



# **Working in an HSE-position at Valmet Automotive EV Power**

Joni Kuittinen

2022 Laurea



Laurea University of Applied Sciences

## Working in an HSE-position at Valmet Automotive EV Power

Joni Kuittinen  
Safety, Security & Risk Management  
Thesis  
May, 2022

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Year	2022	Number of pages	64
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The objective of this thesis was to develop my skills and expertise in the field of health and safety, alongside providing a comprehensive job description for Valmet Automotive EV Power of the relevant activities and qualifications within our team of HSE. A diary thesis form has been utilized in writing this thesis, where my daily activities have been documented for a ten-week period. Each respective week is followed with an analysis phase, in which the past week's activities are further analyzed and elaborated through the use of references. The theoretical framework of the thesis varies due to the different needs and tasks that arise during each individual week, however revolve around providing information of the thought processes and problem-solving conducted in relations to occupational health and safety. Reflective practice was widely utilized during the thesis to further improve the professional development in the field. The gain of the thesis has been the expansion of expertise within the field of health and safety, along with the relevant competencies in relations to working in an HSE-position. The target company Valmet Automotive EV Power has gained more insight on the qualifications necessary for HSE-positions within the company, along with improvement ideas towards the risk assessment processes.

Keywords: HSE, development, occupational health, risk assessment

## Contents

1	Introduction .....	5
1.1	Benefits of the thesis .....	6
1.2	Terminology.....	7
1.3	Valmet Automotive as a company .....	10
2	Development goals .....	10
3	Reporting weeks.....	12
3.1	Week 1 of reporting.....	13
3.2	Week 2 of reporting.....	18
3.3	Week 3 of reporting.....	22
3.4	Week 4 of reporting.....	26
3.5	Week 5 of reporting.....	32
3.6	Week 6 of reporting.....	35
3.7	Week 7 of reporting.....	39
3.8	Week 8 of reporting.....	44
3.9	Week 9 of reporting.....	47
3.10	Week 10 of reporting .....	51
4	Conclusions.....	56
	References.....	59
	Figures .....	64
	Tables .....	64

## 1 Introduction

As I have freshly started working in the field of my own expertise, I realized that writing my thesis about my work-related development and processes would be ideal for both my own personal as well as occupational growth. The idea of conducting this diary form thesis however is also in the interest of our company, which further enables the benefit of what this thesis will bring. The work in question refers to a health, safety, and environment operator at the Valmet Automotive EV Power battery factory plant. The abbreviation HSE will be used in place of health, safety, and environment when referring to this work position from here on out.

In this thesis work, I will be logging my daily and project-type activities that I partake in at my work throughout each individual week for the following ten weeks. Each week will have their own separate planning for the week to come, also accompanied with a more in-depth analysis on the matters at the end of each week. This analysis will be conducted with the help of the week's prefaces and fulfilled using literature.

Due to the nature of this thesis being conducted in a diary-method, reflective practice will be utilized throughout the thesis. The idea of reflective practice as mentioned by Brockbank, McGill and Beech (2002, 10-13) allows one to reflect on their experiences and further improve using single-loop learning. With the use of this method, we can improve on the way we achieve our goals and draw out our daily activities more efficiently. As seen in Figure 1, the process of the single-loop learning starts from the reflection phase, in which we reflect on our previous experiences of a singular, familiar task. Upon reflecting on our experience, we can make generalized deductions in a lessons learned type manner, where improvements can be ruled out to help make the task more efficient. After this comes the testing phase of our newly implemented ideas, which produces us a new kind of experience of the said familiar task, which we can again take through the cycle for further improvement.

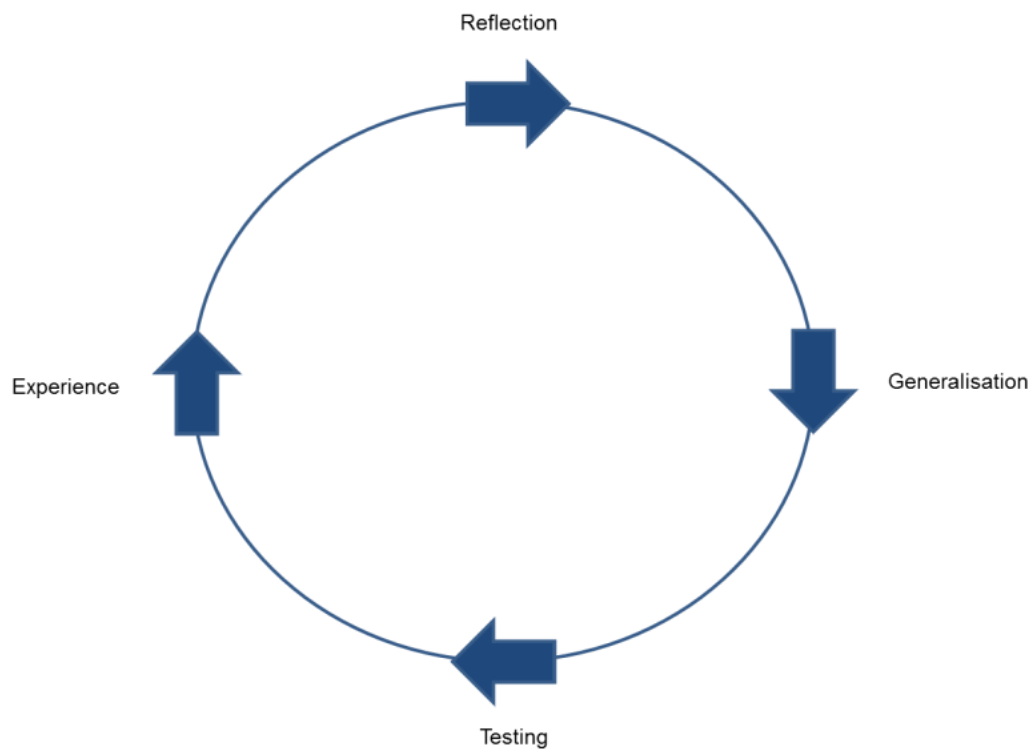


Figure 1: Single-loop learning

Alongside this single loop learning, which is done as an individual, there is another way of reflection that can be utilized in this working thesis. With the help of reflective dialogue (Brockbank et al. 2002, 10-13), I can further improve on the actual writing-half of my thesis, and how to better express myself. Reflective dialogue can be achieved by discussion with an external person, which can help provide reconsideration of how things are being done or are to be done. As I will be receiving weekly feedback from my thesis instructor and there is also a possibility of receiving further consulting through guidance sessions, this method of learning will also prove useful during the process of this thesis.

### 1.1 Benefits of the thesis

For my personal gains, as HSE-related work is something that I have desired to work in for some time now, I find it highly beneficial for me to be able to report my work processes, and further analyze them for conclusions and growing my expertise in the field. When all the work I do is documented, it will be significantly more effective to go through lessons learned, while analyzing the processes and results to further improve them for the future. This also enables both myself and others to see my professional growth in real time, which should not only help

me to figure out my strengths and weaknesses, but also for anyone else to identify how I manage problem-solving and planning.

As for the company-side gains, this thesis will allow the company to gain more knowledge about our tasks and work methods. So far, HSE has been a very autonomous branch within our company. We have been incorporated to the quality team, and as such, we have been indirectly led by quality managers who were uncertain as to what our work processes and methods entitle. Work induction and job description were also quite lacking for this task when I was admitted, this being mainly due to the position being fairly new within the company. Due to these circumstances, it is also helpful for the company to be able to further identify what we as HSE do within the company.

Alongside the apparent benefits of conducting this type of thesis, there was another reason of interest why I was later drawn to this diary method. I had been long aware of this diary thesis method being a possibility for my thesis as well, however I was still torn between whether I could conduct a traditional, project-based thesis for the company once I get more in-depth knowledge of what would clearly need improvement, and whether it could be something that I could work on. As the clock was ticking, and I wanted to get on with my thesis as soon as possible, I had thought of a couple possibilities which we discussed together with my thesis coordinator.

My brainstorming for this subject had resulted in me picking one that already co-existed partially within my idea. As such, due to the documentation already somewhat existing, and my idea was to partially work on a revision of said document while working on other new projects that would conclude towards a bigger picture, we came to a unanimous decision that this diary thesis would be the best fit for me. Due to the nature of my work, projects come and go on the daily which is perfect for this format as opposed to a quite shattered summation of variables, which would have been the plan going for the traditional type of thesis work. That being said, the goal of my thesis is to develop my professional skills. This will be further elaborated in chapter 2.

## 1.2 Terminology

The purpose of this chapter is to give further explanation of reoccurring terms used in my daily work and this thesis project alike. The explanation of these terms will give more cohesion to the reader within the text context. Some abbreviations or terms that are not listed within the following table may also arise in the thesis, however these will be elaborated upon in-text due to their less frequent use.

HSEMS	<p>Stands for Health, Safety &amp; Environment Management System, which as a term is used to refer to the different rules, guidance and process-procedures used to help protect the health and well-being of employees (HSE website 2022). In this thesis, this term will mainly be used to refer to our software we use within Valmet Automotive regarding everything health and safety related. Everyone in the battery factory can use the software via QR codes printed and placed in various places around the facility with their own mobile phone. Supervisors and HSE representatives also have access to a broader view for further handling of cases.</p>
Safety note	<p>Also known as safety observations, are findings related to our health and safety within the facility. Safety notes help find unsafe acts and conditions at work (ASK-EHS 2022). These can be environmental observations, near miss cases or incident cases, all which are reported through our HSEMS. Everyone can create new safety notes but only authorized personnel, such as HSE, are able to process these further. These notes are used to pinpoint what has occurred and where, which allows us to investigate for possible improvement for a safer tomorrow.</p>
Safety walk	<p>Refers to the activity of our cleanliness and safety walks which occur every morning. The safety walks are conducted with the help of the respective area's supervisor and team leader in the current shift, and the aim is to walk through the area while taking notes of discrepancies and areas of improvement (Occupational Safety and Health Administration 2022). These walks are done with the help of a ready-made template within our HSEMS, which also allows us to appoint tasks to said supervisors in case affairs which require attention that have come up during the walk.</p>
PPE	<p>Stands for Personal Protective Equipment. This refers to safety gear that all personnel must use in their respective</p>



	work positions or anytime they enter the production floor. Different tasks and areas have varying requirements for PPE, and the bare minimum includes an ESD jacket, ESD shoes, and safety goggles (Työsuojelu 2018).
ESD	Stands for Electrostatic Discharge. This refers to when two electrically charged objects hit one another and the electric charge is unloaded (Electronics-notes 2022). All our work clothing is ESD protected, and there are various ESD protected areas where you are required to wear ESD gloves and stand on ESD carpets. A possible discharge when in contact with electrical components can cause severe damage to both the person and product, which is why it is important to follow the safety guidance provided in the facility.
One-pager	Refers to a document used mainly for instructional purposes to provide information about a work process concisely and effectively. Also used in the events of severe near misses and accidents as a lessons-learned method (Slidemodel 2022).
Internal Management System	Refers to Valmet Automotive's Management System, which includes all our policies, standards and guidelines which are harmonized across all our facilities.
5S	A methodology used in workplaces to help reduce clutter, unnecessary equipment and improve productivity overall. The 5S comes from the five Japanese words, which are roughly translated to sort, set in order, shine, standardize, and sustain (ASQ 2022). The 5S methodology is followed widely across Valmet Automotive to represent what belongs and where, of which there must be clear indication of.
EVBL	Stands for Electric Vehicle Business Line, which is the manufacturing side for car batteries within Valmet Automotive (Valmet Automotive 2020). The main usage of this abbreviation in this thesis is in regard to the cooperation between the battery factory in Uusikaupunki as well as our battery factory in Salo, thus referred to as EVBL.

Table 1: Terminology

### 1.3 Valmet Automotive as a company

Valmet Automotive is a service provider within the automotive industry which manufactures cars as well as car batteries (Valmet Automotive 2022). The company has multiple functional locations within Finland, Germany, and Poland, and has been growing rapidly as a business mainly due to the electrical vehicle industry being on a continuously increasing demand. This electrical vehicle (EV) side of the industry is also the one which I am working in, more specifically within our battery factory located in Salo, which focuses on manufacturing car batteries. Valmet Automotive also has a battery factory located in Uusikaupunki, with which we work in cooperation with in relations to some topics as well as adopting good practices from one another.

Valmet Automotive EV Power is a technological industry, and as such resembles other industrial companies with its precise working methods and practices. My work as an HSE-operator within the company will thus mainly comprise of making safety adjustments that will compliment these existing working methods alongside acting as an expert in health and safety among new and upcoming topics. The Salo facility is divided into different sections such as production, warehousing, quality, and maintenance, all which have their own areas and challenges, yet work frequently in unison. This in itself can sometimes create obstacles towards change, as some areas within the facility are highly automated while some are more reliant on manual labor.

Valmet Automotive is highly lenient towards safety, sustainability as well as diversity. In the sustainability report provided by Valmet Automotive (2021), it is stated that the company's own operations are carbon neutral from the beginning of 2022. Within the sustainability report from 2021, Valmet Automotive also boasts 70 nationalities and over 4600 employees across all its locations. It is also stated that health and safety is one part of our five pillars provided in our internal management system, which further strengthens the purpose of HSE within the company.

## 2 Development goals

The objective of this thesis is to develop my professional skills. The skill categories that I aim to develop during this thesis can be defined as soft skills and hard skills. Soft skills as a term refers to interpersonal skills, which includes competences, such as critical thinking, communications, work ethics, and leadership (Kamin 2013, 10). Soft skills are usually hard to measure, as they mainly revolve around establishing relationships, developing interaction skills as well as other people-oriented competences. Hard skills on the other hand tend to be quantifiable and technical, as stated by Lauby (2016, 127). These are the types of skills you

learn through expertise and practice, and are often provable through certificates or other documentation. As these definitions are but one entirety, a set of skills from the variety of proficiencies of both soft and hard skills will be selected for the purpose of this thesis' development scope.

The soft skills that I am looking to develop during this thesis are communication, critical thinking, as well as responsibility. I will further elaborate the meaning behind each of these soft skills and give them some individual goals that will help me analyze whether I have reached them during this thesis. Firstly, I will start with communication skills.

