Industrial Safety Engineering
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Lecture – 53
Occupational Health and Safety Management (OH&SMS) and OHSAS 18001 - Part 3

Hello viewers, last session we have talked about how Occupational Health and Safety Management system is develop based on PDCA principles; Plan, Deployment, Check and review principle, Access principles. That safety management system is developed based on the standard of OSHMS 2007. OSHMS 2007 is the standard for the occupational safety and health management system. Now, today we will go with a case study which will make you more clear about this.

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As we have talked last class also the safety and health philosophy in our organisation we have processes, we have raw material coming, we have finished products going and we have people working, we have various machines, people coming inside, people going out, there the community outside the organisation lot of people are staying.

So, schools, community, many people we have to take care of the whole of these things in the safety occupational health and safety management system. It is not that you will

take care of only your own people, the whole society has to be taken care you your organisation should not damage the society. So, occupational health and safety management system has to take care of all these things. The OSHMS 2000 18001-2007 will help you in developing the specification and in the last class we have developed the specific occupational health safety management system.

Now, we are going to the case studies, this case study is from a world class integrated steel plant having not less than 10 million ton production having around 25000 people working. So, from this case study you will get everything how it is implemented.

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Let us understand one concept here, the in the whole organization, in the whole world there are 4 types of students. Student A, you have 4 types of students, student A, student B, student C and student D, what is student A?

They are those people who put the efforts and they get the result, they put the efforts in the safety management system, they put the efforts in improving productivity, they put the efforts in getting into IIT's, they put lot of efforts and finally, they get it that is called student A.

Student B they do not put the efforts by fluke they get the results, in the safety also some people do not do anything, but organisation continues with good results. Student do not

read, but in the objective questions somehow they get into they pass that is called student B.

Student C put the efforts organisation put the efforts, but immediately they do not get the results, they keep putting the efforts. And student D's people do not put the efforts, do not get the results. Your organisation any organisation should consist of people of student A and student C. They put the efforts, if they put the efforts results will come that we should in the occupational health and safety management system should develop people of student A and student B.

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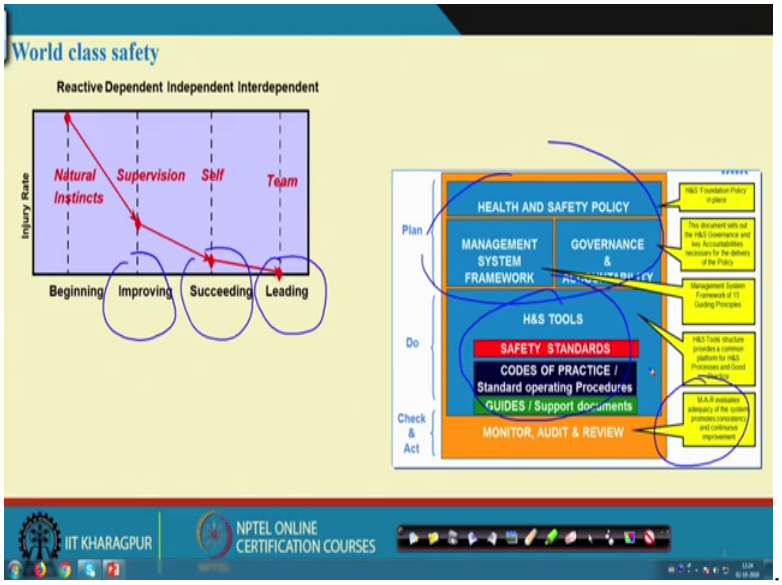

I said this organisation is a world class safety organization, what do you mean by world class? World class is see there are 5 types of maturities in the organisation 1 is beginners they are called natural instincts; that means, if the statutory some people come and say you have to do it they do it otherwise they do not do it, if somebody tell you have to do it they will do it otherwise they will not do it.

So, they will respond to the instructions, they will respond when it is required with somebody says that is called beginners of the in the scale of 1 to 4 world class safety, they are at 1 and some organization, some people they require guidance if you give guidance they will do it, if you help them they will do it.

If the organisation gets some if the supervisors help the workers will do, if the officers help supervisors then supervisors will do they look for the guidance that is called in the scale they are called they improve they are called they are called 2. The 3 scale 3 is they do they know everything, they do everything, they know how to run the machines, they know how to run the processes, they have got all the skills, they have got all the competencies, they take care of themselves.

So, it is also good everybody takes care of themselves it is a organisation no. So, they are called at 3. Now what is world class? World class is I take care of myself, I take care of others also, if somebody is doing wrong I will go and correct them I will help them, I will not say that no he is not belonging to us we will not do it that is leading organisations that is called world class organization, people have to look for world class organisation.

The organisation which we are talking they have got PDCA deployed in their organisation in the planning, they have health and safety policies and management system frameworks, how do you governance, they have written everything in the planning they do. And Do, Do is the implementation, how do you do it, how do you implement it. They have got the standards, they have got the course, they got the operating procedures, they have got the HS tools all these things come under Do.

And the Check, check means reviews they have got the system of reviewing at various levels various things and finally, they act, in the reviews whatever gaps you get the implement it that that is the whole management system is divided into the like this matrix on PDCA principles.

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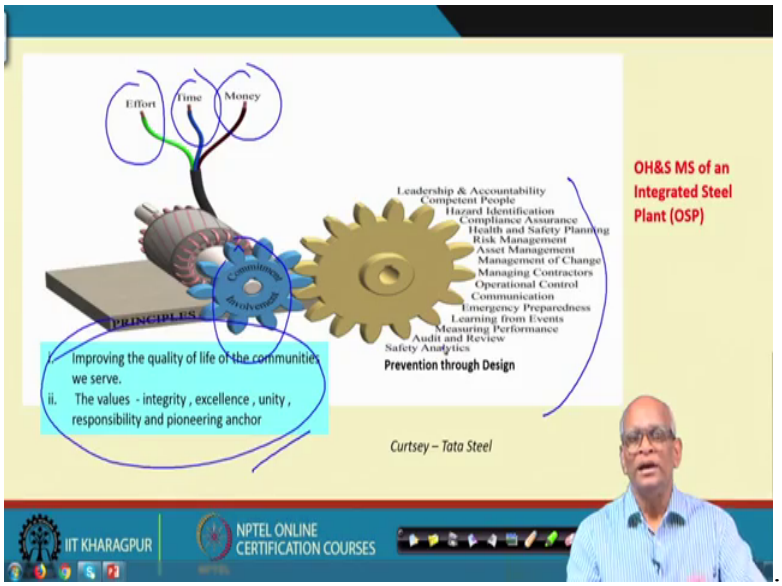

How is it happening? In this organisation they have got the strong principle fundamental principles like improving the quality of life of all the communities we serve not only our people all the communities. That is one of the fundamental principle they have they have got value systems, values like integrity, excellence, whatever they do they have to excel, whatever they do you should have integrity, unity, responsibility. Responsibility means whatever job people are doing they have to take the ownership, they have to take the responsibility, they have to take the accountability and pioneering, they have to help the whole world, they are the pioneers this is called the principles.

