Lecture PT1

Risk Management in Dyno Nobel

Tov Haugen
Senior VP for HSE&Q

Today I'd like to talk with you about how we handle Risk Management in Dyno Nobel.

Over the past two years, we have changed direction in our Health, Safety and Environment (HSE) work, so I would like to give you a bit of background to this before going into our Risk Management System.

After many years of positive development in reducing the number of accidents and injuries in Dyno Nobel, in the year 2000 we experienced a levelling off of these results. We took this as a signal to that we needed to review the way we were working within HSE.

Internal discussions and external benchmarking led to the conclusion that we needed to change our focus "from paper to people".

For many years we have focused on technology and operations. In more recent years we've added a focus on Management Systems and Audits. This approach has allowed us to reach a high technological level with professional operations and a solid Management System. This has provided us with a solid foundation for our HSE work. But the time was ripe for us to move forward and build on that base.

We have also defined our four most important key success factors for our HSE work. Even though we felt we had focused too much on our Management System, we still maintain this area as a key success factor, and believe that a good management system is the foundation for all HSE work. Having the proper technology in operations and product handling is another clear success factor — and always been. However, Management Focus and Human Behaviour were two critical areas that required more emphasis.

In mid-2000 we initiated some programs in order to change our direction somewhat – and place more emphasis on the people factor.

First, we simplified our corporate HSE Management System. We standardized our Policy and Guidelines, and established a set of global Standard Operating Procedures (SOPs) and Policies.

Second, we also established a global program to support our change in direction. This consists of five projects that were all global programs. At the same time it was important to maintain focus on existing local HSE programs, while concentrating on high-risk areas and "non-performers".

The global program we implemented contained five projects and was meant to run for a 3-year period. All of the five projects contain parts of Risk Management. Standardizing our **Risk Analyses Tools** meant looking at which tools we should select as global tools.

The **Human Behaviour focus project** developed a simple risk tool to be used by all our employees.

The **auditing project** developed a risk identification checklist, and our new **HSE reporting system** contains risk surveys and plans. This will be used as a management tool for improvement plans and benchmarking.

The **Competency project** evaluated key competencies and skills that needed to be developed.

As you can see, our new risk management philosophy is moving to one Global Risk Management system covering all levels in our organization — down to each individual Dyno Nobel employee.

Our Risk Management System has 3 defined levels:

Level 1 covers the “professional” risk analyses tools used by our specialist. These are however quite complicated to use and comprehensive.

On **Level 2** we decided to develop “simpler” and more user-friendly tools for use by local site management (mainly for our smaller sites).

As part of **Level 3,** we are now in the middle of a “Take 5” process, in which we are training all of our employees in the use of a Hazard Assessment Tool (named HAT). We started the Take 5 process with a campaign in late November 2001 and will continue throughout 2002.

The “Take 5” process is simply a message to get all employees to stop (take 5 minutes) and think before they act. Each should then make a 5-step check before starting on any new job.

During the training all employees receive a notepad containing the 5-step process and the Dyno Nobel risk diagram. This assists each of us in evaluating a risk and gives guidelines for how to respond. The notepad is then filled in by the employee and handed to his or her supervisor. All Category A and B Hazards will be registered in the new HSE database.

The basic Take 5 training program is designed to take about half a day. In addition we are organizing exercise sessions for practising Take 5 and the use of the Hazard Assessment Tool (HAT) as well as providing further training in Risk Identification.

We believe that by involving the entire organization in risk reduction, together with a good system for corrective action and follow-up, we will see a further reduction in accidents and injuries.

Therefore when we set HSE targets and monitor results, we will now also focus on our Near Miss and incident reporting with corrective actions in addition to our new process which includes the hazard identification and prevention program.

After two years we are starting to see some results. We believe that most of this is due to our increased focus on safety and also on getting people more directly involved in our HSE work. Changing the entire culture of the company, however, will take some time.

Risk Management in Dyno Nobel

SAFEX Presentation
Amsterdam, May 2002

DYNO
Dyno Nobel

Topics for today

Todays topic is not about ”theory”.

