The noise project of Norwegian oil industry.

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Sinus AS

PROJECT OWNER:

The project is based on agreements in "Safety Forum", the central arena for cooperation among the parties of the industry and the authorities as regards HSE in the petroleum activities on the Norwegian shelf and on land.

Safety Forum's members – the OLF, the NI, the Norwegian Confederation of Trade Unions (LO), IndustryEnergy, the Norwegian Union of Energy Workers (Safe), the Norwegian Organisation of Managers and Executives and the United Federation of Trade Unions. The Federation of Norwegian Coating, Insulation and Scaffolding Contractors (KIS) have also been invited to participate in the project.

The PSA and the Norwegian Labour Inspection Authority (Atil) sit on the committee as observers.

Steering com. head: Aud Nistov (OLF)

Project leader: Reidulf Klovning (OLF)

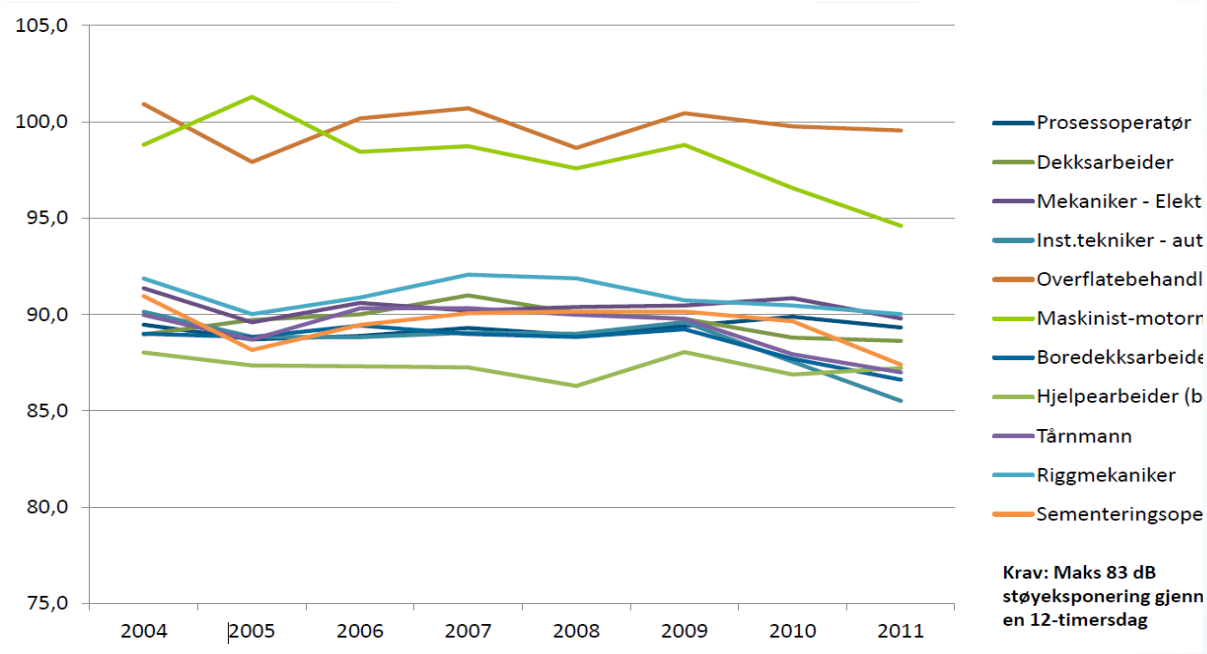
OLF = Oljeindustriens Landsforening

Background

PSA noise indicator:

Based on reported data from all companies

The trend does not show significant reduction in noise exposure



Hearing damages

- Reported hearing damages according to RNNP - PSA

Period	Registered damages
1995 - 2006	150 - 200
2007	595
2008	623
2009	397
2010	605
2111	710

- Hearing damage is the most common occupational injury reported to the PSA.

