



Introduction to the J&J IH Maturity Ladder & Tools

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Michel Vangeel

Principal Expert Industrial Hygiene & Ergonomics

mvangeel@its.jnj.com



"A healthy mind in a healthy body in a healthy work environment"

THE
PREVENTION OF
OCCUPATIONAL
DISEASES



International
Labour
Organization

**World Day for safety
and health at work**
28 April 2013



Report ILO: Facts & Figures

- 2.02 million people die each year from work-related diseases.
- 321,000 people die each year from occupational accidents.
- 160 million non-fatal work-related diseases per year.
- 317 million non –fatal occupational accidents per year.

This means that:

- Every 15 seconds, a worker dies from a work-related accident or disease.
- Every 15 seconds, 151 workers have a work-related accident.
- developing countries, agriculture, construction, fishing and mining, pneumoconiosis & Asbestos Related Diseases

Why IH maturity ladder concept?

- EHS assessments External Manufacturing
- Identified Key risk areas: IH, PSM, WWT
- Develop specific program & process
- Reduce potential business interruption Supply Chain
- Protect J&J reputation

Vision Industrial Hygiene program EM partners

Considered as NOT acceptable are:

1. **Non compliances** with local legislation
2. **Overexposures** that on the **long term** can result in serious diseases or death
3. **Uncontrolled acute exposures** that can result in serious diseases or death

Vision IH EM partners

Out of scope:

1. **Impact** on citizens of the **community**
2. IH procedures **limited applicable** for JSC sites:
 - asbestos
 - biological safety
 - ionising radiation and non ionising radiation
 - vibrations
 - indoor air quality

Focus IH programs

- Basic Hygiene Practices
- Chemical Hazard Assessment & Communication
- Chemical Risk Assessment & Exposure Monitoring
- Controlling Chemical Exposures, API&IPI and carcinogens
- Performance Evaluation Exhaust Ventilation
- Personal Protective Equipment & RPE
- Noise & Hearing Conservation Program

What is the IH maturity ladder concept?

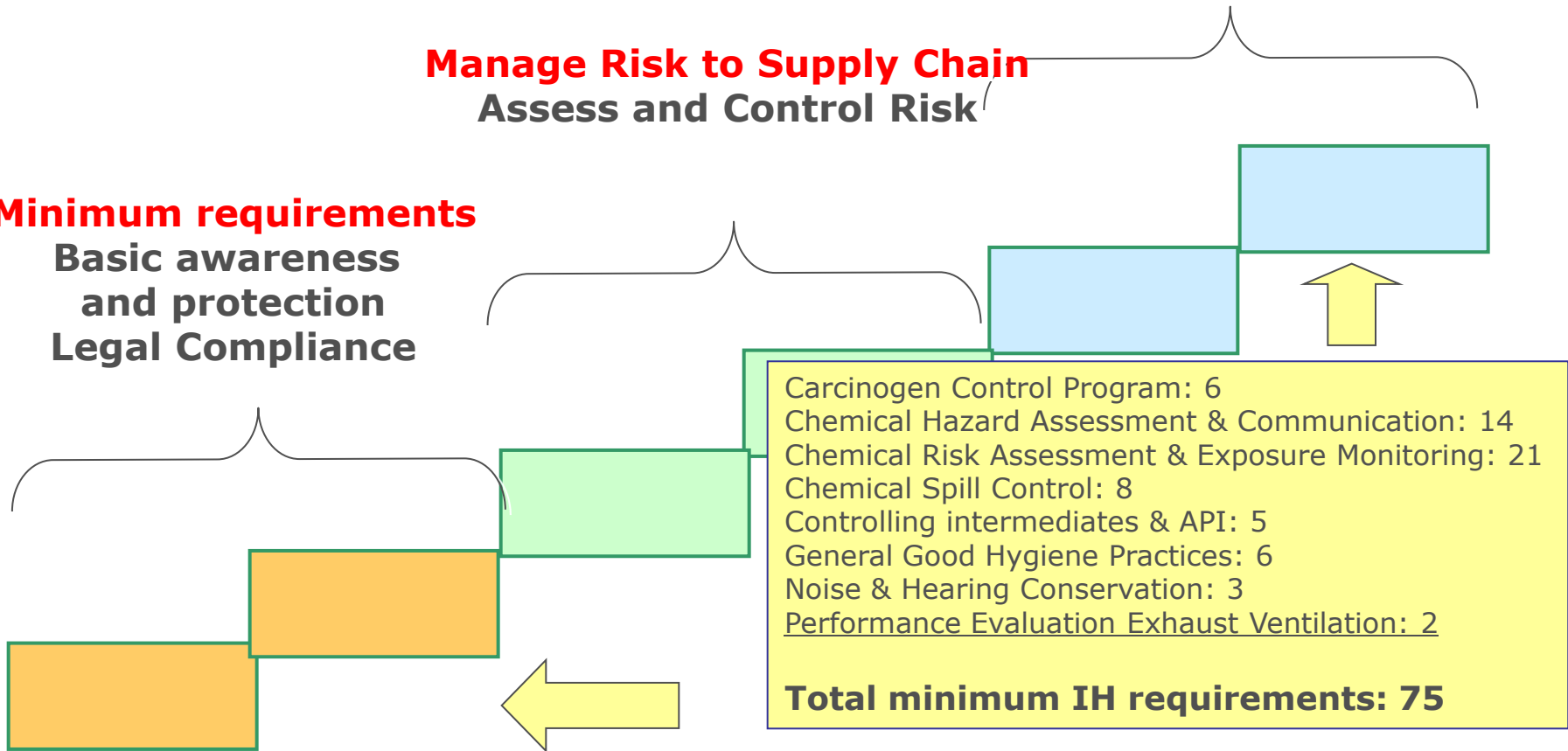
- **Process** to integrate an IH program
- Step by step integration of identified **minimum requirements** towards sustainable relationship
- Using the right **resources** at the **right time**
- Working on the right minimum **requirements** at the **right time**