The skills involved in effective communication do not only derive from the ability to express oneself by speech, but also include body language and listening (Kelly 2006, 152). The ability to pick up other signs, such as emotions and interact with them accordingly, is also an important part of communication. Whichever the situation, both parties involved in the communication need to be able to understand each other (Kelly 2006, 41-42). The development of these competences in communication are also related to my goals, as I want to further develop interactions with people. These interactions are a key part to success in my tasks as an HSE-operator, as providing safety-related inductions and training are an initial part of my work. If I am not able to provide these sessions in an understandable manner, then providing them altogether would pose more of a problem than gain, as by being trained, people are expected to be aware of the matters discussed. Appearing and speaking to large groups of people I am unfamiliar with is also quite nerve-wrecking for me as an introvert. As described by Kamin (2013, 143-144), introverts would prefer not to speak spontaneously, but rather take time to give thought into the matters before expressing themselves. Keeping this in mind, to effectively implement changes and ideas, discussions with all social classes are bound to happen at almost any given time, which is why I want to further develop my ability to adapt to these situations. This would show as being more confident at conversating spontaneously. Lastly, as English will be my primary language at Valmet Automotive, the chance to develop my skills in the English language should also be highlighted.

The next soft skill within the development scope is critical thinking. Critical thinking can be considered as an ability to interpret, analyze, or evaluate scenarios which then can be utilized to solve problems or understand concepts (Erkens et al 2019, 76). The goal of developing my skills in this kind of thinking is to become more decisive. This is a beneficial trait to have as an HSE-operator, as decisiveness in risk assessments and projects is desirable. The ability to analyze risks with limited information and to further evaluate the severities and likelihoods in these scenarios is crucial, as the safety and well-being of personnel is at stake (Gambrill & Gibbs 2009, 259). The ability of critical thinking is also crucial during projects, as this helps in identifying the root causes of the problems which the end-product aims to tackle as well as challenges that might arise during the course of the project (Project Management

Institute 2021, 90). By developing critical thinking, I also want to be more able to make my own decisions instead of having my thoughts heavily influenced by others, and as an introvert, this can be likely to happen if I do not share my view on matters before someone else has received compelling support.

The final soft skill within my development scope coincides with the previous ability in making decisions. Decisions are made by people with the proper authority and responsibility within an organization (Parnell et al 2013, 3), and as such, I want to develop my responsibility at Valmet Automotive. The goal of developing my responsibility is to display my skills, and ability to be held accountable for projects and other tasks. Being able to take responsibility for projects works as an intrinsic motivator for me, as the work itself in each project functions as an incentive to keep working on it and see it through (Project Management Institute 2021, 91). When I can partake in projects that interest me or work toward a highly beneficial goal, I feel more valued, as I have been given a chance to display my skills. As I have a growing desire to increase my professional skills, having responsibility helps by receiving more authority over projects which are more demanding, which then in return helps me learn new competences through experience.

Additionally to these soft skills, to develop in my work position, I also want to develop my technical skills through knowledge. As hard skills are mostly recognized as an individual's ability to perform specific tasks (Žagar & Kelava 2014, 249), for me to be able to perform my tasks as HSE, I will have to broaden my knowledge. One of these types of knowledge would include further awareness of work processes and tasks that are done within the facility within different departments in order for me to help make these processes safer and more functional for personnel. Furthermore, factual knowledge regarding legislations and standards that are used to assess and define safety and well-being related topics within the facility also fall into this category. By developing my knowledge within these fields, risk assessments and audits as an example will become more efficient and fluent to perform, as I would be aware of both the requirements given by law as well as processes, which I can then apply to each other properly when evaluating or modifying processes to a safer way.

### 3 Reporting weeks

This diary thesis will follow the daily activities of my work for a ten-week period. In this chapter, I will first begin each week with a short preface of what is to be expected for that week, included with possible plannings for occurring projects that I intend working on during that week. After the preface, the days and their activities will be logged under their respective dates, and as the content of these dates will vary, I will not prematurely go into further detail as to what is included within this section. Finally, to conclude the week, I will

use the collected information from throughout the week to draw further analysis and conclusions concerning my activities with the help of credible sources and relevant documents, such as standards and legislation.

There are two appointments which are reoccurring each morning. Our 8:15 quality morning meeting and our 9:05 safety walks. The first thing in the morning, being our morning quality meeting, is held by our senior quality manager. The topics discussed in this meeting start off with our safety notes for the past day or days, which have been gathered through our HSEMS database. After this, we will go through values concerning the past production days, such as cost per product, scrapped material, and most reoccurring production failures. The meeting ends with any possible critical information for the whole team, such as changes in production or organizational matters. This meeting is then followed by a shop floor manager meeting, which goes through the same topics as the quality meeting, only with the inclusion of production representatives as well as maintenance representatives. This meeting rarely concerns me, as it is attended by our manager and relevant information is shared with our HSE team, however I will be covering in as a representative of HSE when needed. The other reoccurring agenda is our daily safety walks which I will either be conducting alone or with a team member.

### 3.1 Week 1 of reporting

The first week will start off with meetings with our HSE team to get our new manager up to speed regarding our current situation of affairs and areas of improvement. We will also have a meeting together regarding a new upcoming safety day training which we will be hosting somewhere during the summer as well as an induction plan meeting regarding subcontractors. The week will then end with a hot work card training.

Monday 30.05.2022

My day began at 07:00 with me reviewing my on-going projects and the newest safety notes that had been reported during the weekend. As my colleagues arrived at 07:40, I notified them of what had occurred at the end of last week as the rest of the team had been on holiday, and we continued to discuss weekend topics for the remainder of our time until our morning meeting began at 8:15. As usual, after our morning meeting our HSE team goes on a break together, during which we discuss current affairs regarding projects and daily tasks. At 9am we got ready with the team to go on our daily safety walk, and we were accompanied by the line supervisor as well as our occupational health & safety representative. During the walk, it became apparent that the work instructions on-site were a bit unclear regarding the PPEs required at the station, so I took it as a task to update them, as this was already

something that I had started for this area. Another finding that was made was regarding the line's evacuation lifters which were misplaced and used for tasks unrelated to an emergency. The matter was discussed with the workers that the lifter should always remain available in case of emergency, and a trolley should be used as a replacement instead. Lastly, we also found some faulty trolleys near the line, a task which we had already assigned to maintenance during the previous week, but which had not been carried out yet. Thus, I took it as my task to get an out of order sign on these trolleys immediately to prevent any accidents that could be caused by this.

On our way back to the office, I came across a colleague training some operators for a form that I had created the previous week, and I stayed to receive some feedback and share thoughts on it, as today was the first day of implementation for this project. The feedback was positive, even though the form by no means is fail-safe, however during the coming week it will become more apparent how effective it is. After this, I rushed to the office to print out the signs for the trolleys, as I had a meeting with our HSE team coming in five minutes. In the meeting, we discussed and explained to our manager how we work to resolve reported safety notes as well as monitor their progress and implementation, and how the respective HSEMS functions. There was also discussion about our upcoming meetings for the whole week and who is attending and what, while we also reserved a new meeting for HSE development. Time goes by quickly in these meetings, and suddenly the time was 11:15, lunch time.

After lunch I started working on a one-pager for a safety note we had received last week. The safety note was regarding taping the poles of batteries before placing them in the battery recycling bin to prevent possible short-circuits. As maintenance had installed the necessary holders during the weekend, I was then able to take some pictures for a 5S sign and finalize the one-pager. The 5S sign included scissors and tape, while the one-pager had further instructions on what one should do with the batteries and the equipment when bringing batteries to the recycling bin. Shortly after this, we were alerted to an incident where a worker had their hand clenched between an object, which resulted in the need for a cold bag. This brought up the conversation of where we have our cold bags in case something like this were to occur again, and after some investigation, we noticed that the cold bags which are placed in the first aid stations at the facility floors were quite hidden and inconsistent, and very few knew of their existence. After a brief discussion, we concluded that we ordered more cold bags as we barely had any reserves left, and we will relocate the cold bags and provide additional information of their location.

Tuesday 31.05.2022

My day started off at 7:00am with working on a one-pager regarding one of the findings we had made during our Monday's safety walk. After this, we had our morning meeting as well as

our safety walk on one of our other production lines, which was in exceptionally good condition. Only one issue was raised up: there were mechanical cranes being stored along the line on wooden pallets and cardboard boxes. This goes against our cleanliness standards, as these materials are more prone to pollute, and we are precisely monitoring the amount of particles found within our machines with the help of particle traps. This matter was however discussed with maintenance who said they will be picked off by an external partner once we get replacements.

10:00am I had a workplace survey meeting with the rest of our HSE team regarding our work environment on two of our production lines. This type of meeting is required to be conducted a minimum of once per three years or when drastic changes are made to the working conditions or processes. This meeting was in collaboration with our healthcare partners, and they showed us the results of their workplace survey which they had conducted about well-being at these two production lines. Once the results had been gone through, we took a tour around these lines and inspected them for potential ergonomic or health hazards that would have come up since the last inspection. There were no discrepancies found however, and we continued to lunch.

Once back from lunch, I began going through our old excel sheet concerning our safety walk data. As we use a newer HSEMS over this system now, I took it upon myself to clear out the open and ongoing topics within the excel sheet. The idea is to have all of those tasks closed during June and have the open one's transferred and assigned through our HSEMS so that all of the issues can be assessed. At 2:00pm, I had a meeting to discuss the planning of our safety day training, as we had been given the go-ahead to organize this type of an event using four hours of production time. We brainstormed about what the included content would be, and ended up with a unanimous decision to organize an evacuation training which would include the showcase of emergency routes, behavior, and meeting points. Depending on how long this evacuation training would take, we had also discussed about a brief introduction to our first aid stations scattered around the facility, as it would also be beneficial for everyone to know what they contain and how some of the equipment are used, even if they do not have first aid training. Lastly, we discussed of a potential showcasing of how the battery would react so that everyone would understand the importance of evacuation, however it was unclear whether this would be feasible due to the short amount of time we were given to perform our safety training.

Wednesday 01.06.2022

I began work at 7:00am as usual, however the day started quite quietly as I had not done much prior to our morning meeting. Today's safety walk also was quiet, and the only matters that were addressed there included cleaning documents not being filled after cleaning as well

as some additional screws that had dropped beneath the production line during assembly. Unrelated to this walk, we did however notice a canister used in another work process containing a chemical with no labeling, as the container was not the original one. The canister contained isopropyl alcohol, and should include both the necessary chemical hazard pictograms and indication of content, as the canister is refilled by our personnel, and is not specifically designed for this purpose.

At 10:00am we together as a team attended a meeting regarding a previous safety note which was made due to a forklift driver nearly hitting another worker in the logistics warehouse. The premise was that the work process includes them vacuuming the pallets clean before stacking them for further use, however due to the lack of space, the forklift had to squeeze into a tight spot, resulting in pallets dropping and almost hitting another worker while reversing. We began brainstorming possible ideas on how to prevent this from happening, and came up with the idea of making the area in which they clean free of excessive forklift traffic. This was done by moving the sticky mat which they use to clean the bottom of the pallet to a separate storage area which is mainly only meant for forklift traffic. This new location was placed next to an emergency exit route but was deemed as one of the very few feasible options. The process of dropping the pallet onto the sticky mat and then lifting it and relocating it was said to only take mere seconds, hence it should not cause a problem in using the emergency exit if needed. Even though there was space for a person to fit through even with the pallet on the sticky mat, this issue will be monitored closely during the coming week so that the pallet would never be obstructing the path or left unmanned. The remainder of the day was then used to discuss pressing matters with colleagues, including the locations of fire alarms and how we investigate, monitor, and close safety notes, and whether this could be made more systematic.

Thursday 02.06.2022

I participated in a hot card training which lasted the whole day. The training consists of information regarding risk assessment that should be done before starting hot work as well as other good practices to be aware of before conducting heat work (SPEK 2022). The training also goes through some standards and legislations regarding heat work, as well as the different responsibilities of various parties related to the process, such as the person conducting the heat work, the person supervising the heat work, as well as the person permitting the heat work. Considering that we have a permanent heat-work room in the premises, it is useful to know the safety aspects required to be considered when we have heat-work to be done. This knowledge will also allow us to maintain and enhance the safety in the area if necessary.

Friday 03.06.2022



Today during our safety walk, we noticed quite a few discrepancies, however they were all related to 5S and cleanliness. Upon assigning these tasks using our e-mail mailing lists, I noticed with one of my colleagues that the mailing list was not working as intended, as they did not receive any email notification of the created tasks. I then forwarded the issue to IT, because if the necessary people do not receive these task notifications, they will most likely remain undone, and the issue will persist until our next safety walk occurs there. After this, I started translating some of our labeling found on the line, as they were only in Finnish and English is our official work language.

After lunch I started working on our finding from Wednesday regarding the missing chemical labeling on one of the canisters on the line. I went through our safety data sheets concerning our chemicals and found the one in question to be both flammable and health hazardous. I printed out stickers with the related hazard pictograms as well as the name of the substance and attached them to the canister on the line. As there were multiple safety precautions mentioned in the safety data sheet, I also went through the work process instructions to see if these were taken into account. The chemical was mentioned in the instructions, however there was no mention of safety cautions that need to be practiced while working with the chemical. I did not change this simultaneously, as I need to go through the instructions more thoroughly and see whether this safety document is to be found somewhere nearby or should be added onto the work instructions.

#### Analysis of Week 1

As stated in the Occupational Safety and Health Act (738/2002), employers are required to assess the risks and hazards plausible to one's health at the workplace. If adequate expertise is not available at the workplace, external experts should be deployed, such as how we collaborated with our healthcare partner in further reassessing potential new risks along with their workplace survey on our production lines.

According to the Act on Occupational Safety and Health Enforcement and Cooperation on Occupational Safety and Health at Workplaces (44/2006), accident investigations and workplace inspections should be carried out in an urgent manner to prevent any further incidents from happening. This was the case during our meeting in the logistics department regarding a severe near miss incident.

It is stated in the Rescue Act (379/2011) that necessary safety precautions are to be taken when engaging in hot work, hence for me to be able to further understand the possible hazards better in our workplace, the hot work training can be implemented.