This is called the principles, based on this principles the whole organisation is built, it is driven by effort, time and money of the people, of the leaders, leaders have to put the money, leaders have to allow time to do, leaders have to put the effort.

So, by the leaders effort time and money that will drive the whole organisation involving people they have to involve all the people at all the levels and it is driven by the following methodology like leadership and accountability, competent people, they should have competent people, there is a system of addressing this hazard identification, compliance assurance, health and safety planning, risk management like that and they have also got safety analytics. The present trend is you should capture the data, the data you should put into analytics. So, that you will get predictions will get prescription.

Finally, all these things are to be implemented from design stage that is called prevention through design. So, there this all 17 methodology principles take care of all the OSHAS standard requirements in addition to that many more things they will take. That is what I told you occupational health safety management system of world class companies address many more things that is how it is addressed.

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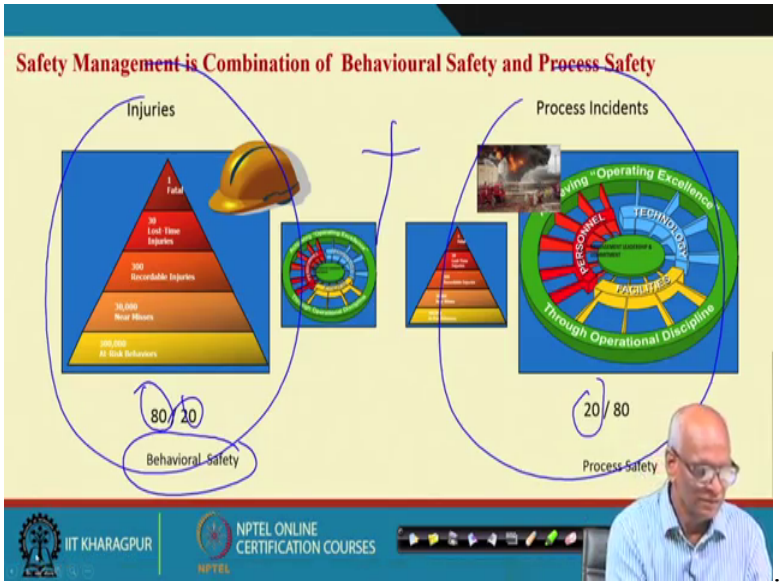

Also it is addressed 2 fold, one is the behavioral safety model; that means, I talked about behavioral safety last time. So, they are use behavioral safety to improve the behaviours of the people and they have engineering safety, process safety. Process safety is it is not everybody's contribution, the qualified engineers and knowledgeable engineers they understand they look at the hazards risks of the process by deep engineering knowledge and provide interventions that is not done by everybody. So, this process safety when you are applying process safety you require at least 20 percent of the behavioral safety also.

So, behavioral also should cooperate, if you are applying behavioral safety 80 percent is behavior safety 20 percent is the process safety. The combination of these 2 is used in this organization to make this occupational health safety management system successful.

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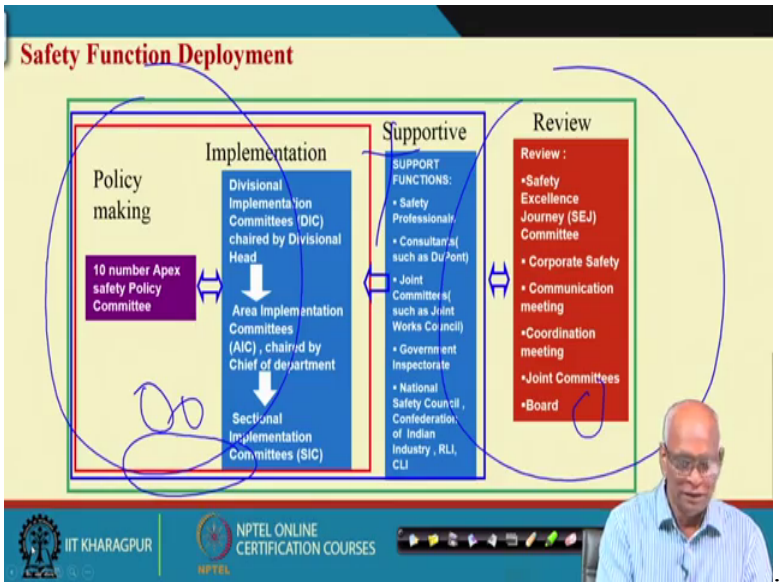

And they have policy making companies at and the organization somebody has to take the policies, they have to make the policies that is the leadership teams and they have got the implementation teams.

If the policies are made they have to be implemented in the organization, they have got the implementation then they have got the supporting, supporting like safety, safety people and outside consultants they should helping and finally, they will review it at different levels. So, that the PDCA finally, we have to make improvement review will take to improvement. So, this is the safety function deployment in that organization.

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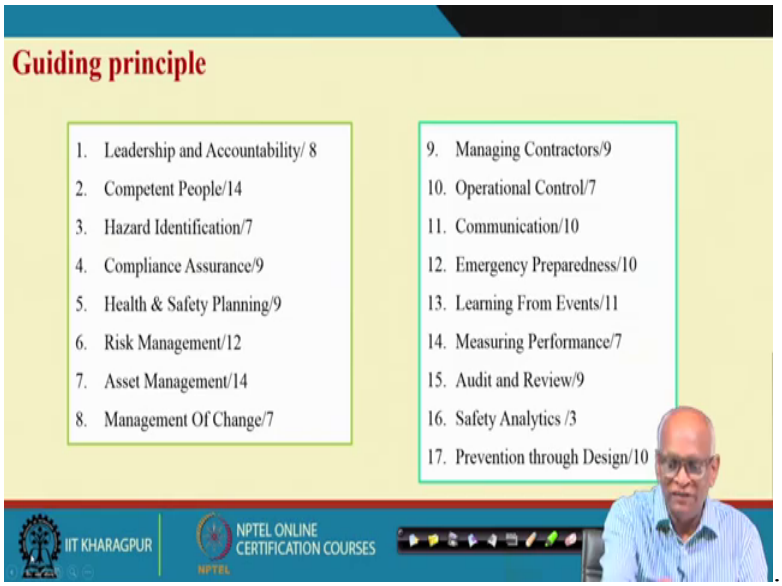

So, this the guiding methodology guiding principles I said this 17, 17 each a principle has got 8 divisions in that 14 7 like that each principal is subdivided how it is implemented. So, we will go with some example then you will understand.