It’s about

- How to save lifes
- How to avoid accidents
- How to make a better and safer environment for us all

DYNO
Dyno Nobel

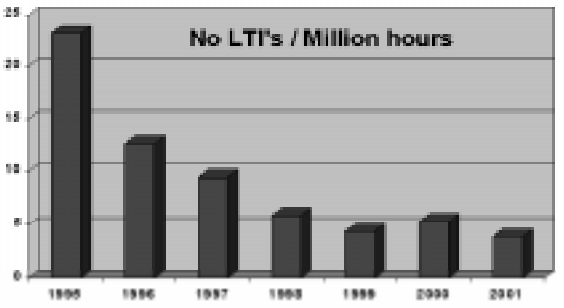
Can risk be eliminated?

- **Any activity contains risk.**
- **Training and experience can help us to manage it.**

DYNO
Dyno Nobel

Change focus in HSE

After many years with reduction in accidents and injuries the trend in Dyno Nobel levelled out



DYNO
Dyno Nobel

Building our HSE&Q foundation

We have systematically built up our HSE foundation

DYNO
Dyno Nobel

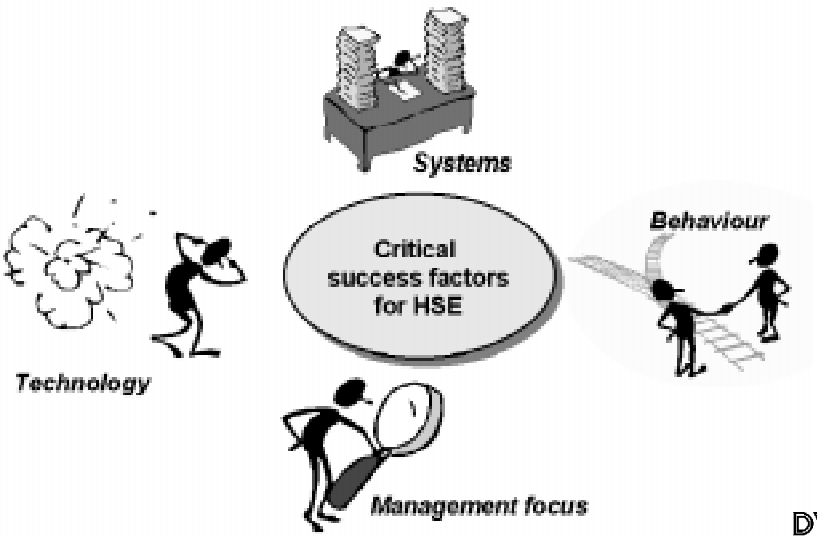
Change in focus

We needed to change our focus:

”More on people and less on paper”

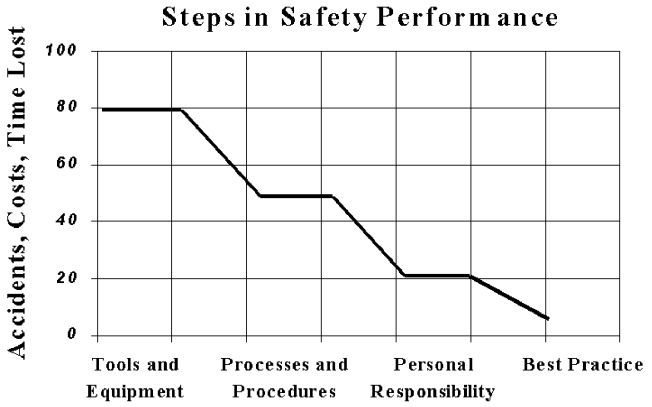
DYNO
Dyno Nobel

Critical Success Factors



DYNO
Dyno Nobel

Personal behaviour is important…..