As according to the Finnish legislation concerning chemical safety (Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives 390/2005), it is required to keep the

chemical safety data sheets available to personnel and give clear indication of the chemicals in use. Also, as according to ISO 45001:2018, the implementation of said hazard pictograms and data can be used to eliminate fraudulent use of the chemicals. This is in regard to the chemical canisters found without safety data sheets or any labeling of content indication whatsoever on the lines. Even though the chemical in question was mentioned within the work instructions of that process, the identification and characterization of the hazards is lacking due to the insufficient information provided (Alli 2008, 117). When information about the hazards are depicted through the use of hazard pictograms, risk management concerning the exposure and plausible risks are easier to deduce for personnel in contact with the chemical, which enables them to exercise caution more naturally.

### 3.2 Week 2 of reporting

The upcoming week will be quite busy with meetings throughout the week. We will have an HSE development meeting on both Monday and Wednesday to discuss areas of improvement with our team and a conjoint meeting on Tuesday with the HSE team from Uusikaupunki as well as ours. Tuesday also marks the monthly check-up of our first aid stations. The week will then come to a close with electrical work safety training and high voltage safety training on Thursday and Friday.

Monday 6.6.2022

The morning started with me tinkering with our HSEMS and Excel to see how and what kind of statistics can be pulled from the systems. After our daily safety walk, we had our first development meeting with our HSE team to discuss occurring matters and methods on how we function. We went through our current projects and workloads and decided on using a more systematic way to see the progress of projects and tasks within the team. This was established with an Excel sheet with which our team could see the tasks which everyone else has and their progress, as well as possible deadlines and priorities. A new workspace was also created online where everyone will place their respective project drafts. This way everyone has a grasp of what is going on, as well as enabling the opportunity to have anyone continue someone else's work in the case of vacations or sick leaves. After the meeting, the day went by organizing and orienting my current and upcoming projects and documents so that it will be easier for me to continue later as I was quite sleep deprived today.

Tuesday 7.6.2022

The day started off by receiving notice of the previous night's evacuation incident. A battery had dropped on the production line and started reacting, causing both the evacuation of

personnel and the battery. We discussed with the team briefly what had happened, and what could have been done better, but this discussion was assigned its own meeting for Wednesday. I was also informed that one of our fire extinguishers in the logistics area had faulty pressure, so I went to confirm the case and replaced the extinguisher with one that was properly pressurized. As the pressure-loss on the replaced extinguisher was so low, we will keep it as a reserve until next year, when it will be checked along with other extinguishers that are due that year.

After lunch I had a meeting concerning an evacuation form I had made for the batteries, and how this could be digitalized more effectively. The original idea was to create a separate form within our HSEMS to be used for battery reporting, however this was deemed inefficient due to the need to report twice in this case. The modified battery report would not suffice as a safety note, thus leading to extra work, as another note would have to be made regardless.

After the meeting came our monthly first aid station check-up. Once every first Tuesday of the month, we check the first aid stations more thoroughly, inspecting that all the necessary items are in place and have not expired. An addition to the stations was made due to an incident that occurred last week where a person had their hand crushed and would have required cold bags to tend to the swelling. At the time, cold bags were found in some of the stations, however they were inconspicuous with no visual information whatsoever. Due to this, while checking the stations I made sure that each station had at least one cold bag along with a tag in front of the cabinet indicating that there is one inside. As the cabinet does not have a separate section for the cold bags, the stations should be checked for cold bags each time possible as only one can be fit inside properly. The day then concluded with our HSE meeting with Uusikaupunki where we discussed and closed some older topics concerning ESD-testers and safety knives.

Wednesday 8.6.2022

In the morning I began working towards a short safety data sheet to be used for the isopropanol chemical that I was working on last week. Due to the line itself not having any chemical cabinets, nor do the other stations on the line primarily use chemicals, I started collecting information from the chemical's safety data sheets and compressing it. As the actual data sheets are roughly ten pages long, I picked out the most crucial information for the employee working with the chemical and fit the data on one page. The English part of the document was finished and can be found below in Figure 2, however as this will also be translated to Finnish, I must get back to it later.

### Clarification of chemical hazards and pictogram



**Flammable (liquid)**



**Health hazard**

**H225:** Highly flammable liquid

**H319:** Causes serious eye irritation

**H336:** May cause drowsiness or dizziness

### Clarification of required PPE while handling chemical



**You are required to wear gloves**



**You are required to wear safety goggles**

**IF CHEMICAL ON THE SKIN: Rinse skin with water. (P302+P352)**

**IF CHEMICAL IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing. (P305+P351+P338)**

Figure 2: Simplified safety data sheet for isopropanol chemical

After our safety walk, we had a meeting with the HSE team to discuss the incident that had occurred the previous night. During the meeting, we went through documentation and planning regarding evacuation within the factory, as well as rescue personnel and their coordination. As a new personnel evacuation plan was already in the making as well as the battery evacuation forms, the plans were pushed forward with higher priority. We also further went through the plans and had an open discussion about their progress and current state.

After lunch we had yet another meeting with the HSE team, this time concerning development topics within our team. The first matter raised was regarding the upcoming changes to our 5S audits and visualization. As these documents are revised on a yearly basis, it is soon time to go through them and improve where possible. As we have had somewhat negative feedback about the current state of the form being too inconclusive as well as having no visualization, these were brought up and discussed how they could be improved. We also discussed the method of how we handle safety notes within the team and came to the result of drawing out rules for the team that can then be further expanded to the supervisors as well. After the meeting I went with facility maintenance to check on some fire alarms that needed to be installed, and planned their locations.

Thursday 9.6.2022

Today I began my SFS-6002 electrical safety training. The standard training contains knowledge of basic work instructions and safety requirements in electric work. The course also includes information about the dangers of electricity and what dangers can occur (Alertum 2022). This SFS-6002 course was specifically tailored for us at Valmet Automotive to further fit our facility and daily tasks for the sake of relevance. With the help of this course, I will be able to implement the acquired knowledge within our facility to prevent potential electrical hazards as well as implement new, safer solutions in this type of work.

Friday 10.6.2022

The electrical safety training concluded with a practical exam where I had to complete a work task on a battery that is done on one of our production lines. These two days of training have helped get me the basic knowledge as to why we have specific requirements along these production lines as well as what tools and work methods are the correct one's to use. With both the knowledge of our practice within the facility and with the course material, I can now decipher why some tasks are done slightly different than how they were shown in the training. I am still yet to implement this new learned knowledge anywhere, but it will be of much help in the future.

Analysis of Week 2

As mentioned, there had been a notice of an extinguisher that was less pressurized as it should be. As according to the Rescue Act (379/2011), these types of equipment are required to be kept operational and inspected accordingly, which in this case meant that I changed the extinguisher to a fully operational one. The fire alarms that we checked up on with facility maintenance also fall under this act, as there were fire alarms that needed to be reinstalled as their current locations were obsolete. New fire alarms were also set to be installed, as one section of the production line was completely missing alarm buttons, despite having a fire

door present. In regard to last week's chemical safety data sheets, a further conclusion was made so that these data sheets will be created and placed in the near vicinity of the workstation where the chemical is handled. This is due to the absence of chemical lockers along this production line as well as the absence of chemical safety precautions in the work instructions (Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives 390/2005). The original safety data sheets for this chemical are ten pages long and include a lot of irrelevant information for the operators. As such, in the first stage of learning new information, it is crucial to pinpoint the relevant information, while giving the information purpose (Goncalves 2012, 51-52). When pinpointing the relevant information into these simplified data sheets, the risk of information overflow is mitigated, and the operator is more likely to acquire the information regarding safety precautions and exposure risks.

During Tuesday's first aid station check-up I made sure that each of our stations had a cold bag inside included with proper indication of them. As stated in the Occupational Safety and Health Act (738/2002), appropriate first aid equipment must be available and clearly marked in the immediate vicinity within the workplace. Considering that when the incident had happened, it was unknown where we kept our cold bags, as the indication had been neglected. Additionally, very few locations provided cold bags, and as such, both issues have now been resolved. Incidents like this can be common in the facility as there are a lot of moving machinery, material and people which could result in minor bruising in some cases.

As stated in the Electrical Safety Act (1135/2016) a designated electrical work supervisor shall be nominated at the workplace. Now knowing this, it becomes clearer who to contact in anything related to electricity. They are also responsible for making sure personnel conducting electrical work have sufficient training. Additionally, in accordance with the SFS-6002 (Sähkö- ja teleurakoitsijaliitto STUL 2019), the tools used in live voltage work must contain markings of the EN-60900 standard to ensure safety. Furthermore, exposed electrical equipment with voltage is to be covered to mitigate the risk of electrical shock. As such, the poles of unattended batteries and cells must be covered or insulated, done by insulating tape or insulated mats.

### 3.3 Week 3 of reporting

Due to holidays and sick leaves, the third entry week is reported two calendar weeks after the previous entry. The weeks consisted of only a few working days, which as a result would have led to a fractured entirety. Minor references to these weeks will however be made, most notably regarding a risk assessment conducted to our logistics area on 15<sup>th</sup> of June. The upcoming week will be quieter than the previous one at first glance. The only major

upcoming topic is the new safety note meetings we will start attending as a team. Otherwise, there will be a few documents and guides that I need to write.

Monday 27.6.2022

The day started off with me compiling a guideline for our HSE team to use about handling and closing of safety notes within our HSEMS. This guideline will function as a workflow for our team to better understand the responsibilities divided between ourselves as well as used to prioritize tasks and define deadlines for investigations. As there has been an abundance of safety notes which have not been tackled from the very beginning on a regular basis, they have started to pile up and we have not been able to get on top of it, however with the help of this guideline, roles and actions should become more apparent.

After lunch, I began modifying the evacuation form as per request for some additions to help pinpoint scrapping. The changes would help to understand which specific version of the battery and which parts had been installed, so that both proper parts and battery is scrapped without any extra hassle. Some discussions were had with a colleague from the quality department, and I received hints and material which helped me implement these changes. The renewed form is still due for inspection until it can be launched.

Tuesday 28.6.2022

Once our safety walk was complete, I began translating the document to instruct how to fill out the evacuation form. This form will be located next to the evacuation form with the purpose of assisting and clarifying the sections within the form. Later during the day, we had our first meeting with the team regarding safety notes and the people responsible in each case as well as what is required to be done in different occasions. The purpose of these meetings is to go through safety observations that have been made, and further discuss and nominate these to representatives from both the HSE team as well as the corresponding area's supervisors. The instructions I had made the previous day based a foundation on how these meetings would operate and what their function is. We had not previously had any proper way of handling our safety observations either individually or as a team, and as such, this was a field we had to improve on.

Wednesday 29.6.2022

The morning started off with me brainstorming and listing ideas for our safety training day that will be held later this year. Two plans were devised in which one includes live showcasing of safety features and the other one is fully implemented in a classroom. The topics to be covered during the safety day include evacuation, battery reaction, first aid, and an introduction to our rescue team. The evacuation section will include a showcase of the

emergency exits and meeting points, and where they are physically located within the facility to ensure that personnel are aware of their nearest emergency exit. This section will also include instructions on how to act during an evacuation situation. A reactive battery video will also be shown. The purpose of this is to show personnel why we are as careful as we are with the batteries, and how to act and what to do around reactive or potentially reactive batteries. After this, we will have a run-through of the equipment found in our first aid stations as well as how to use them, included with maps where to find them. Finally, the training will come to a close with a brief introduction on our rescue team, how personnel can recognize them as well as give the ability to rely on the more during emergency situations.

After lunch, we had a chemical meeting with the HSE team concerning the shift of chemical responsibility to us. We discussed about the tasks concerning this responsibility as well as other regulatory matters that we might need to fulfill in case lithium batteries are considered a chemical in the future. These tasks and responsibilities will be further discussed within our team once everyone is present. Once this meeting had concluded, we had a meeting with the team to discuss safety observations and current affairs concerning them. These meetings will become reoccurring in the future, as closing of notes as a team has been recognized to be efficient.

Thursday 30.6.2022

After our daily walk, we discussed with the area supervisor regarding the updating of that line's cleaning lists. As these lists had been created a long time ago, the extensiveness of the list is lacking, especially due to changes that have happened to the line. Furthermore, as we have been conducting these walks, similar deficiencies have arisen which we could tackle by specifying the cleaning in these areas that are neglected. Our original idea was to have these sessions during week 29 & 30, as there would be a production stoppage present at this line, but as we discussed with the supervisor, we were informed that no personnel from these operations would be present. This would have been ample time to conduct this time-consuming process, however we will now have to postpone this until August due to vacations.

The next thing on my checklist was to construct PPE instructions for logistics, as there had been a few safety notes regarding personnel lacking reflective vests. This was due to a new pathway opened for personnel to walk through, and as such, the reminder of correct PPE was missing on that door. Additionally, I worked on 5S standards for our high voltage covers which would be located on newly installed racks along the production line. As previously these covers had no designated locations where to place them, both our inventory of the covers as well as the cleanliness had been affected, as covers were lying everywhere, and we were unaware how many we had or how many we needed. Now each material rack has a specified location for these covers with two per stack and the excess ones will be taken into storage to



act as a buffer in case more are needed. The day was then concluded with a brief meeting with maintenance regarding their new system and our collaboration on informing installation/maintenance needs from our side.

Friday 1.7.2022

Today was a quiet day with only reoccurring activities throughout the day. This was the first week we had tried setting up daily meetings to go through and discuss safety notes, and as mentioned before, these meetings have deemed to be quite successful. Here I will go into a little further detail about how the meetings work.

During these 1-hour safety note meetings, we aim to first have each safety note under the responsibility of someone from the team as well as from the corresponding area supervisor. What this means is that we fill in the cause analysis section in our HSEMS with the aforementioned people depending which area the observations belong to alongside with potential corrective actions. These corrective actions have mostly been discussed with the team during the meetings, but the follow-up and further analysis is to be done by the person responsible of that note. Later, as these observations would be deemed done, the observation would either be closed in upcoming meetings, or more preferably, during each person's individual time. As of right now, there are a lot of observations that have been completely neglected, which is why the heavy focus of these meetings now is to assign the responsible people to the analysis segment alongside possible corrective actions if these are applicable. Once all the observations have been nominated however, the meeting would further shift towards solving these cases together, by either brainstorming ideas or closing them through collective knowledge, as these corrective actions could possibly already be underway or done completely. All in all, this way of working within the team has proved effective, and once we catch up to the present observations with nothing left to analyze from the past, a re-evaluation should be done whether meeting so frequently is still necessary.