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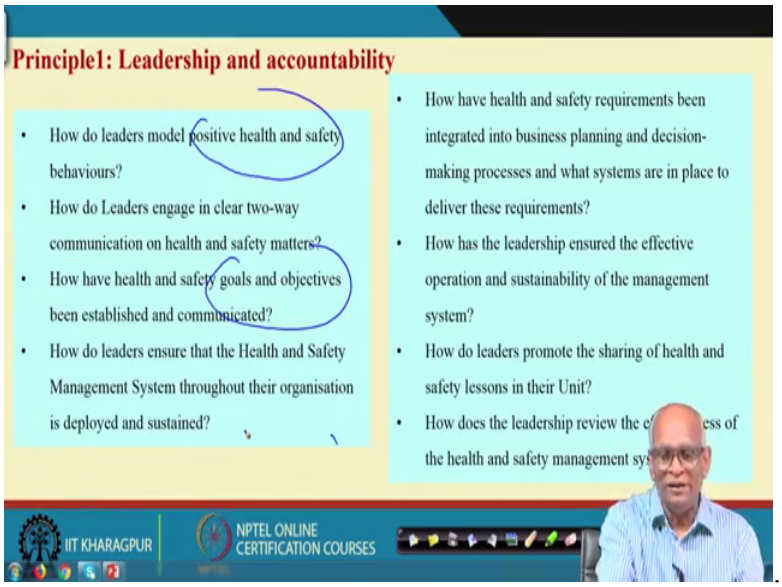

Like Leadership and accountability. So, what is that leadership and accountability? What are the various sub principles in that? How do leaders model positive health and safety behaviors? Leaders have to see positive health and safety behaviorals is coming in the whole organization.

How leaders are engaged two- way communication? How health and safety goals and objectives are established? People have to establish leadership with the help of all the people they have to establish goals, objective, safety goals and objectives.

And how leaders ensure health and safety management system throughout the organisation is deployed? That has to be done at the leadership level.

And how do you check whether it is there or not, we will come in the next time we will talk about those things.

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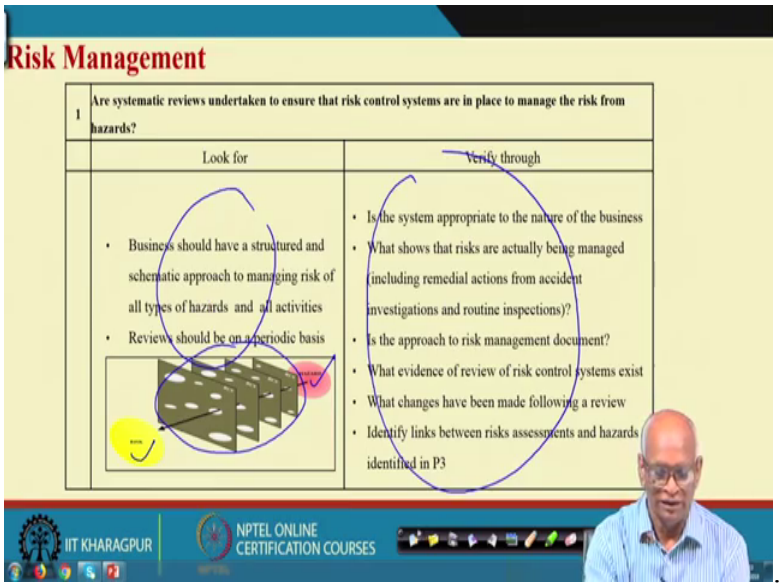

Because risk management is very important principle, let us go little more detail in the risk management. First point in the risk management is the systematic reviews undertaken to ensure risk control systems are to manage risk from hazards, see what is the principle, we have hazards, we have risks, we have risk control systems.

So, business should have structured and schematic approach of managing risk and hazard of all the activities. They have to implement at each and every stage, if they have implemented you can see OSHMS 18001 given a provision how to verify it. So, these are the things which will be verifying, whether this is done or not, will be verifying like this.

So, organisation see is the approach to the risk management, document documented that is one of the verification. So, these are things to be implemented, these are the things could be verified, occupational health safety management system which you are

implementing, it should be verifiable, it should be implemented in such a way anybody wants to verify, it should be verified.

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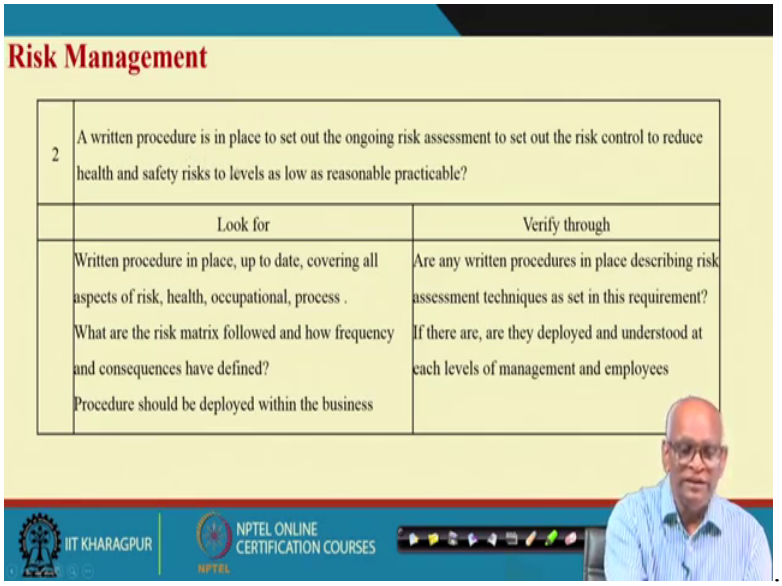

There should be written procedure in place to set the ongoing risk assessment for the risk control to reduce, see there should be written procedures it is not that, if you want to tell people verbally tell. So, verbally people will forget.

So, here everything you should have written procedures in place up to date, whatever you are doing there should be a written procedure, for the risk assessment and the risk control and people it should be documented. So, that everybody will follow it.