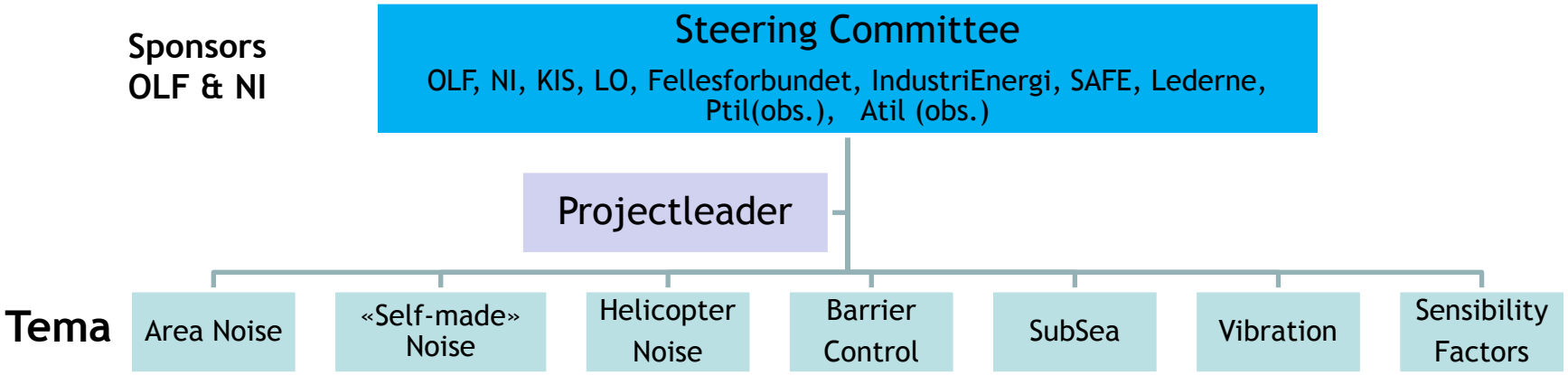
Official statement

- OLF had the following aim for 2009-2011:
  Improved risk management for occupational factors including noise

- Agreement in Safety Forum 2011 states:

- Reducing noise has its own value
- Work shall not induce sickness
- The project shall apply both offshore and land
- Knowledge and experience from related industries shall be requested
- Deliveries shall be valuable also for other industries

Project organisation:



Ambitions / goals

- The petroleum industry shall be leading within HSE
- Occupational noise exposure shall be under control and within authority limits offshore and onshore.
- The aim should be verified by objective criteria's

Aim for deliveries:

- Collect, create and spread
  knowledge about noise and effective measures.

- Create best practice documents

- Make useful tools such as:
  - Noise calculator
  - Engineering procedures
  - Database on noise and vibration sources
  - Helicopter handling procedures
  - Table of accepted field values for hearing protection
  - Other agreed and/or recommended noise occupational factors

Area Noise (1)

Describes problems connected to noise from the installations for instance the process, generators, compressors etc.

Aim:

Propose improvements in the systematic work of noise control with special focus on engineering phase.

Area Noise (2)

Examples of focus in the engineering phase:

- Vendor requirements and objectives
- Acoustic competence in project organisations
- Improvements of Standard NORSOK S-002 and others

Self generated noise (1)

"Self-made" / Self generated noise is radiated from handheld tools in connection with building maintenance, surface treatment etc.

Aim:

Reduce noise level to meet legal requirements

Make choice of less noisy alternative more relevant

Encourage development of new technology

Clarify responsibility: Equipment vendor/Service comp./Oil comp.

$L_{p,A} = 104 – 118$ dB

Self generated noise (2)

Make: Noise and vibration data base for methods and tools
Include new technology

Noisy operations

Water jetting: L_{pA} = 100-110 dB

Less noisy operations

Sand/Water jetting: L_{pA} = 90 dB

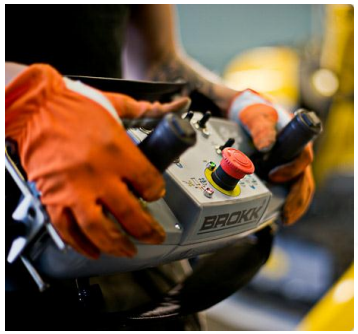
Sand blasting: L_{pA} = 105-115 dB

Vacum Blasting: L_{pA} = 80-90 dB

Self generated noise (3)

New technology continued:

- Remote controlled operations:



Barrier control

The barrier shall ensure that noise exposure is under control and below legal requirements. Includes:

- Physical barriers
- Time limitations
- Personal barriers – hearing protection

Aim

- Evaluate existing barriers
- Present recommendations on ear muffs and plugs
- Improve existing specification
- Evaluate new technology

Barrier Controll

Single hearing protection: 12 dB
Double hearing protection: 18 dB

Exposure limit => time limits

PVU	Støynivå (dBA)	Minutter eksponert	Gjenværende eksponeringstid i minutter
	>110		Opphold ikke anbefalt
	106-110	0	30
	101-105	0	120
	96-100	0	360
	91-95	0	360
	86-90	0	720
	81-85		Ingen restriksjoner

Barrier Controll

Single hearing protection: 12 dB
Double hearing protection: 18 dB

Exposure limit => time limits

PVU	Støynivå (dBA)	Minutter eksponert	Gjenværende eksponeringstid i minutter
	>110		Opphold ikke anbefalt
	106-110	0	3
	101-105	30	10
	96-100	120	30
	91-95	120	30
	86-90	0	60
	81-85		Ingen restriksjoner

Barrier Controll

Single hearing protection: 12 dB
Double hearing protection: 18 dB

Exposure limit => time limits

PVU	Støynivå (dBA)	Minutter eksponert	Gjenværende eksponeringstid i minutter
	>110		Opphold ikke anbefalt
	106-110	0	OVERSKREDET
	101-105	30	OVERSKREDET
	96-100	120	OVERSKREDET
	91-95	120	OVERSKREDET
	86-90	90	OVERSKREDET
	81-85		*Opphold bør begrenses

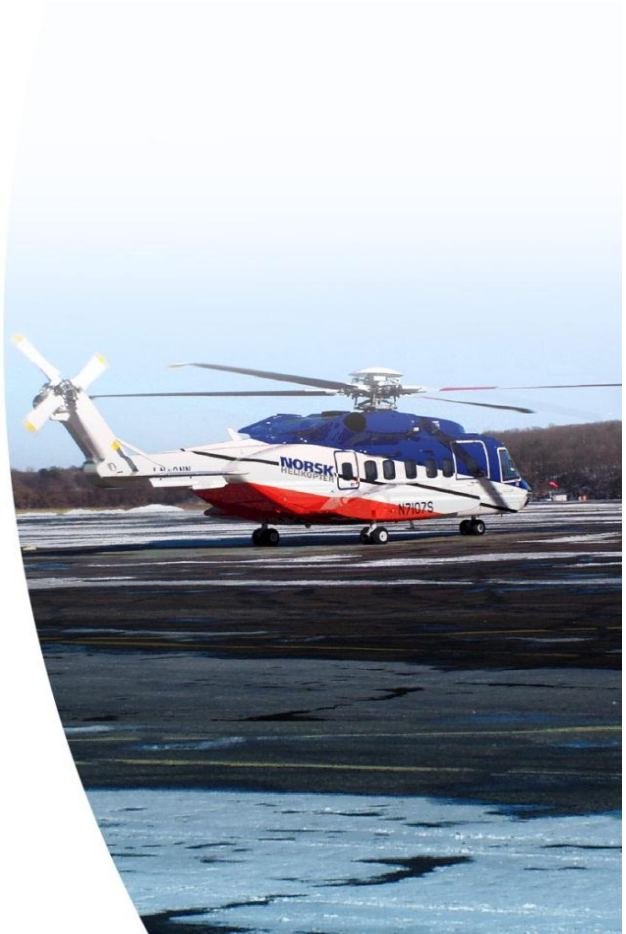
Helicopter noise

Evaluations concerning noise exposure for passengers and helicopter handling personnel mainly.

Aim

Evaluate risk connected to – such as:

- Passengers during on and off
- Noise exposure inside cabin
- Work at helideck



Helicopter noise – Example

- Every worker offshore travels by helicopter
  - Some workers are shuttled every day
- One trip may contribute significantly to the daily dose.
- Noise at entrance is extreme > 110 dBA

Sikorsky S-92:

Outside L_{pA} =110-115 dB / Inside L_{pA} = 90-95 dB

Super Puma EC 225:

Outside L_{pA} =112-118 dB / Inside L_{pA} = 90-95 dB

Sensibility factors

Individual sensibility affects the risk of hearing damage

Aim

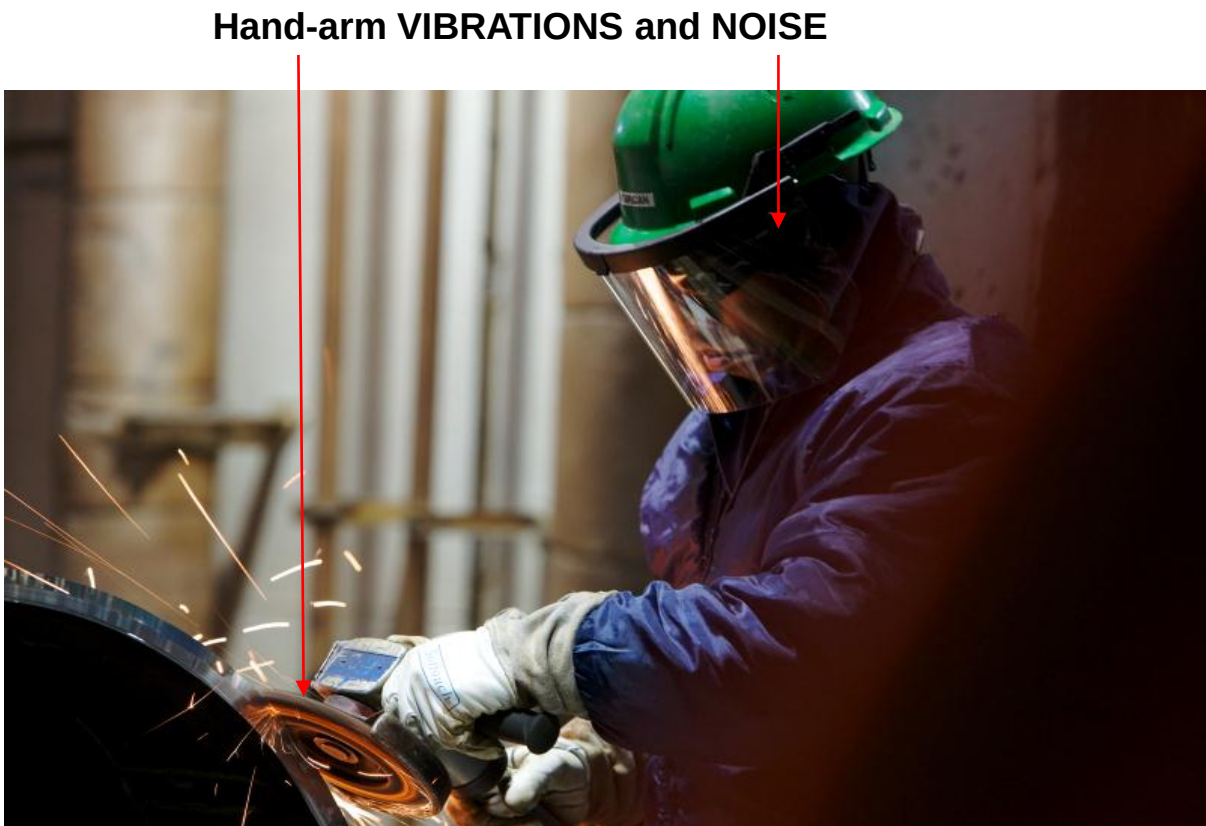
- Identify sensibility factors
- Start early identification of hearing damage to enable necessary protection.
- Increase knowledge in order to avoid hearing damage both at workplaces and among workers.

Vibrations

Hand-arm vibrations covers mechanical vibrations from handheld tools to hand or arm.
Often closely linked to noise

Aim

- Increase focus in industry
- Increase personnel knowledge
- Improve risk management
- Common data base with noise



Subsea

Noise exposure connected to subsea operations

Aim

- Document noise levels in subsea operations
  - Evaluate underwater noise levels with respect to risk of hearing damage
  - Compare levels with legal requirements
  - Propose actions to reduce risk of hearing damage

Project presentation can be found at: www.olf.no/Stoy

- General information
- Details on sub projects
  to be updated during project

- Breakfast meetings «HØR» (« listen »)
  and seminars

- Link to OLF guidelines (RL114)
  under revision

Thank You for your attention!