Analysis of Week 3

As we needed some improvements in regard to our safety observation analysis process, I took it upon myself to create a guideline for the team to enhance productivity. These guidelines were developed with portfolio management in mind, as this strategic approach aims to optimize our team's scheduling and eliminate redundancies (Lehmann 2012, 93-107). Given that this observation analysis is new for the team, it would be best to have everyone follow the same work pattern to maximize productivity. Lehmann also defines evaluation dimensions for said portfolio management, to which this HSEMS guideline along the processes involved can be adapted to. The most applicable out of these ten dimensions are process type, use, complexity, documentation, and efficiency.

As stated in the Rescue Act (379/2011) Chapter 3 Section 14, self-preparedness shall be done in accordance with the rescue plan for fire prevention and preparatory measures. The planned safety day which will be held later during autumn shall be conducted to support this. The content included for the day will help give personnel a better understanding of how to act during emergencies as well as how to prevent them through training of how and which fire equipment shall be used in different scenarios. Alongside this, personnel awareness towards the hazardous chemicals that the lithium batteries can induce in their reactive states will be covered as well in accordance with Occupational Safety and Health Act Chapter 5 Section 38 (738/2002).

### 3.4 Week 4 of reporting

This week will start off with me giving my first induction training to some visitors coming to the facility. The week will then continue with a discussion regarding an incident that had happened in one of the warehouses along with some development meetings. The week will then come to a close with the monthly first aid check-up as well as some more meetings to discuss on-going topics.

Monday 4.7.2022

The morning began with me giving a general safety induction for visitors. The induction consists of a quick run-through of our facility-areas, what kind of PPE requirements each area has, as well as other safety risks, such as internal traffic, behavior in the facility, and ESD. Additionally, a brief introduction to our rescue team is provided along with visualization of our premises' first aid stations and evacuation routes with their respective procedures. Once the induction presentation was complete, I escorted the visitors and their host to the production lobby where they were provided with the necessary PPE and a briefing on ESD testing which happens prior to entering the factory floor. Once all of this was done, I returned to the office to prepare for our morning's safety walk.

After the safety walk, I headed towards one of our logistics areas to check on a discussed topic during our previous risk assessment walk in that area. The issue was concerning the space between the floor and the ceiling in one of the warehouse underpasses. Some forklifts that pass under these ceiling lights with a load have roughly five centimeters of space between the load and the lighting, even with the load barely being lifted off of the ground. In a case that the forklift driver was to lift the load too much, it would potentially hit the lighting, which could either result to property damage or even potentially having the load tip over and fall. During the risk assessment walk we had pondered of a possibility of relocating the lighting closer to the ceiling to give more room to the forklifts. I took some pictures to

give to maintenance and further discussed with the logistics supervisor concerning the issue, and we agreed to trying to push this solution forward.

After assessing the logistics area, we had a meeting with the team concerning our current workloads and statuses of projects. As we were assigned to develop our current 5S policies in the facility, I was given the task of creating instructions on how these 5S tasks are provided and how to handle them. Alongside this I was also assigned responsible of providing monthly statistics of the summaries of the types of tasks that are open or closed for each 5S walk so that management can escalate on the matters when needed.

Tuesday 5.7.2022

The morning started off by discussing with one of our logistics supervisors if one of our personnel that had an injury the previous week was present. We set up on a time to have a short informal injury hearing regarding the incident, as I believe this could be something we can improve on. Injury hearings are a standard procedure at Valmet Automotive in loss time injury cases, however I held this hearing regardless of it being a loss time injury. As this had been a safety observation and the person had to leave work early during that day, I still felt as though talking to the person would be valuable to know if there would be something that we could do to prevent this in the future. During our short discussion with the employee, they told the cause to be from inattention of the ledge of the step while adjusting their glasses, resulting for them to misstep and sprain their ankle. They also mentioned that they have been using this specific walkway for a long time, meaning that this ledge did not come as a surprise to them. As such, we both agreed that it would be beneficial to add a sign to the door leading to the ledge, reminding to be cautious. This would especially help newcomers while also reminding staple personnel to be more vigilant.

After our discussion I went to the scene of the incident to investigate what would be the best way to tackle this issue. The most effective solution was deemed to be adding a caution sign on the leading door as well as adding black/yellow tape for added visibility. I went back to the office to create the sign while also grabbing other needed equipment and implemented the plan. While I was on the facility floor with the black/yellow tape, I also added this tape to another place that was indicated in a safety observation. This was regarding a potentially sharp edge of metal on the production line, to which I added some of the same tape to cover up the edge, while providing added visibility of the corner as well.

In the evening we had a HSE development meeting in which we discussed a few topics. The first one was concerning more user licenses to our HSEMS and who should be given access to the software. We had a list of names of the people who we had attempted to give tasks to within the system, and they along supervisors and team leaders would be next in line. The next topic was the discussion of the upcoming forklift induction that would tackle the recent

rise in forklift-related accidents. We decided that two from our team would participate in the training on the two separate weeks the induction was held on to ensure that the safety aspect of the training is adequate to our requirements. Lastly, we went through our task list to see our on-going projects and their status. Once the meeting was over, I went to investigate a safety observation we had received during the day regarding an elevated metal plate which had caused someone to trip. This issue was investigated and discussed with one of our senior supervisors and forward to maintenance to change the plate as it was bent.

Wednesday 6.7.2022

During this month's first aid station checkup, I also investigated a non-conformity topic we had received. Last month there had been an internal audit within our facility, and one of the non-conformities was deemed to be evacuation maps on our first aid trolleys that had been outdated. This was confusing as our whole team agreed that there were no maps on these trolleys as there simply was no room on the trolleys to visibly display them. During the checkup, I however did find one map on one of the trolleys that was outdated, albeit only missing one meeting point. We had discussed with the auditor that the lack of maps was not the problem, but rather them being outdated, so this resulted in the removal of the map as it was of no added benefit.

Later in the evening we had a 5S development plan meeting with the team to further discuss about improving our 5S and involving the personnel more in the process. We presented the plan we had been working on since our last meeting, which consisted of what we want to show management as well as how to train personnel, alongside an indication of results as well as potential rewards for achieving a good 5S score. The data that we plan on showing management would be regarding the sum of given tasks while also showing in more detail what type of tasks these were, and whether they are open, late, or closed. The training aspect would be delivered such that our HSE team would train team leaders and provide them with the material so that they can further train their shifts. White collars would be given the opportunity of applying for 5S training using our SAP system, which includes other trainings as well. The rewarding part is tricky as there are multiple areas where people work, as well as in multiple shifts, so it is hard to pinpoint how to reward the right people.

Thursday 7.7.2022

The day started with me working on the content of the upcoming safety training day. The content has now been set to be in the auditorium, presenting an evacuation training video made by us as well as a burning battery video which was recorded at the battery factory of Uusikaupunki. The evacuation training video will show a few scenarios of evacuation such as when the interpreter is the first one to notice the threat, and when someone else has already called out the threat. Alongside this, the video will display how to act in these situations as

well as giving information on what to do. The auditorium portion of the day will then conclude in a short presentation of the rescue team. The day is then set to continue outside with a fire extinguishing training, where personnel take turns using a fire extinguisher and a fire blanket to simulate preliminary extinguishing.

After this was done, I began working on instructions for supervisors regarding safety moments. Safety moments are occasions that are held once a month by the supervisor at the beginning of their shift, going through relevant and pressing topics. As the reporting of these moments had also shifted to our HSEMS, I created some work instructions on how to fill the form as well as where to get potential supporting material created by HSE. Once the instructions were finished, I took these instructions to each shift whiteboard within the facility while also informing supervisors that I happened to pass by.

Friday 8.7.2022

The morning started with our 5S audit for one of the logistics areas. There were quite a few matters to improve on in the area, mainly regarding excess items. The area ended up receiving a score of 89%, with only minor things to improve on. After the audit, our team had a meeting to go through our task list concerning the status of our on-going projects.

After lunch we had a meeting to review our 5S development plan which we had been working on during the week. The purpose of the meeting was to now present it to our department's manager before proceeding with it to other management branches. The proposal from our team was deemed good and would be taken further with management to see whether this can be implemented and with what possible added changes. Once this meeting had concluded, I went to work on a solution for one of the safety notes we had received a few days back. There had been an incident where a person had hit their leg onto some metal pallet stands, and the proposition was to somehow cover them. As the metal plating in question was used to redirect the incoming pallets, the protective measure should not reach to the inner side in order to not interfere with the pallet redirection. As I was about to order some adhesive foam to use for the scenario, one of my colleagues had found the same foam from our maintenance warehouse. This material seemed like a good fit for the job in creating a protective layer on the outer surface of the plating, and as such, I headed over to the location to test it. I had a chat with the worker on that station regarding the injury and the possible modification to prevent it and they were unaware of such incident but were however pleased of the change.

Analysis of Week 4

As previously analyzed during our risk assessment at one of the warehouses, it became apparent that the low roofing in the area could be a problem. The risk was identified and a way to mitigate the risk had been sourced in accordance with the Occupational Safety and

Health Act (738/2002). As stated by Chapter 2 Section 10 of this legislation, the employer shall analyze and identify risk factors and hazards and mitigate or eliminate these risks to the best of their ability. This risk assessment followed the multistage process-flow as seen in Figure 4 below, in order to analyze and identify the core hazards in this scenario (Koradecka 2010, 474-475). The first step in the risk assessment is to collect the necessary information, which in this assessment is represented by the need of transporting material in a confined space with a forklift. Once the information has been required, the hazards can be identified, which in this case were identified to be the low roofing along with the possibility of the transported material hitting the roof depending on how high the load was lifted. In the risk estimation stage, the probability and severity are given a value with the help of the risk matrix calculations as seen in Figure 3, where this end value is then further evaluated whether it is acceptable or not. In this case, the probability of the incident was recognized to be occasional, and the severity was identified as critical, as the incident could either result in major property damage or severe personal injury. Finally, as the end value reached a serious level, a corrective action and planning had been put in place to alleviate the risk by relocating the roof lighting to create more space in the area.

The previously mentioned Chapter 2 Section 10 from the Occupational Safety and Health Act (738/2002) is also applicable to the other occurrences from Tuesday, such as implementing further visibility of the ledge that had caused a sprained ankle. Furthermore, the Chapter 3 Section 17 regarding cooperation between the employer and employee of maintaining and improving safety also become apparent for this occasion. The safety improvement in question had been discussed with the person who suffered the injury during the hearing, and the change was deemed to be desired.

		Severity			
		Catastrophic: 4	Critical: 3	Moderate: 2	Marginal: 1
Probability	Frequent: 5	High - 20	High - 15	High - 10	Medium - 5
	Probable: 4	High - 16	High - 12	Serious - 8	Medium - 4
	Occasional: 3	High - 12	Serious - 9	Medium - 6	Low - 3
	Remote: 2	Serious - 8	Medium - 6	Medium - 4	Low - 2
	Improbable: 1	Medium - 4	Low - 3	Low - 2	Low - 1

Figure 3: Risk matrix

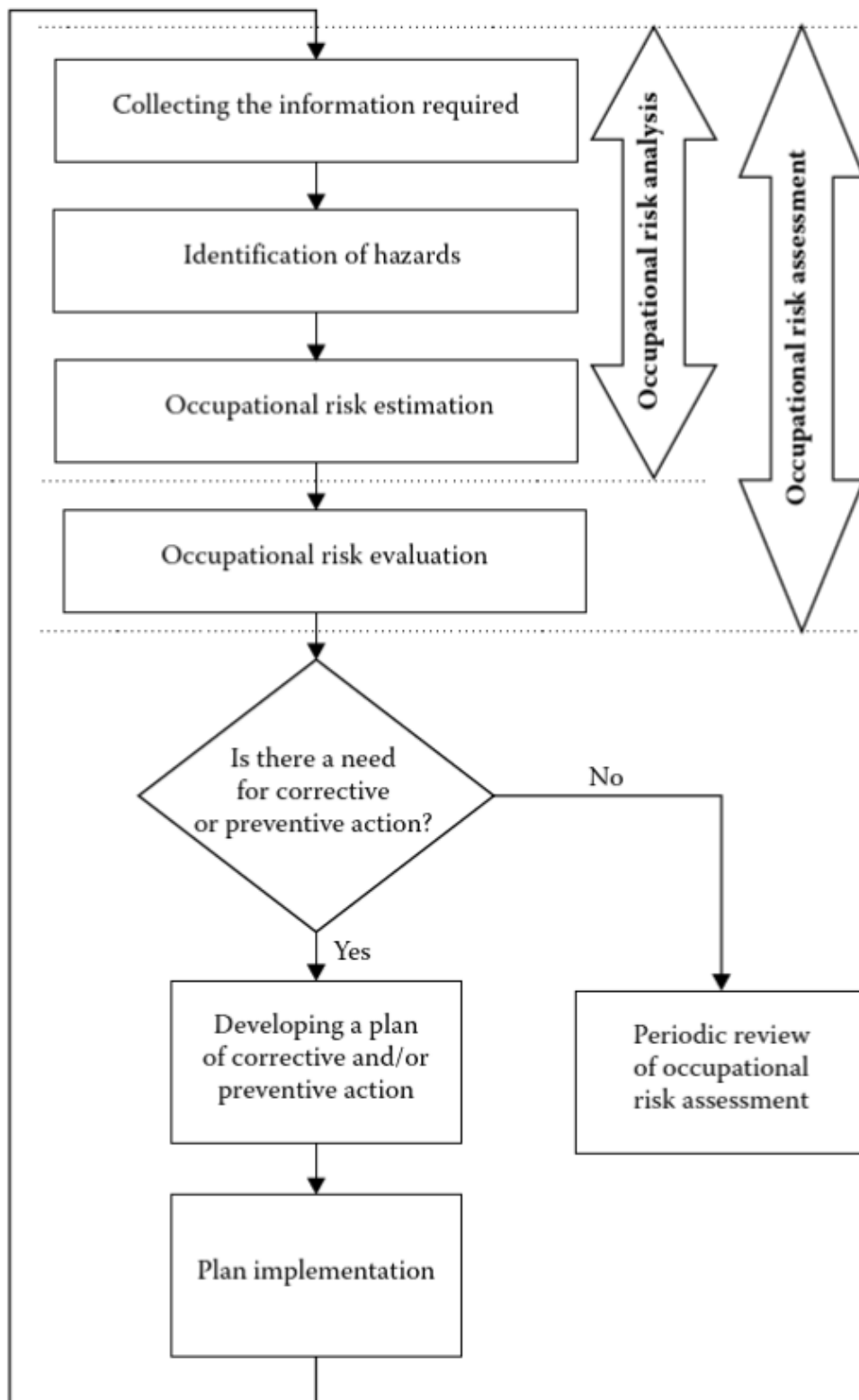


Figure 4: Occupational risk assessment process

Additionally, we have evaluated it to be beneficial to order an external forklift trainer to come and further train our personnel. This is a good opportunity to get a forklift license to some of the personnel that are still missing it as well as retrain others as a reminder of safe working. According to Chapter 1, Section 14a of the Government Decree on the Safe Use and Inspection of Work Equipment (403/2008), it is required for a forklift operator to have written authorization to do so. The employer is also responsible of ensuring the professional skills to operate a forklift before doing so, for which this externalized forklift training will be used.