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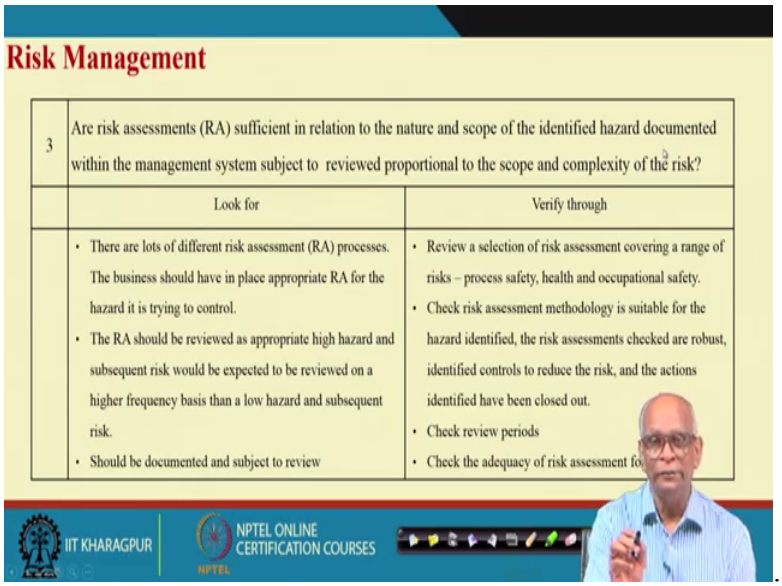

Risk assessment, risk assessment sufficient in relation to the nature of the scope of the identified hazards is the risk assessment what people are doing is this sufficient to the nature of the hazard, if the nature of the hazard is very high the risk assessment will be very thorough. So, there are lots of different risk assessment techniques which people will follow. So, the RA processes which are there are being done to take care of the all high hazard hazardous processes they have to put everything in place.

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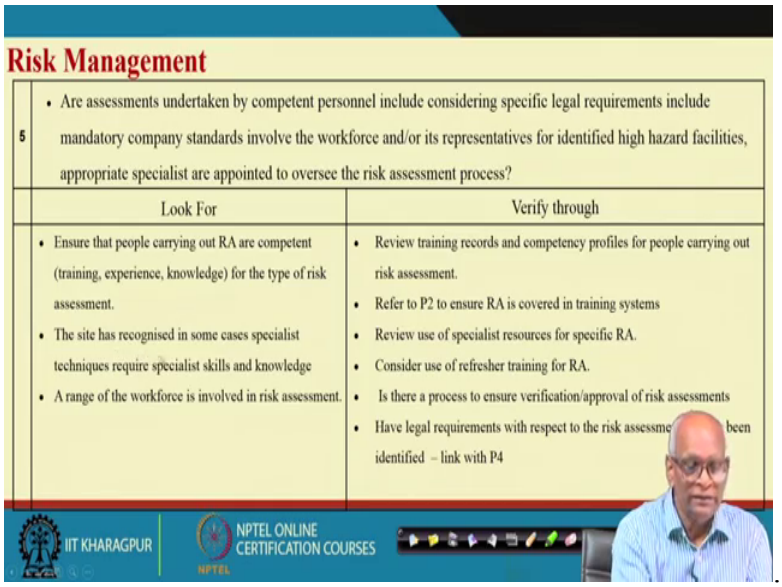

Are assessments under taken?

So, ensure that people carrying the risk assessment are competent, risk assessment if there is no competency. So, they cannot they will do only superficial. So, this organisation has put very competent people to very trained people in the risk assessment process. The site has recognized some cases specialist techniques require specialist skills and all some places you require special techniques to look at the risk assessment normal techniques will not be there. They have also identified those special techniques what are required for that particular assessment, suppose if the hazard assessment requires thorough a chemical knowledge thorough are you it requires hazard studies or if it requires many other things, those things they have identified where they have to apply all those things.

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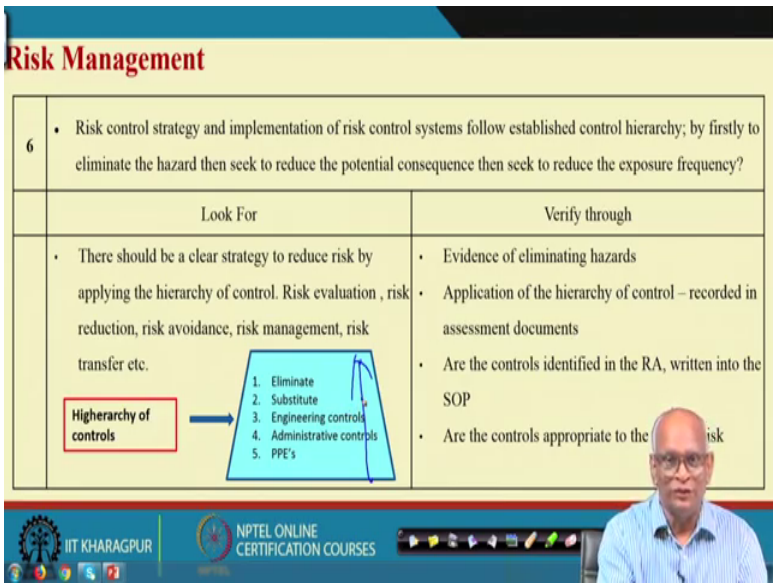

So, risk evaluation one when they have evaluated the risk and they have put they have to put the interventions in place, once you understand the risk you have to put the controls they have to follow hierarchy like this. If the risk is very high they have to they have to eliminate it or substitute it or put the engineering controls, they have to use this hierarchy to reduce the high hazards. So, all the hazards all the risk to be made ALARP level to bring it to ALARP level so, they have to use eliminate substitute engineering controls. So, throughout the organisation's this has this evaluation is done and they have put the interventions like this.

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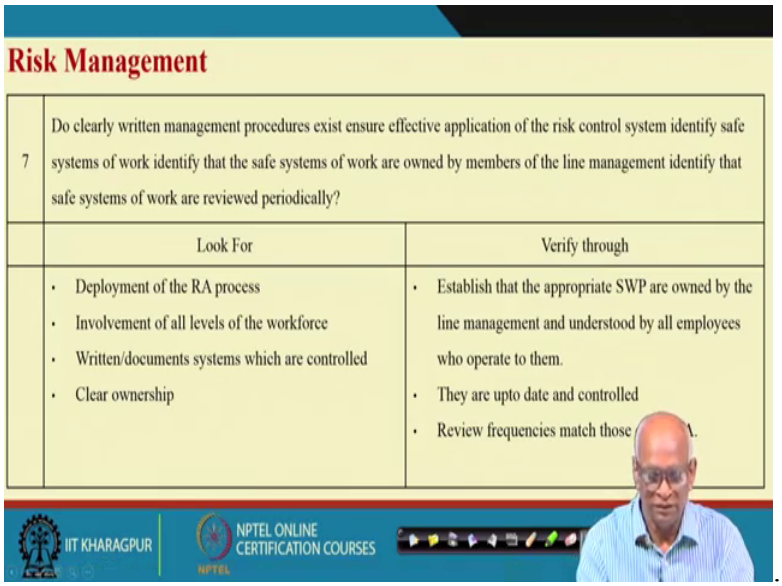

Deployment of the risk assessment process involvement of all the people written document systems so, they are to be deployed each and every site, every process, every place.

