that the changes in paragraph 2 related to appointing the supplier's responsible persons, describing occupational safety tasks and induction will not affect the suppliers' activities because this is already normal practice for them.

The changes in requirements for selecting a hoisting machine caused a lot of discussion. *In installation hoisting tasks (for example, when assembling towers) where work is carried out near the load, a hoisting machine intended for such tasks must be used.* Karri Koskinen justified the changes by legislative requirements and guidelines issued by the authorities, including [Recommendations for Applying the Safe Use Decree 2013](#) and the [Good supervision practices for the construction industry](#) published by the occupational safety authorities. The recommendation for applying the Safe Use Directive directly

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forbids the use of an excavator for installation hoists. The suitability of hoisting machinery used for installation work at Fingrid worksites for the work in question must be evident, for example, in the hoist's inspection record or operating instructions.

The suppliers were unanimous in their opinion that an excavator is the safest machine for hoists performed in conjunction with tower assembly. The suppliers justified their opinion by the fact that an excavator can often get closer to the tower being assembled because of the terrain conditions. The boom on an excavator is short, which means the movements are very precise. According to the suppliers, the boom on an installation hoist swings if it is raised, for example, 20 meters from the tower. According to the suppliers, an installation hoist cannot always be moved closer and this makes swinging possible. On the other hand, installation hoists are also installed on forest machines and excavators. These machines make it possible to get closer to the load being lifted, which reduces the risk of a swinging boom. Another option is to build the road closer to the tower location or around it, thus making it easier to get close to the tower being assembled with various hoisting equipment.

One supplier stated that **they haven't used an excavator for tower assembly for many years.** Instead, they have performed the assembly work with hoisting equipment intended for installation hoists.

Kimmo Honkaniemi's presentation on the use of hoisting equipment in installation hoists was reviewed. **Kimmo's summary of installation hoists was consistent with Fingrid's policy** and it was stated that the choice of hoisting equipment for installation work is challenging for transmission lines but not for substations. Suppliers were reminded to pay attention to the choice of hoisting equipment at transmission lines and substations.

It was agreed that **the authorities will be asked for their opinion on the use of an excavator for tower assembly**, which is considered an installation hoist. It was also proposed that a sentence be added to the contract terms concerning, based on a risk assessment, the performance of work in a way that deviates from the contract terms if the work in question clearly puts the employee in danger. We also discussed the choice of alternative methods for installation work instead of using a hoist. The discussion did not produce any clear new solutions. One of the ideas involved using a jack in assembly work.

Minor changes were made to the paragraph on **competence tests in tower work**, which clarified the content of competence tests with regard to fall protection anchorage points and safe movement on towers. At this time, we also discussed Fingrid's structural safety for working at height project and its outcomes. The suppliers would like to receive more detailed instructions on the use of towers, climbing on them, assembly and hoisting. According to the suppliers, more detailed instructions from the client would harmonise activities.

The new requirement for a **fall protection plan** was discussed. The group wanted to know if Fingrid could compile a fall protection plan template, for example, as part of the structural safety for working at height project. The group also asked if tender assessments could take various work methods for working at height into account, such as working from a lift cage whenever possible.

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The updated **safety sanctions** were discussed. The suppliers hoped that in addition to sanctions, good performance in occupational safety would be rewarded. For example, recognising a project it achieves the zero-accident target. It was stated that Fingrid has zero tolerance for occupational safety violations.

4 Shared site practices

Timo Pekonen reviewed the presentation that he had prepared. Shared site practices

It may be challenging to **specify the site area** at a transmission line site due to the large geographical size. The group discussed whether subsidiary contractors cause challenges for the main contractor in transmission line projects. Pasi Lehtonen presented a near-miss situation in which another grid company was performing maintenance work on the same right-of-way as a Fingrid site. It was stated that coordination between different grid companies can be challenging. Outside parties, such as berry pickers and other external worksites, can also cause danger. Clients working in the same area or near each other should agree on practices to ensure occupational safety before the projects begin. It was stated that it has usually been possible to coordinate the work without problems. A tight schedule can cause problems if the main contractor and a subsidiary contractor have to work in the same area. It was stated that there is no problem coordinating work when there is a single client's project in the area, but several clients operating in the same area can be a challenge.