### 3.5 Week 5 of reporting

This week is on the quieter side with only a few additional things alongside the everyday tasks. The main tasks for this week are revolving 5S and audits concerning that. There are also a few meetings regarding our HSEMS alongside our bi-weekly meeting with the HSE team from Uusikaupunki.

Monday 11.7.2022

The week started off slow by creating waste management instructions for recyclable wooden pallets with the addition of 5S. There were a few reasons for this desired change. First one being that as the pallets had previously been stacked outside into a big pile, some of them would now be moved to this new location inside to reduce the fire load. The second one was regarding packages and other orders that people would receive in the area. As they would pick up their packages, most of the time the pallet would be left behind untouched since the pallet recycle was either too far or unbeknownst to them. Now, as the new location for the recycling was in the same hallway as the packages, a simple instruction with an arrow in the area pointing to the recycle station would hopefully get people to clean up after themselves. Finally, the last reason for this change was that as it is in a location close to logistics, and as logistics was responsible of delivering these out when the load starts getting large enough, this would enable this process to be easier as well. After executing this plan with a colleague, the new pallet recycle location was in a much more convenient location for all parties involved.

Tuesday 12.7.2022

In the afternoon we had a meeting I had reserved with a colleague to discuss my ideas to change in our HSEMS in order to help us get more accurate statistics. These propositions included quite a few changes to how precise the system could work for us, for example in specifying our safety walks per area. Another one was to help us add more reasons to the



analysis page, which would help us further analyze and follow minor problems through a trending method. On top of this, we discussed additional severity categories, which we could not only use for statistics, but also to shift our focus more easily when higher class severity cases arise. Lastly, as we have been receiving some safety observations in the form of ideas of improvement, the last proposition was to get a dedicated employee idea management section added to our HSEMS so that we would have a dedicated platform for receiving ideas which could then be processed in a different manner. Some of the ideas that we have been receiving through the system are not safety-related, but rather process-related, which leaves it out of our hands for the most part, as we have currently only been able to forward these to the correct departments. By the end of the meeting, we had agreed to implement most of the propositions that I had, however it would take some time to see them in practice.

After lunch we had a new meeting with the EVBL HSE team to discuss on-going topics. The first topic was regarding ladders and shelves as well as the checking of these equipment. As we had recently had incidents concerning shelves being hit, it was relevant to know what the frequency of the checking for this equipment was to begin with. The next topic was about safety knives and their use in our facilities. Safety knives have been available as well as normal utility knives, and as such, the utility knives have seemed to be more preferable in the logistics areas. Almost all the other departments have shifted to safety knives, but given the use of knives in logistics being higher than elsewhere, they have still stuck to the utility knives. Lastly, we discussed of instructions that were currently underway, such as a process-flow to enhance the handling of safety notes. After this meeting, I began creating a task list for maintenance that included all the current tasks that they had open so that we could go through them in our next monthly meeting together.

Wednesday 13.7.2022

The day began by creating a 5S instruction for our bigger pyro boxes in the facility. Just like how our other pyro boxes have a 5S standard showing what equipment should be present, the plan was to create a similar one for this type of pyro box. Once the sign was complete, I continued working on the previous maintenance task list as well as exploring statistical possibilities within our HSEMS, as that is something that I am responsible of providing.

Thursday 14.7.2022

Today after our walk we had a short discussion with personnel regarding waste management on the line. As this was something that had been brought up during our walk, I had brought this up with the appropriate people and we decided to go straight back to the line to have a further discussion about implementing the newly desired waste management. The problem had been that the waste bins used in the area had been too small for the line and had to be emptied out multiple times during one shift, which would then slow down the production,

especially as recently the line had been working under-staffed. It was then decided with process engineers and the line's team leader that new recycling bins would be acquired for the line to eliminate this redundant waste process.

After lunch I began working on a plan for our upcoming production shutdown period that would consist of potential taping, painting, and other tasks that the operators could be occupied with during the stoppage. As the operators would mostly still be available, this would give them ample time to do some modifications around the line and logistics area that are affected by this stoppage.

Friday 15.7.2022

The morning started with our 5S audit for maintenance areas. During our walk, we came across some equipment stored in maintenance's areas that people did not know who they belonged to, nor whether they had been brought there to be fixed or if they had been fixed already. This sparked a conversation in hopes of cooperation between HSE and maintenance to help log all the equipment that we possess and doing an inventory regularly to keep track of what we have and where. Alongside this, HSE could also keep track of all the equipment that should be checked on a monthly or yearly basis, such as our shelves or stackers that are used. This would be beneficial for both parties as well as the whole facility, as everything could then be counted from the inventory, and maintenance for the equipment could be tracked more efficiently. After the discussion we concluded the walk, giving the areas a total score of 95% as there were a few minor things that yet required attention. After this, we had a second 5S audit, this time for our laboratory areas. Yet again there were few minor non-conformities to be seen in the areas, and the result of the audit was 92% compliance. This was as there were still a few things unsorted, some areas had not been cleaned and some matters pointed out in the previous audit had yet not been altered.

After the 5S audits, I had a discussion with maintenance regarding some tasks that I had asked them to do but I had not received any answers for. These were mainly concerning issues that had arisen during our safety walks. These tasks had been neglected for quite some time, and as such, I had seen it to be necessary to talk these matters through face-to-face instead of sending emails that are most likely already cluttered. These issues discussed included installing safety bars for new lifting tables in logistics, which without these, was preventing the use of these tables. The next thing was regarding newly installed stands in one of our quality areas, as these stands slowed down the process on logistics' side, and so there was a desire to change the modeling of the stands. Another one was about the last week's ceiling lighting being too close to the under passing forklifts. And the final one was about an unconventionally long hose used for one of the pressure pistols in laboratory that they had wanted to change. All these tasks were said to be pushed forward.

## Analysis of Week 5

As stated in a guide for occupational safety and health statistics by the International Labour Organization (2020, 7), by compiling statistical data from occupational accidents, injuries as well as other safety observations, it is possible to identify the work area or group of workers that are most vulnerable to incidents. As an example, if there is an abundance of safety observations and incidents supplied by one of our logistics areas, through compiling this data, we would be able to pinpoint the more specific reason behind these observations and incidents. If for example we encounter multiple forklift-related accidents in the logistics area, we could further trace back and see whether these accidents are being caused by one shift specifically or on a more general level. This would then help us decide whether additional training for forklift operating would be in place for everyone in the department or just one shift, for example. By getting more precise data inserted into our HSEMS, this would provide the possibility to help analyze the data more efficiently, which can then be used to draw conclusions on areas of improvement. These feature additions would be both beneficial to use as HSE as well as would provide concrete data to the management level as well.

### 3.6 Week 6 of reporting

This week will mostly consist of 5S audits. On Tuesday, we will have a meeting with our manager to discuss some KPI and PI proposals to help the team. Later, we will have our bi-weekly EVBL HSE meeting with Uusikaupunki as well as conduct a risk assessment for a new potential project concerning a testing laboratory. The week will then end with me hosting a safety induction for one of our sub-contractors.

Monday 18.7.2022

The day started off with a 5S audit for our production side logistics that are responsible for providing the production lines with material. The area mainly consists of floor markings for pallets, as these are brought from the warehouse closer to the line in wait for line feeding. The biggest discrepancies that were found were caused by the lack of space in the facility, which resulted in some pallets temporarily being stored in an area that was not marked. On top of this, some of the floor markings had started to wear off which is quite normal considering that heavy pallets and stacker forklifts constantly drive over them. Besides these, we found a few maintenance-related issues that were taken up and pushed forward onto maintenance's table. The discrepancies pointed out from last time had all been fixed, and all in all, the area received a total result of 95% compliance.

Once these 5S audits were done, it was time to make my office more 5S compliant as well, as we had a request come from management that these areas should also be included in the scope of 5S. The main tasks to get the offices 5S compliant regarded clearing all excess stuff from around the desks as well as also standardizing your own work desk. Alongside this, I also went a bit further by sorting and marking the stuff I had in my cabinets, as the untidiness of it had resulted in not finding the correct things in a timely manner.

Tuesday 19.7.2022

Today we had a 5S audit for one of our production lines. The biggest discrepancies found were cleaning and some missing floor markings for equipment. There were also some maintenance-related tasks that require their action. The cleanliness issue has been tough to tackle during the summer especially, as there are less process operators available on the lines. The updating of the cleanliness lists would also most likely help, as in their current state, the lists might not cover cleaning all the areas on the station. However, some tasks from the previous audit had also been neglected, and the line was given a 5S compliance of 87%.

After lunch we had a meeting to discuss our on-going tasks as well as some key performance indicator (KPI) proposals suggested by our manager. These KPI proposals included personal performance indicators (PI) as well that would be implemented for the team to follow our progress. An example of the things that we could track internally with these PI's included amount of monthly safety moments to help us track how often supervisors discuss about current topics. Another one could be the number of different safety-related trainings we hold monthly as this would give as an indication of how much time the team consumes into this activity. Then as for the facility-wide KPI's, the proposals included tracking the amount of environmental safety walks conducted, as this has also been something that we have wanted to develop.

Wednesday 20.7.2022

The morning started off with a 5S audit for one of our production lines. The biggest discrepancies found were regarding missing markings on the cleaning checklists, something that we have already addressed and reminded about multiple times. Due to the current uncertainty with acquirable parts as well as summer holidays however, it is something that cannot be heavily affected right now since the root cause for this problem is less personnel due to vacations and the prioritization of the current workforce in other parts of the facility. Another thing we did find however, was both outdated and unused documents on the production line. As the VA policy is to review and update every document at least once a year as well as not to have unused items creating clutter on the line, this was deemed as the most relevant non-conformity.

In the afternoon we had a meeting with the EVBL HSE team to discuss current topics. The meeting was opened with a discussion of the statuses of the new safety instructions, safety communication questionnaire, and subcontractor induction documents that would help us enforce policies and responsibilities on both personnel and subcontractors. There have been some unwritten rules concerning some matters in the facility, such as rolling up sleeves or using utility knives due to safety reasons that have not been addressed in the previous version of the document. Once these rules have been set as final, it will be easier to mandate these to personnel as well. Furthermore, the current method of getting subcontractors into the facility has been lacking, as more times than usual we have subcontractors working inside the building while they have no understanding of the needed safety precautions here at VA, nor does everyone know the process flow of ordering subcontractors. Subcontractors often have not been trained in our safety precautions because HSE has not even been aware of their presence or the need for training, and this is also something that the new induction document will highlight. After this, we proposed a new method of staying connected with our personnel and having more presence to others through “safety coffees.” The idea of this is to have health and safety related moments where HSE would go to breakrooms with the operators and discuss informal and formal topics, whatever the operators would have in mind. This way we will get a better connection with the personnel as well as possible propositions for change that we would not be told otherwise in the busy work environment. Lastly there was a discussion about acquiring combat applicant tourniquets which would be available at each mobile first aid station. This was a rewarded safety note concerning the lack of this equipment, and it would be beneficial to have these available if, for example, some heavy materials were to fall on someone.

Thursday 21.7.2022

In the afternoon we had risk assessment for a potential project area which is currently used as a meeting room but would be renovated into a testing laboratory. The work that would be done there is testing the resistances of batteries with occasional adjustments being made to them. All of these tests would be done using test batteries. The work itself does not carry out that big of a risk, however there are some demands that should be met before using the room for this purpose in order to make the area safer to work in. As the work would include soldering at a temperature of 650 degrees Celsius and the occasional use of a heat gun, this process is considered as hot work and would thus require some fireproofing to be done (SPEK 2022) (If 2022). Additionally, this room would also require fire extinguishers to be up to the standards of hot work. A first aid station should also be added. The door to the room should also be fitted with a flexim lock to restrict fraudulent access. Work instructions should also be written about the limitation of connecting cells in series, as the intention is to connect a maximum of two in series, totaling to a voltage of 96V DC. This work would be below 120V DC, so it would be considered as extra-low voltage, keeping the risk of electrical shock on a

minor level (Wira Electrical 2022). If another cell were to be connected to this series, the voltage would increase to the low voltage levels, increasing the risks of electrical shock. These were the main findings of the risk assessment, most of these issues found are easy to fix, however fire-proofing the room to get hot-work status might prove a bit trickier.

After the risk assessment I had a meeting with maintenance regarding some desired modifications to some new stands that have been installed at our final inspection location. The purpose of these stands is to help the quality workers at the station to have a more ergonomic working position, however the way that the stands have been designed makes it slower for logistics to use. The main problem here is that when logistics brings these pallets to the stands, they must aim the pallets precisely onto these small posts. This not only makes their work slower but also causes the risk of falling material in the case of misalignment which could then potentially fall onto the person working on the station. We had discussed this topic with logistics two weeks back, and now I was forwarding the idea to maintenance. The new design would add a flat surface on top of these posts so that this would both prevent the risk of tilting material upon misalignment as well as make work easier for logistics as they would not have to aim the pallet that precisely onto these posts. The idea was agreed upon with maintenance and a meeting with an external partner was set for the next day so that we can further discuss the possibilities.