DYNO
Dyno Nobel

Change in focus

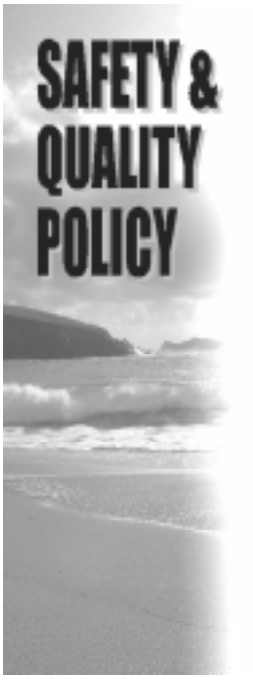
Since changing direction mid 2000 we have established

- a simplified, global HSE&Q Management System
- a global program for change

DYNO
Dyno Nobel

Simplified, Global HSE&Q management system

DYNO
Dyno Nobel



It is the policy of Dyno Nobel to provide a safe and healthy workplace, to protect the environment, to preserve corporate assets and to satisfy our customers' expectations.

Safety and quality are line responsibilities and all employees will:

be accountable, responsible and committed to the implementation of this policy.

In observing this policy, Dyno Nobel will:

- Comply with all applicable laws and regulations and corporate guidelines relating to health, safety, environment, quality and security.
- Provide the necessary resources and effective systems, programs and management to accomplish specific objectives and continuous improvement.
- Evaluate the impact on safety, health, environment and quality when developing new products, processes and operating facilities.
- Facilitate material recycling, waste minimization, energy conservation and pollution prevention.
- Prevent accidents and injuries through systematic analyses of risk, periodic audits and training.
- Maintain openness and trust and work constructively with government agencies, community organizations, employees, customers and other interested parties.

Dag Mejdell
President & CEO Dyno Nobel ASA

DYNO
Dyno Nobel

Global program for change

1. The new direction
   - Focus on Human Behaviour
   - An Integrated HSE audit system
2. "Best Pra
3. "Peparin

Risk Analyses System

- Change in HSE competencies

DYNO
Dyno Nobel

Risk Management philosophy

..to one global set of tools
for all organisational level
to enable benchmarking
and ensure best practise

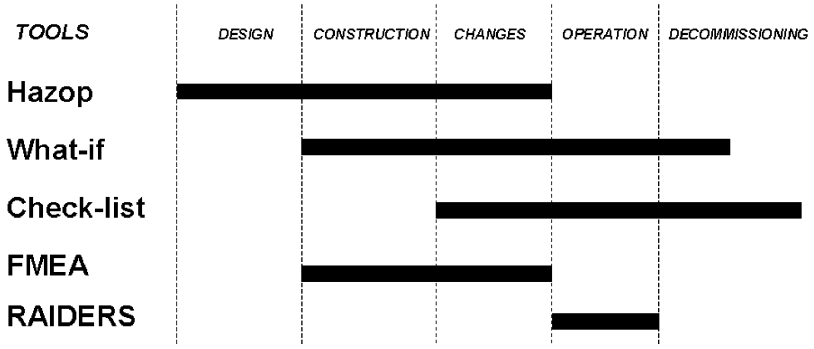
DYNO
Dyno Nobel

Risk Management Philosophy

DYNO
Dyno Nobel

Level 1 Risk Tools

Professional tools used by specialists



DYNO
Dyno Nobel

Level 2 Risk Tools

Risk Identification check-lists

Risk Identification check-lists have been developed for

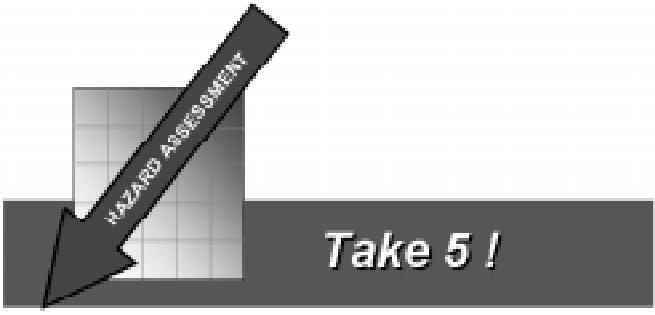
- Smaller operations
- Run by local management
- Simple to use
- Examples: warehouses, depots, bulk stations