The IH maturity ladder

Partner / Nice to have
Mature and Integrated
Benchmarking,
Continuous Improvement

Manage Risk to Supply Chain
Assess and Control Risk

Minimum requirements
Basic awareness
and protection
Legal Compliance



The IH maturity ladder

STEP 1: Commit & Basic awareness

- Basic IH training for Engineers, EHS and operations
- fundamental
- Chemical communication
- PPE & RPE
- Assign & dedicated
- Basic mitigation
- Basic Hygiene Practices

STEP 2: Easy fixes, Must do's to prevention

- **Advanced**
- **Avoid** contaminated good housekeeping
- **Must do's** SDS, summary container & procedure near carcinogens
- **Default HF**
- **Medical Surveillance**
- **Legal Compliance**

STEP 3: Assess Risk

- Inventory & Assessment
- **Basic characterization**
- Inventory & Assessment
- **Risk evaluation**
- risk evaluation Aid kits, emergency showers
- classify air by severity
- detailed Risk
- implement
- **Exposure monitoring**
- plan, compare and report back
- link Medical chemical RA
- noise level

STEP 4: Control

- **Develop, approve**
- Develop extreme exposure discuss with and prioritize
- **Complete maintain**
- Engineer extreme exposure preferred risk technique
- Measure performance
- Maintain systems for systems
- IH qualified transfer skills
- 3B&4 APV
- develop program for carcinogens

STEP 5: Audit / Benchmark Share & practices

- **Hierarchy**
- robust control high/extreme results
- **Best practices**
- additional monitoring accidental available
- information provided to employees
- integrate Medical Surveillance
- investigate share learnings
- **Audit & Benchmark**
- benchmark practices/industry standards
- external

STEP 6: Integrate & Maintain & continuous improve

- Fully integrate IH in every business decision:
- periodically update SDS
- periodic update all IH related trainings
- periodic inspection, review and improvement of Chemical Hazard Communication and PPE & RPE (program & field)
- periodically update IH RA, sampling plan and action plan
- implement a document retention policy