Friday 22.7.2022

In the afternoon we had a meeting regarding the changes to the final inspection stands. I had gathered representatives from both logistics and quality alongside maintenance and the external partner on site to discuss the potential change and explanation of the situation. I presented the idea of adding a flat surface directly on top of the current small posts to which quality gave a good remark. The pallets have been designed in such a way that the bottom-side corners have holes in them which makes the pallet drop down a few centimeters. By adding a plating directly on top of the post, this could add close to ten centimeters of extra height, something that was already considered slightly too high for some. Due to the work rotation of personnel at the stations, the height however is difficult to adjust in a position such that everyone would be extremely satisfied with it, but it would be best to make the change in a way that it does not affect the quality workers negatively. After a brief discussion about the current height of the stands, we came to the result that it has currently been the best fit for a wide majority, and thus the current posts could be cut slightly shorter to compensate the height change due to the pallet not falling into place anymore.

After lunch I had a safety induction for our subcontractors to perform cleaning in our facilities. The sub-contractor induction is slightly more extensive than the visitor induction I had given in the past, as it goes into further detail concerning safety and security. This is due

to visitors always needing to be accompanied by a host while subcontractors do not have this direct supervision. After the presentation was done, we took a tour around the areas in the facility that they were going to be cleaning.

#### Analysis of Week 6

In our KPI proposal meeting we had discussed potential PIs that could be added alongside the KPIs that are monitored by management. Internal performance indicators for HSE would be beneficial, as these would help us understand what to do to reach these target goals as well as complement the progress towards our KPIs (Parmenter 2010, 1-3). As an example of this, one of our proposed PIs is whether all our 5S audits are both carried out as well as in a timely manner. As these 5S audits are something that are monitored monthly in our KPI, this complements the process, since in the past we had not always conducted all the 5S audits within the same month. These audits have now been adjusted to conclude before the last week of each month so that the statistics of these audits can be reported towards the KPIs on time. As such, if our PI for conducting these audits on time is not reached, we would have to take action to change our process, for example with time management.

As assessed during our risk assessment on Thursday, the potential soldering laboratory had some points of improvement regarding safety. As stated in Chapter 2 Section 5 of the Rescue Act (379/2011), sufficient precautions are to be taken when engaging in hot work. Also, as stated by the SFS-5900 (Suomen Standardisoimisliitto SFS 2016), the risks of hot work need to be assessed before conducting the work. The room should be fire-proofed alongside with the addition of fire extinguishers, as these fall under the safety precautions that need to be taken before conducting hot work operations. Additionally to this risk assessment, the discussions we had concerning the final inspection stands could also be considered as risk assessment. As stated in Chapter 2 Section 10 of the Occupational Safety and Health Act (738/2022), the analysis and assessment shall be revised whenever circumstances change fundamentally. Considering that earlier work method in this case had the pallets placed on the floor rather than these stands, these now created a new risk that was evaluated. The risk of injury or casualty in the worst-case scenario was assessed to be moderately high given the structure of the stands, and thus needs to be changed.

#### 3.7 Week 7 of reporting

This week starts off with me participating in a forklift training given by an external partner to monitor how efficient the training is. Later during the week, I will be giving some safety inductions, as well as developing a method of monitoring and checking our pyro equipment on a regular basis. Lastly, the week will conclude with some meetings on Thursday and Friday.

Monday 25.7.2022

Today I participated in the forklift training that was being provided by an external partner. The training itself had been ordered due to the recent spike in forklift-related accidents, and the purpose of my participation was to observe how extensive the training was along with how much focus there is on safety. The training lasted for the entire day, consisting of a theory part as well as a practical part. As my colleague had already participated in the practical part, I only participated in the theory part. The topics discussed in the training covered a wide range of safety related matters, such as how to lift and lower materials and pallets on to material shelves, the blind spots that the forklift has as well as what to do when the forklift falls, or material falls when lifting the material. As I have a few years of experience in operating multiple types of forklifts, it was also relatively easy to evaluate the training by comparing it to the training and experience that I had. I was very satisfied with the training content, and there was also some training concerning the use and maintenance of material shelves, something that I had not been fully aware of. This information was also important as we have had some cases where forklifts have hit material shelves and they have required maintenance.

Tuesday 26.7.2022

Today I worked on a safety register checklist for pyro equipment. The equipment listed in this checklist includes pyro boxes and fire extinguishers as well as instructions on what to check. I have divided all the pyro equipment into three areas, each of which will be inspected once per month, meaning that all pyro equipment will be inspected on a quarterly basis. The idea of having an on-going check with the pyro equipment came from previous concerns, as we had received two safety notes regarding fire extinguisher discrepancies in just over a month. One of these safety notes was concerning an extinguisher having insufficient pressure while the other one was about a damaged hose which could potentially have a negative effect when using the carbon dioxide extinguisher. As such, the checklist for extinguishers includes checking the pressure levels as well as whether the hose and extinguisher are intact, the extinguisher type and number, and lastly the due date of the extinguisher.

Later in the evening I created some labels for our fire extinguishers to distinguish them from one another more easily. This had been a topic brought up in a previous audit that personnel might mix-up the extinguishers, as carbon dioxide extinguishers should only be used for electrical burns and not for personnel. The plan is to print out color-coded text labels that indicate what type of extinguisher it is. Additionally to this, instructions for carbon dioxide extinguishers will be included that reminds that they are for electrical burns only. These labels will be installed alongside the monthly fire extinguisher checkups.

Wednesday 27.7.2022



This morning I continued working on the pyro equipment register, this time regarding the pyro boxes. As the boxes are used during evacuation, the pyro material inside evaporates each time it comes in contact with the reactive parts. Due to this, we should also check pyro boxes on a regular basis so we can add more material upon need. As such, the pyro boxes are checked to have sufficient amount of pyro material as well as gloves and a mobility strap in place, and lastly that the correct 5S labeling is in place. I also created a map showing the locations and areas of each pyro box and fire extinguisher to help in the inspection process. After I was finished with this document, we started planning ergonomic mats to be placed in the laboratory. There had been a previous mention from some of the supervisors in lab about the desire for these mats, so we scouted the place and did the necessary measurements. The mat pieces were cut to a size that they were slightly smaller than the desk, meaning that the mat can simply be pushed under the table if you would rather sit.

In the afternoon we had a chemical meeting with the team to further discuss the shifting of chemical responsibility to our HSE team. After a brief discussion, it was agreed that my colleague would act as the primary responsible and I would be his deputy. As we discussed the updating of documents, our colleague is working on the chemical instructions on the whole business level internationally, while it was left for me to update the chemical procurement process here in our Salo facility. Additionally, we had discussed whether it would be beneficial for us to have voluntary contact persons from each department to help manage the chemicals in each department. These contact persons would for example be able to contact us whenever they would want to obtain new chemicals into the department or give us updates on the current chemicals when we review our chemical register. Lastly, it was mentioned that my colleague and I should go through the training of certified operation supervisor for handling chemicals to aid in our task.

Thursday 28.7.2022

The day started with me giving a safety induction for some of our subcontractors. This was a standard induction as I have given before, and it merely worked as a refresher for the contractors as they had already visited the premises before. After the induction, we had a meeting with maintenance to discuss how we can collaborate more efficiently. This is now the second time this meeting has been conducted between HSE and maintenance, and will continue to be held as monthly meetings where we can discuss on-going topics. The first topic discussed in this meeting was safe working in automated cells. There was a reminder about using the safety lock system which is in place as well as remembering to use all needed safety equipment when entering the cell, such as a bump cap. Additionally to this, there was an idea to add a risk assessment process to their work before entering the cells. The process would work such that whenever maintenance would enter these automated cells, they would go through this pre-determined risk assessment list created by HSE, where they would check

whether any of the risks are present in this work. This would first require us to make a tour around these cells to define what the present risks are, and this would be scheduled for later. After this we discussed the knives that maintenance uses, and this brought us to the topic of utility knives. We have had multiple discussions about these utility knives and safety knives in our EVBL HSE meetings, however we have never come to a concrete conclusion. During this meeting it was mentioned that there should be no utility knives in the facility, but I would confirm this later. Lastly, we went through current and upcoming topics and their statuses.

After the meeting, I was informed that a driver from Fortum would be arriving to pick up battery waste from us this evening. This is a process that happens each week, however as the responsible for this as well as their deputy were away during that day, I was given the task. These Fortum boxes needed to be collected from around the facility and loaded into the truck, from where we would also get boxes in return. We had already counted and taken note of the locations of these boxes with my colleague, so the process was simple to do even on such short notice. I asked for help from logistics to bring the boxes closer as well as borrow a forklift operator to help load the boxes into the truck. Having coordinated the process, afterwards I went to check that everything was in their correct places before ending the day.

Friday 29.7.2022

The day started off with me giving a safety induction for one of our sub-contractors which is responsible for washing our ESD clothing. This induction was very condensed due to there being no need to enter the production areas, and so I had tailored a shorter presentation ready for the occasion. After the presentation I gave a short tour of the locations where to pick the clothes from as well as briefly explaining the process. After the induction, I went to check all the equipment cabinets to see whether they had any utility knives available. As we had discussed in our maintenance meeting the previous day, these should not be tools that we use, and as such I wanted to confirm if they were still obtainable. As it turns out, there were two different models of utility knives available in both logistics areas. I went and discussed this matter with management and got permission to retract these from our suppliers' cabinets. I contacted our supplier, and they prevented access to these knives right away and would come empty them from the shelves somewhere during next week.

After lunch we had a meeting to review and change the rescue plan. The main changes made to the rescue plan on our behalf were updating some contact people, some wording issues to clarify the context in some cases as well as some training. Originally the document had claimed that all personnel will be trained for firefighting competencies, however this is not the case as only our rescue team is trained for this regularly. As for contact people, one particularly important addition to the rescue plan was the gate security number, as if an emergency vehicle would need to enter our facility from the eastern part during late hours,

this number would require a call to open the gate. A wording example was regarding the biggest risk being a battery fire in our production facilities, however this is also apparent in the logistics areas as well due to the batteries being vulnerable to careless handling, thus the wording was changed in this case.

After the meeting I went to our hot work room to plan the location of a pyro box. Considering that some battery-related operations do happen in the room from time to time, and there has already been an occasion with a faulty battery in the room, it was decided to add a pyro box there as well now that we had received some in our stock. I set the location for the pyro box in the most visible and accessible location of the room, along with the necessary equipment and markings.

#### Analysis of Week 7

As I participated in the forklift training, the main reason was to see how extensive the training was, considering we had a lot of forklift-related incidents lately. As stated previously on week 4, not only is it required for the forklift operators to have written permits to drive the forklifts, but the employer also needs to assess whether the employee has sufficient skills to operate these machines safely (Government Decree on the Safe Use and Inspection of Work Equipment 403/2008). As such, I was present to observe the training and see whether this would meet our standards. Also, as mentioned in the Occupational Safety and Health Act (738/2002), the necessary safety devices will be installed as well as the machinery will be used, maintained, and serviced appropriately. Our forklifts have been equipped with additional safety lights that point both forward and backwards to indicate others of an approaching forklift. The supervisors and team leaders are also responsible for maintaining the forklifts accordingly, while also ordering service upon need.

Additionally to the forklifts being maintained and serviced appropriately, the pyro equipment register was created based on the same reasoning. As previously we had received safety observations regarding potentially faulty fire extinguishers, having a detailed equipment register is crucial to ensure both the timely inspection and maintenance of these equipment (King 1990, 479). The equipment register displays both the identification numbers as well as locations of each pyro equipment, making inspections coordinated as well as specified, as the register is also included with instructions regarding what should be checked for each equipment and when. Further discrepancies are then easy to pinpoint while also keeping an inventory of the pyro equipment in our possession.

In our chemical meeting we discussed further about the shifting of chemical responsibility to our HSE team. As I will be working as the deputy chemical responsible, it is advised that I take part in the chemical safety training. Even though it is not currently required for our facility operations to have a trained chemical responsible, in the event of our chemical

acquisition getting higher, it is required for the nominated people responsible of the chemicals to have adequate training or knowledge on the matter (Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives 390/2005).

### 3.8 Week 8 of reporting

Despite the upcoming week being quiet, I will start off by looking into a new severe near miss which was reported last Friday. Continuing from this, I will be giving my first extensive safety induction to some of our new blue-collar personnel. This week I will also be attending our bi-weekly EVBL HSE meeting. Closer to the end of the week, I will be tinkering with some statistics concerning our HSEMS, and looking for new projects as this week's content is heavier at the beginning of the week.

Monday 1.8.2022

This morning started with planning regarding a severe near miss that we were informed about Friday evening. This severe near miss was regarding a forklift driver that had driven through a no-forklift area, endangering the nearby personnel in the process. The driver in question was substituting from a different warehouse and was mostly likely unfamiliar with the area that they had driven through due to this. The signs indicating that the lane is not for forklifts were in place, however it might have not been too apparent, as it was too much to the side. To prevent this issue from happening in the future, we placed a traffic bollard in the middle of the lane with a sign indicating that forklifts past that point are prohibited. We also had a discussion regarding the use of a projector that we could program to project a sign on the ground indicating no-forklift traffic in past that point. This is a subject we have discussed previously for some other areas in the facility, mainly for pedestrian crossings as well as warehouses. This projector idea has now been revived again amid this near miss, however it will not be used for this case, as it does not bring any added value. The projector can detect movement via sensors that are then able to change the projected sign when triggered from for example, a pedestrian crossing to a stop sign. As the area should never be accessed by anything other than pedestrians, the static traffic bollard is more efficient to prevent further accidents of the same manner. After this, I held a safety induction for subcontractors.

Tuesday 2.8.2022

Today I held a safety induction for our new internal blue-collar workers. This safety induction was widely more extensive than the one that I have kept for visitors and subcontractors, as our own employees need to be taught further into our policies and the way the company functions. The training is split into three segments, health, safety, and environment modules.

The training also includes an overview of the organizational structures as well as an introduction to our internal management system beforehand. This training lasts for one and a half hours, and the content is quite packed. Topics that are covered here but not in the visitor or sub-contractor inductions include, but are not limited to, healthcare, OHS committee, risk management, KPIs as well as environmental and sustainable functionality of Valmet Automotive. As the earlier inductions I had given only lasted for 15 minutes and only included a handful of people, I was quite nervous to present slightly foreign induction material to over 50 people. In the end, the induction went well, and I am now more experienced at providing mass-training.