DYNO
Dyno Nobel

Level 3 Risk Tool

HAT – (Hazard Assessment Tool)

HAT was launched in the "Take 5" campaign and aimed at all employees

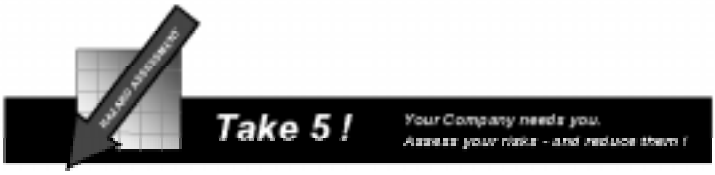


DYNO
Dyno Nobel

Take Control!

On the job or at home, we all face hazards. But how do we deal with them?

Dyno Nobel's "Take 5 !" Program incorporates a hazard assessment tool that helps ***you*** take control over the risks you face.



DYNO
Dyno Nobel

What is the 'Take 5 !' process?

Stop and think before you act !

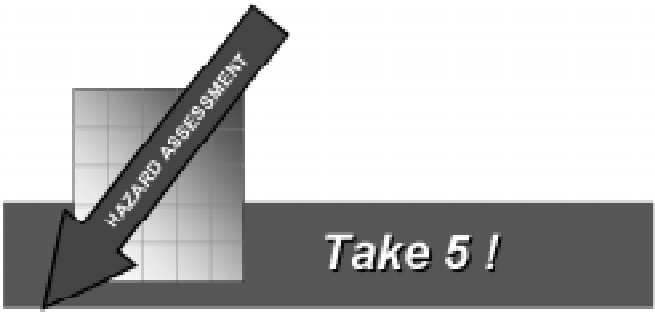
Take 5 minutes and use the 5 steps in the "Take 5" program to evaluate risk

1. *Identify the job you are about to do*
2. *Break the job into steps and identify hazards in each step*
3. *Assess the hazards using the HAT*
4. *Develop controls and apply to hazards*
5. *Record the controls on the notepad*

DYNO
Dyno Nobel

What is HAT?

It is a simple risk tool for categorising identified hazards and a guide for how to act



DYNO
Dyno Nobel

The HAT Matrix

PROBABILITY						
will happen	5	B	B	A	A	A
almost certain	4	C	B	B	A	A
could happen	3	C	C	B	B	A
unlikely	2	C	C	C	B	B
extremely unlikely	1	C	C	C	C	B
		1	2	3	4	5
		minimal	moderate	severe	major	catastrophic
		SEVERITY				

A CLASS HAZARD

A

B CLASS HAZARD

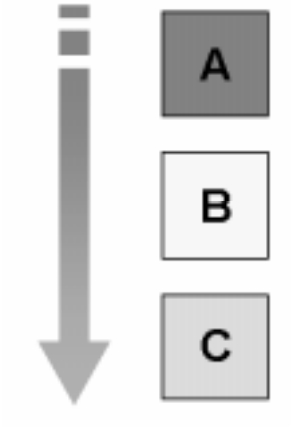
B

C CLASS HAZARD

C

DYNO
Dyno Nobel

Level of risk and mandated action



A CLASS HAZARD
STOP! Inform Supervisor.
Use formal job safety analysis before continuing.

B CLASS HAZARD
STOP! Inform Supervisor.
Use procedure or permit.

C CLASS HAZARD
Continue with task after completion of Take 5 !

So what is an acceptable level of risk??

DYNO
Dyno Nobel

Take 5 rollout plan

- Program launched by CEO 22 November 2001
- Training of all employees during 2002
- Training manuals, posters and a ”note-pad” in all local languages
- Implemetation of new database management system during 2002
- Wide publicity covering programs and results

DYNO
Dyno Nobel

”Take 5” poster

On the job or at home, we all face hazards. But how do we deal with them?

Dyno Nobel’s “Take 5 !” Program incorporates a hazard assessment tool that helps ***you*** take control over the risks you face.