Roles & responsibilities

- EM Partner:
 - Self assessments using questionnaire
 - Develop Action Plan & follow up
 - Respecting Timing EM Ladder
- Account Manager:
 - Primary Contact Person J&J - EM
 - Agree, Review & Control assessments & progress action plans
- EHS EM
 - Review & Control: assessments & recommendations
 - Provide information & training
 - Support Account Managers

Supporting Tools

- Detailed questionnaire: self assessment
- Pyramid questionnaire
- Training material:
presentations, procedures, forms, risk assessments, reports
- Annual update: Ingrid Vande Velde



Assessment Tool

| Level | Questions N° | High level question: Area of assurance | Detailed question | Field verification | No / not relevant | Partially in place | Basic minimum in place | Mostly in place | Completely in place |
|---------|-----------------|--|--|--|-------------------|--------------------|------------------------|-----------------|---------------------|
| Level 1 | 1.1 | Basic IH training for Engineers, Management, EHS and operators is in place | Did employees receive general safety training related to chemicals (hazard symbols, basic physico chemical properties, link to health effects)? | Interview a few employees how they work with chemicals. | | | | | |
| Level 1 | | | Did employees receive training on the proper use of PPE and RPE? | | | | | | |
| Level 1 | | | Has Management and staff functions (project & process engineers) received an overview training on Industrial Hygiene and the impact they can have? | | | | | | |
| Level 1 | 1.2 | The organisation has assigned and trained qualified persons for IH program elements? | Has the organization appointed a person(s) to be responsible for coordinating the Chemical Risk Assessment & Exposure Monitoring? | | | | | | |
| Level 1 | | | Has the organization appointed a qualified person(s) to be responsible for coordinating the Chemical Hazard Assessment & Communication Program? | Interview qualified person and check basic elements | | | | | |
| Level 1 | | | Has the organization appointed and trained a qualified person(s) to be responsible for coordinating the PPE & RPE Program? | Interview qualified person and check the awareness of the basic elements of the PPE & RPE Program | | | | | |
| Level 1 | | | Is the IH responsible person familiar with the concept of specific OEL (Occupational Exposure Limits) and PbOEL (Performance Based OEL) for API and IP? | Interview EHS contact to check awareness on OEL and PbOEL. | | | | | |
| Level 1 | 1.3 | Basic minimum required PPE are defined and implemented | Are basic minimum required PPE mandatory when working in a chemical production environment: conductive safety shoes, safety glasses, working clothes (long sleeves)? | Verify the mandatory PPE is worn. | | | | | |
| Level 1 | 1.4 | General hygiene practices with regard to smoking and eating at the workplace, washing hands, changing work clothes are implemented | Are general hygiene practices with regard to smoking and eating at the workplace, washing hands, changing work clothes implemented? | Review general hygiene practices with regard to smoking and eating at the workplace, washing hands, changing work clothes. | | | | | |