After lunch we had an EVBL HSE meeting where we discussed on-going topics. Discussion were had about our camera surveillance as well as a guideline regarding their use which would be created for our next meeting. Some other topics were also discussed, such as training material from a recent battery fire day that would be soon available for us. Lastly, we discussed the possibility of holding our own firefighting training, as we had also already ordered the equipment to be used during our safety day training that will be held later this year. It was advised that one person from our HSE team should participate in a firefighting trainer course so that we would have someone qualified to keep these training courses as well as give card trainings. I took the responsibility of attending this course, as I was already responsible for forming the safety training day material.

Wednesday 3.8.2022

Today I was working on some statistics regarding our HSEMS for maintenance to utilize during their weekly meetings. The purpose of the information provided would be to inform about their current situation of open, late, and closed tasks in quantity and detail. This would allow HSE and maintenance to communicate more efficiently as well as help them assign the yet-to-be-implemented tasks to their respective parties. The statistics themselves are easy to pull out from the system, however I need to create a format for the data to show the needed information in a meaningful way. This would mean that they should see both tasks from safety walks as well as safety notes, along with the distribution of tasks among the team with descriptions of each task.

Thursday 4.8.2022

After today's safety walk, we inspected two areas that had been brought up by safety notes. The first one was concerning a laser at one of the production lines, however after inspection, it was deemed to not be an issue. The laser was a sensor used on the line, which was also located at waist-level and was obstructed by other parts on the line, so that the laser was not pointing to the distance. The second note, however, was concerning the final inspection stands, something that I had already been working on. The safety note was about the

possibility of pallets falling on to the quality person present at the station, something that I had already known about. However, as we were inspecting the safety wings on the stands, we noticed that there were multiple wings that had already bent severely. These wings are responsible of redirecting the pallets onto the posts in case the pallet is misaligned, rather than letting them fall off. These wings seemed quite damaged, considering they had only been here for a few weeks' time. This made me push the final inspection stand topic further with maintenance and our external partner.

Later during the day, me and my colleague went to one of the warehouses to plan out a safe pathway to cross the warehouse. This route would be used by our quality team working in the warehouse but would of course also redirect any other movement onto these pathways. We mapped out the safest alternative considering the recent changes to the area and consulted these ideas with both logistics and quality supervisors. As we had all reached an agreement with this plan, we used tape to mark these pathways preliminarily to test whether it is functional or not. This information was further sent by email, and we will wait for feedback to arrive in the coming week before making it fully official.

Friday 5.8.2022

As we had now received our fire extinguishing training equipment, it became apparent that our HSE warehouse was too full and disorganized. Considering that we have a lot of equipment we need to keep stored in case it is required later, we decided to clean and organize the warehouse. We were not able to do too extensive cleaning due to the backroom being filled with stuff that should be thrown away, however we were able to organize and relocate some shelves and equipment in the warehouse. There were discussions of acquiring a dumpster container where we could later pile all the junk and organize the rest of it properly as well, however it already is in a much better state.

Analysis of Week 8

As stated in the Occupational Safety and Health Act (738/2002) Chapter 2 Section 14, employers shall give their employees necessary information regarding the risk factors and hazards of the workplace as well as ensure that sufficient orientation to work is provided. The safety training induction that I held for new employees on Tuesday is just one of many orientations that the new employees receive during their first orientation week. In this induction, however, they receive information regarding working conditions, working methods, work equipment as well as safe practices, all which are further elaborated by their supervisors once they start working at their respective workstations. Additionally, the induction consists of risk management and 5S practices, both of which give the employee an understanding of identifying and eliminating hazards and risks, working safely, as well as cleaning. All these concerns are derived from this section of the legislation.

As discussed in our EVBL meeting concerning the safety day training content, it was suggested that I undertake the firsthand firefighter instructor course to be able to train our personnel more efficiently. As mentioned in the Rescue Act (379/2011) Chapter 2 Section 3, anyone who observes or receives information about a fire and cannot immediately extinguish it themselves is obligated to notify those endangered, make an emergency call, as well as take rescue action to the best of their abilities. By acquiring further knowledge about firefighting that will then be given on this safety day training as well as other firefighting training to come, it will be beneficial to not only the rescue team, but to everyone involved. With more extensive and up to date information, personnel can be further trained to know how to act during fires, for example how to contain the fire or the threats of it. Furthermore, as stated in Chapter 3 Section 14 concerning self-preparedness, the business and industrial operators shall for their part prepare for extinguishing fires and partake in other such rescue action which they can perform independently. As mentioned by Miller (2010, 61), gathering information, and then specifically tailoring the training will provide the personnel the skills to distribute this information forward, as well as help them neutralize or escape from these potentially harmful situations. This is especially applicable in cases of fire, because once the personnel have received this training tailored specifically for our needs, they are then able to not only inform others in these situations, but also extinguish as well as escape and restrict the fire if the situation has already gone out of hand.

### 3.9 Week 9 of reporting

This week I will be working on instructions for one of our workstations concerning forklift traffic. Later, I will be giving another safety induction to new personnel as well as working on updating some of our 5S training content. This week I will also be conducting this quarter's second pyro equipment check-up. At the end of the week, I shall install some new safety equipment maps as well as labelling for our fire extinguishers as per request from a previous audit.

Monday 8.8.2022

The morning started with me working on an instruction regarding incoming forklifts that would be placed near the final inspection area. This instruction was regarding the previous finding we had made on Thursday, where some of the safety wings in the stand structures had been severely damaged. As the desk for the quality person was near some of these stands, I made a caution instruction indicating that the person working at this workstation should always step aside when a forklift is handling pallets nearby. This was due to the layout of the

workstation being closed off from all other sides but the one near the forklift. In case these pallets were to fall towards the operator, the person there would not have anywhere to move. Additionally, considering our findings on Thursday, the risk of falling pallets has become more apparent, seeing that the safety wings have bent severely. This caution sign will be a momentary fix, at least until the new stands have been finalized.

After lunch I started to find a way to get some of our pyro boxes into external storage. Due to our facility having little to no extra space, and as we had multiple spare ones, these would be sent to an external warehouse where they could be retrieved when needed. We currently have three additional boxes and two of these would be sent out so that we still have one extra in case something was to happen. I measured the boxes and began the procurement process with logistics and sourcing.

Tuesday 9.8.2022

Today I held another safety induction for more new blue-collar workers. This induction was the same one I had given last week; however, it was easier for me this time as I was now more aware of the induction content and the way I would present it. After the presentation, I had scheduled a pyro equipment check-up. This check-up was conducted using the material and guidelines I had created two weeks ago. This is now the second time I have conducted this check-up for both pyro boxes as well as fire extinguishers, and it has functioned smoothly. There have also been some discrepancies, as I found multiple pyro boxes that had the older 5S standard which does not indicate all the equipment needed that comes with the box. These standards will be replaced with newer ones in the future.

Wednesday 10.8.2022

Today I began updating our 5S training material that our team has created. We had received some feedback from management that the training could include something that would indicate whether the listener has really understood 5S and the meaning of the training. As this training is also going to be placed into our personnel's skill matrix, it would be good to know whether the person has learned the meaning of 5S in the first place. The idea I had was to add some interactivity to the presentation as well as a few more slides explaining how 5S incorporates all of us. To make the presentation interactive, I decided to go to the facility floor and tinker with some equipment cabinets. First, I set everything nicely in their own places in the cabinet and took some photos, after which I completely disorganized the cabinet to get two perspectives. I added these pictures into the presentation along with a text where the listeners would be asked to locate specific items in the cabinet. After some time, the photo of the cleaner alternative of the cabinet would be shown, illustrating how 5S not only makes finding things easier, but also less tedious. After this, I added some slides to further explain 5S policies in the facility. Further emphasis was brought to the fact that



everyone is responsible for the cleanliness and 5S of their own workstations or areas. Everyone should also clean up after themselves, and make sure to put everything in their own place at the end of the shift, so that it is also pleasant for the next person to come to work.

Thursday 11.8.2022

Today was a slow day with nothing extracurricular. After our daily safety walk and open safety note meeting, I finished updating the 5S training material that I had started yesterday. Later we had a scheduled monthly meeting to go over some facility maintenance topics, however this was cancelled due to many participants still being on summer holidays.

Friday 12.8.2022

Today I placed new evacuation maps around the facility due to a previous audit finding. The finding concerned that all documents should include a publish date and author, both of which had been missing from these maps. While all of these were being updated, I decided to also place the new safety equipment maps that I had made, as these would be placed in the vicinity of the evacuation maps. These safety equipment maps indicate all the fire extinguishers, first aid stations and defibrillators in the area, divided into three areas. A safety equipment map for one of our warehouses can be found in the Figure 5 below. While I placed these new maps, I also placed labels on the fire extinguishers. These color-coded labels now indicate each fire extinguisher, with blue indicating a powder extinguisher, yellow indicating a foam extinguisher, and black indicating a carbon dioxide extinguisher. I also placed additional labels on the carbon dioxide extinguishers, referring that they should only be used for electrical burns.

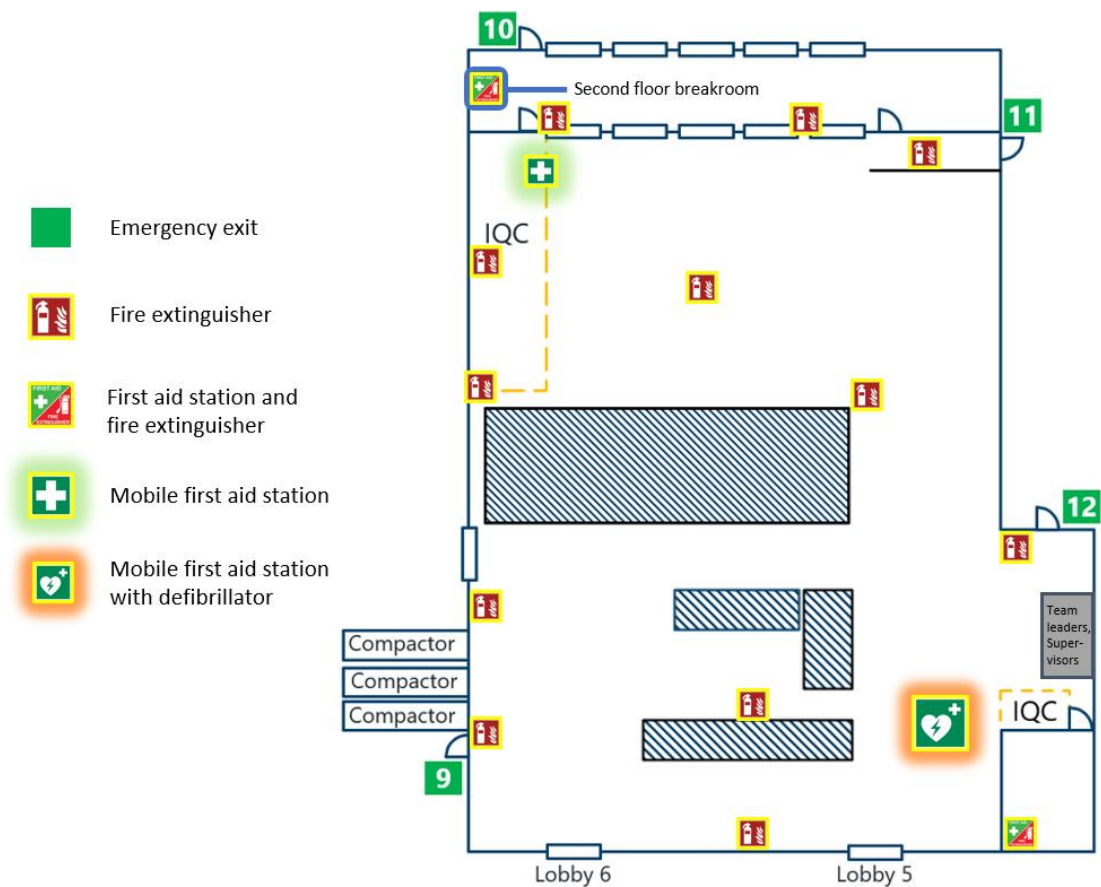


Figure 5: Safety equipment map

#### Analysis of Week 9

As stated in the Occupational Safety and Health Act (738/2002) Chapter 2 Section 8, the employer shall design and select measures in accordance to eliminate or mitigate the hazards or risk factors as well as adopt safety measures which have general impact before individual measures. The caution sign created for the final inspection workstation works to temporarily mitigate the risk of injury of fatality from falling pallets. This safety measure will be temporarily adopted until the more thorough fixing of new stands is implemented, as the current method only raises awareness of the potential risk. The person working on the station might not abide by the instruction, despite being obligated to. Additionally, this sign does not mitigate the risk of the pallets falling and causing property damage or potential battery burn when multiple batteries fall, thus only providing general impact in the matter. As for the installation of the new safety equipment maps and the labeling of the fire extinguishers, these measures have been taken to aid in rescue work. In the Rescue Act (379/2011) Chapter 3 Section 12, the equipment facilitating fire extinguishing and rescue work is acknowledged and should be kept operational and inspected. These safety equipment maps serve a purpose to help find the nearest fire extinguisher or first aid station when in need. Additionally, the labeling placed on the fire extinguishers helps differentiate the extinguishers from one

another, as the color-code already indicates which extinguisher it is. Furthermore, this section also refers to technical maintenance details that may be given by the Ministry of the Interior decree. These provisions are now being monitored and recorded via the use of the pyro equipment checklist.

In order to be more certain that the 5S training has been understood by the listener, I had the idea of adding interactivity into the presentation. As mentioned by Silberman et al. (2015, 212, 276) in the handbook for tips towards active training, interactivity can be added to the presentation by providing the listeners with a task when showing the slides. By doing so, the listeners will pay more attention, especially if this kind of interactivity has been set in place from the beginning. In the revised 5S training, an interactive slide was created where the listeners would be questioned to find certain tools and items first in a non-5S compliant cabinet and then a compliant one. This interactive part is hoped to add more discussion between the trainer and listeners as well as further understanding of how impactful 5S is.

### 3.10 Week 10 of reporting

One week has been skipped from reporting due to me being away in training for the whole week. The training in question was the basic course in occupational health and safety, held by the industrial union. The training was mainly directed towards occupational health and safety representatives, and as my job scope goes together with this, I decided to attend the training. The training topics consisted of identifying risks and other strain/circumstance-related effects on personnel as well as preventive safety measures among others. The following week will contain some meetings in regard to our rescue team and KPI proposals as well as a possibility of tracking skill matrix through our HSEMS.