DYNO
Dyno Nobel

The ”Take 5” note-pad

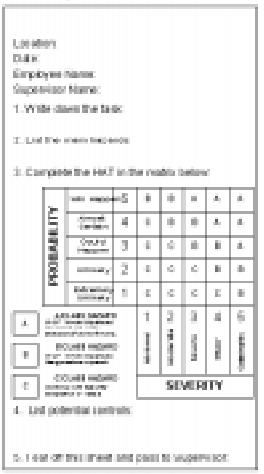
DYNO
Dyno Nobel

The Take 5 ! Notepad …..

Cover

Inside Front Cover

Notepad Sheets with Watermark

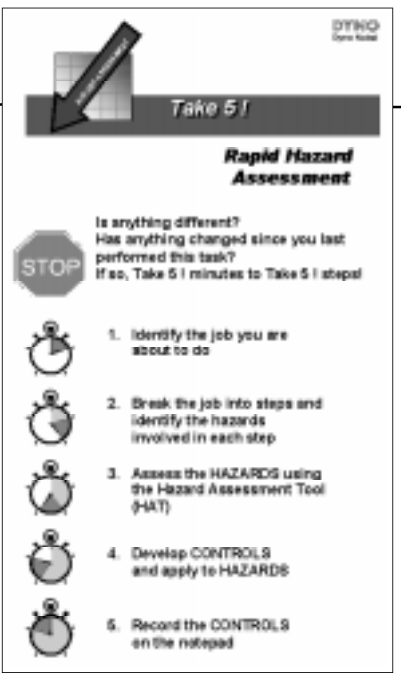


DYNO
Dyno Nobel

Cover

Notepad

Page 1



DYNO
Dyno Nobel

Notepad
Page 2

For each hazard identified, select the appropriate severity (how bad) and probability (how likely) in the tables below.

How Bad?

	Consequence	People	Environmental	Property/ Process	Down time
1	Minimal	FAI	Small cleanup, naturally dispersed	< $1 K	< 2 hours
2	Moderate	MTI	Clean-up cost $1 K - 10K, environment restored 2 months	$1K - 10K	< 1 day
3	Severe	LTI Temporary Disability	Clean-up < 4 days Clean-up cost $10K - 100K, environment restored 24 months	< $100 K	1-14 days
4	Major	LTI Long Term Disability	Clean-up < 1 week Clean-up cost $100K - 1M, environment restored < 2 years	$100 K - $1 M	15-60 days
5	Catastrophic	Fatality	Clean-up < 1 month Clean-up cost > $1M, environment restored 2-5 years	>$1 M	>60 days

How Likely?

	Chance	Certain	Probable	Likely	Not Expected	Remote	1 in a Million
Exposure	Times per year	1/1	1/100	1/1000	1/10000	1/100000	1 in a million
Constant	24000	6	6	6	4	3	2
Hours	2000	5	5	4	3	2	1
Days	240	5	4	3	2	1	1
Weeks	48	4	3	2	2	1	1
Months	11	4	3	2	1	1	1
Years	1	3	2	1	1	1	1

Proceed to the Hazard Assessment Tool

Notepad Sheets with Watermark

Notepad
Page 3

Location:
Date:
Employee Name:
Supervisor Name:

1. Write down the task:

2. List the main hazards:

3. Complete the HAT in the matrix below:

PROBABILITY							
Will Happen	5	B	B	A	A	A
Almost Certain	4	C	B	B	A	A
Could Happen	3	C	C	B	B	A
Unlikely	2	C	C	C	B	B
Extremely Unlikely	1	C	C	C	C	B
		1	2	3	4	5
		Minimal	Moderate	Severe	Major	Catastrophic
		SEVERITY				

A — A CLASS HAZARD STOP! Inform Supervisor. Use formal job safety analysis before continuing.

B — B CLASS HAZARD STOP! Inform Supervisor. Use procedure or permit.

C — C CLASS HAZARD Continue with task after completion of Take 5.

4. List potential controls:

5. Tear off this sheet and pass to Supervisor:

Measuring Results

- Through our traditional safety statistics
- With a Safety Culture Survey system and audits
- Through our ”Near Miss” and Hazard reporting

Dyno Nobel Values