Pyramid questionnaire

| Best Practice Health (IH) and Safety Assessment Questionnaire | | | | | |
|---|-------|---|---|---|---|
| EM | Date: | | | | |
| IH Level 1: Commit & Plan | | | | | |
| Basic awareness & knowledge | | | | | |
| | | | | | 4. Completely in place 3. Mostly in place 2. Basic / Minimum 1. Partially in place 0. No / Not Relevant |
| IH Level 1: Commit & Plan | | | | | |
| Basic awareness & knowledge | | | | | |
| Basic IH training for Engineers, Management, EHS and operators is in | | | | | |
| | | | x | | |
| The organisation has assigned and trained qualified persons for IH program elements? | | | | | |
| | | | | | x |
| Basic minimum required PPE are defined and implemented | | | | | |
| | | | | | x |
| General hygiene practices with regard to smoking and eating at the workplace, washing hands, changing work clothes are implemented | | | | | |
| <i>81% Installed</i> | | | | | |
| | 0 | 0 | 2 | 3 | 8 |
| Color of pyramid element: | | | | | |
| IH Level 2: Easy fixes, Quick Wins, Must do's towards prevention & compliance | | | | | |
| prevention & compliance | | | | | |
| | | | | | 4. Completely in place 3. Mostly in place 2. Basic / Minimum 1. Partially in place 0. No / Not Relevant |
| IH Level 2: Easy fixes, Quick Wins, Must do's towards prevention & compliance | | | | | |
| prevention & compliance | | | | | |
| Advanced IH training for Engineers, Management, EHS and operators is in place | | | | | |
| | | | x | | |
| Good housekeeping practices are applied for the work environment and equipment? | | | | | |
| | | | | x | |
| Availability of SDS, summary sheet, container & pipe label is ensured | | | | | |
| | | | | | x |
| Processes are in place | | | | | |
| - to evaluate new chemicals & mixtures | | | | | |
| - to manage chemical storage | | | | | |
| - to control chemical spills | | | | | |
| - to identify human carcinogens | | | | | |
| - to select and maintain PPE&RPE | | | | | |
| | | | x | | |
| Mandatory PPE & RPE is in place: | | | | | |
| - for high exposure activities to chemicals & API such as charging, discharging, disassembly, cleaning, mixing, milling, removing heels centrifuges & dryers | | | | | |
| - in areas with very high noise levels | | | | | |
| | | | x | | |
| The organisation has developed an overview and understanding of the detailed requirements of the local relevant IH legislation. An action plan to ensure compliance is developed and implemented. | | | | | |
| | | | | | x |
| <i>79% Installed</i> | | | | | |
| | 0 | 0 | 2 | 9 | 8 |
| Color of pyramid element: | | | | | |

Supporting Tools

External Manuf > EM EHS Ladders

EM EHS Ladders a

New | Upload | Actions | Settings

| Type | Name | Modified |
|----------|---------------------------------------|-------------------|
| Folder | 2.5 Additional info RPE | 4/13/2011 5:16 AM |
| Document | 1. Training September 2010 - IH - RPE | 4/13/2011 5:14 AM |
| Document | 1.1 Basic PPE program employees | 4/13/2011 5:14 AM |
| Document | 1.1 Basic RPE program employees | 4/13/2011 5:14 AM |
| Document | 1.2 PPE RPE - set up program | 4/13/2011 5:15 AM |
| Document | 2.5 RPE selection | 4/13/2011 5:14 AM |
| Document | 5.2 EN 529 respiratory protection | 4/13/2011 5:14 AM |
| Document | 6.1 JJ Written RPE Program 07-27-07 | 4/13/2011 5:16 AM |
| Document | Good Work Practices PPE API | 4/12/2012 3:58 AM |

Basic Hygiene practices
Carcinogen Control Program
Chemical Hazard Assessment and
Chemical Risk Assessment and
Control Chemical Exposures
Controlling IPI and API
General
Introduction IH ML tools
Noise and hearing
PPE and RPE
IH Maturity Ladder Tools December 2011 - What's new

4/13/2011 5:09 AM
4/13/2011 5:13 AM
9/17/2011 12:41 AM

On site support





Thank You

Janssen Campus Belgium

Michel Vangeel



"A healthy mind in a healthy body in a healthy work environment"

Back up slides

Basic Hygiene Practices

| | |
|-----|--|
| 1.4 | General hygiene practices with regard to smoking and eating at the workplace, washing hands, changing work clothes are implemented. |
| 2.2 | Chemical containers are free of outside visual contamination . |
| 2.2 | The work environment and equipment give an orderly and neat impression (good housekeeping practices are applied). |
| 2.6 | The organization has developed an overview and understanding of the detailed requirements of the local relevant IH legislation . |
| 2.6 | The organisation has developed and implemented an action plan to ensure compliance with the requirements of the local legislation . |
| 5.2 | Report, investigate IH incidents (acute and chronic exposures) and share learnings . |
| 5.2 | IH procedures should be developed. |