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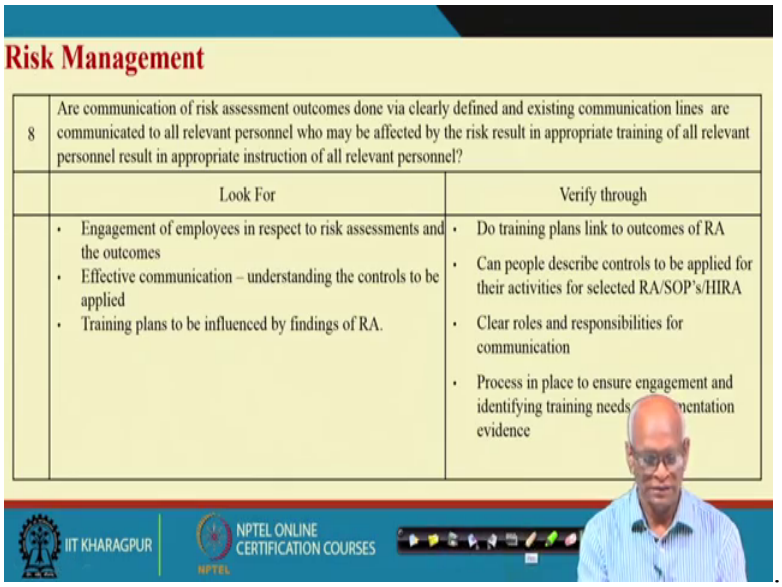

And you should be communicated to all the people, every organ in the whole organization they have communicated through various means all the risk assessments and outcomes unless people are communicated people are trained on those things the results will not come that they have done across the whole organisation.

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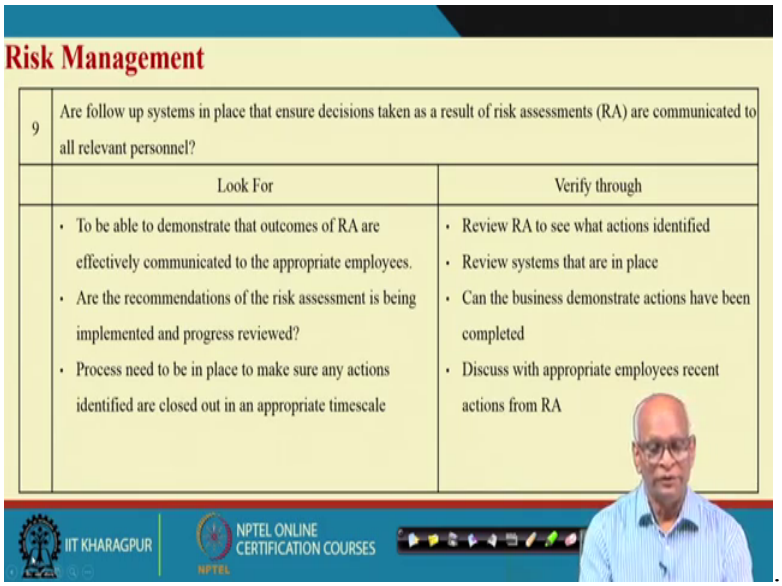

Follow up systems. So, how the follow up systems are done in this, how the follow up systems for the whole risk assessment and implementations are done? It is they have deployed across the whole organisation.

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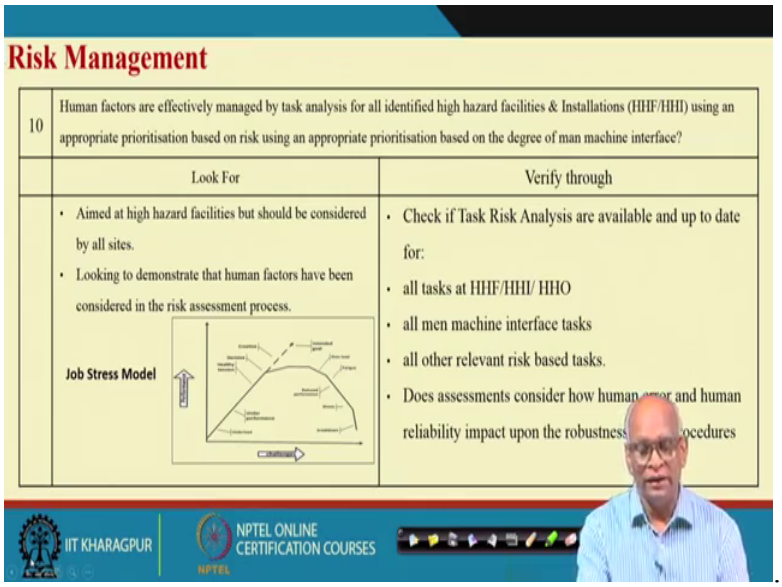

The human factors ergonomics at the high hazard facilities.

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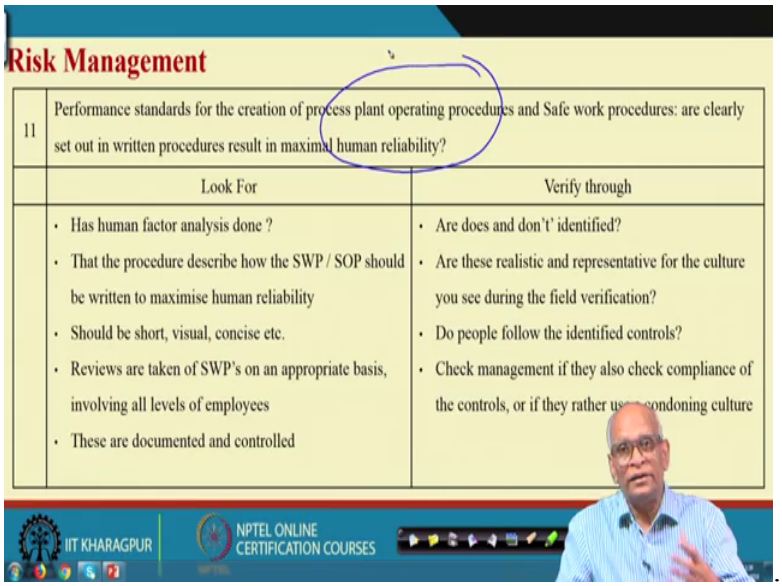

The ergonomics human factors have to be properly deployed. So, is the human factors analysis done, how the human is working? What are the posters? What are the positions? How much time they are doing? All those things it is to be done.