It was stated that there **can only be one main contractor at a construction site**. Different main contractor construction sites that are located near each other must be physically separated. The occupational safety responsibilities of different operators at a construction site should already be described in the contracts so, for example, the main contractor can prepare for possible subsidiary contractors.

It was stated that **Fingrid's safety documents are of high quality** and contain the necessary information. The suppliers had no improvement proposals for Fingrid's safety documents.

The group discussed whether the **responsibilities are clear at a substation site** when a transmission line contractor comes to the area. Fingrid has compiled a task matrix that describes the occupational safety duties for the main contractor and subsidiary contractor. The task matrix is available to Fingrid's suppliers. The starting point is that the substation contractor serves as the main contractor in a substation site area. It was stated that the transmission line contractor and substation contractor should plan work together when working at a shared construction site and arrange a coordination meeting.

The main contractor's responsible person must be at the site on a daily basis. The group discussed the main contractor's transfer of responsibilities agreement when a substation contract is completed or on a break and when a new main contractor comes to the area.

The group discussed **who a subsidiary contractor** (for example, a person mowing the lawn, maintenance supplier, etc.) **should report to** when arriving at the site. It was stated that these people should always report to the main contractor. It was stated that

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information about projects going on in the maintenance area should be confirmed to maintenance.

The group discussed that maintenance suppliers should be informed when a break is planned (for example, during holidays) at the construction site. The site must be left in safe condition and inductions should be handled prior to the vacation. The group discussed that the supplier should report any possible breaks at the construction site and Fingrid's regional operations should ensure that this information reaches the maintenance supplier. Advance planning is important and the supplier must be informed of subsidiary contracts in advance. The group also discussed whether SMS rights and/or access rights should be removed from certain service suppliers for the duration of a project in order to ensure safety at the site.

5 Results of the occupational safety climate survey

Karri reviewed the presentation: Results of the occupational safety climate survey.

The group discussed **why subcontractors can feel like they are not being included** in occupational safety work by Fingrid. There may be many reasons for this, such as Subcontractors do not usually participate in project start-up meetings, they are only part of the project at the site, etc. Fingrid primarily operates with the supplier and the supplier manages the subcontractors, so Fingrid's representatives mostly see the subcontractors at site visits. It was stated that it good for subcontractor management to be handled via the main contractor to keep assignments in the agreement interface. Information from the supplier should move in both directions to the client and the subcontractors. It was stated that although the main contractor is responsible for subcontractor induction, the general occupational safety inductions arranged by Fingrid are useful for subcontractors. It was also stated that assignments to subcontractors must go through the supplier and assignments to the supplier must go through Fingrid's project manager.

The group discussed **ways to include subcontractors in occupational safety work**. In order to ensure occupational safety, subcontractors should be involved in the supplier's risk assessment events. Subcontractors should be encouraged to make dangerous situation notifications. In addition to site induction, work phase start-up meetings and inductions in conjunction with them are important for subcontractors.

The suppliers felt that **occupational safety is not taken into consideration when selecting subcontractors**. The general image is that subcontractors know that the occupational safety level and requirements are high at Fingrid sites and this already contributes to steering subcontractor selection and activities.

The group also discussed why **opinions from transmission lines differed from other comparison groups** in several sections of the occupational safety climate survey. The occupational safety group suggested that the reason for this is the very different operating environment at transmission line sites. The work environment is very demanding and the work site spread over a large area. Many of the jobs performed at transmission line sites, such as dismantling work, are also high-risk tasks. Swamps, soft soil and slippery rocks also cause danger.

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Suppliers **commented on the always attached method** when climbing certain types of old towers, such as free-standing lattice structure towers that have long diagonals and no safety ladders. Using the always attached method in these towers is strenuous and can lead the employee to choose to climb without the always attached method. At this time, the group was reminded that failing to use the always attached method is not acceptable under any circumstances. There are alternative methods for attaching fall protection to diagonals, such as using a bow to shoot a safety line up into the tower or attaching a guide ring and auxiliary rope before starting the work. It was stated that attaching a guide ring and auxiliary rope in advance could work in projects but not necessarily in maintenance. It was agreed that a review of alternative methods will be taken into consideration in Fingrid's safety for working at height project. Companies working on masts may also have good practices for the always attached method.