Monday 22.8.2022

Today we had a 5S audit for our maintenance areas. The biggest discrepancies of the audit were regarding some older findings from last time, where we had found material where it does not belong as well as some mallets and hammers on the floor. This material was taken with us after the audit, and a racket plating for the mallets had just arrived last week which was just yet to be installed. Besides this, there were some minor improvements that could be made by labeling items in the cabinets. Other than these minor issues, the areas were in a good condition. During the audit, we also discussed the procurement of some personal tools as well as tool vests for maintenance. These vests would make working easier for maintenance as they would be able to carry tools on them rather than in their kick bike bags and it would also make 5S easier, as these tools would be personal instead of getting them from equipment cabinets. An ergonomic approach to this would also be better as the

technicians would have the right tools in their hands reach when working. This idea had a lot of support from other technicians, and the proposition has been taken forward to management.

Tuesday 23.8.2022

This morning began with me and my colleague planning some painting that we wanted to do. As there was no production on one of the lines, this was the optimal time for us to carry out some painting by ourselves. These areas and their meaning derive from our internal management system, which states that areas and equipment, such as fire extinguishers and electrical cabinets, should have a vicinity marked. These color-coded markings have a specified indication, with for example red indicating fire extinguishers and green indicating evacuation doors or routes. Previously these had been marked with tape, however as the electrical cabinets and fire extinguishers are not going to be moved from their locations, the markings would be better to paint instead for durability. During the painting session, I had a discussion with my contact from maintenance regarding the final inspection stands. They had now received the final details and pricing from the external partner about the stands, and wanted to further discuss these details with me. We agreed to accept the offer and that he would create the purchase requisition for this service, and that he would get back to me once he has the installation date confirmed.

After our painting endeavor, I began working on a safety data sheet clarification document for one of the chemicals used in quality areas. I had received some feedback from quality that this would be desired, and I had also created one of these in the past. The purpose of this sheet is to contain a brief description of the chemical by displaying the hazard pictograms and statements, along with the precautions and actions that need to be taken when using or mistreating the chemical. These descriptions have both been visualized as well as written in both English and Finnish, and should be easy and quick to comprehend with a quick glance at the data sheet.

Wednesday 24.8.2022

Today we had a meeting with the team to discuss the suggested KPIs that had been proposed by our previous manager. As there were a lot of overlapping and redundant KPIs and PIs, we discarded the ones that added little value or simply were not values that we wanted to keep track of. Topics such as the number of environmental walks were removed, as these environmental aspects should also be considered in our daily walks, and to better reflect this, guidelines will be created regarding how to make this more present in our walks. Furthermore, the number of environmental trainings as well as oil spills were removed as well, since we already track environmental incidents which includes the oil spills, and the trainings are not provided for visitors or subcontractors due to their inductions being less

extensive. As the rescue team is one of our bigger fields of improvement, a KPI related to this will be added. I made a proposition of adding a rescue team KPI related to the amount of personnel in percentage we have trained for rescue team qualities per department or shift. This way we would be able to identify whether we have the necessary amount of rescue competent personnel per area or at any given time in the facility to handle situations such as evacuations or first aid. Another meeting will be held next month to further discuss the KPIs and their implementation for next year.

After this, we had another meeting where we reviewed the current rescue material as well as the organization chart which one of my colleagues had refurbished. In this meeting, we looked through the documents and instructions that have been updated to suit the current rescue situations. Additionally, now that the idea is to recruit team leaders and supervisors in each department to the rescue team, we also discussed the different documents which would be needed to train the personnel outside of production. Currently, the rescue instructions are focused on production and battery evacuation from the line, but the content will be changed for the other departments, as this is not relevant for them. After the meeting, we also discussed the training of current rescue members in production for evacuation on one of our production lines. A training session could be arranged for them during some of the safety day, as the content shown in the auditorium is already something that the members have seen during their training. Thus, it would be more beneficial to simultaneously provide them with separate training for battery evacuation, as they should be aware of how the machinery physically functions in evacuation situations.

Thursday 25.8.2022

Today we had a meeting with the team to go through the process of adding qualifications onto our HSEMS. This feature was recently added, and the idea would be to utilize this system to log all the qualifications given by HSE, most notably the rescue training. Through the statistics side of this feature, we can get a skill matrix graph which shows the qualifications and due dates for all these acquired qualifications. In the Figure 6 below, an example of the use of the matrix can be found. Each qualification has its own bracket, which can be divided between personnel and business units. Through this, we are easily able to identify whom has their qualification up to date, as well as which department has the most need for training. The qualifications which have not been acquired by that person are indicated with a blank space, while valid trainings are displayed with a green due date and expired one's in red. The added value of this is also that supervisors and team leaders are also able to see these qualifications, so they can also utilize this feature to confirm whether their subordinates have, for example, completed the 5S training. If the person in question has not completed it, then the supervisor can, in cooperation with HSE, assign this person to the respective training.

	Business unit	Battery Evacuation	Battery Fire Training	First Aid Training (FA1)	Personnel Evacuation	Rescue Orientation
Eric Example	Warehousing	Sep 23, 2023			Sep 23, 2023	
Sam Safety	Manufacturing engineering			May 26, 2023		
Susan Security	Warehousing	Oct 14, 2023			Oct 14, 2023	Oct 14, 2023
Rebecca Responsible	Warehousing	Sep 30, 2023			Sep 30, 2023	

Figure 6: Qualification matrix

After our meeting, I began constructing safety instructions for operating one of our cranes in an emergency. The way the force release of this crane functioned was slightly uncertain to us, and so concrete instructions were created for this to help operators use it even in a hectic situation of evacuation. To force release the battery down from the crane, you needed to hold and press both a button a few meters away from the crane as well as the release button on the crane. Originally, we were led to believe that the force release could be done with only one person, but now with this additional information, it became apparent that this was not the case. The inconspicuous force release button was also quite hard to spot and not at all in a convenient spot, as it was located further from the crane. To make the use of this force release clearer in emergency situations, I attached pictures of both the buttons as well as step-by-step descriptions on how to use the release button. I then attached these instructions to both stations where the same crane is in use.

Friday 26.8.2022

Today I began constructing a forklift inspection checklist. The idea to have such inspection list came from one of our new logistics managers, and this would also enable HSE to monitor this behavior in the same fashion as we follow cleanliness lists in production. The proposal also goes hand in hand with enhancing our safety regarding forklifts as well as safety culture. This forklift checklist can be found below in Figure 7, and this checkup should be conducted daily before operating the forklift at the beginning of each shift. This is an important part of safe working and ensuring that the forklift is maintained properly. The purpose of this checklist is to help confirm that the forklift is in safe, working order. Any deficiencies found during the check-up must be immediately informed of to the supervisor and the forklift will remain unused until clearance has been given to operate said forklift. The checklist document could be converted into a form on our HSEMS, which would help the operators to fill in the form as well as help us monitor it, as each submission would be logged within the HSEMS. After being satisfied with the content, I translated the document into Finnish as well and distributed it to logistics supervisors and managers for feedback. Before heading home for the day, I discussed with maintenance regarding the final inspection stand requisition order. The order had been made the previous day, and the date for the start of the implementation was now set for week 36.

Checklist		Done
1. Inspect the outside of the forklift visually for any damages or leaks. The following items included are: <ul style="list-style-type: none"> <li>- Outer rim of the forklift is not compromised.</li> <li>- Tires are intact.</li> <li>- Forks are intact.</li> <li>- Hydraulic cables and/or lifting chains are intact.</li> </ul>		
2. Inspect the inside of the forklift. The following items included are: <ul style="list-style-type: none"> <li>- The steering is intact and working accordingly.</li> <li>- The safety cage is intact.</li> <li>- The seat and operating area are intact and does not have any items or obstacles that could be detrimental to driving.</li> </ul>		
3. Ensure that the forklift operates accordingly. The following items included are: <ul style="list-style-type: none"> <li>- Slowly drive the forklift forward and backward to see that the driving works as intended. Try that the brakes work as well.</li> <li>- After moving the forklift from park, remember to check the vicinity of the parking for any leakage that the forklift might have had.</li> <li>- Raise the forks up and down to see that the hydraulics work accordingly.</li> </ul>		
4. Ensure that the safety installations are working as intended. The following items included are: <ul style="list-style-type: none"> <li>- The safety lights are working and adjusted accordingly.</li> <li>- The mirrors are adjusted accordingly.</li> </ul>		
Inspector initials:	Date and time:	

Figure 7: Forklift Checklist

## Analysis of Week 10

This week I created another simplified safety data sheet that is more comprehensible for operators to use. Given that these safety data sheets are commonly multiple pages long and contain an overflowing amount of irrelevant information to workers, this simplified data sheet I created condenses all this information into a quick and easy-to-read one page sheet. As stated in the Government Decree on Chemical Agents at Work (715/2001) Section 16, the employer shall draw up safety instructions for hazardous chemicals through instructions and guidance when necessary. Even though the extensive safety data sheets are available, the necessary information can easily be lost in the sheet, which is why this simplified sheet is efficient at giving all the necessary information at a quick glance. The forklift checklist I created should also be able to provide information about the necessary conditions that need

to be met to operate the forklift safely. Some of the injuries and forklift accidents stem from equipment failure and negligence on the employee's side as they do not thoroughly inspect or assess the forklift prior to use (Toyota 2022). By creating an inspection tool for that is used at the beginning of each shift, this should mitigate the mechanical risk that the forklift could potentially ensue if the machine would be faulty. The checklist also includes ensuring the functionality of safety installations, such as safety lights and mirrors, which also makes working in the same area with operating forklifts safer.

The ability to use our HSEMS for our skill matrix in trainings provided by HSE is also a beneficial step, as previously these skill matrixes have been kept by HR. The gain here, is that now we can identify the skills that some groups are lacking and concentrate our training focus on these subjects. The skill matrix also enables us to analyze the necessary skills that staff should have in given tasks or positions (CCPS 2010, 37). This could for example be utilized in our rescue training, as their training includes various modules, such as battery and personnel evacuation, fire extinguishing training and first aid training, among others. These trainings will be more centralized for each department now as we get our refurbished rescue trainings underway.

#### 4 Conclusions

Now that all of the reporting weeks have been finished, there is a clear feeling of relief knowing that the closure of this thesis is near. Despite some of the weeks having less content than others, the past ten weeks have been surprisingly busy, at least busier than I had anticipated them to be in the beginning of the project. The clear reason for this is that I have been able to develop responsibility within the company as well as my team, which coincides with the ability for me to have a heavier role in a multitude of projects. This is something that I set out to develop during my thesis, and I can definitely say that I am moving towards the right direction. My involvement in change as well as projects has become more autonomous, in comparison to only having projects assigned to me in the beginning. As an example, I worked completely independently on the project revolving the final inspection stands, and it is a great feeling to see that project through to the end. Knowing that the implementation of this project makes working safer and more pleasant for both quality and logistics also feels satisfying, further giving me the reassurance to take more responsibility in future projects as well.

With me being able to have more responsibility, I have also been able to develop my knowledge regarding legislations and standards. In the beginning, I was oblivious to why certain processes as well as tasks were completed with a flow or in a certain way, having only thought of it to be natural. As an example, when incidents happened, I wanted to be involved



in creating a solution to circumvent the issue so that it would be safer for the personnel to perform their tasks. Later however, while doing research for this thesis, I realized that assessing the incident as well as coming up with an alternative solution to make the process safer was also demanded by Finnish law. The legislative presence in a large variety of the tasks we do as HSE became a lot more apparent the further I proceeded in analyzing the weekly contents.

As I have received more knowledge about prevalent processes and dwelled more specifically into legislation during the past weeks, this has also helped me to become more decisive. In the beginning of this project, I had not been working in this position for long, which in return made me very cautious to make any decisions due to the lack of knowledge and expertise. Now that I have been able to broaden my knowledge, it has become increasingly easier and natural for me to come up with ideas and decisions. This can for example be seen in the risk assessment done for the final inspection stands, and pyro equipment checklists. Both of these projects had been assessed and finalized with the help of knowledge drawn from previous experiences and analysis for this thesis.

As time has passed, I have also become more familiar with my colleagues as well as other personnel in the facility, which has helped me develop my communication skills. As I became to know the people around me as well as interacting with others, my anxiety over spontaneous discussions has slowly faded away which has made me feel more confident in myself as well as more reliable to others. My ability to train people has also got better as a result, and as such, providing inductions and other safety trainings has become significantly less stressful, which in return helps me train more coherently. Additionally, as a result of the bilingual environment provided within Valmet Automotive, I have also become a lot more prone to acting in English, which has also helped develop my business-related vocabulary.

Lastly, my academical writing has also developed significantly as a result of this thesis. The early stages of reporting and analysis are clearly distinguishable in style from the latter half of the thesis. My ability to pinpoint and explain the fundamentals in both reporting and analysis had been greatly altered as weeks went by, providing a more fluent and informative experience to the reader. I believe that the way of presenting matters has also been enhanced in my documents and projects at work as well, giving further meaning to this thesis and the development I have gained because of it.

Considering the development goal of this thesis mainly being to develop my own professional skills, alongside providing a job description and functionality report of HSE within the company, I believe these goals have been met. The formerly mentioned hard and soft skills had all seen acknowledgeable improvement, supported with the reporting and analysis done within the thesis. Given the wide variety of tasks and scenarios I have encountered during this

thesis, this work will also presumably help the company understand the resources and workloads within the HSE. This in return will help make potential future recruitments for HSE positions within the company as well as realize the necessary competencies that should be expected of one admitted into these roles. Considering the company growing rapidly in size with new projects already on the horizon, utilizing this thesis for an HSE-related job description does not sound like a distant, utopian future.

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## Figures

Figure 1: Single-loop learning.....	6
Figure 2: Simplified safety data sheet for isopropanol chemical .....	20
Figure 3: Risk matrix .....	30
Figure 4: Occupational risk assessment process.....	31
Figure 5: Safety equipment map .....	50
Figure 6: Qualification matrix .....	54
Figure 7: Forklift Checklist .....	55

## Tables

Table 1: Terminology .....	9
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