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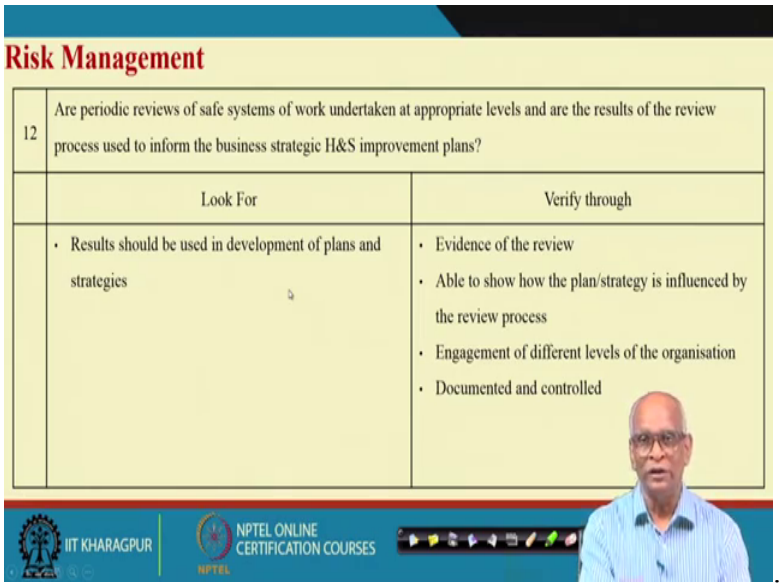

And finally, the results should be used in deploy the plans and strategies whatever results are coming again they should deploying the plans they should take it to deployment process.

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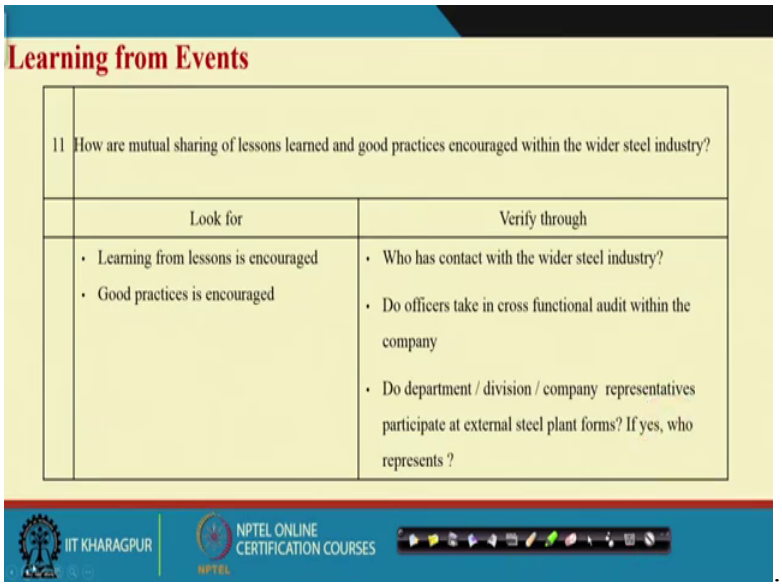

So, learning from lessons; so, if any failures are happening from there they should learn all the organisation is learning and they are deploying the good practices everywhere and they are encouraging the people who are deploying all.

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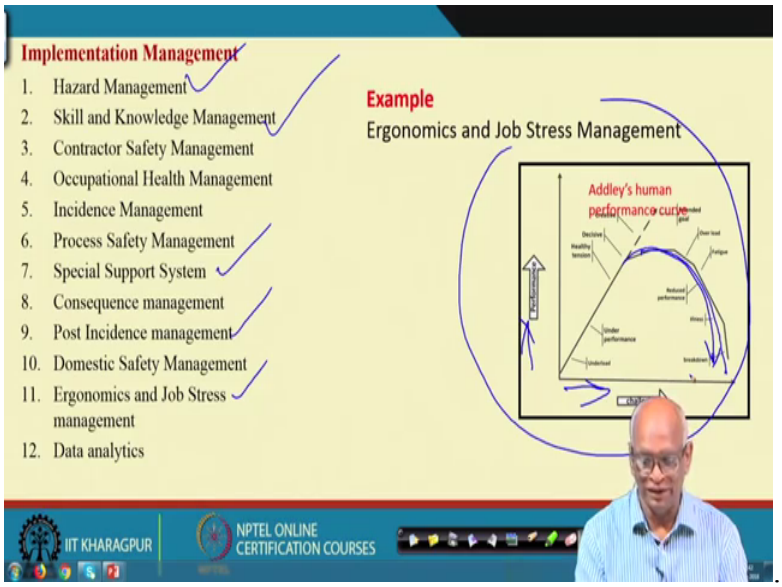

They have name whole implementation process they have put different under different managements they have name has hazard management, skill and development management, contractor safety management, occupational health management, incident

management, process safety management, special support systems management, post incident management.

Post incident management means if any incident happens how you manage it, you will be surprised to know in this organisation when an incident happens a fire happens say the fire brigade vehicles they have to go within 2 to 3 minutes to that place. They have to run at very fast there is no speed limit, if the fire vehicles move at slow speed it is it is; that means, they are not followed it, fire vehicles they have to follow they have to go at very high speed. Because of the speed limit in the plant fire vehicle should not be gone that we should not we should not do and ergonomics and safety management systems.

So, now because of the more service sector jobs, physical jobs are coming down in the organisation and the mental jobs are increasing, to take care of those mental jobs people use the job stress model. So, job stress model when the challenges are when challenges increasing performance will also increase up to certain level, afterwards if the challenges increased the performance will come down this is called job stress. So, we should if the challenges are more to the people, to the workers, to the supervisors, then we have to improve their competencies. If you do not improve their competencies then they will going to the job stress their performance will drastically come down.

So, ergonomics and job stress management is very important in the present scenarios.