Personal & Respiratory Protection

| | |
|-----|---|
| 1.1 | Employees received training on the proper use of PPE and RPE. |
| 1.2 | A person responsible for the Personal Protective Equipment (PPE) Program & Respiratory Protection Equipment (RPE) Program is appointed and trained . |
| 1.3 | Basic minimum required PPE are mandatory when working in a chemical production environment: closed safety shoes, safety glasses, working clothes (long sleeves) . |
| 2.1 | Employees wearing PPE for protection against chemical agents are properly trained . Specific focus should be on Respiratory Protection (use, donning and doffing, maintenance, storage, cartridge change schedule, condition, inspection) |
| 2.4 | Written documents & procedures are in place that specify the required PPE & RPE based on the exposure of the activities (proper selection). |
| 2.4 | The person responsible for the PPE & RPE program is involved with the selection, evaluation and implementation of new PPE & RPE . |
| 2.5 | In case of exposure activities (charging reactors, powder transfers such as removing centrifuge heel, loading & unloading dryer, sieving, milling...) are not being monitored, the use of an appropriate RPE is mandatory unless there is reasonably certain belief |
| 2.5 | In case employees are provided with RPE , it must be assured that they are in a medical surveillance program . |
| 4.2 | If RPE is selected as primary means of controls than a full respiratory protective program should be in place meaning: maintenance, storage, fit testing, medical surveillance, training, cartridge & filter change program. |
| 6.1 | The PPE & RPE program is reviewed periodically |

Chemical Hazard Assessment & Communication

| | |
|-----|---|
| 1.1 | Employees received general safety training related to chemicals (hazard symbols, basic physico chemical properties, link to health effects). |
| 1.1 | Site Management and staff functions (project & process engineers) received an overview training on Industrial Hygiene and the impact they can have. |
| 1.2 | A trained person responsible for the Chemical Hazard Assessment & Communication Program of basic elements (SDS, inventory, labeling, training) is appointed . |
| 2.1 | Employees received training in the hazards, handling, PPE, storage and disposal of chemicals and mixtures in their workplace or area. Specific focus is put on human carcinogens (if applicable) and AP/PI. |
| 2.1 | Employees are trained and know how to react in case of a chemical exposure with specific signs & symptoms (fe irritation eye or skin, burns, inhalation - difficult breathing) |
| 2.3 | Safety Data Sheets are available for chemicals and mixtures in use and stored |
| 2.3 | A summary sheet with the most relevant physico chemical & safety properties (such as OEL, required PPE, ...) are available at the workplace (preferred visually displayed). |
| 2.3 | Each chemical and mixture container (tank, drums, pail, bag, bottle, ...) has a label that identifies the contents and lists specific safety information (at least hazard symbols). |
| 2.3 | Each pipe is labeled with the chemical name of their content or identified by a site specific color code and the flow direction is indicated. Each dispensing valve dedicated to a chemical agent is labeled with the chemical name. |
| 2.4 | A formal procedure (process) must be in place to ensure that all new chemicals or mixtures are evaluated to their physical and health hazards before introduction on site (Known human carcinogen, permit required, banned, explosive, impact on environment). |
| 2.4 | The organization has developed a process to assure proper storage of chemicals (incompatible chemicals, avoid contact water, temperature conditions, ventilation). |
| 3.1 | An inventory of chemicals and mixtures is available and up to date |
| 4.4 | SDS are available on request 24 hrs a day . |
| 6.1 | A system is in place to periodically check if the SDS is still up to date |
| 6.1 | Periodic inspections are conducted to ensure that labels are in place, in good condition, legible and include the required information |
| 6.1 | Periodic Chemical Hazard Communication training is provided to the employees |