It was stated that there haven't been any cases of **frostbite at Fingrid's transmission line sites** in recent years. Among other things, this is because battery terminals are used a lot and the cars provide a place to keep warm.

The group reviewed the Finnish Institute of Occupational Health's development recommendations. It was stated that providing sufficient time to complete work safely and the necessary recovery times for employees strongly support safe performance of the work. Factors that affect ensuring enough time include interruptions of a sufficient/suitable length, advance planning and taking even surprising events into account, adequate resources to perform the work, and sufficient rest periods. Sufficient vacation time is important in terms of recovery. The group expressed hopes that July be reserved as a vacation month. In general, it was stated that the schedules drawn up by Fingrid have developed in a positive direction.

The group discussed the **importance of consistent rules and safe work methods.** Fingrid's boundary terms for safe work guide the activities, but occupational safety is also very dependent on the supplier's internal occupational safety requirements. This is why it is important for Fingrid's local supervisors to have a consistent view of safe work method and requirements. Requirements for suppliers' safety management have been added to Fingrid's supplier register.

The suppliers made a development proposal that work methods proven to be dangerous have been banned and this should be specified in the invitation to tender material. For example, permitted dismantling procedures according by conditions. Attention should also be paid to safe conditions at the site in substation projects when the site is handed over to another supplier. The group wanted clear guidelines for protecting cable channels and it was agreed that this issue will be addressed in the next meeting.

Another development proposal was to make **completion of online school training** visible to the suppliers. It was stated that this is not possible due to legislation related privacy protection. Suppliers can check the completion of training for their own personnel, subcontractors or subsidiary contractors from Fingrid's local supervisors or Karri Koskinen.

An **end plate should be placed on every relay cabinet** if cabinets are removed from in between. It was proposed that extra end plates be delivered to the substation in conjunction with a construction project.

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Opinions on maintenance were slightly more positive in certain areas of the climate survey and the group suggested this was because maintenance is a clearer entity than investments.

6 Using a hoisting machine for installation hoisting tasks

Kimmo Honkaniemi's presentation was addressed in section 3. Changes in the contract terms concerning safety

7 Dismantling work

7.1 On transmission lines.

Mikko Hakala reviewed the presentation that he had prepared. Dismantling work.

It was stated that the presentation included photos from places other than Fingrid sites.

One comment made during the presentation concerned the fact that when performing **dismantling work on angle towers**, workers must know the size of the line in order to understand how power changes will affect the tower. It was considered whether dismantling work should mainly be done as cage work in order to avoid climbing on the structures being dismantled.

The suppliers made a development proposal that, before the invitation to tender phase, Fingrid would specify which parts of a line should be dismantled from a cage and which towers are subject to a climbing ban. Alternatively, Fingrid could specify a climbing ban for the entire line being dismantled. The group also hoped that it could be determined whether the final normal inspection before renewal could include an examination of safety matters especially related to dismantling work, such as climbing safety. Information about a climbing ban should be included in the invitation to tender. The group commented that safe work performance should be visible in the tender. Information about condition should not be blindly trusted and the towers must always be inspected before climbing.

It was stated that **no dangerous situations / accidents related to dismantling work have occurred recently at Fingrid sites**. One year there, several serious near-miss situations and accidents occurred during dismantling work.

8 Matters to be dealt with at the next meeting

As agreed, as many matters as possible were dealt with at this meeting and the rest of the topics will be handled at the next meeting.

9 Agenda and schedule for the next meeting

The next meeting will be held on 31 May 2018. The location will be announced later. Fingrid's substation project manager will be invited to the meeting.

Topics to be addressed:

- Dismantling work, At substations / **Markku Linnanen**

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- Working below and alongside live transmission lines / **Jani Rintala**
- The use of a man cage
 - § On transmission lines / **Marko Elorinne**
 - § At substations / **Juha-Matti Huhtanen**
- Current issues in occupational safety / **Karri Koskinen**
- The situation with installation hoisting / **Karri**
- Remote voltage detector / **Pasi Lehtonen**
- Traffic arrangements and crossing roads, railways and cross-overs / **Teemu Palosaari**
 - § **Fingrid's specifications** / **Karri**
- Protecting cable channels (Fingrid's view) / **Karri**