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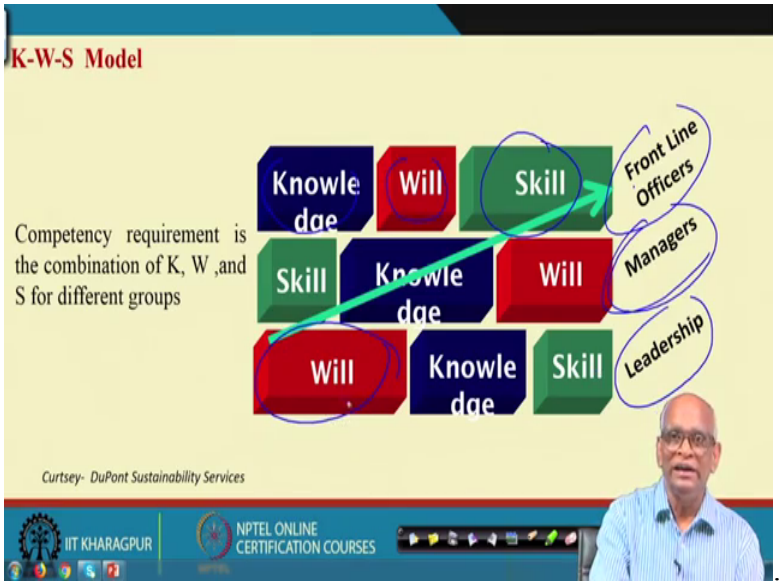

People when we have people at different levels we have frontline managers, managers, leadership. So, what are the competencies they require, like frontline managers they require high skills some will and some knowledge, for the managers they require more knowledge, for the leadership they require more will they require very less skill.

So, this model they have applied in the whole of the organisation to implement the, to develop the competencies. So, frontline managers are given more training and the skills, their leadership is given more training in the will, managers are on the knowledge this is called K-W-S model of DuPont this organisation has implemented.

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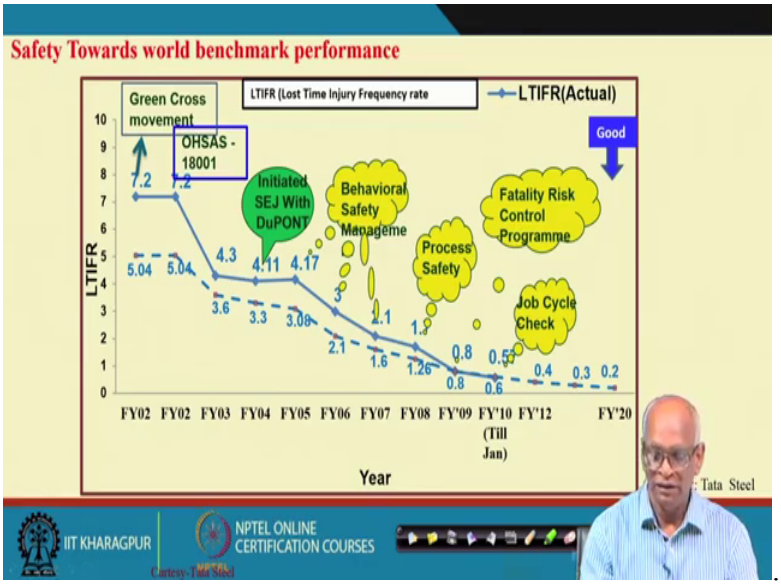

By doing this there LTIFR which is there at this level at high level slowly by implementing one by one the LTIFR as come to very low level is lot of improvements. So, when you implement slowly the whole occupational health safety management systems it will take maturity and afterwards it will come to a level very low level this organisation has achieved this.

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It is seen as told by DuPont the Good Safety is the Good Business. It is observed in this organisation the divisions the places where they are doing good safety their incidents are reducing and their business results are going up. So, in the division to division when we when people compare where the safety is at very levels their effectiveness and business results are also good this is what seen in this organisation.

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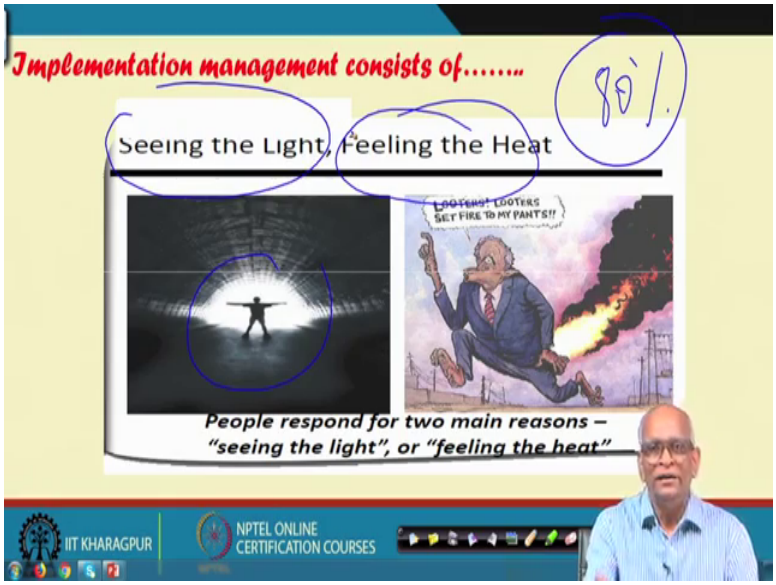

Fundamentally they have followed in the implementation 2 principal; one is "Seeing the Light". The people should see the light the competencies are built up in the people, the

standards are thought to the people, the risk analysis results are thought to the people, people are shown the light if you do all these things you will be safe you will not have injuries, your equipment will not get damaged, by showing this light 80 percent of the people they set right themselves.

They agree they follow everything, but there are few people which who will not follow in this in this world it happens some people do not follow say 10 to 20 percent of the people there should be given consequence show heat; that means, consequence management.So, this organisation has got first more emphasis on showing the light, but some emphasis also put to show the heat. So, that the whole organisation everybody will be on the same platform.

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Then they have seen the results. So, that organisation they have got lot of tribals coming in into the organisation to work in the houses those tribal ladies look like this, they tribal people they have their own way of living, they live like this, but when they come to the organisation they become like this.

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So, the behavioral changes have come. So, much in the people the whole people the tribal people who are like that they give value the whole of the system requirements.

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See they will become like this they will cooperate they will become like this.