Chemical Risk Assessment & Exposure monitoring

| | |
|-----|---|
| 1.2 | A person responsible for Chemical Risk Assessment & Exposure monitoring is appointed . |
| 2.1 | A person responsible for Chemical Risk Assessment & Exposure monitoring is trained . |
| 3.1 | The organization has gathered all the information necessary to perform a detailed IH theoretical risk assessment using the J&J RBEAP (Risk Based Exposure Assessment Process) methodology unless the organization can demonstrate this has been done by an equi |
| 3.2 | The organization has performed the IH theoretical risk assessment for all the activities with potential exposure to chemicals. Exposure severity rating is defined for each activity without taking in consideration the use of PPE. If there is reason to beli |
| 3.2 | A Medical Surveillance Program is in place to periodically evaluate the employees exposed to chemicals (severity rating high or extreme). |
| 3.2 | In case of exposure relevant modifications an adapted sampling plan is mandatory. |
| 3.2 | A risk assessment has been completed on all activities with J&J API/IPI on site using the product information provided by J&J (OEL, PBOEL, analytical method, monograph, ...). |
| 3.3 | A qualified laboratory is used to analyze chemical exposure samples. For J&J compounds (API & IPI) J&J approved analytical methods are used to analyze the samples. |
| 3.3 | A baseline exposure sampling plan is developed. The prioritisation for monitoring is based on the results of the detailed IH theoretical risk assessment. |
| 3.3 | Monitoring based on the sampling plan is done. IH monitoring reports are available. |
| 4.1 | The results of the baseline sampling are used to develop an action plan to control exposure risks of chemical agents above the OEL. Risks can safely be controlled by using RPE if the exposure is below protection factor. If the protection factor does not p |
| 4.1 | Sampling results and proposed action plans are provided to and discussed with Management. |
| 4.2 | Engineering controls are mandatory for all risk tasks where the protection factor of the RPE is exceeded. |
| 5.1 | Engineering controls are in place for all high and extreme risk tasks. |
| 5.2 | Sampling results are provided to the affected employees . |
| 5.2 | The IH risk assessment and sampling results are shared with the Medical Surveillance Provider . |
| 5.2 | Monitoring equipment is available to measure the exposure of chemicals in case of a spill (acute exposure). |
| 5.3 | Benchmark external IH programs and review international standards. Implement best practices. Share best practices. |
| 5.3 | A detailed external IH audit has been conducted. |
| 6.1 | The sampling and control plan are periodically adapted and executed. |
| 6.1 | A document retention policy is in place for the retention of the exposure assessments, baseline sampling plans and IH monitoring results. |
| 6.1 | IH is integrated in decisions for buying new equipment & IH is part of strategic site plans. |

Controlling Chemical Exposures

| | |
|-----|--|
| 4.3 | Periodically measure engineering controls . If Exhaust Systems are in place, airflow rates (at laboratory hoods, general & local exhaust systems and dust collection systems) are measured periodically. |
| 4.3 | Maintain and provide alarm systems for critical engineering controls . e.g local exhaust systems (necessary to keep contaminants to concentrations less than 100 times the OEL - extreme severity rating) are provided with an alarm system to warn of failure a |

Controlling intermediates & Active ingredients

| | |
|-----|--|
| 1.2 | The IH responsible person is familiar with the concept of specific OEL (Occupational Exposure Limits) and PbOEL (Performance Based OEL) for J&J API and IPI. |
| 3.4 | Exposure monitoring has been conducted for those employees identified by the risk assessment as having potential exposures for J&J API/IPI using total dust monitoring and if possible specific API/IPI monitoring |
| 4.1 | The results of the baseline sampling are used to develop an action plan to control exposure risks of J&J API/IPI . |
| 4.2 | The action plan to control exposure risks of J&J API/IPI is executed . |
| 4.3 | IH qualification of new containment systems is done. |

Carcinogen Control Program

| | |
|-----|--|
| 2.4 | The facility has a program in place to identify known human carcinogens in accordance with local legislation. |
| 3.3 | A risk assessment has been completed for all activities with known human carcinogens on site. |
| 3.4 | Exposure monitoring has been conducted for those employees identified by the risk assessment as having potential exposures for Known Human Carcinogens. |
| 4.1 | The results of the baseline sampling are used to develop an action plan to control exposure risks of known human carcinogens. |
| 4.2 | The action plan to control exposure risks is executed . A substitution program for known human carcinogens needs to be developed. |

Noise & Hearing Conservation

| | |
|-----|--|
| 2.1 | Employees working in areas with high noise levels (> 85 dBA) need to be trained with focus on the proper use of hearing protection. |
| 2.5 | Hearing protection is mandatory in areas with high noise levels (> 85 dBA). If no measurements are executed, hearing protections needs to be worn, based on qualitative assessment (=normal conversation not possible). |
| 3.3 | Noise level surveys of production operations that reflect current exposure conditions are performed |