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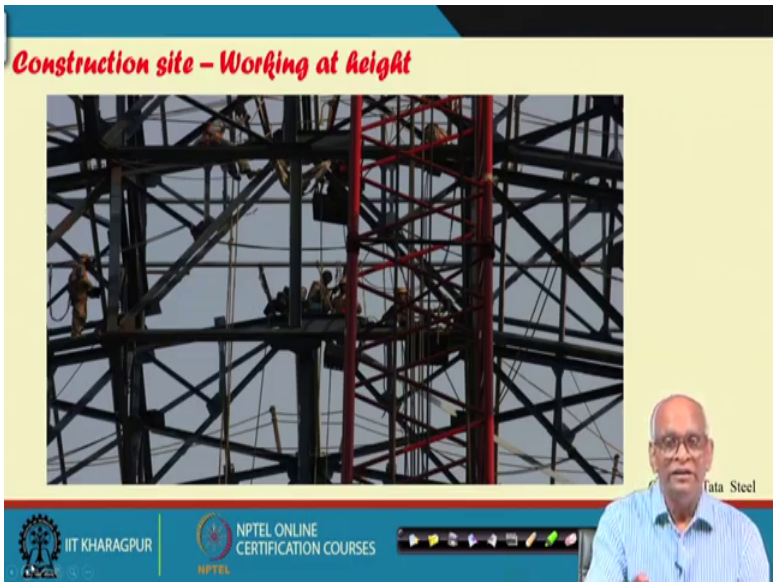

Working at height is one of the biggest hazard in the organisations see people are working people are working at different levels different levels, you see they have put the lifelines, they have put the lanyards, they have put the lanyards they have put the lanyards lifelines. So, that nobody will endure that is how the right implementation if you do the results will be like this.

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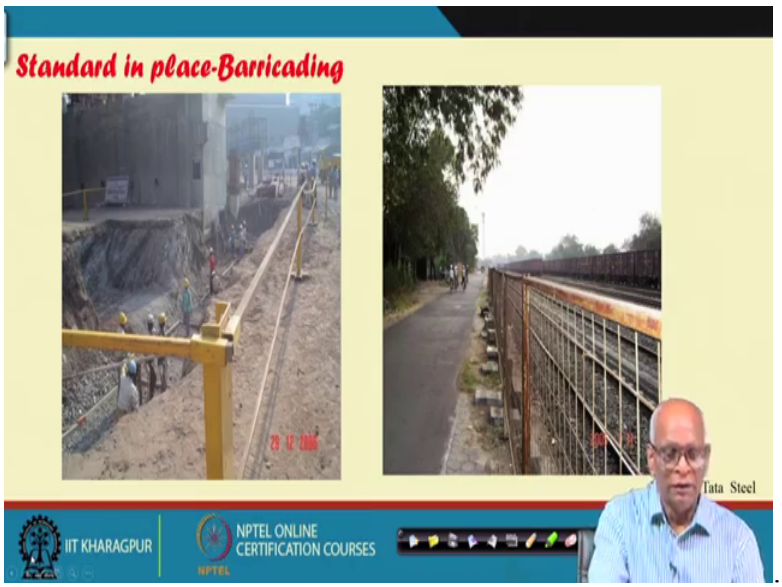

The when they do construction site the improvements will be like this, there will be barrications even the tracks railway tracks people there are lot of manual people working contractor people they should not jump and go that is why they have barricaded.

So, nobody can go to in Indian railways you see many incidents people crossing the tracks and getting injured or died that will not happen in this organisation because they have put the barrications across the whole tracks.

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See how they do not carry anything on the head everything has to be color taken through wheelbarrows people use the dress dresses. So, that they will not use the loose dresses, you see the welding equipment you see how they have put the welding equipments cylinders are in the right direction always up right direction.

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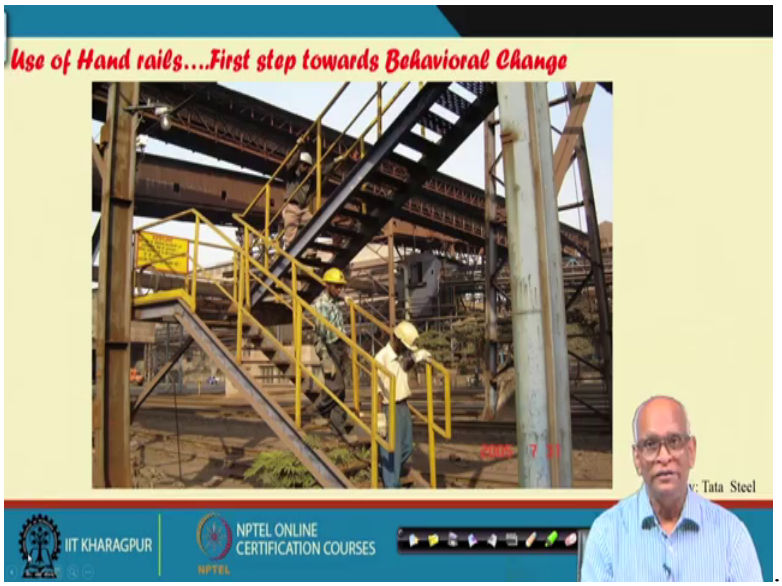

You will be amazed in this organisation when people go up and down they use the staircases hold the rails, holding rail is one of the important rule for this organisation. So, that they will not sleep whenever you go up and down it is the fun first rule to hold the rail. So, that even if you sleeps your hand is holding the rail.

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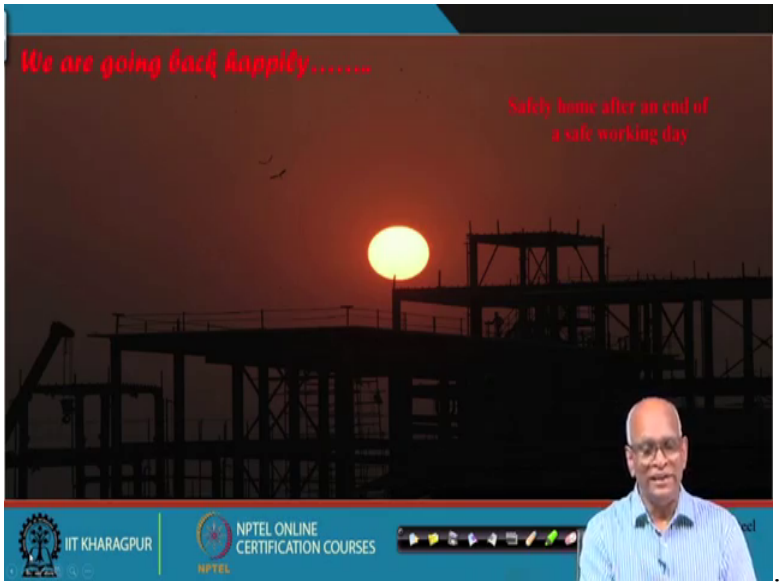

If you do all these things look at these birds the sun is setting birds are going happily to the organization, this organisation believes and had assured the all the people will go home safely. So, occupational health safety health system finally, should make people to

go home safely, equipments to work safely, processes to work safely, that is the purpose of the occupational health and safety management system. If you implement occupational health and safety management system rightly it will drive production, it will drive quality, it will ultimately drive the quality of the people.

Thank you.